



Environment

Prepared for:
The BNSF Railway Company
Seattle, WA

Prepared by:
AECOM
Seattle, WA
60136319-0545
February 21, 2011

2009/2010 Annual Site-Wide Groundwater Monitoring Report

BNSF Former Fueling and Maintenance Facility –
Skykomish, Washington



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Skykomish, Washington

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1.0 Introduction

AECOM prepared this Site-Wide Groundwater Monitoring Report (report) on behalf of the BNSF Railway Company (BNSF) for the Former Fueling and Maintenance Facility (site) located in Skykomish, Washington. This report was prepared in accordance with the *2010 Groundwater Monitoring Plan* which is *Appendix E of the 2010 Compliance Monitoring Plan Update* (GWMP; AECOM 2010a). The GWMP was submitted by BNSF to the Department of Ecology (Ecology) and was subsequently approved pursuant to the Consent Decree between BNSF and Ecology, *State of Washington v. BNSF Railway Company*, King County Superior Court Cause No. 07-2-33672-9SEA. This report describes site-wide groundwater monitoring activities performed at the site from October 2009 to September 2010 (2009/2010 monitoring period). This monitoring period includes 1) semi-annual site-wide monitoring events completed in March and September 2010; 2) quarterly remediation area (2006, 2008, and 2009 cleanup actions) monitoring events in December 2009 and June 2010; and 3) additional monthly monitoring of the air sparging system wells and hydraulic control and containment (HCC) system monitoring network wells that do not meet the groundwater remediation level (RL).

1.1 Groundwater Monitoring Objectives

The *Groundwater Monitoring Plan* (GWMP) (RETEC 2005a, 2007; ENSR 2008a; AECOM 2009a; AECOM 2010a) established the following objectives for the groundwater monitoring program:

- Monitor any changes in contaminant distribution during and after implementation of cleanup actions throughout the site
- Provide monitoring data for groundwater in the levee zone to assess the effect of the 2006 interim cleanup on groundwater quality
- Provide monitoring data for the 2008 remediation area groundwater to assess the impacts on groundwater quality
- Provide monitoring data for the 2009 remediation area groundwater to assess the impacts on groundwater quality
- Provide monitoring data for the 2010 remediation area groundwater to assess the impacts on groundwater quality
- Provide fluid level gauging data to assess groundwater and surface water gradients and the extent of free product.

Information obtained during the 2009/2010 monitoring period activities was collected to meet these groundwater monitoring objectives and is presented in this report. However, the planned installations of new groundwater monitoring wells within the 2009/2010 remediation areas were deferred to 2011.

1.2 Background

The site includes BNSF property and public and private properties within the Town of Skykomish (Town), and encompasses an area of about 40 acres (Figure 1-1). The site is approximately bounded by: the South Fork Skykomish River to the north, Skykomish city limits to the east, Old Cascade Highway to the south, and Maloney Creek to the west. Railroad Avenue separates BNSF property from the main commercial district of the Town (Figure 1-2).

The Former Railway Maintenance and Fueling Facility in Skykomish is owned and operated by BNSF. Historical operations since the facility opened in the late 1890s included refueling and maintaining locomotives and operating an electrical substation for electric engines. BNSF stored Bunker C and diesel fuel at the site in aboveground storage tanks (ASTs) and underground storage tanks (USTs) until 1974, when BNSF discontinued most fuel handling activities at the site.

Some of the historical site activities resulted in releases of petroleum products and other compounds to the surrounding environment. In early 1991, Ecology designated the site as a high priority cleanup site. Later that year, BNSF initiated plans to conduct a Remedial Investigation/ Feasibility Study (RI/FS) in accordance with the Ecology Model Toxics Control Act (MTCOA). At that time, formal negotiations for Agreed Order No. DE 91TC-N213 began. Negotiations were completed in mid-1993. Following a public comment period, the Agreed Order, which included detailed work plans for the RI/FS process and early interim action for cleanup work, was signed by Ecology and BNSF in 1993. Ecology and BNSF signed a separate Agreed Order (No. DE 01TCPNR-2800) in 2001 for additional interim action cleanup work near the South Fork Skykomish River and the levee west of 5th Street. BNSF routinely monitored groundwater at the site pursuant to the 2001 Agreed Order and *Interim Action Basis of Design Report for the LNAPL Barrier System* (RETEC 2001). BNSF also conducted groundwater monitoring pursuant to the 1993 Order (after the RI and supplemental RI) in conjunction with the 1995 interim action (passive skimming wells).

In 2006, Ecology and BNSF signed an additional Agreed Order (No. DE-2379) outlining the interim action for cleanup work in the Levee Zone and part of the Northwest Developed Zone (NWDZ). This interim action consisted of:

- Temporary relocation of five residences
- Excavation of the levee, underlying soils and sediments along the south bank of the South Fork Skykomish River
- Reconstruction of the levee, and restoration of natural resources, private property, and public infrastructure that were disturbed by the remediation activities.

Under the 2006 Agreed Order, BNSF was required to continue groundwater monitoring as described in the *Groundwater Monitoring Plan* (RETEC 2005a).

In October 2007, Ecology issued a Cleanup Action Plan (CAP) (Ecology 2007; Exhibit B of the CD) and BNSF and Ecology signed a Consent Decree (CD, No. 07-2-33672-9 SEA). Any remaining work required by the 2006 Agreed Order was incorporated into the CD. For example, Section VI.A.6 of the CD required BNSF to conduct groundwater monitoring consistent with the then-current *Groundwater Monitoring Plan* (RETEC 2005a), as amended. The most recent revision, *2010 Groundwater Monitoring Plan* (AECOM 2010a), was approved by Ecology pursuant to the CD and became effective in May 2010.

Since 1993, investigations performed by BNSF, in cooperation with Ecology, have revealed petroleum residuals in soil, groundwater, sediments, and surface water. Detailed information about the scope of prior investigations and the results appear in the following documents:

- 1996 *Remedial Investigation Report* (RETEC 1996)
- 2002 *Supplemental Remedial Investigation Report* (RETEC 2002)
- 2005 *Feasibility Study* (RETEC 2005b)
- 2007 and 2009 *Remedial Design Investigation Reports* (RDI Reports, ENSR 2008b; AECOM 2010b);

- *2008 Addendum to the Remedial Design Investigation Report* (AECOM 2009b)
- *Former Maloney Creek West Wetland Sediment and Soil Investigation Report* (AECOM 2009c).

Annual groundwater monitoring plans were submitted by BNSF and approved by Ecology under various Agreed Orders and the CD in 2005 (RETEC 2005c), 2007 (RETEC 2007), 2008 (ENSR 2008a), 2009 (AECOM 2009a), and 2010 (AECOM 2010a).

1.3 Report Organization

Section 1 of this report provides an introduction, background information, and objectives of the site-wide groundwater monitoring. Section 2 describes the monitoring well network, changes made to the network during the monitoring period, and forthcoming changes related to cleanup activities. Section 3 describes the procedures and protocols used to perform the monitoring activities. Section 4 describes the laboratory analyses and reporting and the subsequent data management and validation activities performed by AECOM. This section also describes the groundwater cleanup levels and remediation levels that have been established for the site. Section 5 describes the results of the monitoring activities; specifically the fluid level gauging and analytical results from the groundwater sampling. Section 6 provides a summary of the data and recommendations for future sampling events. Finally, Section 7 provides cited references.

2.0 Groundwater Monitoring Network

This section describes the wells, piezometers, and vaults that were included in the groundwater monitoring network for fluid level gauging and groundwater analytical sampling during the monitoring period. Groundwater monitoring locations are shown in Figure 2-1.

2.1 Changes to the Monitoring Network

This section describes monitoring network changes implemented since the 2008/2009 monitoring period, including new well installation, well abandonment, and planned (but not completed) modifications. Modifications to the groundwater monitoring network and the rationale for the abandoned or destroyed wells are summarized in Table 2-1. These modifications were planned and completed with Ecology's concurrence. Modification plans and construction and/or abandonment details for the completed modifications were presented in multiple site documents. One new recovery well (RW-09) and one new piezometer (PZ-1A) were added to the groundwater monitoring network in the 2010 Specifications and 2010 GWMP (AECOM 2010c and a). Construction details for the newly installed well and piezometer were completed as specified in the 2010 Specifications (AECOM 2010c).

This report provides a summary of the monitoring functions (by site area or remediation system) and abandonment/destruction rationale for locations added to or removed from the groundwater monitoring network since October 1, 2009. Note that some monitoring locations are monitored for multiple purposes. Locations added to or removed from the groundwater monitoring network and their respective monitoring functions or abandonment/destruction rationales are discussed below.

2.1.1 Air Sparging System

No changes were made to the monitoring network for the air sparging system.

2.1.2 HCC System

New well and piezometer. One well and one piezometer were installed between July and August 2010 as operational components of the HCC system, to monitor performance of the HCC system. These were recovery well RW-09 and piezometer PZ-1A.

Planned, but deferred. Planned well EW-2A was intended to assess groundwater quality and gradients at the east end of the extended HCC wall, but was deferred until the wall construction and site restoration is complete.

Abandoned. Piezometer PZ-1 was abandoned for construction of the HCC wall extension.

2.1.3 Backfill and Downgradient of the HCC System Barrier Wall

Planned, but cancelled or deferred. Planned monitoring wells 1A-W-36, 1A-W-37, 5-W-44, and 5-W-45 were intended to monitor groundwater quality and gradients along the boundary between the clean backfill emplaced during HCC wall construction and the planned 2009 excavation area. The decision was made, with Ecology concurrence (personal communication with Ronald Timm of Ecology), to defer installation of these wells until the 2009/2010 monitoring period, since the planned well locations were within the 2009 excavation area. At the time the installations were scheduled, the 2009 excavation activities were not yet completed. The rationale for installing three of the four wells

(1A-W-36, 1A-W-37 and 5-W-45) is no longer valid; therefore, installation of these wells was canceled. Planned monitoring well 5-W-44 was not installed during this monitoring period due to the planned 2009 excavation extending to 6th street. The area in which 5-W-44 was intended to be placed was part of the 2010 excavation activities. This monitoring well will be installed after restoration is complete in 2011.

2.1.4 FMCZ – East Wetland and Surrounding Areas

Abandoned. Sixteen wells (2B-W-11 through 2B-W-15, 2B-W-19, 2B-W-32, 2B-W-21, 2B-W-45, 2B-W-46, 2B-W-30, 2B-W-33, MW-39, 2B-B-21, 2A-W-11, and MW-12) were abandoned in preparation for excavation of the Former Maloney Creek Zone – East Wetland (FMCZ-EW).

2.1.5 FMCZ – West Wetland

Abandoned. Three wells (3-W-41, 3-W-42, and 3-W-43) were abandoned in preparation for excavation of the Former Maloney Creek Zone – West Wetland (FMCZ-WW).

2.1.6 Levee Zone

No changes were made to the monitoring network within the Levee Zone.

2.1.7 Schoolyard

Abandoned. Two wells (5-W-52 and 5-W-53) were abandoned in preparation for extension of the 2009-2010 NWDZ excavation activities.

2.1.8 Site-Wide

Planned, but deferred. Planned monitoring well 1A-W-38 was intended as a compliance monitoring well to replace abandoned wells 1A-W-3, which was abandoned before the 2009 construction season, and 1A-W-5. 1A-W-38 was deferred until excavation and construction of the bridge area is complete. It will be installed after the 2011 excavation activities.

Abandoned/Destroyed. Six wells (1A-W-5, 5-W-2, 5-W-3, 5-W-4, MW-17, and MW-22) were located within the 2010 excavation area and were therefore abandoned prior to excavation activities. In addition, well 1C-W-2 was inadvertently destroyed during 2009 sewer installation activities.

2.2 2009 to 2010 Groundwater Monitoring Network

The current groundwater monitoring network, including locations used for the 2009/2010 monitoring period (as defined in the 2010 GWMP [AECOM 2010a]), as well as locations abandoned or destroyed since October 1, 2009, is shown in Figure 2-1. Note that some, but not all, wells abandoned or destroyed were used prior to abandonment or destruction. Locations not used for fluid gauging or groundwater monitoring during the 2009/2010 monitoring period also are presented on Figure 2-1.

The 2009/2010 groundwater monitoring was conducted at the following locations, as categorized by the monitoring frequency:

- **Weekly gauging** – Gauging locations included the four gate vaults (FWV, WV, CV, and EV), a temporary pumping well (PW-04), and four gate wells (GWs). Only data from weekly gauging events that coincided with monthly gauging events are presented in this report. Data from the weekly gauging events will be presented in the annual HCC system operations report for 2010.

- **Daily gauging** – Water level transducers were installed in the HCC system piezometers (PZs) and two of the recovery wells (RW-2 and RW-5) to collect water level measurements for HCC system performance monitoring. The transducer data may be accessed at any time and data are recorded approximately once per day using the on-site Programmable Logic Controller (PLC). Transducer data are not presented in this report. All water levels presented herein were gauged manually.
- **Monthly Monitoring** – 44 site-wide and Former Maloney Creek – East Wetland locations were gauged monthly until March 2010;
- **Quarterly Monitoring** – 40 (site-wide, air sparging system, HCC backfill or downgradient, HCC system, Levee Zone, and schoolyard perimeter zone) locations were gauged quarterly; 26 of these locations were sampled for Total Petroleum Hydrocarbons (TPH) analysis by NWTPH-Dx.
- **Semi-Annual Monitoring** – Semi-annual gauging events include gauging locations from all site areas that were gauged on a monthly, quarterly, or semi-annual basis (114 total). 46 (site-wide, FMCZ-WW, FMCZ-EW and surrounding area, schoolyard perimeter zone, and the HCC system) locations were sampled semi-annually for TPH analysis by NWTPH-Dx. In addition, surface water level gauging was conducted at 18 locations.

Table 2-3 summarizes 2009/2010 monitoring activities and corresponding event dates. Tables 2-4 and 2-5 present additional details regarding the sampling and gauging frequencies and wells and vaults utilized in the groundwater monitoring network. Well abandonment or destruction dates, where applicable, also are included in Tables 2-4 and 2-5, helping to clarify the rationale for monitoring end dates.

In accordance with the *2010 Compliance Monitoring Plan Update* (AECOM 2010a), follow-up groundwater samples were collected from air sparging and HCC system monitoring wells during monthly sampling events, if the NDWTPH-Dx concentrations detected during previous events were above the groundwater RL.

The conditional points of compliance (CPOCs) for groundwater are generally described in Section 3.4 and shown in Figure 6 of the CAP (Ecology 2007). The monitoring network, described above, was established, in part, before the CAP was issued by Ecology in October 2007; however, all wells in the network are inside the groundwater compliance boundary and the locations and designations as interim compliance wells were approved by Ecology in the *2010 Compliance Monitoring Plan Update* (AECOM 2010a). Final compliance boundary wells will be identified in a Long-Term Confirmational Monitoring Plan to be developed at the conclusion of active remediation pursuant to the CD (Ecology 2007; Exhibit C).

3.0 Gauging and Sampling Procedures

This section describes the field methods used for fluid level gauging and sample collection activities described in the GWMP. The procedures are for gauging and sampling wells, but these procedures equally apply to piezometer and vault locations.

3.1 Fluid Level Measurements

3.1.1 Groundwater Levels and Product Thickness Measurements

Fluid level measurements were performed to collect groundwater elevation and free product thickness data. Fluid levels were measured and recorded at each well location prior to purging or sample collection activities. One of two methods was used to measure fluid levels in a well, depending upon the presence or absence of light non-aqueous phase liquid (LNAPL) in the well.

If LNAPL was observed as a light trace (less than 0.01 feet thick), then the depth to the top and the thickness of the LNAPL was measured using tape and paste. This method employs a measuring tape coated with water-reactive paste. The tape was lowered into the well until it was below the water level. The paste reacted to the water by changing color and the LNAPL thickness was estimated by the tape interval coated with the petroleum product. The groundwater elevation was calculated based on the length of measuring tape that did not react to the contact with water. The LNAPL thickness was added to the groundwater elevation to derive the top of LNAPL elevation.

If LNAPL was observed at a thickness greater than approximately 0.02 feet, then the LNAPL thickness was verified using a site-specific method employing a peristaltic pump. First, the depth to top of fluid was measured. Then, polyethylene tubing was lowered into the well to a depth below the water table. Water was pumped while the tubing was gradually raised. Once the pump began to pump LNAPL instead of water, the remaining tubing was pulled from the well and its length measured to derive the elevation.

If LNAPL was not observed, then a water level meter was used to gauge depth to water. The method used for gauging each well was noted on the gauging field forms, described below and provided in Appendix A.

All measurements were collected in accordance with the GWMP (AECOM 2010a). Measurement equipment was decontaminated between wells in accordance with Standard Operating Procedure (SOP) 7600, and fluid level data were recorded on appropriate field forms (provided in Appendix A of the GWMP). The field form includes fields for date and time of the measurement, depth to water (in feet), depth to LNAPL (in feet), LNAPL thickness (in feet), and measurement method. In addition, the well condition (including the condition of the lock, monument integrity, and legibility of well labels) was recorded for each location.

Upon completion of a gauging event, the field manager inspected the field forms. After assuring that the information was complete, the field manager signed the gauging forms before the field staff left the site.

3.1.2 Surface Water Level Measurements

River stage measurements were collected at five locations (SK1 to SK5) along the South Fork Skykomish River (Figure 2-1) during the site-wide gauging events. Two of the locations are at known

permanent landmarks (a stormwater outfall and a bridge abutment). The other three locations are set equidistant from the two landmarks.

The river stage elevations at each location were measured using a surveying level and rod. The elevations were measured relative to permanent surveying monuments in the street, parallel to the river bank.

Surface water level measurements were determined at five piezometer locations within the FMCZ-EW (2B-W-11 to 2B-W-15). The piezometers, which are also used to measure groundwater elevations beneath the wetlands, were constructed with blank casing tops finished above the surface water. The top-of-casing elevations were surveyed, allowing surface water level elevations to be calculated relative to the top-of-casing elevation. Surface water elevations were determined by placing a water level meter along the outside of the piezometer casing and measuring the distance from the top of the casing to the water surface.

Additional surface water level measurements were obtained from seven staff gauges located along the Former Maloney Creek Channel in the FMCZ-EW (ML1 to ML3) and FMCZ-WW (ML4, WW1 to WW3) investigation areas.

3.2 Sampling Methods

Standard EPA-approved low-flow groundwater sampling techniques, described in the GWMP (SOP 235), were used to sample monitoring wells and piezometers historically free of LNAPL.

A different sampling methodology was used for wells containing LNAPL. Due to the physical properties (high viscosity and specific gravity of 0.97) of Bunker C, there is a risk that LNAPL could mix with the underlying groundwater and be entrained in groundwater samples if standard sampling procedures are used. Therefore, as described in the GWMP, air was blown out through the polyethylene tubing as it was lowered into the well. This was done in an attempt to prevent free product from entering the tubing. Wells sampled using this method, were purged for 10 minutes at a low flow rate before sample collection. The low-flow purging was intended to minimize disturbance and the potential for LNAPL mixing with water. No field parameters were collected at these locations because petroleum product could damage or otherwise foul the water quality meters.

The fluid level measurements (collected according to the procedures outlined in Section 3.1), were used at each product-containing well to position the inlet of the polyethylene tubing approximately 1 foot below the LNAPL/water interface. Samples were then collected using low-flow sampling techniques. After sampling was complete at each location, the used polyethylene tubing was discarded.

3.2.1 Well Purging and Field Parameter Measurement

Each well was purged prior to sampling using a peristaltic pump, with new disposable tubing, at a flow rate of 0.1 to 0.5 L/min. During purging, the flow rates, water levels, and water quality parameters (pH, conductivity, temperature, dissolved oxygen, oxidation-reduction potential, and turbidity) were recorded. Purging continued until the parameters stabilized (i.e., consecutive measured values showed little variation). Water quality parameter measurements are discussed in Section 5.2 of this report.

As previously stated, field parameters were not measured at wells containing measurable LNAPL, because the petroleum product could damage or foul the water quality meters.

3.2.2 Sample Preservation and Handling

Appropriate packaging and shipping methods were used to minimize the potential for sample breakage, leakage, or cross contamination (GWMP, SOP 7600), during transport of samples to the analytical laboratory. In addition, the documentation accompanying the samples provided a record of sample custody from time of collection to disposal by the laboratory. All samples were pre-preserved in laboratory-cleaned containers. All sample preservation, handling, and analysis were conducted in accordance with the GWMP.

3.2.3 Investigation-Derived Waste

All decontamination water and purge water was disposed of through the on-site waste water treatment system.

4.0 Laboratory Analysis and Reporting

This section summarizes the laboratory analysis and reporting procedures, and the subsequent data management and validation. Groundwater samples collected from October through December 2009 were analyzed by TestAmerica Analytical Laboratories (TestAmerica) in Tacoma, Washington. Groundwater samples collected from January through September 2010 were analyzed by Pace Analytical Laboratories (Pace) in Seattle, Washington. TestAmerica and Pace are Washington State-certified laboratories.

4.1 Analytical Methods

Groundwater samples were analyzed for TPH by Method NWTPH-Dx. Two variations on the method were used: 1) using the silica gel cleanup step to remove organic interferences (TPH-SG), and 2) not using the silica gel cleanup step (TPH).

The laboratory was instructed to report sample concentrations to the method detection limit (MDL) rather than the higher method reporting limit (MRL). It was recognized that reported concentrations above the MDL but below the MRL have a greater degree of uncertainty. Accordingly, these results were qualified as estimated (J-flagged). Reporting of results to the MDL is intended to minimize the occurrence of non-detected results with a reporting limit greater than the cleanup level (CUL).

4.2 Data Management and Validation

The analytical laboratory provided both text data reports (PDF files) (Appendix B) and electronic data deliverables that can be directly imported into the project environmental data management system.

Each data report included copies of the chain-of-custody forms and a case narrative with the following information: description of case, comments on sample condition upon receipt, and description of sample preparation and analysis. The following data were included in the data report: MDL, MRL, units of measure, dilution factor, batch number, date received, date prepared, date analyzed, analytical method, and any notes or qualifiers. The report also contained the details and results of laboratory QA/QC procedures that were performed on the samples.

Upon receipt of data from TestAmerica or Pace, the electronic data deliverables and case narratives were checked for completeness, and then validated by staff chemists. Once validated, the data were imported into the environmental data management system. Finally, a quality control check was performed on the imported data to ensure that it was accurately uploaded and that transfer errors did not occur.

AECOM chemists evaluated the groundwater data to assess whether the analytical results met the quality control/validation standards described in the GWMP. These metrics included precision, accuracy, method compliance and completeness of the data set. Validation results were then used to evaluate whether the data were suitable for their intended use. Validation procedures were based on the criteria provided in:

- USEPA Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review*, document number EPA540/R-99/008, October 1999
- USEPA CLP *National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007

- *Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602, June 1997
- Field duplicate relative percent difference review and applicable control limits from the USEPA Region I *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, December 1996.

Data validation reports are presented in Appendix B.

4.3 Applicable Groundwater Cleanup Levels and Remediation Levels

The groundwater TPH CUL (208 µg/L) and RL (477 µg/L) are specified in Section 3.4 and Table 1 of the CAP (Ecology 2007). The CAP anticipates that cleanup levels will be attained at points of compliance following implementation of all cleanup actions specified in the CAP and final compliance monitoring begins in 2012 (CAP, Sections 4 and 6.2.).

5.0 Results and Discussion

This section presents a summary and evaluation of results from the fluid level gauging and TPH analytical sampling conducted during the 2009/2010 monitoring period.

5.1 Fluid Levels

This section presents data and conclusions drawn from the fluid level gauging that occurred from October 2009 through September 2010 during the monthly, quarterly, and semi-annual monitoring events. Table 5-1 presents the groundwater elevation, surface water elevation, and product thickness measurements obtained during this reporting period. Variations in groundwater elevations and product thickness, and changes in groundwater gradients in relation to seasonal variations and remedial activities are discussed below.

Monthly, quarterly, and semi-annual groundwater surface elevation maps (October 2009 to September 2010) are shown in Figures 5-1 through 5-8. As shown in these figures, the groundwater flow direction is consistent, regardless of the season, while the groundwater elevations did fluctuate seasonally by 4 feet south of the HCC wall and 3 feet north of the HCC wall. To the south of the HCC wall, groundwater flow is predominantly towards the northwest or north. The HCC wall acts as a barrier to groundwater flow. Localized groundwater depressions are present near the HCC gates due to pumping of recovery wells on the south side of the wall. This demonstrates that groundwater is being effectively captured by the HCC interceptor trench. North of the HCC wall, groundwater typically flows towards the northwest in the direction of the Skykomish River with some east to west flow.

The groundwater surface elevation maps also show that groundwater elevations are lower in the levee remediation area due to the presence of an impermeable liner along the south and east margins of the Levee excavation zone. The extent of the liner is shown on the figures and is described in the *Levee Zone Interim Action for Cleanup 2007 – As-Built Completion Report* (ENSR 2007).

5.2 Field Parameters

Table 5-2 presents the stabilized field parameter measurements collected during the monthly, quarterly, and semi-annual groundwater sampling events from all wells, except those containing free product. Each field parameter is discussed separately below.

5.2.1 pH

The mean pH of groundwater across the site during the reporting period was 6.06. The minimum pH was 4.47 at 2B-W-4 on March 22, 2010, and the maximum pH was 7.24 at 5-W-18 on June 30, 2010. The median, minimum, and maximum pH measurements were consistent with past measurements at the site.

5.2.2 Conductivity

The mean conductivity (in $\mu\text{mhos/cm}$) of groundwater across the site during the reporting period was 64. The minimum was 10.8 at 1C-W-8 January 26, 2010, and the maximum was 618 at 2A-W-10 on September 21, 2010, although this maximum value is anomalous. These measurements were consistent with historical values.

5.2.3 Temperature

The mean temperature (°C) of groundwater during the reporting period was 8.93. The minimum temperature was 1.84 at 5-W-16 on December 16, 2010, and the maximum temperature was 18.41 at 1C-W-8 on July 27, 2010. The temperature varied seasonally.

5.2.4 Dissolved Oxygen

The mean dissolved oxygen (DO) concentration (mg/L) in groundwater across the site during the reporting period was 3.16. DO ranged from non-detect to a maximum of 9.99 measured at 1C-W-1 on March 25, 2010. In general, wells outside the areas of known contamination had higher concentrations of DO than wells within the dissolved plume area. The lowest concentrations of DO were typically measured in areas within and downgradient from the areas of known soil contamination and in areas having higher concentrations of groundwater contamination. These measurements are consistent with historical values.

5.2.5 Oxidation-Reduction Potential

The mean oxidation-reduction potential (ORP in mV) in groundwater across the site during the reporting period was 152.7. The minimum ORP value was -185.1 at GW-2 on June 29, 2010, and the maximum was 414 at EW-1 on December 17, 2009. ORP in groundwater at the site is most commonly positive. These measurements were consistent with historical values.

5.2.6 Turbidity

The mean turbidity (NTU) in groundwater across the site during the reporting period was 1.58. Turbidity ranged from non-detect (0.00) at 5-W-17 on March 24, 2010, to a maximum of 89 measured at GW-3 on December 17, 2009. There were two anomalous measurements during the 2009/2010 monitoring period. These anomalies were not used in factoring the mean (over range at 3-W-41 on March 24, 2010 and 887 at 1C-W-3 on September 21, 2010). Turbidity measurements were generally less than 10 (87% of the recorded values) during the reporting period and are consistent with historical measurements.

5.3 Total Petroleum Hydrocarbons

TPH in groundwater was analyzed using Northwest Method NWTPH-Dx without silica gel cleanup (all samples) and with silica gel cleanup (selected samples collected mainly from the Levee Zone area). NWTPH-Dx measures diesel-range (TPH-D) and oil-range (TPH-O) hydrocarbons.

Diesel- and oil-range hydrocarbon fractions were added together to determine the total TPH (calc) and TPH-SG (calc). If either the diesel or the oil TPH fraction was not detected, then half of the MDL value was used to represent the non-detected component in the calculation. If both components were not detected, then half the MDL of both components were added to represent the TPH calculated value. The value then is followed by the qualifier (ND). Figures 5-9 through 5-12 show the extent of TPH (calc) and TPH-SG (calc) concentrations detected in groundwater samples during the quarterly and semi-annual groundwater monitoring events. Groundwater data from monthly sampling events are not displayed on the figures. Table 5-3 presents all groundwater TPH data collected during the reporting period, including monthly events.

TPH (calc) and TPH-SG (calc) concentrations were compared to the CUL (208 µg/L) and RL (477 µg/L). As described in the CAP, the CUL for TPH in groundwater is intended to protect sediments from recontamination by groundwater (e.g., near the South Fork Skykomish River and Former Maloney Creek) and the RL for TPH in groundwater is intended to protect drinking water. The approximate CPOC boundary shown on Figures 5-9 through 5-12 was taken from CAP Figure 6 (Ecology 2007).

The CAP anticipates that groundwater CULs will not be achieved until all cleanup work has been completed.

5.3.1 Site-Wide

Groundwater samples were collected from site-wide monitoring locations during the semi-annual groundwater monitoring events in March and September 2010. Groundwater samples from all site-wide sampling locations were analyzed for the presence of TPH, except the HCC gate vaults and sentry wells (discussed below). TPH results from these semi-annual events are displayed on Figures 5-10 and 5-12 and in Tables 5-3 and 5-4.

During the March 22 to 25, 2010, semi-annual groundwater monitoring event, 54 groundwater samples were collected from 49 site-wide monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 37 of the 54 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 24.55 to 7,000 µg/L with an average concentration of 744.7 µg/L. Of the 37 samples with detected TPH, 14 had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 490 to 7,000 µg/L. The RL exceedances were detected in samples from the following 13 locations: 1C-W-4, 1C-W-8, 2A-W-9, 2A-W-10, 2A-W-11, 5-W-4, 5-W-15, 5-W-18, 5-W-20, 5-W-50, 5-W-51, 5-W-52, and 5-W-56. The RL exceedances occurred in wells located primarily within or adjacent to the residual LNAPL plumes, with only a few exceptions (1C-W-4, 1C-W-8, 2A-W-9, 5-W-15, and 5-W-18) (Figure 5-10). Trace LNAPL was observed in samples collected from locations 2A-W-11 and 5-W-51, both of which had TPH (calc) concentrations exceeding the RL.

During the March 2010 groundwater monitoring event, 12 groundwater samples collected from 11 site-wide monitoring locations (within the Levee Zone and along the northern boundary of the FMCZ-WW), were analyzed for TPH-SG by NWTPH-Dx. TPH was detected in 4 of the 12 samples. TPH-SG (calc) concentrations in the samples with detected TPH ranged from 117 to 167 µg/L, with an average concentration of 137 µg/L. The TPH concentrations of all four samples were below the RL (477 µg/L).

During the September 20 to 22, 2010, semi-annual groundwater monitoring event, 42 groundwater samples were collected from 38 site-wide monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 32 of the 42 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 25.55 to 20,300 µg/L with an average concentration of 1,669.2 µg/L. Of the 32 samples with detected TPH, 11 had TPH (calc) concentrations exceeding the RL (477 µg/L) with concentrations ranging from 510 to 20,300 µg/L. The RL exceedances were detected at the following 10 locations: 1C-W-4, 1C-W-8, 2A-W-9, 2A-W-10, 5-W-15, 5-W-18, 5-W-50, 5-W-51, 5-W-56, and MW-3. Half of the RL exceedances occurred in wells located within or adjacent to the north residual LNAPL plume (Figure 5-12). Trace product was observed in the sample collected from location 5-W-51, which had TPH (calc) concentrations exceeding the RL.

During the September 2010 groundwater monitoring event 9 groundwater samples, collected from 8 site-wide monitoring locations (all within the Levee Zone), were also analyzed for TPH-SG by NWTPH-Dx. TPH-SG was detected in 3 of the 9 samples. TPH-SG (calc) concentrations ranged from 28 to 117.5 µg/L, with an average concentration of 68.67 µg/L. All detected TPH SG (calc) concentrations were below the RL (477 µg/l) (Figure 5-12).

Schoolyard Perimeter

Groundwater samples were collected from monitoring locations around the perimeter of the schoolyard (5-W-50 to 5-W-56) during the semi-annual groundwater monitoring events in March and September 2010. TPH results from these semi-annual events are displayed on Figures 5-10 and 5-12. A total of 14 groundwater samples were collected from these 6 monitoring locations and analyzed for TPH by

NWTPH-Dx without silica gel cleanup. TPH was detected in 12 of the 16 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 26.8 to 20,300 µg/L, with an average concentration of 5,124.7 µg/L. Of the 12 samples with detected TPH, nine had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 870 to 20,300 µg/L. The RL exceedances were detected in samples from all schoolyard perimeter wells, with the exception of 5-W-54 and 5-W-55. Trace product was observed in both samples collected from 5-W-51, one of which had the highest observed TPH (calc) concentration (20,300 µg/L). Both detected concentrations exceeded the RL.

5.3.2 Air Sparging System Monitoring

Groundwater samples were collected from air sparging system monitoring locations (1C-W-1, 1C-W-7, and 1C-W-8) on a monthly basis throughout the reporting period. TPH results from these events are displayed on Figures 5-9 to 5-12 and in Tables 5-3 and 5-4. All results from the air sparging system well monitoring events will be analyzed as part of the annual air sparge system operations report for 2010. Forty groundwater samples were collected from these three locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 38 of the 40 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 39.55 to 4,800 µg/L, with an average concentration of 604.4 µg/L. Of the 38 samples with detected TPH, 15 had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 550 to 4,800 µg/L. The RL exceedances were detected in samples from all three wells; however, most of the exceedances were detected in samples from wells 1C-W-7 and 1C-W-8, which are located up/cross-gradient of and within the sparging area, respectively.

5.3.3 Hydraulic Control and Containment System

The following sections summarize groundwater analytical results from wells that monitor the HCC and adjacent areas. Quarterly monitoring was completed in December 2009, and March, June, and September 2010 for the HCC system monitoring locations in the backfill and downgradient of the HCC, and for the HCC system performance monitoring end well and gate wells. If a sample location result exceeded the RL (477 µg/L) then the location was sampled the following month until the TPH (calc) concentration was below the RL (477 µg/L). TPH results from these events are displayed on Figures 5-9 to 5-12 and in Tables 5-3 and 5-4. All results from the HCC well monitoring events will be analyzed as part of the annual HCC system operations report for 2010.

5.3.3.1 Backfill and Downgradient of the HCC

Groundwater samples were collected quarterly from monitoring locations within the clean backfill emplaced during the HCC wall construction and downgradient of the HCC wall (1B-W-23, 1C-W-7, 2A-W-40, 2A-W-41, 2A-W-42, and 5-W-43). Exceptions to this were 5-W-43, which was not sampled during the December 2009 event; 1B-W-23, which was sampled monthly due to RL (477 µg/L) concentration exceedances; and 1C-W-7, which is sampled monthly because it is also used to monitor the air sparging system. A total of 42 groundwater samples were collected from these 6 backfill/downgradient locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 33 of the 42 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 24.55 to 1,570 µg/L, with an average concentration of 306.6 µg/L. Of the 33 samples with detected TPH, 7 had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 550 to 1,570 µg/L. The RL exceedances were detected in samples from locations 1B-W-23 and 1C-W-7. These two wells are located in the clean backfill on the north side of the HCC wall. Monthly follow-up groundwater samples were collected from these wells in November 2009, and July and August 2010. Results from the backfill/downgradient wells will be analyzed as part of the annual HCC system operations report for 2010.

5.3.3.2 HCC System Performance

End Well

Groundwater samples were collected quarterly from EW-1, located at the west end of the HCC wall, throughout the reporting period. Note that the east end well, EW-2A was not installed during this reporting period due to the East End HCC excavation activities. The EW-1 samples were analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in two of the five samples collected; however, all results were below the RL (477 µg/L). EW-2A will be installed after the restoration of the east end of Railroad Avenue is completed in 2011.

Gate Wells

Groundwater samples were collected quarterly from the four gate wells (GW-1 to GW-4) during the reporting period. A total of 20 groundwater samples were collected from these 4 locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 17 of the 20 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 27.55 to 390 µg/L with an average concentration of 124 µg/L. All samples with detected TPH were below the RL (477 µg/L).

Gate Vaults and Sentry Wells

Groundwater samples were collected from the sentry wells in January 2010 during a system shutdown lasting longer than 48 hours and during the semi-annual monitoring events in March and September 2010. These locations are intended to monitor TPH concentrations in the reactive material in each gate to evaluate treatment capacity and exhaustion rates. TPH in groundwater collected from these locations is removed by the reactive media; therefore, these results are not representative of site groundwater conditions and are not evaluated in this report. The groundwater results are presented in Table 5-3 for reference, but are not presented on the report figures.

5.3.4 Levee Zone

Groundwater samples were collected quarterly from levee zone monitoring locations (5-W-14 to 5-W-20 and 5-W-42) during the December 2009, and March, June, and September 2010 events. TPH results from these events are displayed on Figures 5-9 to 5-12. Thirty-six groundwater samples were collected from these eight levee zone monitoring locations and analyzed for TPH by NWTPH-Dx with and without silica gel cleanup. TPH was detected in 21 of the 36 samples; TPH-SG was detected in 13 of the 36 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 35.55 to 1,190 µg/L with an average concentration of 530.1 µg/L. TPH-SG (calc) concentrations in the samples with detected TPH ranged from 28 to 450 µg/L with an average concentration of 135 µg/L. Of the 21 samples with detected TPH, 13 had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 490 to 1,190 µg/L. The TPH (calc) RL exceedances were detected in samples from wells 5-W-15, 5-W-18, 5-W-20, and 5-W-42. All samples with detected TPH-SG had a TPH-SG (calc) concentration below the RL. Wells 5-W-15, 5-W-18 and 5-W-20, which exhibited TPH (calc) RL exceedances, are located within the 2006 interim cleanup action area and downgradient of the excavation liner. Well 5-W-42, which exhibited TPH (calc) RL exceedances, is located outside (west of) the 2006 interim cleanup action area, but is included within the Levee West End excavation extents described in the 2010 EDR and CPS.

5.3.5 Former Maloney Creek Zone – East Wetland and Surrounding Area

Groundwater samples were collected semi-annually from monitoring locations surrounding the FMCZ-EW (2A-W-9, 2A-W-10, 2A-W-11, 2B-W-4, 2B-W-45, 2B-W-46, MW-3, MW-4, and MW-39) during the March and September 2010 events. TPH results from these events are displayed on Figures 5-10 and 5-12. Twenty groundwater samples were collected from these nine monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 12 of the 20 samples.

TPH (calc) concentrations in the samples with detected TPH ranged from 42.55 to 1,710 µg/L with an average concentration of 571.4 µg/L. Of the 12 samples with detected TPH, 7 had TPH (calc) concentrations exceeding the RL (477 µg/L), with concentrations ranging from 490 to 1,710 µg/L. The RL exceedances were detected in samples from the following four locations: 2A-W-9, 2A-W-10, 2A-W-11, and MW-3. Trace product was observed in one sample collected from 2A-W-11. This sample had a TPH (calc) concentration exceeding the RL.

5.3.6 Former Maloney Creek Zone – West Wetland

Groundwater samples were collected from monitoring locations along the northern boundary of the FMCZ-WW (3-W-41, 3-W-42, and 3-W-43) during December 2009 and March 2010. Monitoring location 3-W-42 was also sampled during October and November 2009. TPH results from the December and March events are displayed on Figures 5-9 and 5-10. Nine groundwater samples were collected from these three monitoring locations and analyzed for TPH by NWTPH-Dx with and without silica gel cleanup. TPH and TPH-SG were not detected in any of the samples.

6.0 Summary and Recommendations

This report presents the results of groundwater monitoring performed from October 30, 2009 to September 22, 2010. Approximately 254 groundwater samples were collected during the reporting period.

The fluid level and analytical data collected throughout the reporting period were compared to previous monitoring data. These data indicate groundwater flow gradients are relatively consistent throughout the year and similar to gradients observed during the previous monitoring periods. Groundwater mounding on the upgradient side of the HCC wall is being adequately controlled by pumping the groundwater from recovery wells and conveying it to the on-site treatment system.

TPH data collected during the monitoring period indicate that the extent of the LNAPL and dissolved plumes remained relatively stable throughout the monitoring period and do not appear to have migrated.

TPH concentrations during the monitoring events exceeded the CUL (208 µg/L) and RL (477 µg/L) at locations downgradient and immediately adjacent to areas containing LNAPL and residual product.

Groundwater monitoring will continue pursuant to the 2010 *Groundwater Monitoring Plan* and the 2010 *Compliance Monitoring Plan Update* (AECOM 2010a), and future modifications including the 2011 *Groundwater Monitoring Plan*. Pending completion of all cleanup actions specified in the CAP, groundwater monitoring will be continued in accordance with the Long-term Confirmational Monitoring Plan, which will be submitted in 2012 in accordance with Exhibit C to the CD.

The FMCZ-EW, FMCZ-WW, HCC East End, NWDZ, and upland Bridge Area remediation excavation activities described in the 2010 EDR and CPS were completed prior to October 1, 2010. Excavation was also performed in the RYZ. Excavation and backfilling was completed below the groundwater table in these areas, and this disturbance may have affected the June and September 2010 analytical results. These cleanup activities have the potential to impact groundwater flow and improve groundwater quality over time. These potential effects will be evaluated as part of the 2010/2011 groundwater monitoring activities and reported in the 2010/2011 groundwater monitoring report.

7.0 References

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Table 2-1 Modifications to the Groundwater Monitoring Network

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function	Rationale for Abandoned, Destroyed, Deferred, Canceled, or Not Installed Locations	Reference for Planned Activity ^a	Reference for Completed Activity ^a
Abandoned	5/3/2010	MW-22	Monitoring Well	Site-wide	Located within 2010 excavation extent	Specifications - NWDZ Remediation (AECOM, 2009d)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/3/2010	5-W-3	Monitoring Well	Site-wide	Located within 2010 excavation extent	Specifications - NWDZ Remediation (AECOM, 2009d)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/3/2010	5-W-2	Monitoring Well	Site-wide	Located within 2010 excavation extent	Specifications - NWDZ Remediation (AECOM, 2009d)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	1A-W-5	Monitoring Well	Site-wide	Located within 2010 excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	MW-17	Monitoring Well	Site-wide	Located within future excavation and within stockpile area - well monument was destroyed	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	PZ-1	Piezometer	HCC System	Located within 2010 excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	3-W-41	Monitoring Well	Former Maloney Creek - West Wetland	Adjacent to 2010 excavation extent	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	3-W-42	Monitoring Well	Former Maloney Creek - West Wetland	Adjacent to 2010 excavation extent	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/4/2010	3-W-43	Monitoring Well	Former Maloney Creek - West Wetland	Adjacent to 2010 excavation extent	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	5/11/2010	5-W-4	Monitoring Well	Site-wide	Located within excavation extent	NA	2010 AS-Built Completion Report (AECOM, in progress)
Destroyed	Before 6/29/2010	1C-W-2	Monitoring Well	Site-wide	inadvertently destroyed during 2009 sewer line installation	NA	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	5-W-52	Monitoring Well	School Area	Excavation extent expanded	NA	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-19	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Groundwater Monitoring Plan (AECOM, 2010?)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-32	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-21	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-46	Monitoring Well	FMCZ-EW and Surrounding Area	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-45	Monitoring Well	FMCZ-EW and Surrounding Area	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/12/2010	2B-W-30	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/13/2010	2B-W-11	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/13/2010	2B-W-33	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/13/2010	5-W-53	Monitoring Well	School Area	Excavation extent expanded	NA	2010 AS-Built Completion Report (AECOM, in progress)

Table 2-1 Modifications to the Groundwater Monitoring Network

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function	Rationale for Abandoned, Destroyed, Deferred, Canceled, or Not Installed Locations	Reference for Planned Activity ^a	Reference for Completed Activity ^a
Abandoned	7/14/2010	MW-39	Monitoring Well	FMCZ-EW and Surrounding Area	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2B-W-14	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2B-W-13	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2B-W-15	Piezometer	FMCZ-EW and Surrounding Area	Located within excavation extent	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2B-B-21	Piezometer	FMCZ-EW and Surrounding Area	Area becoming Upland; piezometer no longer necessary	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2A-W-11	Monitoring Well	FMCZ-EW and Surrounding Area/Railyard	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	MW-12	Monitoring Well	FMCZ-EW and Surrounding Area/Railyard	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Abandoned	7/14/2010	2B-W-12	Piezometer	FMCZ-EW and Surrounding Area/Railyard	Located within excavation extent	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Installed	7/13/2010	PZ-1A	HCC Piezometer	HCC System	PZ-1 replacement	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Installed	x/x/xx	RW-09	HCC Recovery Well	HCC System	Recovery well for HCC wall extension	Specifications - 2010 Remediation (AECOM, 2010b)	2010 AS-Built Completion Report (AECOM, in progress)
Canceled	NA	1A-W-36	Monitoring Well	Backfill and Downgradient of the HCC	2009 excavation activities	2009 Compliance Monitoring Plan Update, Appendix E (AECOM, 2009a)	NA
Canceled	NA	1A-W-37	Monitoring Well	Backfill and Downgradient of the HCC	2009 excavation activities	2009 Compliance Monitoring Plan Update, Appendix E (AECOM, 2009a)	NA
Canceled	NA	5-W-45	Monitoring Well	Backfill and Downgradient of the HCC	2009 excavation activities	2009 Compliance Monitoring Plan Update, Appendix E (AECOM, 2009a)	NA
Canceled	NA	EW-2	HCC End Well	HCC System	Blebs of product and sheen observed during attempted well installation	2008 Groundwater Monitoring Plan (ENSR, 2008a)	NA
Deferred	NA	1A-W-38	Monitoring Well	Site-wide	2010 excavation activities	2009 Compliance Monitoring Plan Update, Appendix E (AECOM, 2009a)	NA
Deferred	NA	5-W-44	Monitoring Well	Backfill and Downgradient of the HCC	2010 excavation activities	2009 Compliance Monitoring Plan Update, Appendix E (AECOM, 2009a)	NA
Deferred	NA	EW-2A	HCC End Well	HCC System	2010 excavation activities	2010 Compliance Monitoring Plan Update, Appendix E (AECOM, 2010a)	NA

Notes:

^a Complete references are presented in Section 7.0 of the report.

HCC = Hydraulic Control and Containment

FMCZ - EW = Former Maloney Creek Zone - East Wetland

FMCZ - WW = Former Maloney Creek Zone - West Wetland

Table 2-2 Groundwater Monitoring Event Dates

Event	Start Date	End Date
Monthly Fluid Gauging and Groundwater Sampling Event	10/27/2009	10/27/2009
Monthly Fluid Gauging and Groundwater Sampling Event	11/24/2009	11/24/2009
Quarterly Fluid Gauging Event	12/15/2009	12/15/2009
Quarterly Groundwater Sampling Event	12/15/2009	12/17/2009
Monthly Fluid Gauging and Groundwater Sampling Event	1/26/2010	1/26/2010
Monthly Fluid Gauging and Groundwater Sampling Event	2/23/2010	2/23/2010
Semi-Annual Fluid Gauging Event	3/22/2010	3/22/2010
Semi-Annual Groundwater Sampling Event	3/22/2010	3/25/2010
Air Sparge System Monthly Groundwater Sampling Event	4/27/2010	4/27/2010
Air Sparge System Monthly Groundwater Sampling Event	5/26/2010	5/26/2010
Quarterly Fluid Gauging Event	6/29/2010	6/29/2010
Quarterly Groundwater Sampling Event	6/29/2010	6/30/2010
Air Sparge System Monthly and Compliance Groundwater Sampling Event	7/27/2010	7/27/2010
Air Sparge System Monthly and Compliance Groundwater Sampling Event	8/31/2010	8/31/2010
Semi-Annual Fluid Gauging Event	9/20/2010	9/20/2010
Semi-Annual Groundwater Sampling Event	9/20/2010	9/22/2010

Note:

Sampling details for each monitoring event are included in Table 2-3.

Table 2-3 Groundwater Sampling Event Details

Site Area	Location ID	Groundwater Sampling Events					Analyte	
		Quarterly (12/15/09 to 12/17/09)	Semi-Annual (3/22/10 to 3/25/10)	Quarterly (6/29/10 to 6/30/10)	Semi-Annual (9/20/10 to 9/22/10)	Monthly Sampling Event(s)		
Air Sparging System	1C-W-7*	X	X	X	X	X	NWTPH-Dx	
	1C-W-8	X	X	X	X	X	NWTPH-Dx	
	1C-W-1	X	X	X	X	X	NWTPH-Dx	
Backfill and Downgradient of the HCC	1A-W-36	Not installed					NA	
	1A-W-37	Not installed					NA	
	1B-W-23	X	X	X	X	X	NWTPH-Dx	
	1C-W-7*	X	X	X	X	X	NWTPH-Dx	
	2A-W-40	X	X	X	X	—	NWTPH-Dx	
	2A-W-41	X	X	X	X	—	NWTPH-Dx	
	2A-W-42	X	X	X	X	—	NWTPH-Dx	
	5-W-43	X	X	X	X	—	NWTPH-Dx	
	5-W-44	Not installed					NA	
FMCZ - WW	3-W-41	X	X	Abandoned 5/4/2010		—	NWTPH-Dx	
	3-W-42	X	X	Abandoned 5/4/2010		X	NWTPH-Dx	
	3-W-43	X	X	Abandoned 5/4/2010		—	NWTPH-Dx	
Former Maloney Creek Zone – East Wetland and Surrounding Areas	2B-W-45	X	X	X	Abandoned 7/12/10	—	NWTPH-Dx	
	2B-W-46	X	X	X	Abandoned 7/12/10	—	NWTPH-Dx	
	2A-W-10	—	X	—	X	—	NWTPH-Dx	
	2A-W-11	—	X	—	Abandoned 7/14/10	—	NWTPH-Dx	
	2A-W-9	—	X	—	X	—	NWTPH-Dx	
	2B-W-4	—	X	—	X	—	NWTPH-Dx	
	MW-3	—	X	—	X	—	NWTPH-Dx	
	MW-39	—	X	—	Abandoned 7/14/10	—	NWTPH-Dx	
HCC System	MW-4	—	X	—	X	—	NWTPH-Dx	
	EW-1	X	X	X	X	X	NWTPH-Dx	
	EW-2A	Not installed					NA	
	GW-1	X	X	X	X	X	NWTPH-Dx	
	GW-2	X	X	X	X	X	NWTPH-Dx	
	GW-3	X	X	X	X	X	NWTPH-Dx	
	GW-4	X	X	X	X	X	NWTPH-Dx	
	S1-AD	—	X	—	X	—	NWTPH-Dx	
	S1-AU	—	X	—	X	—	NWTPH-Dx	
	S1-BD	—	X	—	X	—	NWTPH-Dx	
	S1-BU	—	X	—	X	—	NWTPH-Dx	
	S2-AD	—	X	—	X	—	NWTPH-Dx	
	S2-AU	—	X	—	X	—	NWTPH-Dx	
	S2-BD	—	X	—	X	—	NWTPH-Dx	
	S2-BU	—	X	—	X	—	NWTPH-Dx	
	S3-AD	—	X	—	X	—	NWTPH-Dx	
	S3-AU	—	X	—	X	—	NWTPH-Dx	
	S3-BD	—	X	—	X	—	NWTPH-Dx	
	S3-BU	—	X	—	X	—	NWTPH-Dx	
	S3-CD	—	X	—	X	—	NWTPH-Dx	
	S3-CU	—	X	—	X	—	NWTPH-Dx	
	Levee Zone	5-W-14	X	X	X	X	—	NWTPH-Dx
		5-W-15	X	X	X	X	—	NWTPH-Dx
5-W-16		X	X	X	X	—	NWTPH-Dx	
5-W-17		X	X	X	X	—	NWTPH-Dx	
5-W-18		X	X	X	X	—	NWTPH-Dx	
5-W-19		X	X	X	X	—	NWTPH-Dx	
5-W-20		X	X	X	X	—	NWTPH-Dx	
5-W-42		X	X	X	X	—	NWTPH-Dx	
Schoolyard Perimeter Zone	5-W-50	—	X	—	X	—	NWTPH-Dx	
	5-W-51	—	X	—	X	—	NWTPH-Dx	
	5-W-52	—	X	—	Abandoned 7/12/10	—	NWTPH-Dx	
	5-W-53	—	X	—	Abandoned 7/13/10	—	NWTPH-Dx	
	5-W-54	—	X	—	X	—	NWTPH-Dx	
	5-W-55	—	X	—	X	—	NWTPH-Dx	
Site-Wide**	5-W-56	—	X	—	X	—	NWTPH-Dx	
	1A-W-1	—	X	Destroyed between 7/20 and 7/24/2009			NWTPH-Dx	
	1A-W-3	—	X	Abandoned 3/26/2009			NWTPH-Dx	
	1A-W-4	—	X	—	X	—	NWTPH-Dx	
	1A-W-5	—	X	Abandoned 5/4/10			NWTPH-Dx	
	1A-W-38	Not installed					NA	
	1B-W-2	—	X	—	X	—	NWTPH-Dx	
	1B-W-3	—	X	—	X	X	NWTPH-Dx	
	1C-W-2	—	X	—	Destroyed between 7/20 and 7/24/2009		NWTPH-Dx	
	1C-W-3	—	X	—	X	—	NWTPH-Dx	
	1C-W-4	—	X	—	X	—	NWTPH-Dx	
	5-W-4	—	X	Abandoned 5/11/10			NWTPH-Dx	
MW-16	—	X	—	X	—	NWTPH-Dx		
MW-38R	—	X	—	X	—	NWTPH-Dx		

Notes:

Sample analyzed for NWTPH-Dx with and without silica gel cleanup. All other locations analyzed without silica gel cleanup.

Where the sampling frequency differs from the planned frequency presented in the 2010 Groundwater Monitoring Plan (AECOM 2010a), a rationale is provided.

* Location is being monitored for multiple assessments.

**Location is being monitored for the site-wide assessment only. Locations sampled semi-annually from all site areas are included in the site-wide assessment, except HCC gate vault sentry wells.

— = Not sampled

FMCZ - WW = Former Maloney Creek Zone - West Wetland

HCC = Hydraulic Control and Containment

TPH = Total Petroleum Hydrocarbons

Table 2-4 Fluid Gauging Events Summary

Area	Well	Gauging Monitoring Frequency				Well Installation Date ^b	Well Abandonment/ Destruction Date
		Continuous ^a	Monthly	Quarterly	Semi-annual		
Air Sparging System	1C-W-1			X		NA	NA
	1C-W-7 ^c			X		NA	NA
	1C-W-8			X		NA	NA
Backfill and Downgradient of the HCC	1B-W-23			X		NA	NA
	1C-W-7 ^c			X		NA	NA
	2A-W-40			X		NA	NA
	2A-W-41			X		NA	NA
	2A-W-42			X		NA	NA
	5-W-43			X		NA	NA
	5-W-44	Not installed				NA	NA
	5-W-45	Not installed				NA	NA
FMCZ – WW	3-W-41				X	NA	5/4/2010
	3-W-42				X	NA	5/4/2010
	3-W-43				X	NA	5/4/2010
Former Maloney Creek Zone – East Wetland and Surrounding Areas	2A-W-10		X		X	NA	NA
	2A-W-11		X		X	NA	7/14/2010
	2A-W-3		X		X	NA	NA
	2A-W-4		X		X	NA	NA
	2A-W-5		X			NA	NA
	2A-W-7		X			NA	NA
	2A-W-9		X		X	NA	NA
	2B-B-21		X			NA	7/14/2010
	2B-B-33		X			NA	7/13/2010
	2B-W-11		X			NA	7/13/2010
	2B-W-12		X			NA	7/14/2010
	2B-W-13		X			NA	7/14/2010
	2B-W-14		X			NA	7/14/2010
	2B-W-15		X			NA	7/14/2010
	2B-W-19		X			NA	7/12/2010
	2B-W-21		X			NA	7/12/2010
	2B-W-30		X			NA	7/12/2010
	2B-W-32		X			NA	7/12/2010
	2B-W-4		X		X	NA	NA

Table 2-4 Fluid Gauging Events Summary

Area	Well	Gauging Monitoring Frequency				Well Installation Date ^b	Well Abandonment/ Destruction Date
		Continuous ^a	Monthly	Quarterly	Semi-annual		
Former Maloney Creek Zone – East Wetland and Surrounding Areas <i>(continued)</i>	2B-W-45		X			NA	7/12/2010
	2B-W-46		X			NA	7/12/2010
	MW-1		X		X	NA	NA
	MW-10		X			NA	NA
	MW-11		X			NA	NA
	MW-12		X		X	NA	7/14/2010
	MW-13		X			NA	NA
	MW-14		X		X	NA	NA
	MW-15		X			NA	NA
	MW-17		X			NA	5/4/2010
	MW-18		X		X	NA	NA
	MW-2		X		X	NA	NA
	MW-3		X		X	NA	NA
	MW-39		X		X	NA	7/14/2010
	MW-4		X		X	NA	NA
	MW-40		X			NA	NA
	MW-5		X			NA	NA
	MW-7		X			NA	NA
MW-9		X			NA	NA	
HCC System	CV (S3)	X				NA	NA
	EV (S4)	X				NA	NA
	EW-1			X		NA	NA
	EW-2	Not installed				NA	NA
	EW-2A	Not installed				NA	NA
	FWV (S1)	X				NA	NA
	GW-1			X		NA	NA
	GW-2			X		NA	NA
	GW-3			X		NA	NA
	GW-4			X		NA	NA
	IW-01			X		NA	NA
	IW-02			X		NA	NA
	PW-01		X			NA	10/6/2009
	PW-03		X			NA	10/6/2009
PW-04		X			NA	10/6/2009	

Table 2-4 Fluid Gauging Events Summary

Area	Well	Gauging Monitoring Frequency				Well Installation Date ^b	Well Abandonment/ Destruction Date
		Continuous ^a	Monthly	Quarterly	Semi-annual		
HCC System (continued)	PZ-1	X				NA	5/4/2010
	PZ-2N	X				NA	NA
	PZ-2S	X				NA	NA
	PZ-3N	X				NA	NA
	PZ-3S	X				NA	NA
	PZ-4N	X				NA	NA
	PZ-4S	X				NA	NA
	PZ-5N	X				NA	NA
	PZ-5S	X				NA	NA
	PZ-6N	X				NA	NA
	PZ-6S	X				NA	NA
	PZ-7N	X				NA	NA
	PZ-7S	X				NA	NA
	PZ-8	X				NA	NA
	RW-01				X	NA	NA
	RW-02				X	NA	NA
	RW-03				X	NA	NA
	RW-04				X	NA	NA
	RW-05				X	NA	NA
	RW-06				X	NA	NA
RW-07				X	NA	NA	
RW-08				X	NA	NA	
WV (S2)	X				NA	NA	
Levee Zone	5-W-14			X		NA	NA
	5-W-15			X		NA	NA
	5-W-16			X		NA	NA
	5-W-17			X		NA	NA
	5-W-18			X		NA	NA
	5-W-19			X		NA	NA
	5-W-20			X		NA	NA
	5-W-42			X		NA	NA

Table 2-4 Fluid Gauging Events Summary

Area	Well	Gauging Monitoring Frequency				Well Installation Date ^b	Well Abandonment/ Destruction Date
		Continuous ^a	Monthly	Quarterly	Semi-annual		
Schoolyard Perimeter Zone	5-W-50			X		NA	NA
	5-W-51			X		NA	NA
	5-W-52			X		NA	7/12/2010
	5-W-53			X		NA	7/13/2010
	5-W-54			X		NA	NA
	5-W-55			X		NA	NA
	5-W-56			X		NA	NA
Site-Wide ^d	1A-W-1				X	NA	NA
	1A-W-4				X	NA	NA
	1A-W-38	Not installed				NA	NA
	1B-W-2				X	NA	NA
	1B-W-3				X	NA	NA
	1C-W-2				X	NA	7/20-7/24/2010
	1C-W-3				X	NA	NA
	1C-W-4				X	NA	NA
	2A-W-8				X	NA	NA
	5-W-2				X	NA	5/3/2010
	5-W-3			X		NA	5/3/2010
	5-W-4				X	NA	5/11/2010
	MW-16				X	NA	NA
	MW-22			X		NA	5/3/2010
	MW-28				X	NA	NA
	MW-32				X	NA	NA
	MW-38R				X	NA	NA

Notes:

^a Water level transducers began collecting continuous water level measurements at these locations on August 31, 2009.

^b Installation dates for wells installed during the 2009 to 2010 monitoring period.

^c Location is being monitored for multiple assessments.

^d Location is being monitored for the site-wide assessment only. Locations gauged semi-annually from all site areas are included in the site-wide assessment.

FMCZ - WW = Former Maloney Creek Zone - West Wetland

HCC = Hydraulic Control and Containment

TPH = Total Petroleum Hydrocarbons

Table 5-1 Fluid Level Elevations and Product Thicknesses

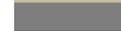
Well Number	10/27/2009			11/24/2009			12/15 – 12/16/2009			1/26/2010			2/23/2010			3/22/2010			6/29/2010			9/20/2010		
	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)
1A-W-4	NM	—	—	920.67	—	—	NM	—	—	919.72	—	—												
1A-W-5	NM	—	—	919.03	—	—	Well Abandoned on 5/4/2010			Well Abandoned on 5/4/2010														
1B-W-2	NM	—	—	922.23	—	—	NM	—	—	922.30	—	—												
1B-W-23	NM	—	—	NM	—	—	919.92	—	—	NM	—	—	NM	—	—	920.33	—	—	918.96	—	—	919.29	—	—
1B-W-3	NM	—	—	921.75	—	—	NM	—	—	921.75	—	—												
1C-W-1	NM	—	—	NM	—	—	922.81	—	—	NM	—	—	NM	—	—	923.07	—	—	923.41	—	—	922.81	—	—
1C-W-2	NM	—	—	Well Covered with Asphalt			Well Damaged			Well Damaged														
1C-W-3	NM	—	—	922.99	—	—	NM	—	—	922.69	—	—												
1C-W-4	NM	—	—	922.41	—	—	NM	—	—	922.29	—	—												
1C-W-7	NM	—	—	NM	—	—	922.95	—	—	NM	—	—	NM	—	—	923.15	—	—	923.44	—	—	922.78	—	—
1C-W-8	NM	—	—	NM	—	—	923.34	—	—	922.72	—	—												
2A-W-10	930.21	—	—	930.22	—	—	928.18	—	—	928.79	—	—	928.43	—	—	929.16	—	—	928.22	—	—	926.39	—	—
2A-W-11	928.66	—	Trace	928.58	—	Trace	NM	—	NM	925.98	—	HT	925.57	—	Trace	926.85	—	Trace	925.73	—	HT	Well Abandoned on 7/14/2010		
2A-W-3	926.58	—	HT	926.63	—	HT	NM	—	NM	924.39	—	HT	923.98	—	HT	924.93	—	HT	922.62	—	HT	923.48	—	HT
2A-W-4	927.11	—	HT	927.24	—	HT	924.29	—	HT	924.76	—	HT	924.43	—	HT	925.29	—	HT	923.95	—	HT	924.55	—	HT
2A-W-40	NM	—	—	NM	—	—	921.38	—	—	NM	—	—	NM	—	—	921.63	—	—	921.54	—	—	920.90	—	—
2A-W-41	NM	—	—	920.35	—	—	918.71	—	—	917.91	—	—												
2A-W-42	NM	—	—	922.57	—	—	922.84	—	—	925.27	—	—												
2A-W-5	928.86	—	—	928.87	—	—	926.83	—	—	926.98	—	—	926.52	—	—	926.96	—	—	926.85	—	—	925.52	—	—
2A-W-7	927.91	—	—	927.70	—	—	NM	—	—	926.38	—	—	926.01	—	—	926.35	—	—	926.72	—	—	925.95	—	—
2A-W-8	NM	—	—	927.73	—	—	928.31	—	—	927.62	—	—												
2A-W-9	929.16	—	—	929.09	—	—	926.80	—	—	927.15	—	—	926.78	—	—	927.76	—	—	926.79	—	—	925.17	—	—
2B-B-21	927.91	—	—	927.89	—	—	925.08	—	—	925.25	—	—	924.83	—	—	926.24	—	—	924.80	—	—	Well Abandoned on 7/14/2010		
2B-W-11	930.54	930.70	—	930.72	NM	—	NM	Dry	—	929.17	NM	—	929.19	929.66	—	929.81	930.10	—	928.60	NM	—	Well Abandoned on 7/13/2010		
2B-W-12	930.23	930.26	—	930.21	NM	—	928.32	Dry	—	928.90	NM	—	928.67	929.07	—	929.27	929.59	—	928.34	NM	—	Well Abandoned on 7/14/2010		
2B-W-13	929.53	929.59	—	929.48	NM	—	NM	Dry	—	927.91	NM	—	927.54	Dry	—	927.01	929.22	—	927.67	NM	—	Well Abandoned on 7/14/2010		
2B-W-14	929.43	929.46	—	929.44	NM	—	NM	Dry	—	927.55	NM	—	927.13	Dry	—	928.74	929.10	—	927.24	NM	—	Well Abandoned on 7/14/2010		
2B-W-15	927.86	NM	—	928.54	NM	—	925.58	Dry	—	925.69	NM	—	925.30	Dry	—	Dry	Dry	—	Dry	NM	—	Well Abandoned on 7/14/2010		
2B-W-19	931.06	—	—	930.81	—	—	NM	—	—	928.77	—	—	928.34	—	—	929.26	—	—	928.74	—	—	Well Abandoned on 7/12/2010		
2B-W-21	929.34	—	—	929.14	—	—	927.21	—	—	927.13	—	—	926.75	—	—	927.70	—	—	927.13	—	—	Well Abandoned on 7/12/2010		
2B-W-30	927.82	—	—	927.90	—	—	925.43	—	—	925.73	—	—	925.23	—	—	925.89	—	—	925.33	—	—	Well Abandoned on 7/12/2010		
2B-W-32	930.29	—	—	930.07	—	—	928.30	—	—	928.23	—	—	927.80	—	—	928.63	—	—	928.24	—	—	Well Abandoned on 7/12/2010		
2B-W-33	931.43	—	—	931.38	—	—	928.53	—	—	929.75	—	—	928.92	—	—	929.96	—	—	928.85	—	—	Well Abandoned on 7/13/2010		
2B-W-4	930.15	—	—	930.00	—	—	928.28	—	—	928.33	—	—	927.93	—	—	928.80	—	—	928.24	—	—	927.22	—	—
2B-W-45 ²	927.24	—	—	927.18	—	—	925.30	—	—	925.41	—	—	925.01	—	—	926.04	—	—	925.10	—	—	Well Abandoned on 7/12/2010		
2B-W-46 ³	927.77	—	—	927.66	—	—	925.68	—	—	925.81	—	—	925.36	—	—	926.43	—	—	925.48	—	—	Well Abandoned on 7/12/2010		
3-W-41	922.40	—	—	922.32	—	—	921.14	—	—	921.24	—	—	921.06	—	—	921.46	—	—	Well Abandoned on 5/4/2010			Well Abandoned on 5/4/2010		
3-W-42	NM	—	—	923.45	—	—	921.88	—	—	921.96	—	—	921.72	—	—	922.23	—	—	Well Abandoned on 5/4/2010			Well Abandoned on 5/4/2010		
3-W-43	925.45	—	—	925.43	—	—	924.26	—	—	924.23	—	—	924.04	—	—	924.47	—	—	Well Abandoned on 5/4/2010			Well Abandoned on 5/4/2010		
5-W-14	NM	—	—	NM	—	—	917.20	—	—	NM	—	—	NM	—	—	917.61	—	—	918.25	—	—	917.40	—	—
5-W-15	NM	—	—	NM	—	—	917.28	—	—	NM	—	—	NM	—	—	917.60	—	—	918.05	—	—	917.40	—	—
5-W-16	NM	—	—	NM	—	—	917.00	—	—	NM	—	—	NM	—	—	917.34	—	—	918.05	—	—	917.18	—	—
5-W-17	NM	—	—	NM	—	—	917.07	—	—	NM	—	—	NM	—	—	917.41	—	—	918.08	—	—	917.25	—	—
5-W-18	NM	—	—	NM	—	—	916.98	—	—	NM	—	—	NM	—	—	917.27	—	—	917.95	—	—	917.12	—	—
5-W-19	NM	—	—	NM	—	—	916.78	—	—	NM	—	—	NM	—	—	917.05	—	—	917.83	—	—	916.91	—	—
5-W-2	920.61	—	0.2	920.32	—	HT	918.71	—	—	918.90	—	HT	918.71	—	HT	919.23	—	HT	Well Abandoned			Well Abandoned		
5-W-20	NM	—	—	NM	—	—	916.71	—	—	NM	—	—	NM	—	—	916.95	—	—	917.66	—	—	916.83	—	—
5-W-3	920.34	—	0.29	NM	—	NM	918.26	—	—	918.54	—	0.80	918.16	—	0.39	918.69	—	0.72	Well Abandoned on 5/3/2010			Well Abandoned on 5/3/2010		
5-W-4	NM	—	—	919.11	—	—	Well Abandoned on 5/11/2010			Well Abandoned on 5/11/2010														
5-W-42	NM	—	—	NM	—	—	916.60	—	—	NM	—	—	NM	—	—	916.84	—	—	917.26	—	—	916.70	—	—
5-W-43	NM	—	—	919.26	—	—	918.86	—	—	916.70	—	—												
5-W-50	NM	—	—	918.15	—	—	NM	—	—	918.25	—	—												
5-W-51	NM	—	—	918.00	—	Trace	NM	—	—	917.57	—	HT												
5-W-52	NM	—	—	919.02	—	—	NM	—	—	Well Abandoned on 7/12/2010														
5-W-53	NM	—	—	918.44	—	—	NM	—	—	Well Abandoned on 7/13/2010														
5-W-54	NM	—	—	918.03	—	—	NM	—	—	917.73	—	—												
5-W-55	NM	—	—	917.67	—	—	NM	—	—	917.50	—	—												
5-W-56	NM	—	—	917.85	—	—	NM	—	—	918.18	—	—												
CV	921.02	—	—	920.47	—	—	919.48	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	919.86	—	—
EV	926.03	—	—	925.63	—	—	924.67	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	924.56	—	—
EW-1	NM	—	—	NM	—	—	918.99	—	—	NM	—	—	NM	—	—	919.32	—	—	916.18	—	—	918.55	—	—
FWV	921.71	—	—	921.69	—	—	921.28	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	920.39	—	—
GW-1	921.36	—	—	920.77	—	—	919.53	—	—	NM	—	—	NM	—	—	919.89	—	—	918.79	—	—	918.01	—	—

Table 5-1 Fluid Level Elevations and Product Thicknesses

Well Number	10/27/2009			11/24/2009			12/15 – 12/16/2009			1/26/2010			2/23/2010			3/22/2010			6/29/2010			9/20/2010		
	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)	GW Elevation (NAVD88)	WW Elevation (NAVD88)	Product Thickness (feet)
GW-2	921.95	—	—	921.27	—	—	919.92	—	—	NM	—	—	NM	—	—	920.33	—	—	918.62	—	—	917.85	—	—
GW-3	921.96	—	—	921.28	—	—	920.12	—	—	NM	—	—	NM	—	—	920.43	—	—	919.79	—	—	919.81	—	—
GW-4	926.03	—	—	925.63	—	—	924.64	—	—	NM	—	—	NM	—	—	924.69	—	—	925.21	—	—	924.42	—	—
IW-01	NM	—	—	NM	—	—	924.64	—	—															
MW-1	928.76	—	—	928.51	—	—	926.84	—	—	926.82	—	—	926.37	—	—	926.77	—	—	927.21	—	—	926.11	—	—
MW-10	928.30	—	—	928.30	—	—	926.12	—	—	926.21	—	—	925.78	—	—	926.23	—	—	926.10	—	—	925.24	—	—
MW-11	928.45	—	Trace	928.36	—	NM	926.53	—	—	926.51	—	—	926.05	—	LT	926.45	—	Sheen	926.59	—	—	925.47	—	None
MW-12	928.67	—	—	928.55	—	—	925.59	—	—	925.70	—	—	925.31	—	—	926.83	—	—	925.42	—	—	Well Abandoned on 7/14/2010		
MW-13	927.65	—	—	927.61	—	—	925.10	—	—	925.20	—	—	924.84	—	—	926.04	—	—	924.75	—	—	924.62	—	—
MW-14	927.19	—	—	927.22	—	—	924.77	—	—	924.91	—	—	924.52	—	—	925.59	—	—	924.40	—	—	924.21	—	—
MW-15	926.40	—	—	926.45	—	—	924.00	—	—	924.25	—	—	923.83	—	—	924.78	—	—	923.62	—	—	923.28	—	—
MW-16	921.98	—	—	921.66	—	—	920.03	—	—	920.18	—	—	919.96	—	—	920.41	—	—	919.61	—	—	919.75	—	—
MW-17	Well Damaged			Well Abandoned on 5/4/2010			Well Abandoned on 5/4/2010																	
MW-18	928.60	—	—	928.54	—	—	926.55	—	—	926.58	—	—	926.12	—	—	926.58	—	—	926.62	—	—	925.58	—	—
MW-2	929.54	—	—	929.26	—	—	927.26	—	—	927.25	—	—	926.73	—	—	927.25	—	—	927.71	—	—	926.50	—	—
MW-22	NM	—	—	917.83	—	—	Well Abandoned on 5/3/2010			Well Abandoned on 5/3/2010														
MW-28	NM	—	—	927.02	—	None	926.99	—	Trace	926.08	—	—												
MW-3	931.47	—	—	931.21	—	—	928.07	—	—	928.26	—	—	927.43	—	—	929.04	—	—	928.79	—	—	927.25	—	—
MW-38R	919.22	—	—	918.95	—	—	917.64	—	—	917.74	—	—	917.52	—	—	917.89	—	—	917.97	—	—	917.47	—	—
MW-39	929.49	—	None	929.41	—	None	927.12	—	—	927.24	—	None	926.84	—	None	928.28	—	None	926.98	—	Trace	Well Abandoned on 7/14/2010		
MW-32	NM	—	—	917.08	—	—	NM	—	—	916.87	—	—												
MW-4	930.63	—	—	930.61	—	—	928.51	—	—	929.27	—	—	928.89	—	—	929.69	—	—	928.47	—	—	926.83	—	—
MW-40	926.57	—	—	926.62	—	—	924.22	—	—	924.45	—	—	924.03	—	—	925.00	—	—	923.80	—	—	923.54	—	—
MW-5	928.96	—	—	928.88	—	—	926.60	—	—	926.88	—	—	926.53	—	—	927.39	—	—	926.57	—	—	925.17	—	—
MW-7	926.92	—	None	927.02	—	None	924.14	—	—	924.57	—	None	924.14	—	None	925.16	—	None	923.79	—	None	923.66	—	—
MW-9	927.42	—	—	927.43	—	—	924.76	—	—	925.09	—	—	924.73	—	—	925.42	—	—	924.62	—	—	924.21	—	—
PW-04	NM	—	—	925.38	—	—	924.44	—	—	NM	—	—	930.00	—	Trace									
WV	922.04	—	None	921.45	—	NM	920.12	—	—	NM	—	—	918.32	—	—									
PZ-1A	Not Installed			Not Installed			NM																	
PZ-2N	NM	—	—	NM	—	—	922.75	—	—															
PZ-2S	NM	—	—	NM	—	—	925.13	—	—															
PZ-3N	NM	—	—	NM	—	—	920.48	—	—															
PZ-3S	NM	—	—	NM	—	—	924.09	—	—															
PA-4N	NM	—	—	NM	—	—	920.69	—	—															
PZ-4S	NM	—	—	NM	—	—	923.58	—	—															
PZ-5N	NM	—	—	NM	—	—	922.92	—	—															
PZ-5S	NM	—	—	NM	—	—	923.60	—	HT															
PZ-6N	NM	—	—	NM	—	—	917.92	—	—															
PZ-6S	NM	—	—	NM	—	—	922.91	—	HT															
PZ-7N	NM	—	—	NM	—	—	918.01	—	—															
PZ-7S	NM	—	—	NM	—	—	921.35	—	—															
PZ-8	NM	—	—	NM	—	—	919.30	—	—															
RW-02	NM	—	—	NM	—	—	920.27	—	—															
RW-05	NM	—	—	NM	—	—	918.07	—	—															
SK1	NM	—	—	925.13	—	—	NM	—	—	925.49	—	—												
SK2	NM	—	—	919.12	—	—	NM	—	—	919.38	—	—												
SK3	NM	—	—	918.72	—	—	NM	—	—	918.94	—	—												
SK4	NM	—	—	918.29	—	—	NM	—	—	918.55	—	—												
SK5	NM	—	—	916.67	—	—	NM	—	—	916.84	—	—												
ML1	NM	—	—	NM	—	—	Gauge Abandoned																	
ML2	NM	—	—	NM	—	—	Gauge Abandoned																	
ML3	NM	—	—	NM	—	—	Gauge Abandoned																	
ML4	NM	—	—	NM	—	—	Gauge Abandoned																	
WW1	927.38	—	—	927.56	—	—	NM	—	—	926.55	—	—	926.47	—	—	926.63	—	—	NM	—	—	Gauge Abandoned		
WW2	926.96	—	—	926.99	—	—	926.56	—	—	926.53	—	—	926.47	—	—	926.59	—	—	NM	—	—	Gauge Abandoned		
WW3	927.62	—	—	927.68	—	—	927.3	—	—	927.13	—	—	927.06	—	—	927.22	—	—	NM	—	—	Gauge Abandoned		

Notes:

- GW — Groundwater
- HT — Heavy trace
- LT — Light trace
- NM — Not Measured
- WW — Wetland water
- "—" — Not Applicable

 Piezometer and Surface Water Staff Gauge Location
 Surface Water Staff Gauge Locations
916.40 Surface Water Elevation

2B-W-121 was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical.
 2B-W-452 was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical.
 2B-W-463 was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

Table 5-2 Stabilized Groundwater Field Parameter Measurements

Well	Sample Date	Field Parameters						
		Time	pH	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity
	Units:		(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)	
1A-W-4	23-Mar-10	912	6.35	57	7.1	158.1	7.71	0.10
	21-Sep-10	1151	6.35	64	9.49	154.9	7.12	2.33
1A-W-5	23-Mar-10	948	6.40	59	7.22	154.2	7.37	0.19
	22-Sep-10	Well abandoned 5/4/2010						
1B-W-2	24-Mar-10	1047	5.72	177	10.75	192.8	6.72	7.49
	21-Sep-10	1049	5.55	258	12.61	173.7	3.76	1.19
1B-W-3	24-Mar-10	925	6.46	80	7.22	209.2	7.23	0.38
	21-Sep-10	949	6.50	93	10.42	59.5	2.36	3.42
1B-W-23	27-Oct-09	1154	6.57	220	10.35	86.6	5.43	1.17
	24-Nov-09	1530	6.68	200	9.80	200.0	9.20	1.19
	15-Dec-09	1347	6.26	100	6.10	52.2	4.90	9.22
	23-Mar-10	1136	6.51	93	8.26	141.2	9.82	5.10
	29-Jun-10	1702	6.41	205	11.67	152.7	2.59	22.89
	27-Jul-10	1332	6.05	140	18.12	289.7	1.28	21.65
	31-Aug-10	1634	6.24	144	11.83	304.6	3.56	33.70
	22-Sep-10	906	6.48	198	13.31	144.1	7.04	55.30
1C-W-1	27-Oct-09	1252	5.55	100	11.00	120.5	8.13	0.69
	24-Nov-09	1401	6.35	63	9.84	196.6	7.85	0.21
	15-Dec-09	1022	5.92	74	8.14	50.9	5.42	3.12
	26-Jan-10	1019	5.81	13	6.80	205.0	6.03	0.37
	23-Feb-10	1031	6.04	59	6.63	233.6	9.24	0.51
	25-Mar-10	918	6.09	53	7.07	176.9	9.99	0.41
	27-Apr-10	1250	5.08	61	7.65	247.3	6.27	0.19
	26-May-10	936	4.73	58	9.00	267.0	6.19	17.30
	29-Jun-10	1106	6.25	66	9.79	185.3	8.11	0.72
	27-Jul-10	1028	5.65	55	12.00	299.4	9.20	3.08
	31-Aug-10	1239	6.23	69	11.03	281.2	9.44	2.69
	21-Sep-10	955	5.13	52	11.30	163.1	6.72	0.87
1C-W-2	24-Mar-10	Well covered with asphalt						
	22-Sep-10	Well damaged prior to 6/29/2010						
1C-W-3	23-Mar-10	1440	6.25	45	7.70	109.7	9.4	66.9
	21-Sep-10	1121	5.87	36	14.66	103.6	5.64	887
1C-W-4	23-Mar-10	1538	5.82	54	8.21	121.6	1.03	1.01
	21-Sep-10	1229	5.35	49	10.88	138.5	0.90	1.02
1C-W-7	27-Oct-09	1103	5.70	76	10.38	83.6	0.73	1.34
	24-Nov-09	1315	6.30	74	8.09	207.9	2.81	0.59
	15-Dec-09	1207	6.29	86	6.78	61.5	1.88	1.61
	26-Jan-10	1446	6.27	12.2	7.30	122.0	2.44	0.51
	23-Feb-10	1235	6.52	88	7.81	278.7	6.18	2.91
	25-Mar-10	1120	6.41	90	7.44	128.6	5.02	0.21
	27-Apr-10	1531	6.21	79	8.26	193.6	2.31	0.56
	26-May-10	1121	5.53	71	8.90	251.0	4.09	2.49
	29-Jun-10	1410	6.27	93	10.28	127.2	2.81	2.15
	27-Jul-10	1215	6.10	94	12.32	310.5	5.81	3.01
	31-Aug-10	1446	6.53	93	11.22	295.5	9.06	1.64
	21-Sep-10	1501	5.87	67	12.20	89.4	0.47	0.31

Table 5-2 Stabilized Groundwater Field Parameter Measurements

Well	Sample Date	Field Parameters						
		Time	pH	Conductivity (µmhos/cm)	Temperature (°C)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
	Units:							
1C-W-8	27-Oct-09	1451	5.00	140	8.50	8.3	0.83	8.34
	24-Nov-09	1440	6.05	64	8.83	211.5	2.30	2.17
	15-Dec-09	1105	5.83	57	3.66	70.1	0.83	1.55
	26-Jan-10	1105	6.02	10.8	6.90	155.0	0.00	1.23
	23-Feb-10	1123	5.86	75	6.73	295.9	0.63	1.05
	25-Mar-10	1006	6.26	60	7.42	157.0	0.86	0.70
	27-Apr-10	1337	5.66	51	8.75	230.9	0.74	1.19
	26-May-10	1014	5.41	130	9.70	251.0	0.72	1.17
	29-Jun-10	1149	6.24	71	13.36	109.9	0.48	1.42
	27-Jul-10	1110	5.85	62	18.41	298.6	0.93	2.04
	31-Aug-10	1345	5.77	59	12.25	309.3	3.03	1.15
	21-Sep-10	1033	5.80	62	13.86	108.4	1.04	2.14
2A-W-9	24-Mar-10	1223	5.70	33	9.04	96.0	6.42	1.70
	21-Sep-10	1744	5.84	312	11.9	316.0	2.75	2.56
2A-W-10	23-Mar-10	1340	5.63	107	8.00	110.5	2.68	1.57
	30-Jun-10	1048	6.24	195	10.20	180.0	0.94	6.15
	21-Sep-10	1710	5.55	618	12.00	293.0	3.32	7.01
2A-W-11	23-Mar-10	Product in discharge line. No parameters collected.						
	22-Sep-10	Well abandoned 7/14/2010						
2A-W-40	15-Dec-09	1515	6.1	41	5.75	54.3	4.28	1.08
	23-Mar-10	1658	6.42	40	7.81	177.7	9.55	15.49
	30-Jun-10	1456	6.39	47	11.01	-28.8	6.03	1.61
	22-Sep-10	910	6.01	50	9.37	130.3	5.07	0.9
2A-W-41	16-Dec-09	1420	6.06	64	6.77	12.6	2.34	0.25
	23-Mar-10	1540	6.21	65	8.94	207.4	9.29	0.78
	30-Jun-10	1016	6.19	55	9.54	199.9	5.07	0.99
	22-Sep-10	1008	5.27	59	10.03	133.7	3.16	0.6
2A-W-42	17-Dec-09	1259	5.91	88	7.41	77.2	1.18	1.31
	23-Mar-10	1039	6.01	84	7.99	176.2	7.13	3.3
	29-Jun-10	1736	6.05	89	10.92	-129.7	0.78	3.05
	22-Sep-10	1135	5.62	114	11.71	92.1	0.86	3.2
2B-W-4	22-Mar-10	1508	4.47	68	5.90	127.0	0.68	0.32
	20-Sep-10	1502	4.59	76	12.9	224	3.30	1.26
2B-W-45	16-Dec-09	1055	5.66	50	7.6	308	3.71	26.9
	24-Mar-10	1457	5.63	43	8.39	148.3	6.88	2.6
	30-Jun-10	958	5.37	40	8.4	136	5.82	1.72
	20-Sep-10	Well abandoned 7/12/2010						
2B-W-46	16-Dec-09	1017	5.62	58	9	304	4.1	4.86
	24-Mar-10	1403	5.87	35	8.95	107.6	8.74	0.51
	30-Jun-10	924	5.25	45	8.2	113	5.61	0.27
	20-Sep-10	Well abandoned 7/12/2010						
3-W-41	15-Dec-09	1006	5.47	49	8	235	1.9	2.39
	24-Mar-10	1029	6.15	171	5.3	158	1.78	Over Range
	20-Sep-10	Well abandoned 5/4/2010						
3-W-42	24-Nov-09	1023	5.51	208	8.28	191.4	5.99	1.13
	15-Dec-09	1229	5.31	33	4	168	6.52	11.5
	24-Mar-10	1137	6.04	42	4.8	171	8.56	1.35
	20-Sep-10	Well abandoned 5/4/2010						

Table 5-2 Stabilized Groundwater Field Parameter Measurements

Well	Sample Date	Field Parameters						
		Time	pH	Conductivity (µmhos/cm)	Temperature (°C)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
	Units:							
3-W-43	15-Dec-09	1136	5.01	27	4.7	143	7.2	1.06
	24-Mar-10	1320	5.66	41	5.4	226	8.7	0.60
	20-Sep-10	Well abandoned 5/4/2010						
5-W-4	23-Mar-10	1115	6.10	59	8.22	-28.4	1.30	0.03
	20-Sep-10	Well abandoned 5/11/2010						
5-W-14	16-Dec-09	942	6.42	62	6.05	66.5	5.59	0.13
	24-Mar-10	1414	6.20	88	7.60	223.0	4.60	0.20
	30-Jun-10	1247	6.25	80	9.3	206.0	6.26	1.01
	22-Sep-10	941	6.37	64	8.30	368.0	8.27	2.25
5-W-15	16-Dec-09	1212	6.54	79	7.9	4.8	0.27	5.8
	24-Mar-10	1430	6.64	78	7.93	-85.90	0.11	10.94
	30-Jun-10	1346	6.45	170	11.4	125.0	0.42	12.00
	22-Sep-10	1154	6.55	137	9.6	330.0	2.48	10.2
5-W-16	16-Dec-09	1036	6.25	48	1.8	76.7	9.5	1.23
	24-Mar-10	1301	6.96	36	8.08	71.1	8.28	0.75
	30-Jun-10	1456	6.76	133	12.0	117.0	3.86	4.55
	22-Sep-10	1338	6.74	106	11.5	314.0	7.00	0.99
5-W-17	16-Dec-09	1516	6.07	51	6.9	328	4.97	0.23
	24-Mar-10	1342	6.31	53	8.58	96.0	4.75	0.00
	30-Jun-10	939	6.07	57	8.90	-21.5	4.82	0.83
	22-Sep-10	1045	6.19	57	9.1	357.0	7.41	0.11
5-W-18	16-Dec-09	911	6.19	84	7.1	308	0.95	30.90
	24-Mar-10	1640	6.44	114	8.67	3.3	4.49	0.70
	30-Jun-10	1144	7.24	193	10.90	-30.3	0.14	4.40
	22-Sep-10	900	6.65	225	10.3	340.0	2.44	6.51
5-W-19	16-Dec-09	1535	6.00	41	5.84	19.6	3.68	0.07
	24-Mar-10	1525	5.95	59	7.20	243.0	7.37	0.50
	30-Jun-10	1604	6.46	48	8.90	133.9	6.93	0.65
	22-Sep-10	1438	6.25	50	9.6	370.0	7.80	0.84
5-W-20	16-Dec-09	1408	6.14	84	7.6	332	0.47	3.30
	24-Mar-10	1557	6.62	100	8.21	-73.9	0.23	0.12
	30-Jun-10	1308	7.20	189	11.10	-126.5	0.13	3.97
	24-Sep-10	1519	6.61	215	11.2	368.0	3.50	1.01
5-W-42	16-Dec-09	1249	5.91	57	8.20	281.0	1.94	2.63
	24-Mar-10	1644	6.30	49	8.93	28.2	3.12	1.17
	30-Jun-10	1118	6.52	117	10.59	-72.2	1.16	2.15
	22-Sep-10	1226	6.33	73	11.52	88.0	2.69	11.25
5-W-43	17-Dec-09	Well unable to be sampled due to large puddle over well.						
	23-Mar-10	1257	6.46	66	7.24	180.1	7.78	0.26
	29-Jun-10	1140	6.00	40	10.81	-123.2	1.44	NM
	22-Sep-10	1129	5.73	55	11.01	104.9	1.89	3.85
5-W-50	23-Mar-10	1212	5.61	50	8.43	-81.8	0.21	1.82
	21-Sep-10	1608	6.15	219	13.64	-79.7	0.22	10.83
5-W-51	23-Mar-10	Product in discharge line. No parameters collected.						
	20-Sep-10							
5-W-52	23-Mar-10	1635	6.08	62	9.15	-138.3	9.15	0.42
	20-Sep-10	Well abandoned 7/12/2010						
5-W-53	24-Mar-10	1143	6.20	60	10.40	-20.7	0.72	0.74
	20-Sep-10	Well abandoned 7/13/2010						

Table 5-2 Stabilized Groundwater Field Parameter Measurements

Well	Sample Date	Field Parameters						
		Time	pH	Conductivity (µmhos/cm)	Temperature (°C)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
	Units:							
5-W-54	24-Mar-10	1223	5.93	38	8.53	59.0	3.00	0.32
	21-Sep-10	1457	6.21	124	14.74	147.3	0.67	1.83
5-W-55	24-Mar-10	1724	6.08	37	9.54	94.7	5.22	0.63
	22-Sep-10	1432	6.00	66	17.42	160.9	6.28	1.75
5-W-56	23-Mar-10	1738	6.13	148	10.24	-67.4	0.49	3.42
	21-Sep-10	1714	5.92	281	16.05	114.3	0.82	6.29
EW-1	17-Dec-09	1005	5.35	29	6.00	414.0	1.62	0.07
	23-Mar-10	1350	5.66	35	8.19	199.0	8.31	0.19
	30-Jun-10	907	5.95	34	10.55	184.9	0.86	0.61
	22-Sep-10	1044	5.77	44	9.62	127.3	1.05	3.29
GW-1	17-Dec-09	1038	6.04	60	7.70	389.0	1.60	0.84
	22-Mar-10	1646	6.12	56	6.42	83.1	2.84	0.93
	30-Jun-10	853	6.03	68	10.18	-105.6	0.42	2.32
	22-Sep-10	1245	5.64	60	11.88	87.3	0.22	0.80
GW-2	17-Dec-09	1120	6.03	47	6.99	62.4	2.10	3.92
	22-Mar-10	1559	6.24	56	7.00	76.0	0.82	0.45
	29-Jun-10	1129	6.26	52	10.06	-185.1	0.37	NM
	22-Sep-10	1438	5.59	59	12.52	41.6	0.22	1.30
GW-3	17-Dec-09	1149	6.02	58	6.00	375.0	0.39	89.00
	22-Mar-10	1735	6.09	51	7.81	26.8	1.88	8.41
	30-Jun-10	1457	6.19	74	10.98	71.4	0.29	15.85
	21-Sep-10	1647	6.06	151	10.31	100.4	1.72	10.20
GW-4	17-Dec-09	1348	6.38	87	7.00	360.0	1.79	14.40
	23-Mar-10	914	6.72	84	7.12	214.0	7.80	3.50
	29-Jun-10	1544	6.45	84	9.43	153.4	2.56	1.91
	21-Sep-10	1557	5.69	67	10.73	109.9	1.58	2.63
MW-3	24-Mar-10	1800	5.90	70	7.7	72.5	5.05	27.20
	21-Sep-10	1556	5.61	304	13.7	226.0	4.56	4.76
MW-4	24-Mar-10	916	5.09	44	5.90	195.00	4.84	1.58
	21-Sep-10	1634	4.71	76	10.8	180.0	2.41	2.12
MW-16	23-Mar-10	831	5.42	46	5.70	183.5	7.76	0.12
	20-Sep-10	1601	4.51	41	11.00	258.0	5.36	1.70
MW-38R	22-Mar-10	1621	5.23	64	7.00	283.0	0.43	1.96
	21-Sep-10	1249	6.15	50	8.46	159.1	0.16	3.51
MW-39	23-Mar-10	Product in discharge line. No parameters collected.						
	22-Sep-10	Well abandoned 7/14/2010						
PZ-1	27-Oct-09	1542	5.71	87.000	10.03	149.70	0.31	1.83
	24-Nov-09	1203	5.77	95.000	9.37	246.60	0.60	0.76

Notes:

*Potential field error

NM = Not Measured

Table 5-3 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Analytical Results

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL		
Air Sparging System																				
1C-W-1	1C-W-1-1009	10/27/2009	270	18	94	NA					330	23	47	NA					600	NA
1C-W-1	1C-W-1-1109	11/24/2009	ND	160	380	NA					87	10	70	NA					167	NA
1C-W-1	1C-W-1-1209	12/15/2009	ND	160	380	NA					120	19	75	NA					200	NA
1C-W-1	IC-W-1-0110	1/26/2010	95	40	95	NA					96	4.7	19	NA					191	NA
1C-W-1	IC-W-1-0210	2/23/2010	ND	40	94	NA					49	J	4.7	19	NA				69	NA
1C-W-1	IC-W-1-0310	3/25/2010	ND	7.1	94	NA					62	4.7	19	NA					65.55	NA
1C-W-1	IC-W-1-0410	4/27/2010	160	7.1	94	NA					110	4.7	19	NA					270	NA
1C-W-1	IC-W-1-0510	5/26/2010	140	7.1	95	NA					150	4.8	19	NA					290	NA
1C-W-1	IC-W-1-0610	6/29/2010	ND	7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
1C-W-1	IC-W-1-0710	7/27/2010	ND	7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
1C-W-1	IC-W-1-0810	8/31/2010	ND	7.1	94	NA					36	4.7	19	NA					39.55	NA
1C-W-1	IC-W-1-0910	9/21/2010	110	7.1	95	NA					50	4.7	19	NA					160	NA
1C-W-7*	1C-W-7-1009	10/27/2009	270	18	94	NA					1300	23	47	NA					1570	NA
1C-W-7*	1C-W-7-1109	11/24/2009	ND	160	380	NA					190	10	70	NA					270	NA
1C-W-7*	1C-W-7-1209	12/15/2009	ND	160	380	NA					100	19	76	NA					180	NA
1C-W-7*	IC-W-7-0110	1/26/2010	ND	40	94	NA					120	4.7	19	NA					140	NA
1C-W-7* (FD)	IC-W-70-0110	1/26/2010	ND	40	95	NA					130	4.7	19	NA					150	NA
1C-W-7*	IC-W-7-0210	2/23/2010	ND	40	94	NA					120	4.7	19	NA					140	NA
1C-W-7* (FD)	IC-W-70-0210	2/23/2010	ND	40	94	NA					110	J	4.7	19	NA				130	NA
1C-W-7*	IC-W-7-0310	3/25/2010	ND	7.1	94	NA					110	4.7	19	NA					113.55	NA
1C-W-7*	IC-W-7-0410	4/27/2010	100	7.1	94	NA					140	4.7	19	NA					240	NA
1C-W-7*	IC-W-7-0510	5/26/2010	220	7.1	95	NA					360	4.8	19	NA					580	NA
1C-W-7*	IC-W-7-0610	6/29/2010	ND	7.1	95	NA					120	4.7	19	NA					123.55	NA
1C-W-7*	IC-W-7-0710	7/27/2010	ND	7.1	95	NA					100	4.7	19	NA					103.55	NA
1C-W-7*	IC-W-7-0810	8/31/2010	ND	7.1	95	NA					110	4.7	19	NA					113.55	NA
1C-W-7*	IC-W-7-0910	9/21/2010	170	7.1	95	NA					190	4.7	19	NA					360	NA
1C-W-8	1C-W-8-1009	10/27/2009	1000	180	950	NA					3800	230	480	NA					4800	NA
1C-W-8	1C-W-8-1109	11/24/2009	ND	170	400	NA					1000	20	80	NA					1085	NA
1C-W-8	1C-W-8-1209	12/15/2009	ND	160	380	NA					540	19	76	NA					620	NA
1C-W-8	IC-W-8-0110	1/26/2010	180	40	95	NA					510	4.7	19	NA					690	NA
1C-W-8	IC-W-8-0210	2/23/2010	250	40	94	NA					500	4.7	19	NA					750	NA
1C-W-8	IC-W-8-0310	3/25/2010	200	7.1	94	NA					690	4.7	19	NA					890	NA
1C-W-8	IC-W-8-0410	4/27/2010	330	7.1	94	NA					930	4.7	19	NA					1260	NA
1C-W-8 (FD)	IC-W-80-0410	4/27/2010	350	7.1	94	NA					1000	4.7	19	NA					1350	NA
1C-W-8	IC-W-8-0510	5/26/2010	260	7.1	95	NA					640	4.8	19	NA					900	NA
1C-W-8 (FD)	IC-W-80-0510	5/26/2010	260	7.1	95	NA					630	4.8	19	NA					890	NA
1C-W-8	IC-W-8-0610	6/29/2010	160	7.1	95	NA					390	4.7	19	NA					550	NA
1C-W-8	IC-W-8-0710	7/27/2010	ND	7.1	95	NA					320	4.7	19	NA					323.55	NA
1C-W-8	IC-W-8-0810	8/31/2010	ND	7.1	94	NA					200	4.7	19	NA					203.55	NA
1C-W-8	IC-W-8-0910	9/21/2010	590	7.1	95	NA					1800	4.7	19	NA					2390	NA
Maximum			1000			NA					3800			NA					4800	NA
Minimum			ND			NA					ND			NA					ND	NA
Average																			604.4**	NA
Backfill and Downgradient of Hydraulic Control and Containment System																				
1B-W-23	1B-W-23-1009	10/27/2009	490	18	94	NA					530	23	47	NA					1020	NA
1B-W-23	1B-W-23-1109	11/24/2009	ND	160	380	NA					160	10	70	NA					240	NA
1B-W-23	1B-W-23-1209	12/15/2009	ND	160	380	NA					ND	19	76	NA					89.5 (ND)	NA
1B-W-23	1B-W-23-0310	3/23/2010	ND	7.1	95	NA					34	4.7	19	NA					37.55	NA
1B-W-23 (FD)	1B-W-230-0310	3/23/2010	ND	7.1	95	NA					23	4.7	19	NA					26.55	NA
1B-W-23	1B-W-23-0610	6/29/2010	200	7.1	95	NA					350	4.8	19	NA					550	NA
1B-W-23	1B-W-23-0710	7/27/2010	160	7.7	100	NA					490	5.2	21	NA					650	NA
1B-W-23 (FD)	1B-W-230-0710	7/27/2010	180	7.1	95	NA					480	4.8	19	NA					660	NA
1B-W-23	1B-W-23-0810	8/31/2010	280	7.1	94	NA					370	J	4.7	19	NA				650	NA
1B-W-23 (FD)	1B-W-230-0810	8/31/2010	220	7.1	95	NA					250	J	4.7	19	NA				470	NA
1B-W-23	1B-W-23-0910	9/22/2010	210	7.6	100	NA					67	5.1	20	NA					277	NA
1C-W-7*	1C-W-7-1009	10/27/2009	270	18	94	NA					1300	23	47	NA					1570	NA
1C-W-7*	1C-W-7-1109	11/24/2009	ND	160	380	NA					190	10	70	NA					270	NA
1C-W-7*	1C-W-7-1209	12/15/2009	ND	160	380	NA					100	19	76	NA					180	NA
1C-W-7*	IC-W-7-0110	1/26/2010	ND	40	94	NA					120	4.7	19	NA					140	NA
1C-W-7* (FD)	IC-W-70-0110	1/26/2010	ND	40	95	NA					130	4.7	19	NA					150	NA
1C-W-7*	IC-W-7-0210	2/23/2010	ND	40	94	NA					120	4.7	19	NA					140	NA
1C-W-7* (FD)	IC-W-70-0210	2/23/2010	ND	40	94	NA					110	J	4.7	19	NA				130	NA
1C-W-7*	IC-W-7-0310	3/25/2010	ND	7.1	94	NA					110	4.7	19	NA					113.55	NA
1C-W-7*	IC-W-7-0410	4/27/2010	100	7.1	94	NA					140	4.7	19	NA					240	NA
1C-W-7*	IC-W-7-0510	5/26/2010	220	7.1	95	NA					360	4.8	19	NA					580	NA
1C-W-7*	IC-W-7-0610	6/29/2010	ND	7.1	95	NA					120	4.7	19	NA					123.55	NA
1C-W-7*	IC-W-7-0710	7/27/2010	ND	7.1	95	NA					100	4.7	19	NA					103.55	NA
1C-W-7*	IC-W-7-0810	8/31/2010	ND	7.1	95	NA					110	4.7	19	NA					113.55	NA
1C-W-7*	IC-W-7-0910	9/21/2010	170	7.1	95	NA					190	4.7	19	NA					360	NA
2A-W-40	2A-W-40-1209	12/15/2009	ND	160	380	NA					ND	19	76	NA					89.5 (ND)	NA
2A-W-40	2A-W-40-0310	3/23/2010	ND	7.1	94	NA					21	4.7	19	NA					24.55	NA
2A-W-40	2A-W-40-0610	6/30/2010	ND	7.4	99	NA					ND	5	20	NA						

Table 5-3 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Analytical Results

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL		
Former Maloney Creek Zone - East Wetland and Surrounding Areas																				
2A-W-10	2A-W-10-0310	3/23/2010	430		7.1	95	NA				110		4.7	19	NA				540	NA
2A-W-10	2A-W-10-0610	6/30/2010	350	J	7.1	95	NA				140	J	4.7	19	NA				490	NA
2A-W-10	2A-W-10-0910	9/21/2010	290		7.1	95	NA				150		4.8	19	NA				440	NA
2A-W-10 (FD)	2A-W-100-0910	9/21/2010	360		7.1	95	NA				150		4.7	19	NA				510	NA
2A-W-11	2A-W-11-0310	3/23/2010	450		7.1	95	NA				380		4.7	19	NA				830	NA
2A-W-9	2A-W-9-0310	3/24/2010	320		7.1	94	NA				270		4.7	19	NA				590	NA
2A-W-9	2A-W-9-0910	9/21/2010	710		7.1	95	NA				1000		4.8	19	NA				1710	NA
2B-W-4	2B-W-4-0310	3/22/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-4	2B-W-4-0910	9/20/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-45	2B-W-45-1209	12/16/2009	ND		160	380	NA				ND		19	76	NA				89.5 (ND)	NA
2B-W-45	2B-W-45-0310	3/24/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-45	2B-W-45-0610	6/30/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-46	2B-W-46-1209	12/16/2009	ND		160	380	NA				ND		19	76	NA				89.5 (ND)	NA
2B-W-46	2B-W-46-0310	3/24/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-46	2B-W-46-0610	6/30/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
MW-3	MW-3-0310	3/24/2010	95		7.1	94	NA				82		4.7	19	NA				177	NA
MW-3	MW-3-0910	9/21/2010	500		7.1	95	NA				430		4.7	19	NA				930	NA
MW-39	MW-39-0310	3/23/2010	180		7.1	95	NA				210		4.7	19	NA				390	NA
MW-4	MW-4-0310	3/24/2010	170		7.1	95	NA				37		4.7	19	NA				207	NA
MW-4	MW-4-0910	9/21/2010	ND		7.1	95	NA				39		4.7	19	NA				42.55	NA
Maximum			710				NA				1000				NA				0	NA
Minimum			ND				NA				ND				NA				ND	NA
Average											ND								571.4**	NA
Former Maloney Creek Zone - West Wetland																				
3-W-41	3-W-41-1209	12/15/2009	ND		160	380	ND	58	380		ND	19	76	ND	35	76			89.5 (ND)	46.5 (ND)
3-W-41	3-W-41-0310	3/24/2010	ND		7.1	94	ND	14	94		ND	4.7	19	ND	8.7	19			5.9 (ND)	11.35 (ND)
3-W-42	3-W-42-1009	10/30/2009	ND		160	380	ND	58	380		ND	19	76	ND	35	76			89.5 (ND)	46.5 (ND)
3-W-42	3-W-42-1109	11/24/2009	ND		160	380	ND	50	380		ND	10	70	ND	30	70			85 (ND)	40 (ND)
3-W-42 (FD)	3-W-420-1109	11/24/2009	ND		160	380	ND	50	380		ND	10	70	ND	30	70			85 (ND)	40 (ND)
3-W-42	3-W-42-1209	12/15/2009	ND		160	380	ND	58	380		ND	19	76	ND	35	76			89.5 (ND)	46.5 (ND)
3-W-42	3-W-42-0310	3/24/2010	ND		7.1	94	ND	14	94		ND	4.7	19	ND	8.7	19			5.9 (ND)	11.35 (ND)
3-W-43	3-W-43-1209	12/15/2009	ND		160	380	ND	58	380		ND	19	76	ND	35	76			89.5 (ND)	46.5 (ND)
3-W-43	3-W-43-0310	3/24/2010	ND		7.1	94	ND	14	94		ND	4.7	19	ND	8.7	19			5.9 (ND)	11.35 (ND)
Maximum			ND				ND				ND				ND				ND	ND
Minimum			ND				ND				ND				ND				ND	ND
Average											ND								ND	ND
Hydraulic Control and Containment System																				
EW-1	EW-1-1209	12/17/2009	ND		160	380	NA				ND	19	76	NA					89.5 (ND)	NA
EW-1	EW-1-0310	3/23/2010	ND		7.1	95	NA				29		4.7	19	NA				32.55	NA
EW-1 (FD)	EW-10-0310	3/23/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
EW-1	EW-1-0610	6/30/2010	ND		7.1	95	NA				24		4.7	19	NA				27.55	NA
EW-1	EW-1-0910	9/22/2010	ND		7.3	97	NA				ND		4.9	19	NA				6.1 (ND)	NA
GW-1	GW-1-1209	12/17/2009	ND		160	380	NA				ND	19	76	NA					89.5 (ND)	NA
GW-1	GW-1-0310	3/22/2010	ND		7.1	95	NA				32		4.7	19	NA				35.55	NA
GW-1	GW-1-0610	6/30/2010	ND		7.2	96	NA				ND		4.8	19	NA				6 (ND)	NA
GW-1	GW-1-0910	9/22/2010	150		7.1	95	NA				96		4.7	19	NA				246	NA
GW-2	GW-2-1209	12/17/2009	ND		160	380	NA				120		19	75	NA				200	NA
GW-2 (FD)	GW-20-1209	12/17/2009	ND		160	380	NA				120		19	75	NA				200	NA
GW-2	GW-2-0310	3/22/2010	140		7.1	95	NA				220		4.7	19	NA				360	NA
GW-2 (FD)	GW-20-0310	3/22/2010	160		7.1	95	NA				230		4.8	19	NA				390	NA
GW-2	GW-2-0610	6/29/2010	ND		7.3	97	NA				65		4.9	19	NA				68.65	NA
GW-2	GW-2-0910	9/22/2010	ND		7.1	95	NA				39		4.7	19	NA				42.55	NA
GW-2 (FD)	GW-20-0910	9/22/2010	ND		7.1	94	NA				38		4.7	19	NA				41.55	NA
GW-3	GW-3-1209	12/17/2009	ND		160	380	NA				100		19	75	NA				180	NA
GW-3	GW-3-0310	3/22/2010	ND		7.1	94	NA				68		4.7	19	NA				71.55	NA
GW-3	GW-3-0610	6/30/2010	ND		7.1	95	NA				79		4.7	19	NA				82.55	NA
GW-3 (FD)	GW-30-0610	6/30/2010	ND		7.1	95	NA				64		4.7	19	NA				67.55	NA
GW-3	GW-3-0910	9/21/2010	110		7.1	95	NA				74		4.7	19	NA				184	NA
GW-4	GW-4-1209	12/17/2009	ND		160	380	NA				ND	19	76	NA					89.5 (ND)	NA
GW-4	GW-4-0310	3/23/2010	ND		7.1	95	NA				59		4.7	19	NA				62.55	NA
GW-4	GW-4-0610	6/29/2010	ND		7.1	95	NA				26		4.7	19	NA				29.55	NA
GW-4	GW-4-0910	9/21/2010	ND		7.1	95	NA				35		4.7	19	NA				38.55	NA
Maximum			160				NA				230				NA				390	NA
Minimum			ND				NA				ND				NA				ND	NA
Average											ND								124**	NA
Hydraulic Control and Containment System Gate Vault Sentry Wells																				
S1-AD	S1 - AD_0110	1/5/2010	ND		41	96	NA				ND	4.8	19	NA					22.9 (ND)	NA
S1-AD	S1-AD-0310	3/23/2010	ND		7.1	95	NA				ND	4.7	19	NA					5.9 (ND)	NA
S1-AD	S1-AD-0910	9/21/2010	ND		7.1	95	NA				23		4.8	19	NA				26.55	NA
S1-AU	S1 - AU_0110	1/5/2010	51	J	40	95	NA				ND	4.8	19	NA					53.4	NA
S1-AU	S1-AU-0310	3/23/2010	ND		7.1	95	NA				ND	4.7	19	NA					5.9 (ND)	NA
S1-AU	S1-AU-0910	9/21/2010	ND		7.1	95	NA				ND	4.7	19	NA					5.9 (ND)	NA
S1-BD	S1 - BD_0110	1/5/2010	ND		40	95	NA				ND	4.8	19	NA					22.4 (ND)	NA
S1-BD (FD)	S1 - BA_0110	1/5/2010	ND		40	95	NA				ND	4.8	19	NA					22.4 (ND)	NA
S1-BD	S1-BD-0310	3/23/2010	ND		7.1	95	NA				ND	4.7	19	NA					5.9 (ND)	NA
S1-BD	S1-BD-0910	9/21/2010	140		7.1															

Table 5-3 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Analytical Results

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)	
Location ID	Sample ID	Sample Date	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL			
Hydraulic Control and Containment System Gate Vault Sentry Wells (continued)																					
S3-AU	S3-AU-0310	3/23/2010	ND		7.1	95	NA					31	4.7	19	NA					34.55	NA
S3-AU	S3-AU-0910	9/21/2010	ND		7.1	95	NA					23	4.7	19	NA					26.55	NA
S3-BD	S3 - BD_0110	1/5/2010	ND		40	95	NA					ND	4.7	19	NA					22.35 (ND)	NA
S3-BD	S3-BD-0310	3/23/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S3-BD	S3-BD-0910	9/21/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S3-BU	S3-BU-0310	3/23/2010	ND		7.1	95	NA					29	4.7	19	NA					32.55	NA
S3-BU	S3-BU-0910	9/21/2010	140		7.1	95	NA					230	4.8	19	NA					370	NA
S3-CD	S3 - CD_0110	1/5/2010	ND		40	95	NA					ND	4.8	19	NA					22.4 (ND)	NA
S3-CD	S3-CD-0310	3/23/2010	ND		7.1	94	NA					ND	4.7	19	NA					5.9 (ND)	NA
S3-CD	S3-CD-0910	9/21/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S3-CU	S3 - CU_0110	1/5/2010	ND		40	95	NA					ND	4.8	19	NA					22.4 (ND)	NA
S3-CU	S3-CU-0310	3/23/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S3-CU	S3-CU-0910	9/21/2010	ND		7.1	95	NA					21	4.7	19	NA					24.55	NA
S3-CU (FD)	S30-CU-0910	9/21/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-AD	S4 - AD_0110	1/5/2010	ND		40	95	NA					ND	4.8	19	NA					22.4 (ND)	NA
S4-AD	S4-AD-0310	3/23/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-AD	S4-AD-0910	9/21/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-AU	S4 - AU_0110	1/5/2010	42	J	40	95	NA					ND	4.8	38	NA					44.4	NA
S4-AU	S4-AU-0310	3/23/2010	ND		7.1	94	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-AU (FD)	S4-AC-0310	3/23/2010	ND		7.1	94	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-AU	S4-AU-0910	9/21/2010	ND		7.1	95	NA					21	4.7	19	NA					24.55	NA
S4-BD	S4 - BD_0110	1/5/2010	130		40	95	NA					ND	4.8	47	NA					132.4	NA
S4-BD	S4-BD-0310	3/23/2010	ND		7.1	95	NA					ND	4.7	19	NA					5.9 (ND)	NA
S4-BD	S4-BD-0910	9/21/2010	170		7.1	95	NA					66	4.7	19	NA					236	NA
S4-BU	S4 - BU_0110	1/5/2010	550		40	95	NA					160	4.8	19	NA					710	NA
S4-BU	S4-BU-0310	3/23/2010	1100		7.1	95	NA					380	4.7	19	NA					1480	NA
S4-BU	S4-BU-0910	9/21/2010	ND		7.1	95	NA					34	4.7	19	NA					37.55	NA
S4-CD	S4 - CD_0110	1/5/2010	46	J	40	95	NA					ND	4.7	25	NA					48.35	NA
S4-CD	S4-CD-0310	3/23/2010	ND		7.1	95	NA					47	4.7	19	NA					50.55	NA
S4-CD	S4-CD-0910	9/21/2010	96		7.1	94	NA					34	4.7	19	NA					130	NA
S4-CU	S4 - CU_0110	1/5/2010	68	J	40	95	NA					ND	4.8	30	NA					70.4	NA
S4-CU	S4-CU-0310	3/23/2010	ND		7.1	94	NA					37	4.7	19	NA					40.55	NA
S4-CU	S4-CU-0910	9/21/2010	ND		7.1	94	NA					21	4.7	19	NA					24.55	NA
Maximum			1100				NA				380				NA				1480		
Minimum			ND				NA				ND				NA				ND		
Average																			141.9**		
Levee Zone																					
5-W-14	5-W-14-1209	12/16/2009	ND		160	380	ND		58	380	ND		19	75	ND		35	75	89.5 (ND)	46.5 (ND)	
5-W-14	5-W-14-0310	3/24/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)	
5-W-14	5-W-14-0610	6/30/2010	ND		7.1	95	ND		15	95	ND		4.7	19	ND		8.8	19	5.9 (ND)	11.9 (ND)	
5-W-14	5-W-14-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)	
5-W-15	5-W-15-1209	12/16/2009	ND		160	380	ND		58	380	300		19	75	ND		35	75	380	46.5 (ND)	
5-W-15	5-W-15-0310	3/24/2010	130		7.1	94	ND		14	94	280		4.7	19	110		8.7	19	410	117	
5-W-15 (FD)	5-W-150-0310	3/24/2010	170		7.1	95	ND		15	95	320		4.8	19	110		8.8	19	490	117.5	
5-W-15	5-W-15-0610	6/30/2010	430		7.1	95	150		14	95	760		4.7	19	300		8.8	19	1190	450	
5-W-15	5-W-15-0910	9/22/2010	320		7.1	95	ND		15	95	280		4.8	19	53		8.8	19	600	60.5	
5-W-16	5-W-16-1209	12/16/2009	ND		160	380	ND		58	380	ND		19	76	ND		35	76	89.5 (ND)	46.5 (ND)	
5-W-16	5-W-16-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)	
5-W-16	5-W-16-0610	6/30/2010	130		7.1	95	ND		14	95	200		4.8	19	58		8.8	19	330	65	
5-W-16	5-W-16-0910	9/22/2010	ND		7.1	95	ND		14	95	36		4.7	19	ND		8.8	19	39.55	11.4 (ND)	
5-W-17	5-W-17-1209	12/16/2009	ND		160	380	ND		58	380	ND		19	76	ND		35	76	89.5 (ND)	46.5 (ND)	
5-W-17	5-W-17-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)	
5-W-17	5-W-17-0610	6/30/2010	ND		7.2	96	ND		14	95	ND		4.8	19	ND		8.8	19	6 (ND)	11.4 (ND)	
5-W-17	5-W-17-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)	
5-W-17 (FD)	5-W-170-0910	9/22/2010	ND		7.1	95	ND		14	95	ND		4.7	19	ND		8.8	19	5.9 (ND)	11.4 (ND)	
5-W-18	5-W-18-1209	12/16/2009	ND		160	380	ND		58	380	650		19	75	ND		35	75	730	46.5 (ND)	
5-W-18 (FD)	5-W-180-1209	12/16/2009	ND		160	380	ND		58	380	680		19	76	ND		35	76	760	46.5 (ND)	
5-W-18	5-W-18-0310	3/24/2010	260		7.1	94	ND		14	94	430		4.7	19	160		8.7	19	690	167	
5-W-18	5-W-18-0610	6/30/2010	290		7.1	95	ND		14	95	400		4.7	19	94		8.8	19	690	101	
5-W-18 (FD)	5-W-180-0610	6/30/2010	310		7.1	95	ND		14	95	410		4.7	19	120		8.8	19	720	127	
5-W-18	5-W-18-0910	9/22/2010	300		7.1	95	ND		15	95	240		4.8	19	110		8.8	19	540	117.5	
5-W-19	5-W-19-1209	12/16/2009	ND		160	380	ND		58	380	ND		19	75	ND		35	75	89.5 (ND)	46.5 (ND)	
5-W-19	5-W-19-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)	
5-W-19	5-W-19-0610	6/30/2010	ND		7.1	95	ND		14	95	ND		4.7	19	ND		8.8	19	5.9 (ND)	11.4 (ND)	
5-W-19	5-W-19-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)	
5-W-20	5-W-20-1209	12/16/2009	ND		160	380	ND		58	380	580		19	76	ND		35	76	660	46.5 (ND)	
5-W-20	5-W-20-0310	3/24/2010	200		7.1	95	ND		15	95	430		4.8	19	140		8.8	19	630	147.5	
5-W-20	5-W-20-0610	6/30/2010	370		7.2	96	ND		15	96	420		4.8	19	110		8.9	19	790	117.5	
5-W-20	5-W-20-0910	9/22/2010	200		7.1	95	ND		14	95	170		4.7	19	21		8.8	19	370	28	
5-W-42	5-W-42-1209	12/16/2009	ND		160	380	ND		58	380	85	J	19	76	ND		35	76	165	46.5 (ND)	
5-W-42	5-W-42-0310	3/24/2010	ND		7.1	95	ND		14	95	32		4.7	19	ND		8.8	19	35.55	11.4 (ND)	
5-W-42	5-W-42-0610	6/30/2010	330		7.4	98	ND		15	97	360		4.9	20	130		9	19	690	137.5	
5-W-42	5-W-42-0910	9/22/2010	140		7.1	95	ND		14	95	82		4.7	19	ND		8.8	19	222	11.4 (ND)	
Maximum			430				150				760				300				1190		
Minimum			ND				ND				ND				ND				ND		
Average																			530.1**		
Schoolyard Perimeter Zone																					
5-W-50	5-W-50-0310	3/23/2010	1700		7.1	95	NA					3900	4.8	19	NA					5600	NA
5-W-50	5-W-50-0910	9/21/2010	8000		7.2	960	NA					12300	4.8	190	NA					20300	NA
5-W-50 (FD)	5-W-500-0910	9/21/2010	6000		37	500	NA					10400	25	99	NA					16400	NA
5-W-51	5-W-51-0310	3/23/2010	3300		7.1	95</															

Table 5-3 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Analytical Results

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL	Result	Q	MDL	MRL		
Site-wide[^]																				
1A-W-4	1A-W-4-0310	3/23/2010	ND		7.1	94	NA				ND		4.7	19	NA				5.9 (ND)	NA
1A-W-4	1A-W-4-0910	9/21/2010	ND		7.5	100	NA				ND		5	20	NA				6.25 (ND)	NA
1A-W-5	1A-W-5-0310	3/23/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
1B-W-2	1B-W-2-0310	3/24/2010	140		7.1	94	NA				68		4.7	19	NA				208	NA
1B-W-2	1B-W-2-0910	9/21/2010	170		7.7	100	NA				80		5.1	20	NA				250	NA
1B-W-3	1B-W-3-0310	3/24/2010	ND		7.1	94	NA				34		4.7	19	NA				37.55	NA
1B-W-3	1B-W-3-0910	9/21/2010	ND		7.7	100	NA				33		5.1	20	NA				36.85	NA
1C-W-3	1C-W-3-0310	3/23/2010	ND		7.1	94	NA				ND		4.7	19	NA				5.9 (ND)	NA
1C-W-3	1C-W-3-0910	9/21/2010	ND		7.1	95	NA				21		4.7	19	NA				24.55	NA
1C-W-4	1C-W-4-0310	3/23/2010	260		7.1	95	NA				280		4.7	19	NA				540	NA
1C-W-4	1C-W-4-0910	9/21/2010	240		7.1	95	NA				380		4.7	19	NA				620	NA
5-W-4	5-W-4-0310	3/23/2010	370		7.1	95	NA				290		4.7	19	NA				660	NA
MW-16	MW-16-0310	3/23/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
MW-16	MW-16-0910	9/20/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
MW-38R	MW-38R-0310	3/22/2010	ND		7.1	94	NA				57		4.7	19	NA				60.55	NA
MW-38R	MW-38R-0910	9/21/2010	ND		7.7	100	NA				43		5.2	21	NA				46.85	NA
Maximum			370				NA				380				NA				660	NA
Minimum			ND				NA				ND				NA				ND	NA
Average																			248**	NA
Field Equipment Blanks																				
FIELDQC (EB)	MW-500-0310	3/24/2010	ND		7.1	95	ND	15	95		ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)
FIELDQC (EB)	MW-500-1209	12/16/2009	ND		160	380	ND	58	380		ND		19	76	ND		35	76	89.5 (ND)	46.5 (ND)

Notes:

* Location is being monitored for multiple assessments.

** Value based on calculated concentrations, excluding non-detects.

[^] Location is being monitored for the site-wide assessment only. Locations from all site areas, except the HCC gate vault sentry well, are included in the site-wide assessment (Table 5-4).

All samples analyzed by NWTPH-Dx with or without silica gel cleanup.

Units - µg/L

Bold Exceeds cleanup level of 208 µg/L or remediation level (RL) of 477 µg/L.

Trace LNAPL

MDL Method Detection Limit: Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.

MRL Method Reporting Limit: Reporting Level at, or above, the lowest level standard of the Calibration Table.

Results between the MDL and MRL are reported as Estimated Results.

µg/L micrograms per liter

EB Equipment Blank

FD Field Duplicate

HCC Hydraulic Control and Containment

J Estimated Concentration

NA Not Analyzed

ND Not Detected

(ND) Both the Oil Range and Diesel Range Hydrocarbons were non-detect, but the TPH (calc) value is shown.

Q Qualifier

TPH Total Petroleum Hydrocarbons

TPH (calc) Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx. 1/2 the MDL was used for all NDs.

TPH-SG (calc) Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx with Silica Gel Cleanup. 1/2 the MDL was used for all NDs.

Table 5-4 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Semi-Annual Site-Wide Analytical Results*

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL		
March 2010 Semi-Annual Event Results																				
2B-W-4	2B-W-4-0310	3/22/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
GW-1	GW-1-0310	3/22/2010	ND		7.1	95	NA				32		4.7	19	NA				35.55	NA
GW-2	GW-2-0310	3/22/2010	140		7.1	95	NA				220		4.7	19	NA				360	NA
GW-2 (FD)	GW-20-0310	3/22/2010	160		7.1	95	NA				230		4.8	19	NA				390	NA
GW-3	GW-3-0310	3/22/2010	ND		7.1	94	NA				68		4.7	19	NA				71.55	NA
MW-38R	MW-38R-0310	3/22/2010	ND		7.1	94	NA				57		4.7	19	NA				60.55	NA
1A-W-4	1A-W-4-0310	3/23/2010	ND		7.1	94	NA				ND		4.7	19	NA				5.9 (ND)	NA
1A-W-5	1A-W-5-0310	3/23/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
1B-W-23	1B-W-23-0310	3/23/2010	ND		7.1	95	NA				34		4.7	19	NA				37.55	NA
1B-W-23 (FD)	1B-W-230-0310	3/23/2010	ND		7.1	95	NA				23		4.7	19	NA				26.55	NA
1C-W-3	1C-W-3-0310	3/23/2010	ND		7.1	94	NA				ND		4.7	19	NA				5.9 (ND)	NA
1C-W-4	1C-W-4-0310	3/23/2010	260		7.1	95	NA				280		4.7	19	NA				540	NA
2A-W-10	2A-W-10-0310	3/23/2010	430		7.1	95	NA				110		4.7	19	NA				540	NA
2A-W-11	2A-W-11-0310	3/23/2010	450		7.1	95	NA				380		4.7	19	NA				830	NA
2A-W-40	2A-W-40-0310	3/23/2010	ND		7.1	94	NA				21		4.7	19	NA				24.55	NA
2A-W-41	2A-W-41-0310	3/23/2010	ND		7.1	94	NA				40		4.7	19	NA				43.55	NA
2A-W-42	2A-W-42-0310	3/23/2010	150		7.1	95	NA				170		4.7	19	NA				320	NA
5-W-4	5-W-4-0310	3/23/2010	370		7.1	95	NA				290		4.7	19	NA				660	NA
5-W-43	5-W-43-0310	3/23/2010	ND		7.1	95	NA				31		4.7	19	NA				34.55	NA
5-W-50	5-W-50-0310	3/23/2010	1700		7.1	95	NA				3900		4.8	19	NA				5600	NA
5-W-51	5-W-51-0310	3/23/2010	3300		7.1	95	NA				3700		4.7	19	NA				7000	NA
5-W-52	5-W-52-0310	3/23/2010	910		7.1	95	NA				1500		4.7	19	NA				2410	NA
5-W-52 (FD)	5-W-520-0310	3/23/2010	910		7.1	95	NA				1400		4.8	19	NA				2310	NA
5-W-56	5-W-56-0310	3/23/2010	540		7.1	95	NA				330		4.7	19	NA				870	NA
EW-1	EW-1-0310	3/23/2010	ND		7.1	95	NA				29		4.7	19	NA				32.55	NA
EW-1 (FD)	EW-10-0310	3/23/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
GW-4	GW-4-0310	3/23/2010	ND		7.1	95	NA				59		4.7	19	NA				62.55	NA
MW-16	MW-16-0310	3/23/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
MW-39	MW-39-0310	3/23/2010	180		7.1	95	NA				210		4.7	19	NA				390	NA
1B-W-2	1B-W-2-0310	3/24/2010	140		7.1	94	NA				68		4.7	19	NA				208	NA
1B-W-3	1B-W-3-0310	3/24/2010	ND		7.1	94	NA				34		4.7	19	NA				37.55	NA
2A-W-9	2A-W-9-0310	3/24/2010	320		7.1	94	NA				270		4.7	19	NA				590	NA
2B-W-45	2B-W-45-0310	3/24/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2B-W-46	2B-W-46-0310	3/24/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
3-W-41	3-W-41-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
3-W-42	3-W-42-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
3-W-43	3-W-43-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
5-W-14	5-W-14-0310	3/24/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)
5-W-15	5-W-15-0310	3/24/2010	130		7.1	94	ND		14	94	280		4.7	19	110		8.7	19	410	117
5-W-15 (FD)	5-W-150-0310	3/24/2010	170		7.1	95	ND		15	95	320		4.8	19	110		8.8	19	490	117.5
5-W-16	5-W-16-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
5-W-17	5-W-17-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
5-W-18	5-W-18-0310	3/24/2010	260		7.1	94	ND		14	94	430		4.7	19	160		8.7	19	690	167
5-W-19	5-W-19-0310	3/24/2010	ND		7.1	94	ND		14	94	ND		4.7	19	ND		8.7	19	5.9 (ND)	11.35 (ND)
5-W-20	5-W-20-0310	3/24/2010	200		7.1	95	ND		15	95	430		4.8	19	140		8.8	19	630	147.5
5-W-42	5-W-42-0310	3/24/2010	ND		7.1	95	ND		14	95	32		4.7	19	ND		8.8	19	35.55	11.4 (ND)

Table 5-4 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Semi-Annual Site-Wide Analytical Results*

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL		
March 2010 Semi-Annual Event Results (continued)																				
5-W-53	5-W-53-0310	3/24/2010	230		7.1	94	NA				130		4.7	19	NA				360	NA
5-W-54	5-W-54-0310	3/24/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
5-W-55	5-W-55-0310	3/24/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
MW-3	MW-3-0310	3/24/2010	95		7.1	94	NA				82		4.7	19	NA				177	NA
MW-4	MW-4-0310	3/24/2010	170		7.1	95	NA				37		4.7	19	NA				207	NA
1C-W-1	1C-W-1-0310	3/25/2010	ND		7.1	94	NA				62		4.7	19	NA				65.55	NA
1C-W-7	1C-W-7-0310	3/25/2010	ND		7.1	94	NA				110		4.7	19	NA				113.55	NA
1C-W-8	1C-W-8-0310	3/25/2010	200		7.1	94	NA				690		4.7	19	NA				890	NA
Maximum			3300				ND				3900				160				7000	167
Minimum			ND				ND				ND				ND				ND	ND
Average																			744.7**	137**
September 2010 Semi-Annual Event Results																				
2B-W-4	2B-W-4-0910	9/20/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
5-W-51	5-W-51-0910	9/20/2010	1400		7.1	95	NA				3400		4.7	19	NA				4800	NA
MW-16	MW-16-0910	9/20/2010	ND		7.1	95	NA				ND		4.8	19	NA				5.95 (ND)	NA
1A-W-4	1A-W-4-0910	9/21/2010	ND		7.5	100	NA				ND		5	20	NA				6.25 (ND)	NA
1B-W-2	1B-W-2-0910	9/21/2010	170		7.7	100	NA				80		5.1	20	NA				250	NA
1B-W-3	1B-W-3-0910	9/21/2010	ND		7.7	100	NA				33		5.1	20	NA				36.85	NA
1C-W-1	1C-W-1-0910	9/21/2010	110		7.1	95	NA				50		4.7	19	NA				160	NA
1C-W-3	1C-W-3-0910	9/21/2010	ND		7.1	95	NA				21		4.7	19	NA				24.55	NA
1C-W-4	1C-W-4-0910	9/21/2010	240		7.1	95	NA				380		4.7	19	NA				620	NA
1C-W-7	1C-W-7-0910	9/21/2010	170		7.1	95	NA				190		4.7	19	NA				360	NA
1C-W-8	1C-W-8-0910	9/21/2010	590		7.1	95	NA				1800		4.7	19	NA				2390	NA
2A-W-10 (FD)	2A-W-100-0910	9/21/2010	360		7.1	95	NA				150		4.7	19	NA				510	NA
2A-W-10	2A-W-10-0910	9/21/2010	290		7.1	95	NA				150		4.8	19	NA				440	NA
2A-W-9	2A-W-9-0910	9/21/2010	710		7.1	95	NA				1000		4.8	19	NA				1710	NA
5-W-50 (FD)	5-W-500-0910	9/21/2010	6000		37	500	NA				10400		25	99	NA				16400	NA
5-W-50	5-W-50-0910	9/21/2010	8000		72	960	NA				12300		48	190	NA				20300	NA
5-W-54	5-W-54-0910	9/21/2010	120		7.4	99	NA				40		5	20	NA				160	NA
5-W-56	5-W-56-0910	9/21/2010	800		7.4	99	NA				460		5	20	NA				1260	NA
GW-3	GW-3-0910	9/21/2010	110		7.1	95	NA				74		4.7	19	NA				184	NA
GW-4	GW-4-0910	9/21/2010	ND		7.1	95	NA				35		4.7	19	NA				38.55	NA
MW-3	MW-3-0910	9/21/2010	500		7.1	95	NA				430		4.7	19	NA				930	NA
MW-38R	MW-38R-0910	9/21/2010	ND		7.7	100	NA				43		5.2	21	NA				46.85	NA
MW-4	MW-4-0910	9/21/2010	ND		7.1	95	NA				39		4.7	19	NA				42.55	NA
1B-W-23	1B-W-23-0910	9/22/2010	210		7.6	100	NA				67		5.1	20	NA				277	NA
2A-W-40	2A-W-40-0910	9/22/2010	ND		7.1	95	NA				ND		4.7	19	NA				5.9 (ND)	NA
2A-W-41	2A-W-41-0910	9/22/2010	ND		7.1	95	NA				22		4.7	19	NA				25.55	NA
2A-W-42	2A-W-42-0910	9/22/2010	160		7.1	95	NA				160		4.7	19	NA				320	NA
5-W-14	5-W-14-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)
5-W-15	5-W-15-0910	9/22/2010	320		7.1	95	ND		15	95	280		4.8	19	53		8.8	19	600	60.5
5-W-16	5-W-16-0910	9/22/2010	ND		7.1	95	ND		14	95	36		4.7	19	ND		8.8	19	39.55	11.4 (ND)
5-W-17 (FD)	5-W-170-0910	9/22/2010	ND		7.1	95	ND		14	95	ND		4.7	19	ND		8.8	19	5.9 (ND)	11.4 (ND)
5-W-17	5-W-17-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)
5-W-18	5-W-18-0910	9/22/2010	300		7.1	95	ND		15	95	240		4.8	19	110		8.8	19	540	117.5
5-W-19	5-W-19-0910	9/22/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)

Table 5-4 Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater (µg/L) Semi-Annual Site-Wide Analytical Results*

Chemical Name			Oil Range				Oil Range with Silica Gel Cleanup				Diesel Range				Diesel Range with Silica Gel Cleanup				TPH (Calc)	TPH-SG (Calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL		
September 2010 Semi-Annual Event Results (continued)																				
5-W-20	5-W-20-0910	9/22/2010	200		7.1	95	ND		14	95	170		4.7	19	21		8.8	19	370	28
5-W-42	5-W-42-0910	9/22/2010	140		7.1	95	ND		14	95	82		4.7	19	ND		8.8	19	222	11.4 (ND)
5-W-43	5-W-43-0910	9/22/2010	ND		8.1	110	NA				ND		5.4	22	NA				6.75 (ND)	NA
5-W-55	5-W-55-0910	9/22/2010	ND		7.6	100	NA				23		5.1	20	NA				26.8	NA
EW-1	EW-1-0910	9/22/2010	ND		7.3	97	NA				ND		4.9	19	NA				6.1 (ND)	NA
GW-1	GW-1-0910	9/22/2010	150		7.1	95	NA				96		4.7	19	NA				246	NA
GW-2 (FD)	GW-20-0910	9/22/2010	ND		7.1	94	NA				38		4.7	19	NA				41.55	NA
GW-2	GW-2-0910	9/22/2010	ND		7.1	95	NA				39		4.7	19	NA				42.55	NA
Maximum			8000				ND				12300				110				20300	117.5
Minimum			ND				ND				ND				ND				ND	ND
Average																			1669.2**	68.67**
Field Equipment Blanks																				
FIELDQC (EB)	MW-500-0310	3/24/2010	ND		7.1	95	ND		15	95	ND		4.8	19	ND		8.8	19	5.95 (ND)	11.9 (ND)

Notes:

* Locations sampled semi-annually from all site areas are included in the site-wide assessment, except HCC gate vault sentry wells.

** Value based on calculated concentrations, excluding non-detects.

All samples analyzed by NWTPH-Dx with or without silica gel cleanup.

Units - µg/L

Bold Exceeds cleanup level of 208 µg/L or remediation level (RL) of 477 µg/L.

Trace LNAPL

MDL Method Detection Limit: Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.

MRL Method Reporting Limit: Reporting Level at, or above, the lowest level standard of the Calibration Table.

Results between the MDL and MRL are reported as Estimated Results.

µg/L micrograms per liter

EB Equipment Blank

FD Field Duplicate

HCC Hydraulic Control and Containment

J Estimated Concentration

NA Not Analyzed

ND Not Detected

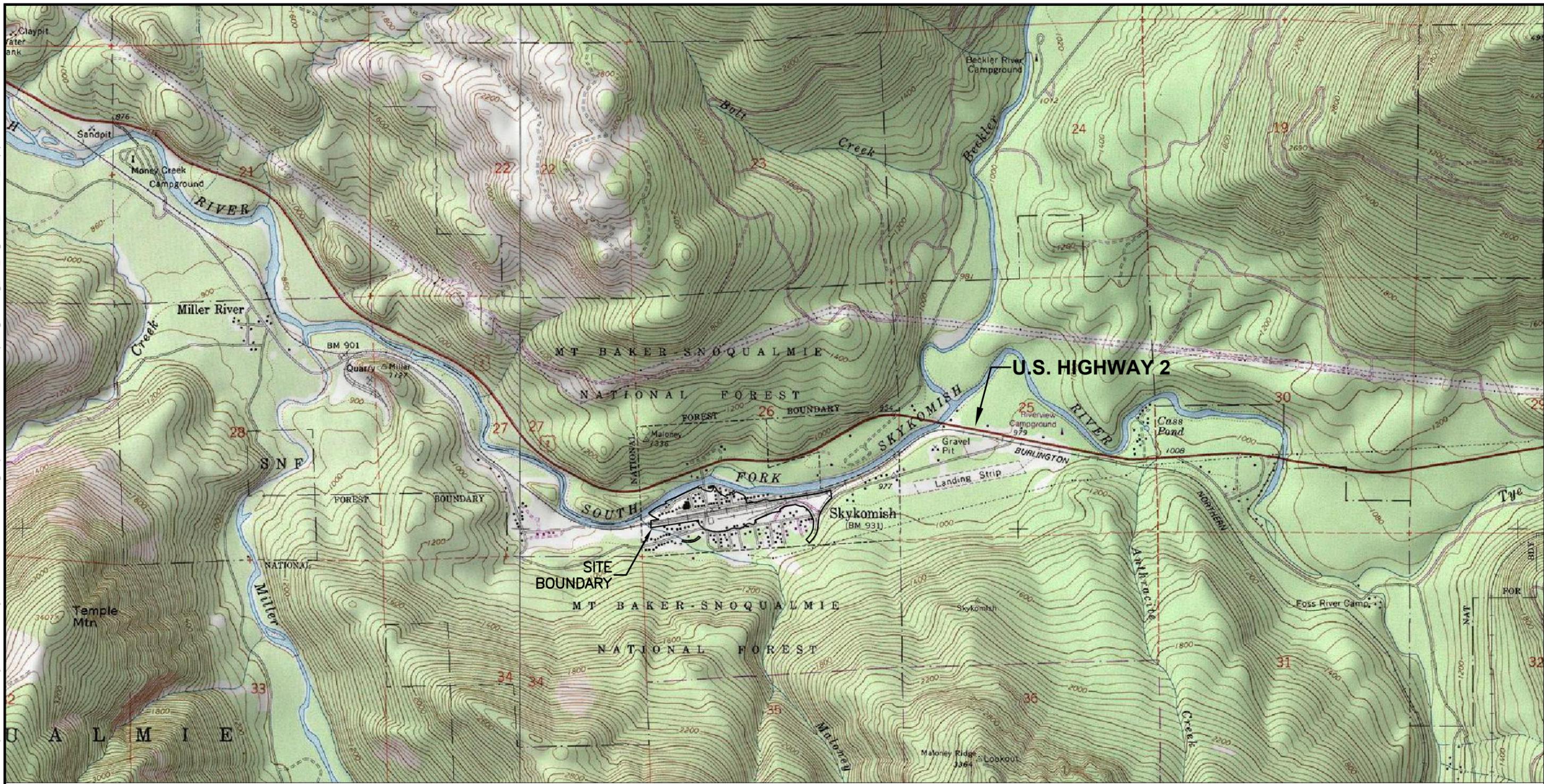
(ND) Both the Oil Range and Diesel Range Hydrocarbons were non-detect, but the TPH (calc) value is shown.

TPH Total Petroleum Hydrocarbons

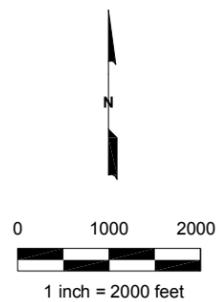
TPH (calc) Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx. 1/2 the MDL was used for all ND's.

TPH-SG (calc) Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx with Silica Gel Cleanup. 1/2 the MDL was used for all ND's.

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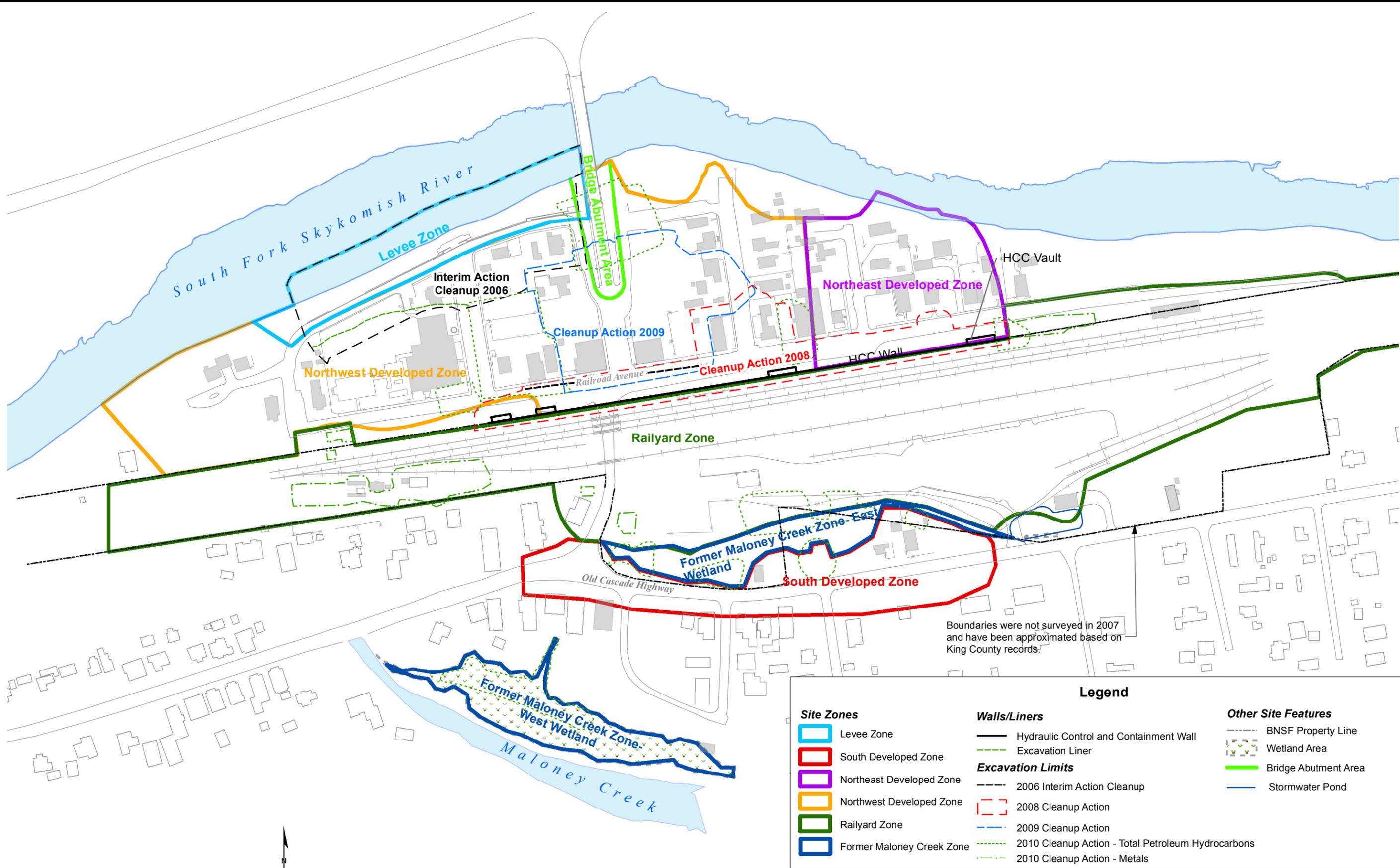


SOURCE: TOPO!, National Geographic Holdings, Inc.



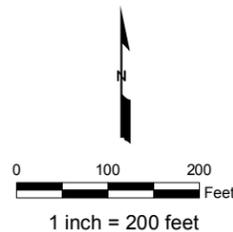
THE BNSF RAILWAY COMPANY SKYKOMISH, WASHINGTON 60136319-0545		Regional Location Map
DATE: 10/28/09	DRWN: H.H./BHAM	FIGURE 1-1

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Boundaries were not surveyed in 2007 and have been approximated based on King County records.

Legend		
Site Zones	Walls/Liners	Other Site Features
Levee Zone	Hydraulic Control and Containment Wall	BNSF Property Line
South Developed Zone	Excavation Liner	Wetland Area
Northeast Developed Zone	Excavation Limits	Bridge Abutment Area
Northwest Developed Zone	2006 Interim Action Cleanup	Stormwater Pond
Railyard Zone	2008 Cleanup Action	
Former Maloney Creek Zone	2009 Cleanup Action	
	2010 Cleanup Action - Total Petroleum Hydrocarbons	
	2010 Cleanup Action - Metals	



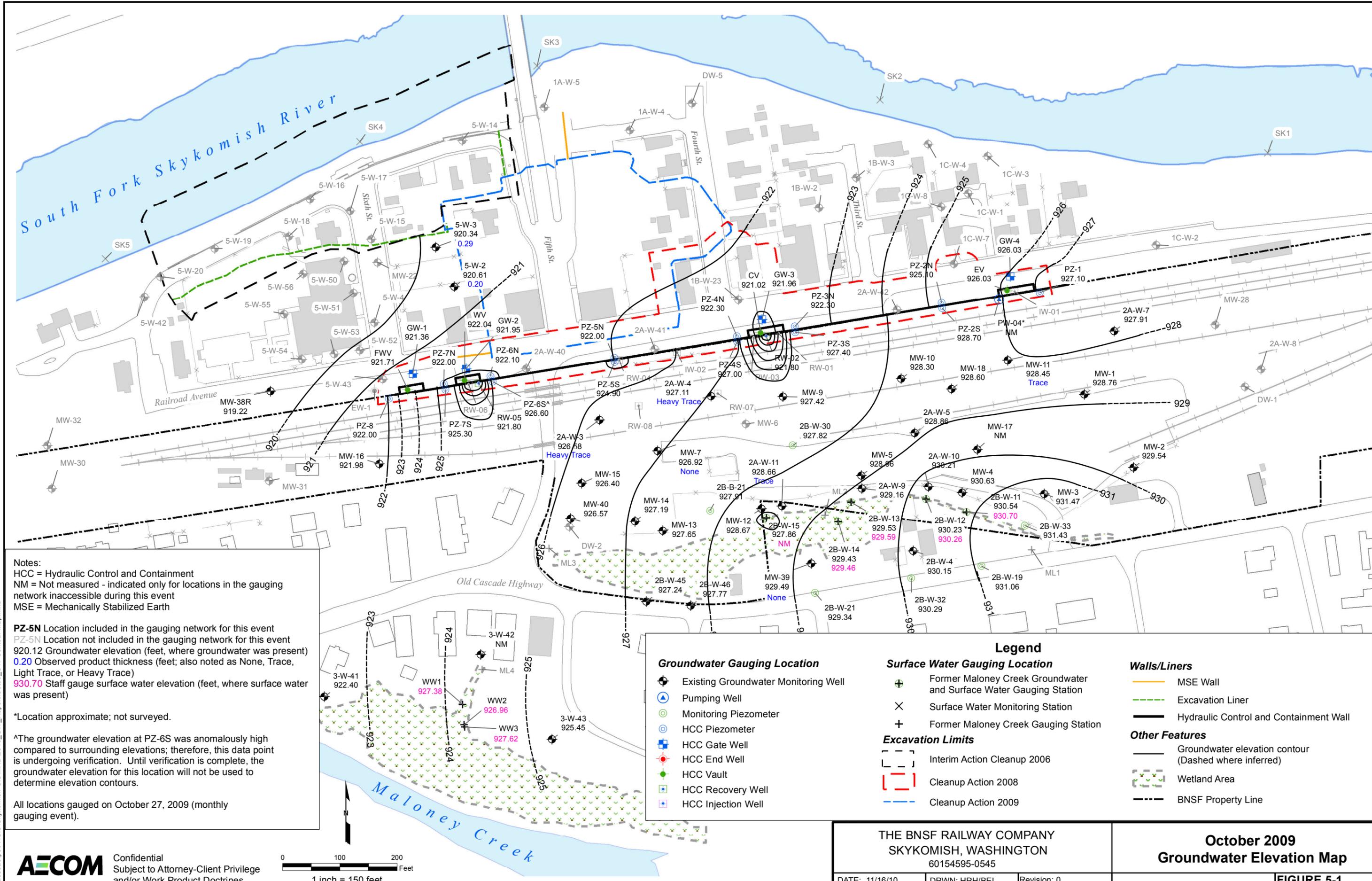
Confidential
Subject to Attorney-Client Privilege
and/or Work Product Doctrines

THE BNSF RAILWAY COMPANY
SKYKOMISH, WASHINGTON
60154595-0545

Site Layout and Site Zones

DATE: 11/16/10 DRWN:mvi/Sea Revision: 0

FIGURE 1-2



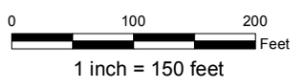
Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

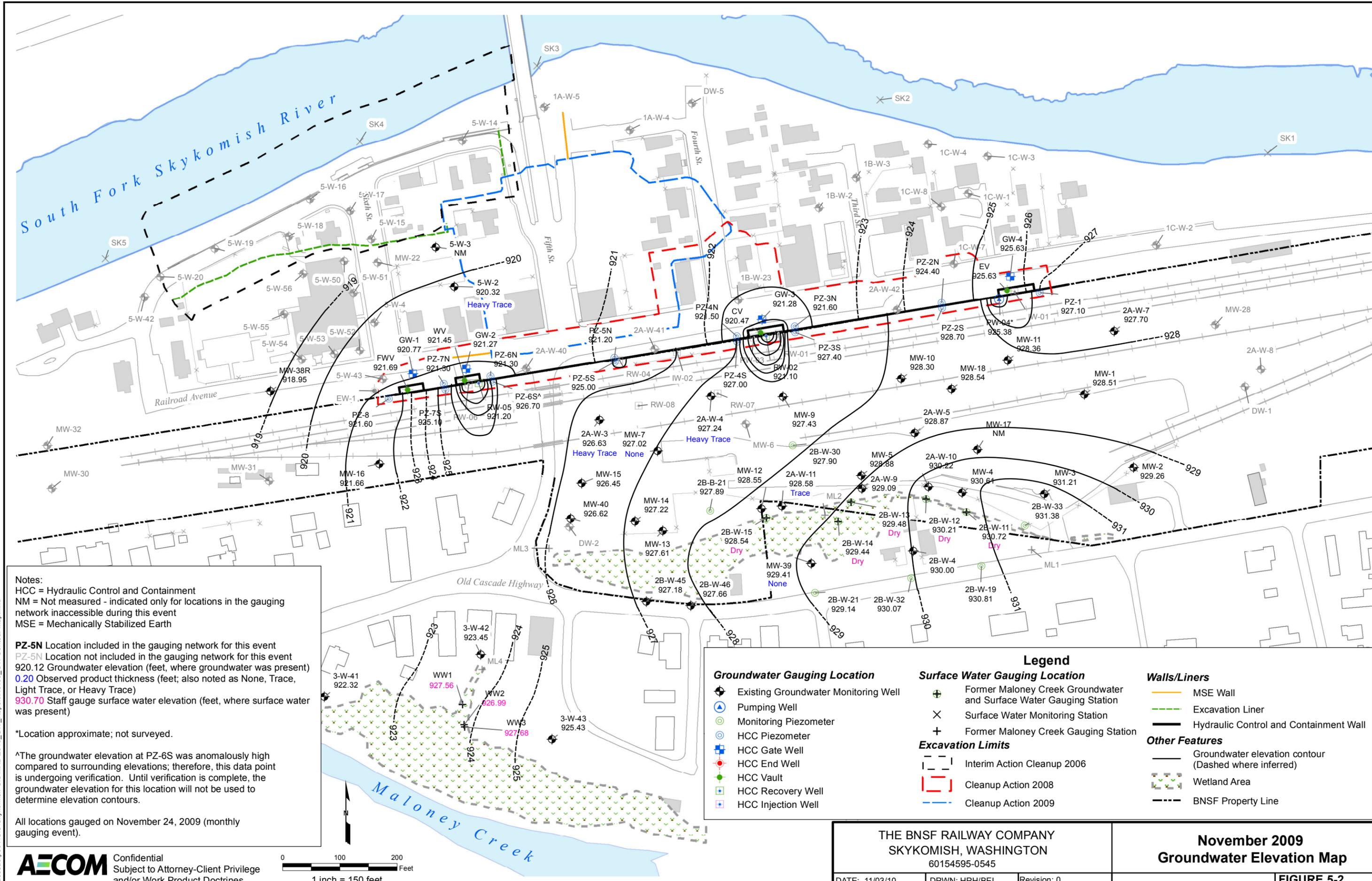
*Location approximate; not surveyed.
^The groundwater elevation at PZ-6S was anomalously high compared to surrounding elevations; therefore, this data point is undergoing verification. Until verification is complete, the groundwater elevation for this location will not be used to determine elevation contours.

All locations gauged on October 27, 2009 (monthly gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Walls/Liners
Existing Groundwater Monitoring Well	Former Maloney Creek Groundwater and Surface Water Gauging Station	MSE Wall
Pumping Well	Surface Water Monitoring Station	Excavation Liner
Monitoring Piezometer	Former Maloney Creek Gauging Station	Hydraulic Control and Containment Wall
HCC Piezometer		
HCC Gate Well	Excavation Limits	
HCC End Well	Interim Action Cleanup 2006	Groundwater elevation contour (Dashed where inferred)
HCC Vault	Cleanup Action 2008	Wetland Area
HCC Recovery Well	Cleanup Action 2009	BNSF Property Line
HCC Injection Well		



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Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

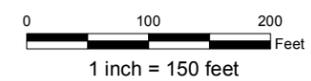
PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

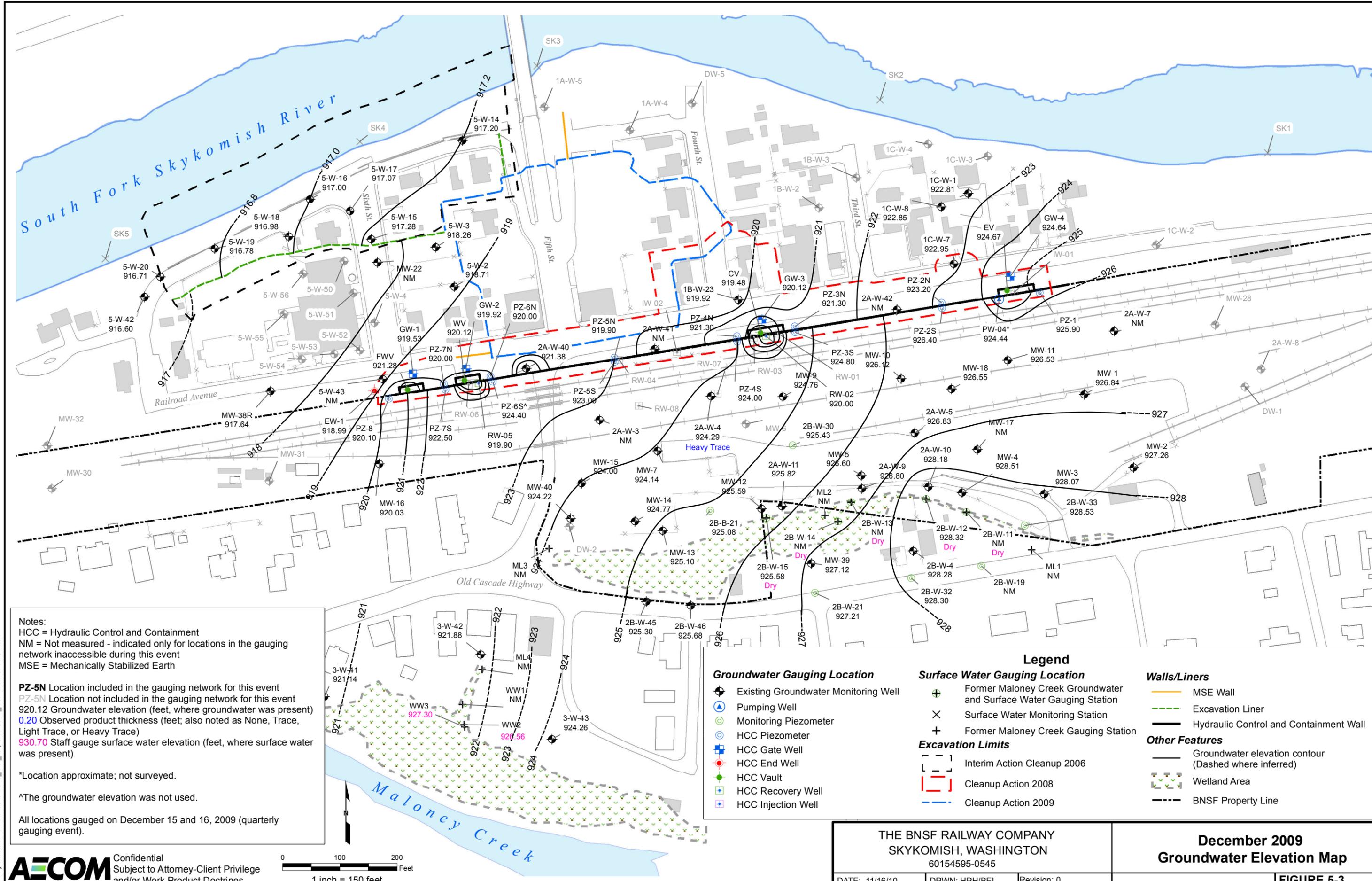
*Location approximate; not surveyed.

^The groundwater elevation at PZ-6S was anomalously high compared to surrounding elevations; therefore, this data point is undergoing verification. Until verification is complete, the groundwater elevation for this location will not be used to determine elevation contours.

All locations gauged on November 24, 2009 (monthly gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Walls/Liners
Existing Groundwater Monitoring Well	Former Maloney Creek Groundwater and Surface Water Gauging Station	MSE Wall
Pumping Well	Surface Water Monitoring Station	Excavation Liner
Monitoring Piezometer	Former Maloney Creek Gauging Station	Hydraulic Control and Containment Wall
HCC Piezometer	Excavation Limits	Groundwater elevation contour (Dashed where inferred)
HCC Gate Well	Interim Action Cleanup 2006	Wetland Area
HCC End Well	Cleanup Action 2008	BNSF Property Line
HCC Vault	Cleanup Action 2009	
HCC Recovery Well		
HCC Injection Well		





Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

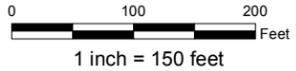
PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

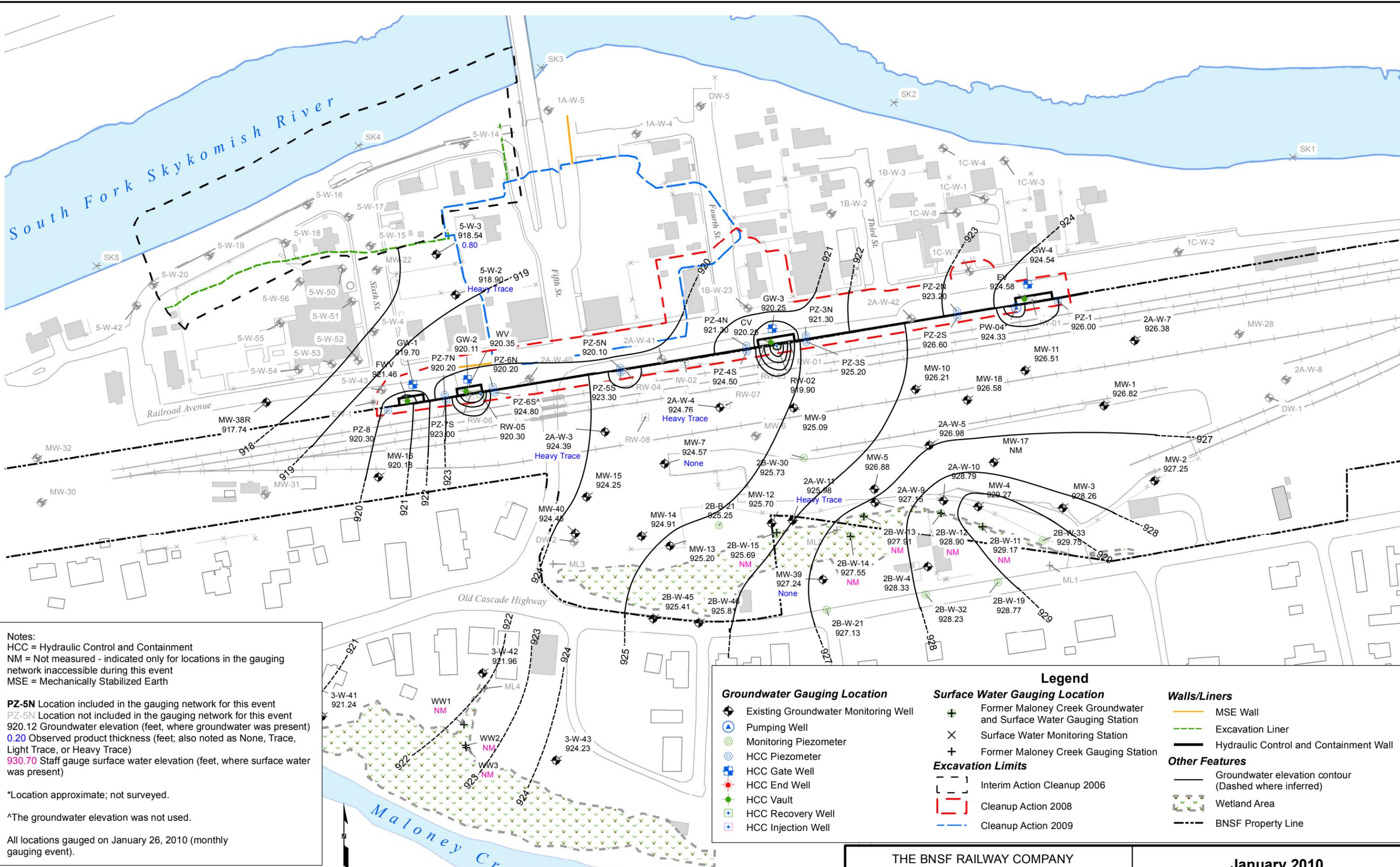
*Location approximate; not surveyed.
^The groundwater elevation was not used.

All locations gauged on December 15 and 16, 2009 (quarterly gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Walls/Liners
Existing Groundwater Monitoring Well	Former Maloney Creek Groundwater and Surface Water Gauging Station	MSE Wall
Pumping Well	Surface Water Monitoring Station	Excavation Liner
Monitoring Piezometer	Former Maloney Creek Gauging Station	Hydraulic Control and Containment Wall
HCC Piezometer	Excavation Limits	Other Features
HCC Gate Well	Interim Action Cleanup 2006	Groundwater elevation contour (Dashed where inferred)
HCC End Well	Cleanup Action 2008	Wetland Area
HCC Vault	Cleanup Action 2009	BNSF Property Line
HCC Recovery Well		
HCC Injection Well		

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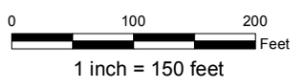
Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

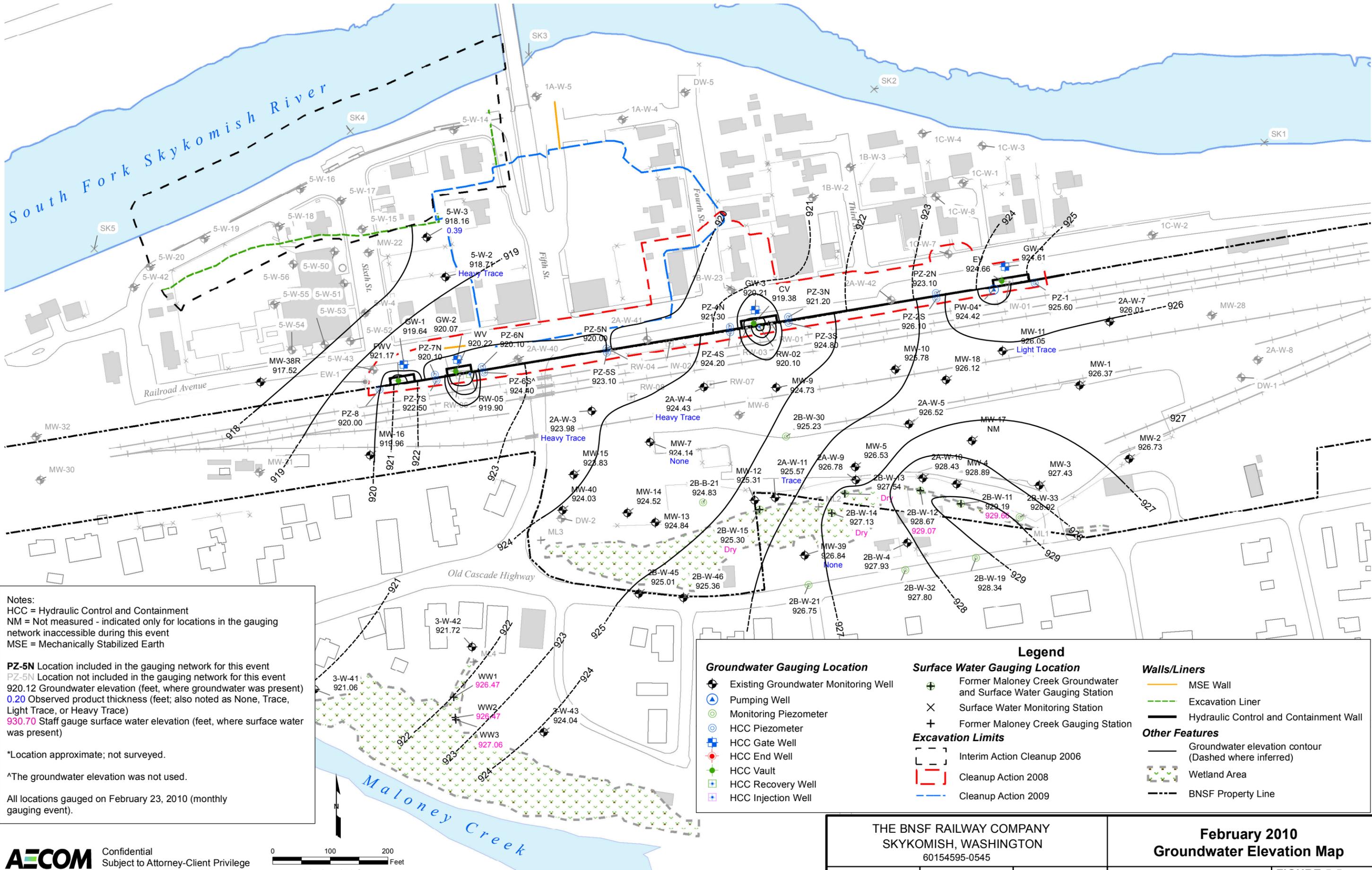
PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

*Location approximate; not surveyed.
^The groundwater elevation was not used.

All locations gauged on January 26, 2010 (monthly gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Walls/Liners
Existing Groundwater Monitoring Well	Former Maloney Creek Groundwater and Surface Water Gauging Station	MSE Wall
Pumping Well	Surface Water Monitoring Station	Excavation Liner
Monitoring Piezometer	Former Maloney Creek Gauging Station	Hydraulic Control and Containment Wall
HCC Piezometer	Excavation Limits	Other Features
HCC Gate Well	Interim Action Cleanup 2006	Groundwater elevation contour (Dashed where inferred)
HCC End Well	Cleanup Action 2008	Wetland Area
HCC Vault	Cleanup Action 2009	BNSF Property Line
HCC Recovery Well		
HCC Injection Well		





Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

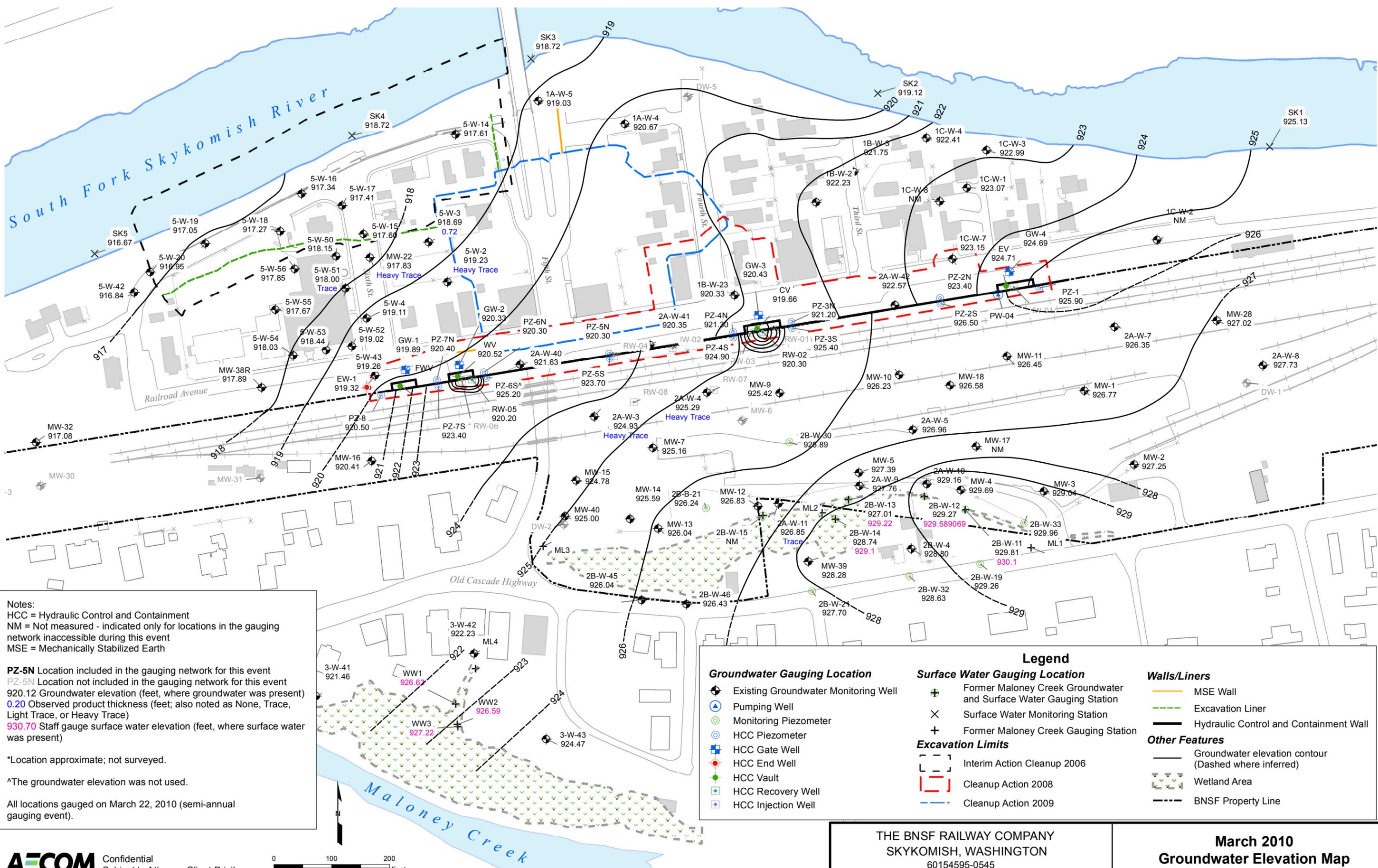
PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

*Location approximate; not surveyed.
^The groundwater elevation was not used.

All locations gauged on February 23, 2010 (monthly gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Walls/Liners
Existing Groundwater Monitoring Well	Former Maloney Creek Groundwater and Surface Water Gauging Station	MSE Wall
Pumping Well	Surface Water Monitoring Station	Excavation Liner
Monitoring Piezometer	Former Maloney Creek Gauging Station	Hydraulic Control and Containment Wall
HCC Piezometer	Excavation Limits	Groundwater elevation contour (Dashed where inferred)
HCC Gate Well	Interim Action Cleanup 2006	Wetland Area
HCC End Well	Cleanup Action 2008	BNSF Property Line
HCC Vault	Cleanup Action 2009	
HCC Recovery Well		
HCC Injection Well		

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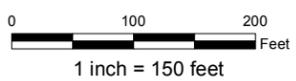
Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event
MSE = Mechanically Stabilized Earth

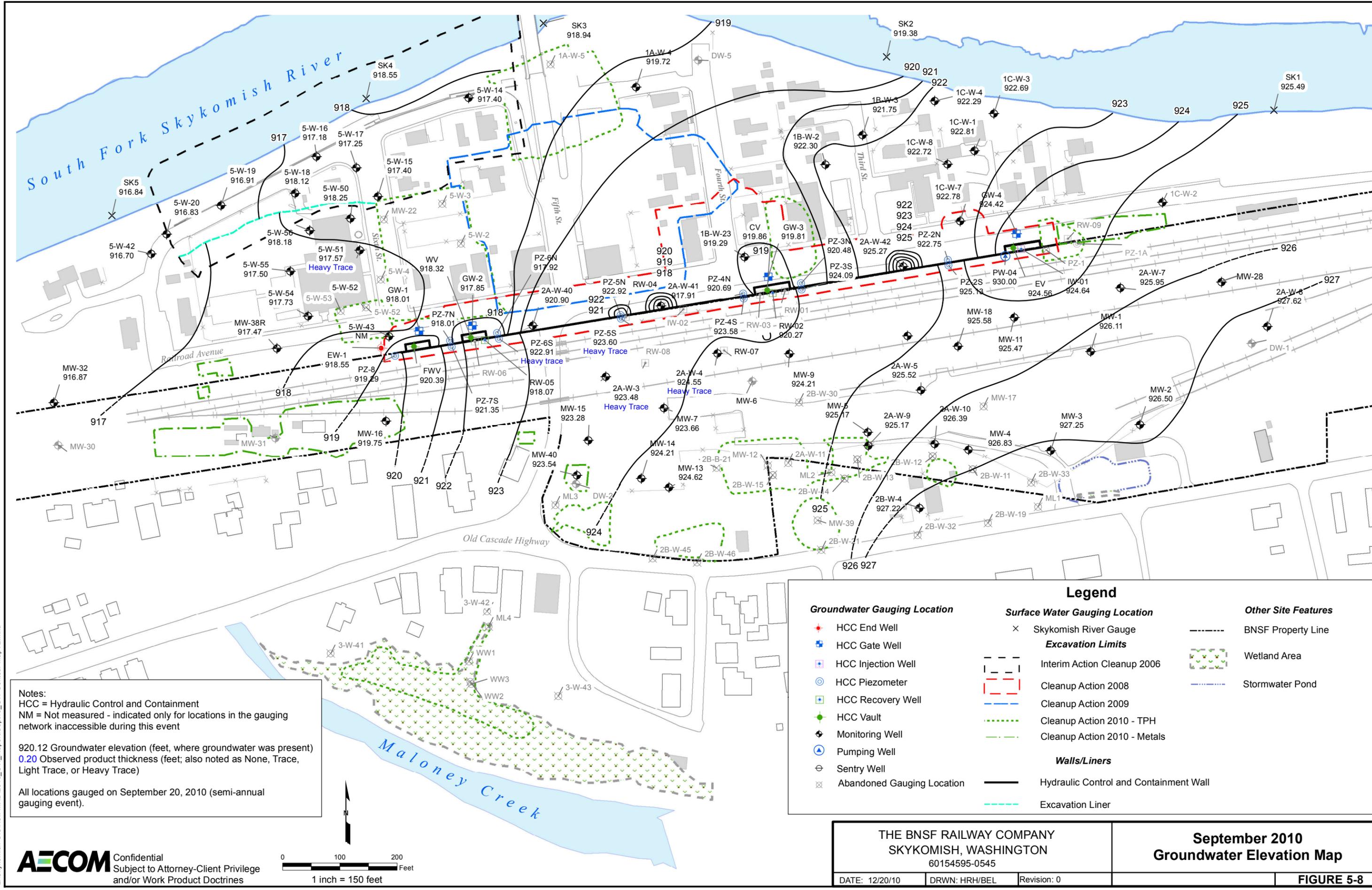
PZ-5N Location included in the gauging network for this event
PZ-5N Location not included in the gauging network for this event
920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)
930.70 Staff gauge surface water elevation (feet, where surface water was present)

*Location approximate; not surveyed.
^The groundwater elevation was not used.

All locations gauged on March 22, 2010 (semi-annual gauging event).

Groundwater Gauging Location		Surface Water Gauging Location		Walls/Liners		
◆	Existing Groundwater Monitoring Well	⊕	Former Maloney Creek Groundwater and Surface Water Gauging Station	—	MSE Wall	
⊕	Pumping Well	×	Surface Water Monitoring Station	- - -	Excavation Liner	
⊙	Monitoring Piezometer	+	Former Maloney Creek Gauging Station	—	Hydraulic Control and Containment Wall	
⊙	HCC Piezometer					
⊕	HCC Gate Well					
⊕	HCC End Well					
⊕	HCC Vault					
⊕	HCC Recovery Well					
⊕	HCC Injection Well					
		Excavation Limits				
		- - -	Interim Action Cleanup 2006			
		- - -	Cleanup Action 2008			
		- - -	Cleanup Action 2009			
					Other Features	
					—	Groundwater elevation contour (Dashed where inferred)
					⊕	Wetland Area
					- - -	BNSF Property Line





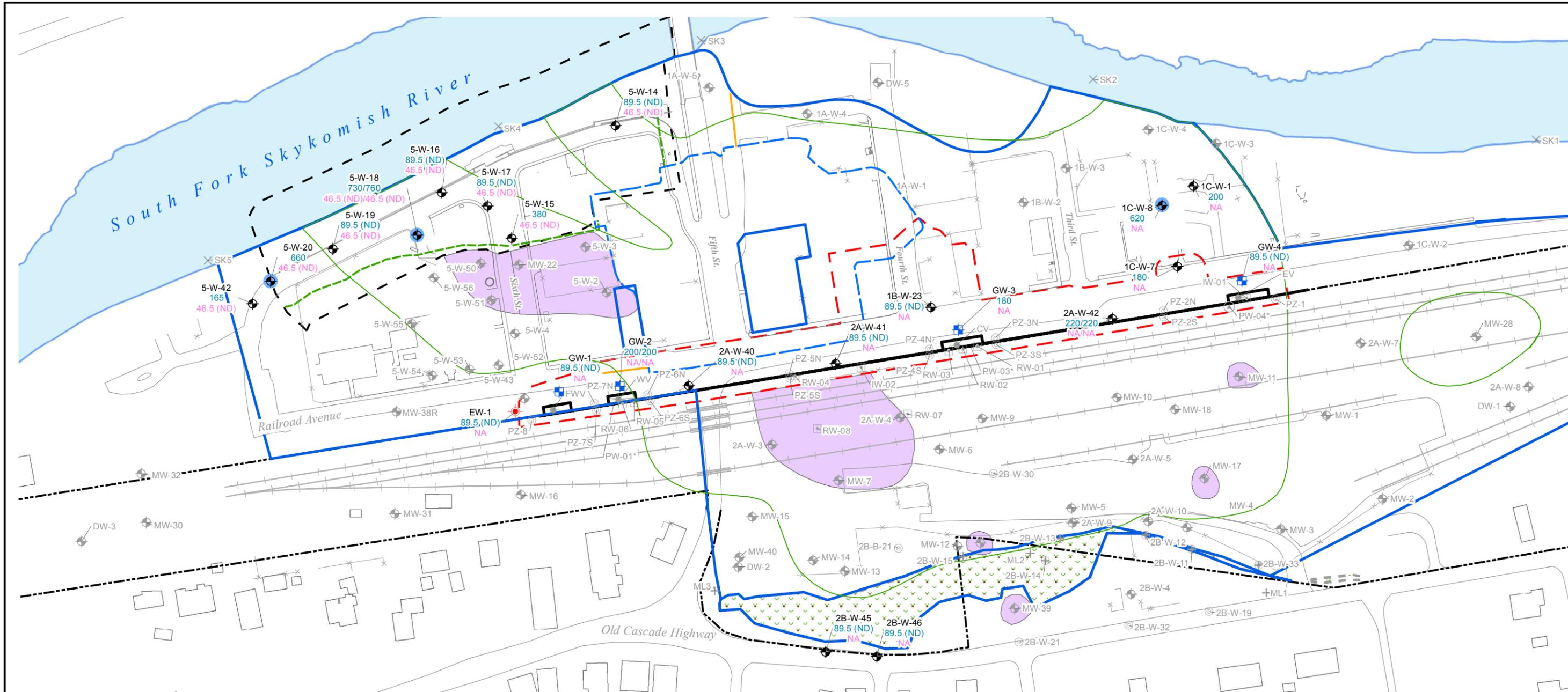
Notes:
HCC = Hydraulic Control and Containment
NM = Not measured - indicated only for locations in the gauging network inaccessible during this event

920.12 Groundwater elevation (feet, where groundwater was present)
0.20 Observed product thickness (feet; also noted as None, Trace, Light Trace, or Heavy Trace)

All locations gauged on September 20, 2010 (semi-annual gauging event).

Legend		
Groundwater Gauging Location	Surface Water Gauging Location	Other Site Features
<ul style="list-style-type: none"> ★ HCC End Well ⊠ HCC Gate Well ⊕ HCC Injection Well ⊙ HCC Piezometer ⊞ HCC Recovery Well ⊚ HCC Vault ⊛ Monitoring Well ⊜ Pumping Well ⊝ Sentry Well ⊞ Abandoned Gauging Location 	<ul style="list-style-type: none"> × Skykomish River Gauge <p>Excavation Limits</p> <ul style="list-style-type: none"> - - - Interim Action Cleanup 2006 - - - Cleanup Action 2008 - - - Cleanup Action 2009 - - - Cleanup Action 2010 - TPH - - - Cleanup Action 2010 - Metals <p>Walls/Liners</p> <ul style="list-style-type: none"> — Hydraulic Control and Containment Wall - - - Excavation Liner 	<ul style="list-style-type: none"> - - - BNSF Property Line - - - Wetland Area - - - Stormwater Pond

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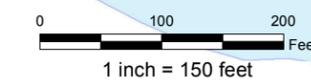
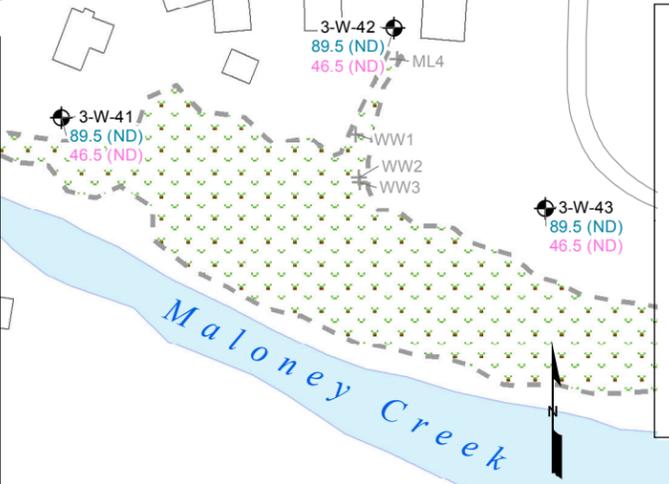
Notes:
 370/360 TPH (calc) Parent/Duplicate Concentration
 21 (ND)/87 TPH-SG (calc) Parent/Duplicate Concentration
 TPH (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx. ½ the MDL was used for all ND's.
 TPH-SG (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx with Silica Gel Cleanup. ½ the MDL was used for all ND's.
 (ND) both the oil and diesel range hydrocarbon fractions were non-detect
 Extents of free product are based on well gauging data only.
 NA- Not Analyzed

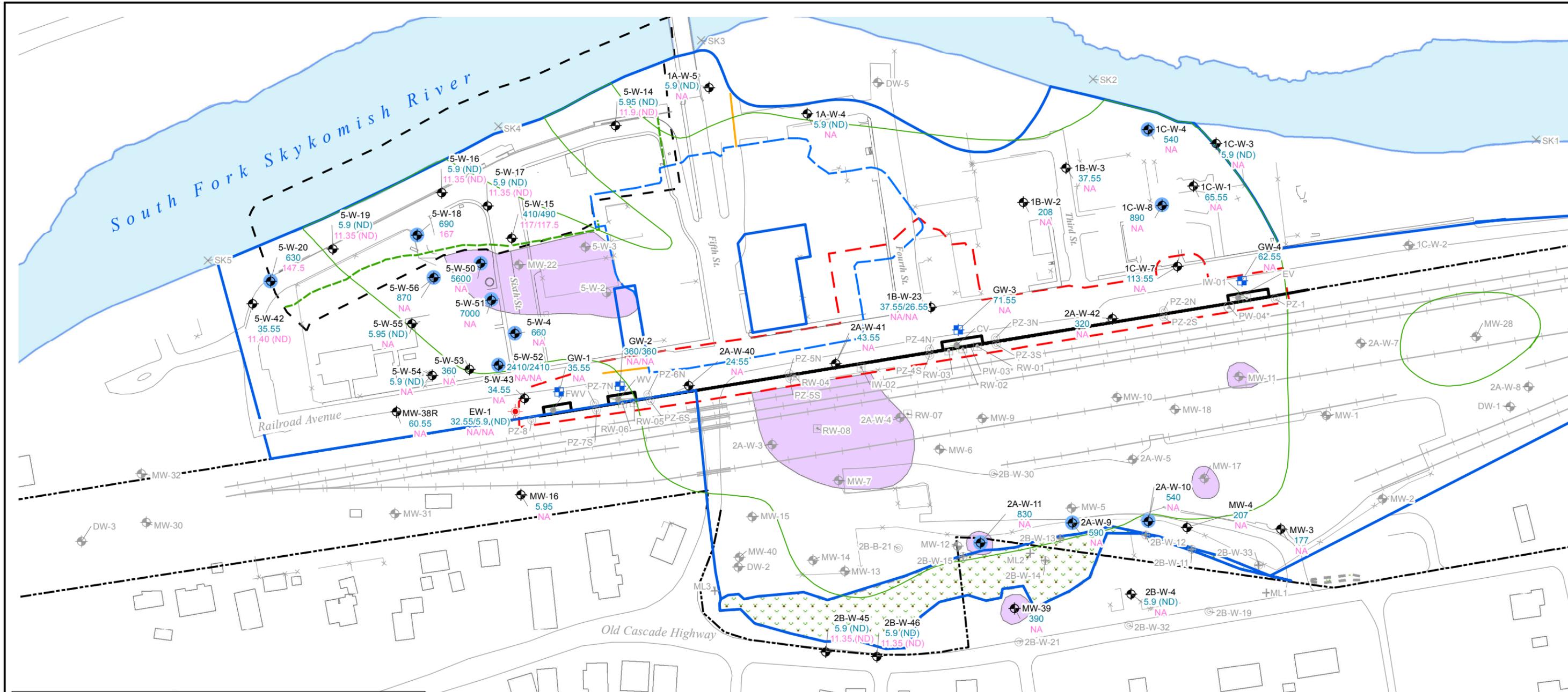
208 µg/L – Groundwater NWTPH-Dx Cleanup Level (CUL)
 477 µg/L – Groundwater NWTPH-Dx Remediation Level (RL)

Quarterly monitoring event: Samples collected from Dec. 15 to 16, 2010.

CAP = Cleanup Action Plan
 MSE = Mechanically Stabilized Earth

Legend	
	Sampled Groundwater Monitoring Well
	Sampled HCC Gate Well
	Sampled HCC End Well
	Unsampld Groundwater Monitoring Well
	Unsampld Pumping Well
	Unsampld Piezometer
	Unsampld HCC Vault
	Unsampld HCC Injection or Recovery Well
	Unsampld Gauging Station
	Unsampld Abandoned/Destroyed
	Unsampld Former Maloney Creek Groundwater and Surface Water Gauging Station
	TPH (calc) or TPH-SG (calc) concentration that exceeds the RL (477 µg/L)
	Groundwater Conditional Point of Compliance, 208 µg/L
	> 208 µg/L NWTPH-Dx in Groundwater from CAP
	Estimated extent of free product measured since October 1, 2008-modified to reflect excavation areas
	Wetland Area
	MSE Wall
	BNSF Property Line
	Hydraulic Control and Containment Wall
	Excavation Liner
	Interim Action Cleanup 2006
	Cleanup Action 2008
	Cleanup Action 2009





Notes:
 370/360 TPH (calc) Parent/Duplicate Concentration
 21 (ND)/87 TPH-SG (calc) Parent/Duplicate Concentration
 TPH (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx. ½ the MDL was used for all ND's.
 TPH-SG (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx with Silica Gel Cleanup. ½ the MDL was used for all ND's. (ND) both the oil and diesel range hydrocarbon fractions were non-detect
 Extents of free product are based on well gauging data only.
 NA- Not Analyzed

208 µg/L – Groundwater NWTPH-Dx Cleanup Level (CUL)
 477 µg/L – Groundwater NWTPH-Dx Remediation Level (RL)

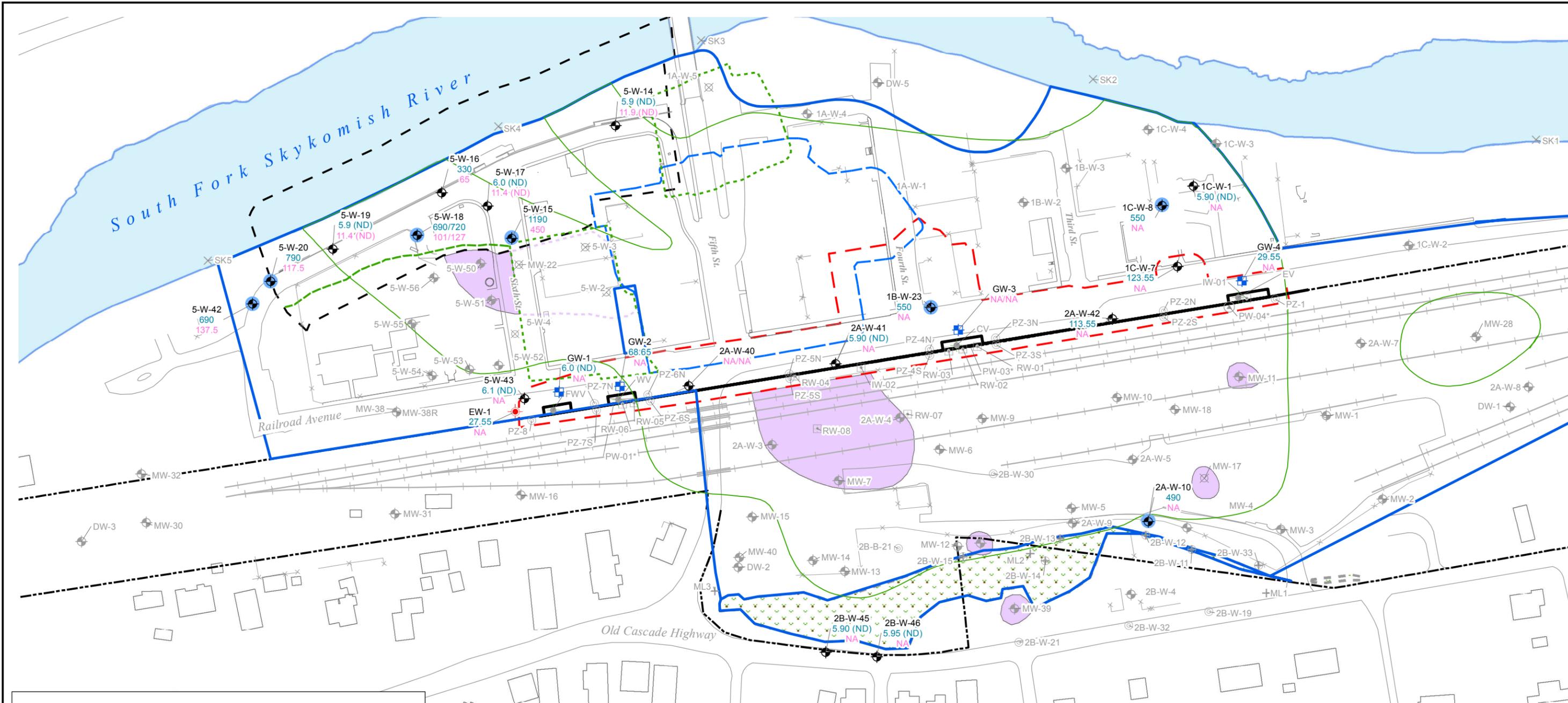
Semi-Annual monitoring event: Samples collected from March 22 to 25, 2010.

CAP = Cleanup Action Plan
 MSE = Mechanically Stabilized Earth

Legend	
	Sampled Groundwater Monitoring Well
	Sampled HCC Gate Well
	Sampled HCC End Well
	Unsampld Groundwater Monitoring Well
	Unsampld Pumping Well
	Unsampld Piezometer
	Unsampld HCC Vault
	Unsampld HCC Injection or Recovery Well
	Unsampld Gauging Station
	Unsampld Abandoned/Destroyed
	Unsampld Former Maloney Creek Groundwater and Surface Water Gauging Station
	TPH (calc) or TPH-SG (calc) concentration that exceeds the RL (477 µg/L)
	Groundwater Conditional Point of Compliance, 208 µg/L
	> 208 µg/L NWTPH-Dx in Groundwater from CAP
	Estimated extent of free product measured since October 1, 2008-modified to reflect excavation areas
	Wetland Area
	MSE Wall
	BNSF Property Line
	Hydraulic Control and Containment Wall
	Excavation Liner
	Interim Action Cleanup 2006
	Cleanup Action 2008
	Cleanup Action 2009

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0 100 200 Feet
 1 inch = 150 feet



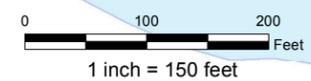
Notes:
 370/360 TPH (calc) Parent/Duplicate Concentration
 21 (ND)/87 TPH-SG (calc) Parent/Duplicate Concentration
 TPH (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx. 1/2 the MDL was used for all ND's.
 TPH-SG (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx with Silica Gel Cleanup. 1/2 the MDL was used for all ND's. (ND) both the oil and diesel range hydrocarbon fractions were non-detect
 Extents of free product are based on well gauging data only.
 NA- Not Analyzed

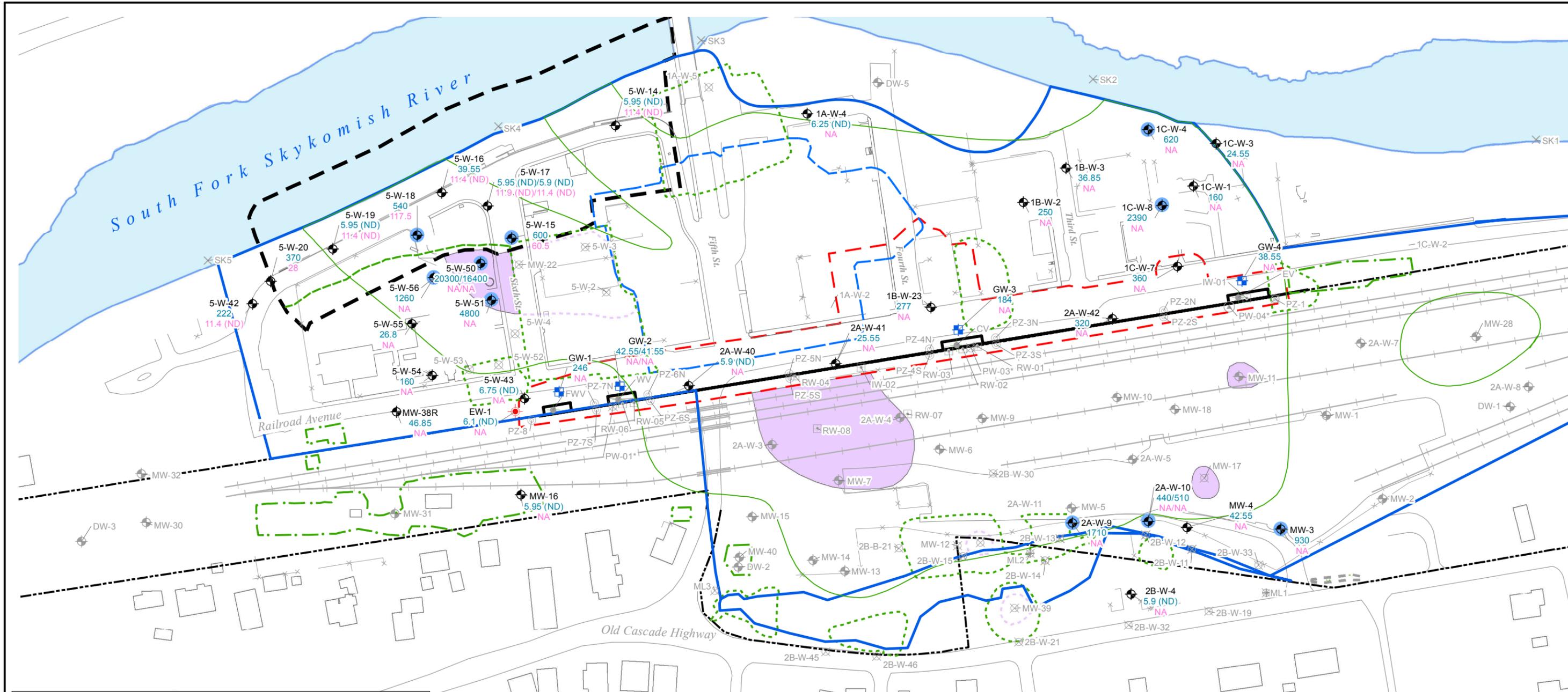
208 µg/L – Groundwater NWTPH-Dx Cleanup Level (CUL)
 477 µg/L – Groundwater NWTPH-Dx Remediation Level (RL)

Quarterly monitoring event: Samples collected from June 29 to 30, 2010.
 CAP = Cleanup Action Plan

Legend	
	Sampled Groundwater Monitoring Well
	Sampled HCC Gate Well
	Sampled HCC End Well
	Unsampld Groundwater Monitoring Well
	Unsampld Pumping Well
	Unsampld Piezometer
	Unsampld HCC Vault
	Unsampld HCC Injection or Recovery Well
	Unsampld Gauging Station
	Unsampld Abandoned/Destroyed
	Unsampld Former Maloney Creek Groundwater and Surface Water Gauging Station
	TPH (calc) or TPH-SG (calc) concentration that exceeds the RL (477 µg/L)
	Groundwater Conditional Point of Compliance, 208 µg/L
	> 208 µg/L NWTPH-Dx in Groundwater from CAP
	Estimated extent of free product measured since October 1, 2008- modified to reflect excavation areas
	Former Estimated Free Product Extent
	Wetland Area
	BNSF Property Line
	Hydraulic Control and Containment Wall
	Excavation Liner
	Interim Action Cleanup 2006
	Cleanup Action 2008
	Cleanup Action 2009
	Cleanup Action 2010 - TPH

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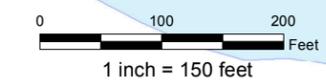


Notes:
 370/360 TPH (calc) Parent/Duplicate Concentration
 21 (ND)/87 TPH-SG (calc) Parent/Duplicate Concentration
 TPH (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx. ½ the MDL was used for all ND's.
 TPH-SG (calc) – Sum of the oil range and diesel range hydrocarbons by method NWTPH-Dx with Silica Gel Cleanup. ½ the MDL was used for all ND's. (ND) both the oil and diesel range hydrocarbon fractions were non-detect
 Extents of free product are based on well gauging data only.
 NA- Not Analyzed

208 µg/L – Groundwater NWTPH-Dx Cleanup Level (CUL)
 477 µg/L – Groundwater NWTPH-Dx Remediation Level (RL)

Semi-Annual monitoring event: Samples collected from September 20 to 22, 2010.
 CAP = Cleanup Action Plan

<ul style="list-style-type: none"> ⊕ Sampled Groundwater Monitoring Well ⊕ Sampled HCC Gate Well ⊕ Sampled HCC End Well ⊕ Unsampld Groundwater Monitoring Well ⊕ Unsampld Pumping Well ⊕ Unsampld Piezometer ⊕ Unsampld HCC Vault ⊕ Unsampld HCC Injection or Recovery Well ⊕ or ⊕ Unsampld Gauging Station ⊕ Unsampld Abandoned/Destroyed ⊕ Unsampld Former Maloney Creek Groundwater and Surface Water Gauging Station 	<p>Legend</p> <ul style="list-style-type: none"> ● TPH (calc) or TPH-SG (calc) concentration that exceeds the RL (477 µg/L) — Groundwater Conditional Point of Compliance, 208 µg/L — > 208 µg/L NWTPH-Dx in Groundwater from CAP Estimated extent of free product measured since October 1, 2008-modified to reflect excavation areas 	<ul style="list-style-type: none"> Former Estimated Free Product Extent Wetland Area BNSF Property Line Hydraulic Control and Containment Wall Excavation Liner Interim Action Cleanup 2006 Cleanup Action 2008 Cleanup Action 2009 Cleanup Action 2010 - TPH Cleanup Action 2010 - Metals
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Appendix A

Field Forms

Groundwater Sampling Forms

(Note: the groundwater sampling forms are provided on the attached CD-ROM.)

AECOM

PAGE 1

Fluid Level Gauging Form

Project Name:

BNSF Skykomish

Project Number:

01140-284-0540

Collected by:

Abdelghani Sebane

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		8/25/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	10/27/09	1207		10.61				14.96		15.01			
2A-W-7		1317		9.85				12.82		12.86			buried under gravel
2A-W-9		1036		7.42				12.19		12.23			
2A-W-10		1039		7.72				12.68		12.89			
2B-W-4		1002		0.88				5.24		5.58			
2B-W-11		1050		0.20	0.10			5.12		5.41			No. Cup.
2B-W-12		1045		3.35	3.32			8.45		8.68			
2B-W-13		1030		2.99	2.93			7.95		8.05			
2B-W-14		1026		1.82	1.79			6.44		6.60			
2B-W-15		1155		3.88				Dry @ 4.2		Dry @ 4.2			
2B-W-19		1009		4.19				9.20		9.58			
2B-W-21		1020		6.47				10.66		10.95			
2B-W-30		1236		8.78				13.17		13.10			
2B-W-32		1015		5.16				9.60		9.95			
2B-W-33		1055		6.85				12.58		12.84			
2B-B-21		1157		2.76				7.34		7.38			
2B-W-45		1119		9.05				12.80		12.91			
2B-W-46		1115		8.67				12.94		13.10			
3-W-41		1605		4.05				5.79		6.91			
3-W-42		NM		NM				9.79		10.01			buried under soil
3-W-43	✓	1750		3.40				6.36		6.11			

AECOM

PAGE 2

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		8/25/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	10/27/09	1216		10.44				14.1		14.21			
MW-2		1220		9.66				13.85		13.99			
MW-3		1102		6.56				12.30		12.59			
MW-4		1109		6.32				11.4		11.63			
MW-5		1202		4.40				9.07		9.13			
MW-9		1230		10.11				14.78		14.51			
MW-10		1227		10.04				14.27		14.28			
MW-11		1305		10.75				14.74		14.79			Trace of product.
MW-12		11.51		2.78				7.58		7.63			
MW-13		1136		7.28				11.51		11.55			
MW-14		1132	13.5	9.30				13.46		13.43			
MW-15		1130		10.40				15.20		14.82			
MW-16		1244		11.34				14.54		14.43			
MW-18		1210		12.08				16.19		16.23			
MW-38R		1250		3.17				5.82		5.71			
MW-40	✓	1126		9.95				14.65		14.35			

AECOM

PAGE 4

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		8/25/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
<input checked="" type="checkbox"/> MW-7	10/27/09	1445		9.97		NONE	T.P	14.88	None	14.51	None		11-1.03
<input checked="" type="checkbox"/> MW-17		1510		NM			(T.P) ↓	NM		NM			Damaged.
<input checked="" type="checkbox"/> 2A-W-3		1515		7.85		H.Trace	H.Trace	13.07	Hvy TR	12.36	Hvy TR		9-1.15
<input checked="" type="checkbox"/> 2A-W-11		1455		4.93		Trace	T.P	9.57	TR	9.62	Hvy TR		6-1.07
<input checked="" type="checkbox"/> MW-39		1430		6.72		NONE	T.P	11.04	None	11.19	TR		8-1.28
5-W-2		1710		5.95	5.75	0.20	PUMP.	10.04	Hvy TR	NM			6-0.25;
5-W-3	↓	1730		5.15	4.86	0.29	PUMP.	9.70	0.88	NM			5-0.14;
2A-W-4		1535		8.20		H.Trace	T.P	NW	2.47	12.63	0.31		9-0.8

Other Notes:

- clean well - north ('town') half use water level meter (WL)
- clean well - south ('railyard') half use water level meter (WL)
- dirty casing, possible trace product use tape and paste (TP)
- dirty well use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (9/21/09)
North Staff Gauge	10/27/2009	1.10	Dry
Mid Staff Gauge	↓	1.58	Dry
South Staff Gauge	↓	1.28	Dry

AECOM

PAGE 1

Fluid Level Gauging Form

Project Name: **BNSF Skykomish**

Project Number: **01140-284-0540**

Collected by: *Blair S. Eric S.*

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	10/27/2009		9/21/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
AS 2A-W-5	11/24/09	1614		10.60				10.61		14.96		AS	
AS 2A-W-7		1620		10.06				9.85		12.82		AS	
2A-W-9		1325		7.49				7.42		12.19		ES	
2A-W-10		1425		7.71				7.72		12.68		ES	
AS 2B-W-4		1610		1.03				0.88		5.24		AS	
2B-W-11		1548		0.08				0.20	0.1	5.12		ES	
2B-W-12		1539		3.37				3.35	3.32	8.45		ES	
2B-W-13		1542		3.04				2.99	2.93	7.95		ES	
2B-W-14		1544		1.81				1.82	1.79	6.44		ES	
2B-W-15		1334		3.20				3.88	Dry @ 4.2			ES	
2B-W-19		1412		4.44				4.19		9.20		ES	
2B-W-21		1352		6.67				6.47		10.66		ES	
2B-W-30		1250		8.70				8.78		13.17		ES	
2B-W-32		1358		5.38				5.16		9.60		ES	
2B-W-33		1420		6.90				6.85		12.58		ES	
2B-B-21		1338		2.78				2.76		7.34		ES	
AS 2B-W-45		1605		9.11				9.05		12.80		ES	
AS 2B-W-46		1602		8.80				8.67		12.94		ES	
3-W-41		1652		4.13				4.05		5.79		AS	
3-W-42		0945		6.92				NM		9.79		AS	
3-W-43		1120		3.42				3.40		6.36		AS	

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	10/27/2009		9/21/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	11/24/09	13:04		10.69	N/A	N/A		10.44		14.1		ES	
MW-2	11/24	13:18		9.94	N/A	N/A		9.66		13.85		ES	
MW-3	11/24	13:12		6.82	N/A	N/A		6.56		12.30		ES	
MW-4	11/24	14:30		6.34	N/A	N/A		6.32		11.4		ES	
MW-5	11/24	13:22		4.48	N/A	N/A		4.4		9.07		ES	
MW-9	11/24	14:56		10.10	N/A	N/A		10.11		14.78		ES	
MW-10	11/24	14:53		10.04	N/A	N/A		10.04		14.27		ES	
* MW-11	"	16:25		10.84	-	-		10.75		14.74		AS	
MW-12	11/24	13:29		2.90	N/A	N/A		2.78		7.58		ES	
MW-13	11/24	13:42		7.32	N/A	N/A		7.28		11.51		ES	
MW-14	11/24	13:44	13.5	9.27	N/A	N/A		9.30		13.46		ES	
MW-15	11/24	14:42		10.35	N/A	N/A		10.40		15.20		ES	
MW-16	11/24	15:05		11.66	N/A	N/A		11.34		14.54		ES	
MW-18	11/24	12:58	21.10	12.14	N/A	N/A		12.08		16.19		ES	
MW-38R	"	16:06		3.44	-	-		3.17		5.82		AS	
MW-40	11/24	14:45		9.90	N/A	N/A		9.95		14.65		ES	

~~10/24/09~~

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	10/27/2009		9/21/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
<input checked="" type="checkbox"/> MW-7	11/24/09	1630		9.87		NONE		9.97	None	14.88	None		
<input checked="" type="checkbox"/> MW-17		NM		NM		NM		NM	NM	NM			Damaged.
<input checked="" type="checkbox"/> 2A-W-3		1700		7.80		H. Trace		7.85	H. Trace	13.07	Hvy TR		
<input checked="" type="checkbox"/> 2A-W-11		1638		5.01		Trace		4.93	Trace	9.57	TR		
<input checked="" type="checkbox"/> MW-39		1645		6.80		NONE		6.72	None	11.04	None		
5-W-2		1720		6.05		H. TIC		5.95	0.2	10.04	Hvy TR		
5-W-3		1710		NM	5.60	NM		5.15	0.29	9.70	0.88		Dark insufficient light.
2A-W-4		1705		0.07		H. Trace		8.20	H. Trace	NW	2.47		

Other Notes:

- clean well - north ('town') half use water level meter (WL)
- clean well - south ('railyard') half use water level meter (WL)
- dirty casing, possible trace product use tape and paste (TP)
- dirty well use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (9/21/09)
North Staff Gauge	10/27/2009	1.32	Dry
Mid Staff Gauge		1.60	Dry
South Staff Gauge		1.31	Dry

~~5221 1607/09 E~~
~~88398~~

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Section D Requested Analysis Filtered (Y/N)
Company: AECOM	Report To: Sarah Albano	Company Name:	
Address: 710 2nd Ave. Suite 1000	Copy To:	Address:	
Email To: Seattle WA, 98104	Purchase Order No.:	REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Phone: 206-624-9348 Fax:	Project Name: SKYKOMISH (BUSF)	Site Location STATE: WA	
Requested Due Date/TAT:	Project Number: 601-36319-0540		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX J CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑ Y/N	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB									
		Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other		DATE	TIME	DATE	TIME	Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other						
1	3-W-42-1109	DW	W	1/24/09	1025		8.1	X						
2	3-W-420-1109	WT	W	1/24/09	1100		8.2	X						
3	PZ-1-1109	WW	W	1/24/09	1205		9.3	X						
4	1C-W-7-1109	P	W	1/24/09	1320		9.1	X						
5	1C-W-1-1109	Product	W	1/24/09	1405		9.8	X						
6	1C-W-8-1109	Soil/Solid	W	1/24/09	1445		8.8	X						
7	1B-W-23-1109	Oil	W	1/24/09	1535		9.8	X						
8		Wipe												
9		Air												
10		Other												
11														
12														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Abdulhameed Albano (AECOM)	1/25/09	0935	JENNI GROSS / Pace	1/25/09	0935	3.0
							1.5

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Abdulhameed Albano	DATE Signed (MM/DD/YY): 1/25/09
SIGNATURE of SAMPLER: <i>Abdulhameed Albano</i>	(MM/DD/YY): 1/25/09

Field Activity Log

Page: of

AECOM

Project Name: Skykomish

Completed By: Ghanias

Project Number:

Date: 11/24/09

Field Activity: Monthly gauging and sampling

Weather: light rain 49° F.

Personnel on site: Ghanias, Eric B.

0820: Arrived to the site, met with Eric and had safety meeting, and discussed scope of work.

0845: put on PPE, bought some fuel, and put Gas.

0900: started calibrating equipment, and organized staff.

0930: Began setting up on 3-W-42.

1004: started purging, water is clear.

1011: Began recording parameters.

1025: started sampling NIUTPH-DX, with and without SEC 4. also collected duplicate 3-W-42-1109 @ 1100

1120: gauged 3-W-43 = (3.42)

1130: started setting up on PZ-1.

1138: Began purging, water is cloudy, with strong odor.

1148: started recording parameters

1205: Began sampling, then met with Eric to discuss scope of work.

1245: started setting up on

1259: Began purging.

1309: started recording parameters.

1320: Began sampling.

1335: started setting up on 1C-W-8.

1345: Began purging, water is clear.

1355: started recording parameters

1405: Began sampling.

1415: started setting up on 1C-W-8.

1418: Began purging.

1428: started recording parameters.

1445: Began sampling.

Field Activity Log

Page: of

AECOM

Project Name: <u>SLW</u>	Completed By: <u>Bhania, S</u>
Project Number: _____	Date: <u>11/24/09</u>
Field Activity: <u>Monthly GW gauging and sampling.</u>	Weather: <u>light rain 41° F</u>
_____	Personnel on site: <u>Bhania, Eric</u>

1500: Began setting up on 1 B-W-23.

1511: Started purging, water is clear.

1521: Began recording parameters

1535: started sampling.

1600: Began helping Eric to gauge.

1730: Finished gauging all wells including product wells.

1745: cleaned up, clean, dumped purge water

1800: left a site.

AECOM

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Fluid Level Gauging Form

Project Name:

BNSF Skykomish

Project Number:

01140-284-0540

Collected by:

D. Kinney, Eric Starkarson, G. Sebana

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	12/15/09	1326		12.64								ES	
2A-W-7		1358		NM								-	Buried
2A-W-9		1304		9.78								ES	
2A-W-10		1509		9.75									
2B-W-4		1550		2.75									
2B-W-11		1520		dry									
2B-W-12		1512		5.32									
2B-W-13		1515		dry									
2B-W-14		1513		dry									
2B-W-15		1300		6.16									
2B-W-19		-		NM									
2B-W-21		1555		8.60									
2B-W-30		1325		11.17									
2B-W-32		1615		7.15									
2B-W-33		1510		9.75									
2B-B-21		1259		5.59									
2B-W-45		1449		11.11									
2B-W-46		1445		11.09									
3-W-41		0940		5.31									
3-W-42		1207		8.49									
3-W-43		1111		4.59									
								3.42		3.40			

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	12/15/09	1313		12.36				10.69		10.44		ES	
MW-2	↓	1310		11.94				9.94		9.66		↓	
MW-3		1308		9.96				6.82		6.56			
MW-4		1511		8.44				6.34		6.32			
MW-5		1303		6.76				4.48		4.4			
MW-9		1321		12.77				10.10		10.11			
MW-10		1319		12.22				10.04		10.04			
MW-11		1315		12.67				10.84		10.75			
MW-12		1258		5.86				2.90		2.78			↓
MW-13		0901		9.83				7.32		7.28			DWK
MW-14		0904	13.5	11.72				9.27		9.30			DWK
MW-15		1330		12.80				10.35		10.40			GS
MW-16		1500		13.29				11.66		11.34			↓
MW-18		1317		14.13				12.14		12.08			
MW-38R		1450		4.75				3.44		3.17			
MW-40		1334		12.30				9.90		9.95			

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW		Prod.		Sign Off	Comments
								(ft)	Thick. (ft)	(ft)	Thick. (ft)		
GW-1	12/15/09	1430		8.31								ES	
X GW-2		1435		10.32								↓	
GW-3		1440		15.42								↓	
X GW-4		1445		10.03					TR		TR	↓	
1C-W-1		0955		13.63								GS	
X 1C-W-7		1135		11.35								GS	
1C-W-8		1040		12.85								GS	
X 3-W-41		0940		5.31								AWK	
3-W-42		1207		8.49								↓	
X 3-W-43		1111		4.59								↓	
5-W-14		1328		9.39								↓	Monument full of ice
X 5-W-15		1504		7.87								↓	
5-W-16		1334		8.20								↓	
5-W-17		1520		7.53								↓	Monument full of ice
X 5-W-18		1501		7.66								↓	
X 5-W-19		1342		7.57								↓	Monument full of ice
X 5-W-20		1502		7.12								↓	
X 5-W-42		1455		6.85								↓	Monument cover broken
X 5-W-43		-		NM								-	Under snow pile @ water
X EW-1		1640		9.11								GS	
X 1B-W-23		1310		15.89								↓	
X 2A-W-40		1450		11.94								↓	
X 2A-W-41		-		NM								-	Under snow pile
X 2A-W-42		-		NM								-	" " "

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
<input checked="" type="checkbox"/> MW-7	12/15/09	—		NM				9.87	None	9.97	None	—
<input checked="" type="checkbox"/> MW-17	↓	—		NM			—	NM		NM		DNK Well damaged DNK Well lid frozen
<input checked="" type="checkbox"/> 2A-W-3		—		NM			—	7.80	Hvy TR	7.85	Hvy TR	
<input checked="" type="checkbox"/> 2A-W-11		—		NM				5.01	TR	4.93	TR	
<input checked="" type="checkbox"/> MW-39		—		NM				6.8	None	6.72	None	
5-W-2		—		NM			—	6.05	Hvy TR	5.95	0.2	
5-W-3		—		NM			—	NM		5.15	0.29	
2A-W-4		—		11.02	Hvy TR		T&P	8.07	Hvy TR	8.20	Hvy TR	

Other Notes:

- clean well - north ('town') half use water level meter (WL)
- clean well - south ('railyard') half use water level meter (WL)
- dirty casing, possible trace product use tape and paste (TP)
- dirty well use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009	1.12	1.32
Mid Staff Gauge	12/15/2009	1.26	1.64
South Staff Gauge	12/15/2009	0.88	1.31

NR - gauge frozen & snow piled over gauge

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
<input checked="" type="checkbox"/> MW-7	12/16/09	140		12.75				9.87	None	9.97	None	
<input checked="" type="checkbox"/> MW-17								NM		NM		
<input checked="" type="checkbox"/> 2A-W-3								7.80	Hvy TR	7.85	Hvy TR	
<input checked="" type="checkbox"/> 2A-W-11	12/16	145		7.77				5.01	TR	4.93	TR	
<input checked="" type="checkbox"/> MW-39	12/16	150		9.09				6.8	None	6.72	None	
<input checked="" type="checkbox"/> 5-W-2	12/16	210		7.56				6.05	Hvy TR	5.95	0.2	
<input checked="" type="checkbox"/> 5-W-3	12/16	220		6.95				NM		5.15	0.29	
<input checked="" type="checkbox"/> 2A-W-4								8.07	Hvy TR	8.20	Hvy TR	

Other Notes:

- clean well - north ('town') half use water level meter (WL)
- clean well - south ('railyard') half use water level meter (WL)
- dirty casing, possible trace product use tape and paste (TP)
- dirty well use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009		1.32
Mid Staff Gauge	12/15/2009		1.64
South Staff Gauge	12/15/2009		1.31

AECOM

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Fluid Level Gauging Form

Project Name:

BNSF Skykomish

Project Number:

01140-284-0540

Collected by:

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	12/15/09	128		12.64				10.60		10.61			
2A-W-7		—		—				10.06		9.85			
2A-W-9		104		9.78				7.49		7.42			
2A-W-10		309		8.44	9.75			7.71		7.72			
2B-W-4		350		Frozen	2.75			1.03		0.88			
2B-W-11		320		2.4				0.08		0.26			
2B-W-12		312		5.32				3.37		3.35			Creek was dry (DWK)
2B-W-13		315		2.4				3.04		2.99			
2B-W-14		313		2.4				1.81		1.82			
2B-W-15		100		6.16				3.20		3.88			
2B-W-19								4.44		4.19			
2B-W-21		355		8.60				6.67		6.47			
2B-W-30		125		11.17				8.70		8.78			
2B-W-32		415		7.15				5.38		5.16			
2B-W-33		310		9.75				6.90		6.85			
2B-B-21		1259		5.59				2.78		2.76			
2B-W-45		400 1A45		11.01				9.11		9.05			
2B-W-46		405 1A45		11.00				8.80		8.67			
3-W-41		0940		5.31				4.13		4.05			
3-W-42		1207		8.49				6.92		NM			DWK
3-W-43		1111		4.59				3.42		3.40			↓

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	12/15/09	113		12.36				10.69		10.44			
MW-2		110		11.94				9.94		9.66			
MW-3		108		9.96				6.82		6.56			
MW-4		311		8.44				6.34		6.32			
MW-5		103		6.76				4.48		4.4			
MW-9		121		12.77				10.10		10.11			
MW-10		119		12.22				10.04		10.04			
MW-11		115		12.67				10.84		10.75			
MW-12		1258		5.86				2.90		2.78			
MW-13		0901		9.83				7.32		7.28		DrK	
MW-14		0904	13.5	11.72				9.27		9.30		DrK	
MW-15		130		12.80				10.35		10.40			
MW-16		300		13.29				11.66		11.34			
MW-18		117		14.13				12.14		12.08			
MW-38R		250		4.75				3.44		3.17			
MW-40		134		12.30				9.90		9.95			

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
✕ MW-7	12/15/09							9.87	None	9.97	None	
✕ MW-17								NM		NM		
✕ 2A-W-3								7.80	Hvy TR	7.85	Hvy TR	
✕ 2A-W-11								5.01	TR	4.93	TR	
✕ MW-39								6.8	None	6.72	None	
5-W-2								6.05	Hvy TR	5.95	0.2	
5-W-3								NM		5.15	0.29	
2A-W-4								8.07	Hvy TR	8.20	Hvy TR	

Other Notes:

- clean well - north ('town') half use water level meter (WL)
- clean well - south ('railyard') half use water level meter (WL)
- dirty casing, possible trace product use tape and paste (TP)
- dirty well use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009	NR	1.32
Mid Staff Gauge	12/15/2009	1.26	1.64
South Staff Gauge	12/15/2009	0.58	1.31

NR - gauge frozen & SNOW piled over gauge

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 01140-284-0540

Collected by:

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	12/15/09	126		12.64				10.60		10.61			
2A-W-7								10.06		9.85			
2A-W-9		104		9.78				7.49		7.42			
2A-W-10		309		8.44	9.75			7.71		7.72			
2B-W-4		350		Fracture @ 2.75				1.03		0.88			
2B-W-11		320		dry				0.08		0.26			
2B-W-12		312		5.32				3.37		3.35			
2B-W-13		315		dry				3.04		2.99			
2B-W-14		313		dry				1.81		1.82			
2B-W-15		100		6.16				3.20		3.88			
2B-W-19								4.44		4.19			
2B-W-21		355		8.60				6.67		6.47			
2B-W-30		125		11.17				8.70		8.78			
2B-W-32		415		7.15				5.38		5.16			
2B-W-33		310		9.75				6.90		6.85			
2B-B-21		1259		5.59				2.78		2.76			
2B-W-45		400 1440		11.01				9.11		9.05			
2B-W-46		405 1415		11.00				8.80		8.67			
3-W-41		0940		5.31				4.13		4.05			
3-W-42		1207		8.43				6.92		NM			
3-W-43		1111		4.59				3.42		3.40			

Creek was dry (DWK)

DWK
↓

AECOM

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	12/15/09	1:13		12.36				10.69		10.44			
MW-2		1:10		11.94				9.94		9.66			
MW-3		1:08		9.96				6.82		6.56			
MW-4		3:11		8.44				6.34		6.32			
MW-5		1:03		6.76				4.48		4.4			
MW-9		1:21		12.77				10.10		10.11			
MW-10		1:19		12.82				10.04		10.04			
MW-11		1:15		12.67				10.84		10.75			
MW-12		12:58		5.86				2.90		2.78			
MW-13		09:01		9.83				7.32		7.28		ANK	
MW-14		09:04	13.5	11.72				9.27		9.30		Blank	
MW-15		1:30		12.80				10.35		10.40			
MW-16		3:00		13.29				11.66		11.34			
MW-18		1:17		14.13				12.14		12.08			
MW-38R		2:50		4.76				3.44		3.17			
MW-40		1:34		12.30				9.90		9.95			

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	Prod. Thick. (ft)		DTW (ft)	Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)			
GW-1	12/15/09	2:30		8.31								
GW-2		2:35		10.32								
GW-3		2:40		15.42								
GW-4		2:45		10.03								
1C-W-1												
1C-W-7												
1C-W-8												
3-W-41		09:40		5.31								
3-W-42		1:07		5.49								
3-W-43		1:11		4.59								
5-W-14												
5-W-15												
5-W-16												
5-W-17												
5-W-18												
5-W-19												
5-W-20												
5-W-42												
5-W-43												
EW-1		16:40		9.11								
1B-W-23												
2A-W-40												
2A-W-41												
2A-W-42												

✓ ✓ ✓ ✓ ✓ ✓

PAGE 4

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
MW-7	12/15/09							9.87	None	9.97	None	
MW-17								NM		NM		
2A-W-3								7.80	Hvy TR	7.85	Hvy TR	
2A-W-11								5.01	TR	4.93	TR	
MW-39								6.8	None	6.72	None	
5-W-2								6.05	Hvy TR	5.95	0.2	
5-W-3								NM		5.15	0.29	
2A-W-4								8.07	Hvy TR	8.20	Hvy TR	

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well

- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009	NR	1.32
Mid Staff Gauge	12/15/2009	1.64	1.64
South Staff Gauge	12/15/2009	1.31	1.31

NR - gauge frozen & snow piled over gauge

FIELD ACTIVITY LOG

AECOM

PROJECT NAME: BNSF-Skykomish
 PROJECT NO: 60136319-0540
 DAY & DATE: Weds Dec, 16th, 2009

COMPLETED BY: D. Kinney
 APPROVED BY: _____
 SHEET 1 OF 1

FIELD ACTIVITY SUBJECT: Groundwater sampling

DESCRIPTION OF DAILY ACTIVITIES & EVENTS:

TIME	
0810	Arrived onsite & had safety mtg
0840	set up to sample & calibrated meters - (NSI made 556 & Oskton F100)
0855	Started purging 5-W-18
0910	sampled 5-W-18; took duplicated sample, labeled 5-W-180-1209
0955	started purging 2B-W-46
1020	sampled 2B-W-46
1030	started purging 2B-W-45
1100	sampled 2B-W-45
1110	Dumped purge water & went to unload full coolers & get more empties
1135	Lunch
1200	Returned from lunch @ went to get ice
1233	started purging 5-W-42
1255	Sampled 5-W-42 (extra volume for lab QC)
1335	Took Equipment Bk/BK; labeled: MW-500-1209
1349	Started purging 5-W-20
1410	Sampled 5-W-20
1425	Dropped full coolers & got empties
1500	Started purging 5-W-17
1520	Sampled 5-W-17
1540	Went to look GW wells
1559	Dumped purge water & went to drop full cooler
1625	Returned to site office
1635	Left site

VISITORS ONSITE:
None

CHANGES FROM PLANS OR IMPORTANT DECISIONS:
None

WEATHER CONDITIONS:
Raining, 35-40 °F

IMPORTANT TELEPHONE CALLS:
None

PERSONNEL ONSITE: Dean Kinney, Ghani Sebbana, Eric Storkerson

Field Activity Log

Page: 1 of 2

AECOM

Project Name: BNSF-SKYKOMISH

Completed By: Abdelghani Sebhone

Project Number:

Date: 12/15/09

Field Activity: Quarterly GW
Sampling.

Weather: cloudy, 32°F. Snow on ground.

Personnel on site: Ghannis, Dean, K, Eric, S.

0820: Arrived to the site. met with Dean, organized equipment.

0830: Had safety meeting, and discussed scope of work.

0900: started calibrating equipment. YSE and turbidity meter.

0930: Began setting up on 1C-W-1

1003: started purging. water is clear.

1013: Began recording parameters.

1025: started collecting samples.

1040: Began setting up on 1C-W-8.

1046: started purging. water is clear.

1056: Began recording parameters.

1110: started sampling.

1130: Began setting up on 1C-W-7

1139: started purging. water started with Iron Flack.

1149: Began recording parameters.

1210: started sampling.

1230: Had break

1300: started setting up on 1B-W-23

1316: Began purging. water is cloudy.

1326: started recording parameters.

1350: Began collecting samples.

1420: started looking for 2A-W-40 with metal detector.

1440: Began setting up on 2A-W-40.

1503: started purging. water is clear.

1503: Began recording parameters.

1520: started sampling.

1530:

Field Activity Log

Project Name: SKYKOMISH-BNSF Completed By: Ghani, S
Project Number: _____ Date: 12/15/09
Field Activity: Quarterly GW Weather: rain - 34°F
sampling Personnel on site: Ghani, S, Khan, K.

GA-U-41, EW-1 - S-W-43)
1550: started gauging (couldn't find 2AW-41
2A-W-42 & S-W-43 - big paddle of water about it
gauged only EW-1 = 9.11 at 1640.
1700: stopped working net with Dean to check for
all wells that been gauged.

Ghani, S 12/15/09

Field Activity Log

Page: 1 of 1

AECOM

Project Name: Skykomish (BWSF) Completed By: Ghani, S
Project Number: _____ Date: 12/16/09.
Field Activity: Quarterly CQW Weather: light rain, 34°F
Sampling Personnel on site: Ghani, S, Dean, K.

0800: Dumped purge water into drum by HCC building

0820: Met with Dean at Trailer office and had safety meeting and discussed scope of work.

0845: Began calibrating equipment.

0910: started setting up on 5-W-14.

0926: Began purging, water is clear.

0936: started recording parameters.

0945: Began collecting samples with SGCU.

1010: started setting up on 5-W-16.

1020: Began purging, water is clear.

1030: started recording parameters.

1040: Began sampling with SGCU.

1100: started setting up on 5-W-15.

1114: Began purging, water is clear.

1124: started recording parameters. ORP, turbidity unstable.

1215: Began sampling with SGCU.

1230: Had a break - lunch.

1300: dumped purge water.

1320: started setting up on 2AW-61

1340: Began purging, water is clear.

1350: started recording parameters. ORP unstable

1425: Began sampling.

1450: started setting up on 5-W-19.

1516: Began purging, water is clear.

1520: started recording parameters.

1540: Began sampling with SGCU.

1610: went to dump purge water.

1630: left a site.

Ghani: sgl 12/16/09.

Field Activity Log

Page: 1 of 1

AECOM

Project Name: Skykomish BIFF

Completed By: Ghazi, S

Project Number:

Date: 12/17/09

Field Activity: Quarterly GW
Sampling.

Weather: Cloudy, 35°F

Personnel on site: Ghazi, S, Dean, K.

0900: Arrived to the site. Signed sign-in at trailer office, put PPE on.

0910: Helped Dean changing ice in coolers and organizing equipment.

0920: started calibrating equipment

0945: Began hauling water around 8-W-43, but we couldn't locate a well.

1035: started setting up on GW-2.

1055: Began purging, water is clear.

1105: started recording parameters.

1125: Began sampling also collected Dup GW-20.

1150: started setting up on 2A-W-42, hauled out water around a well.

1225: Began purging, water started with some Iron Flacker.

1235: started recording parameter DO - turbidity unstable

1300: Began sampling also I collected Dup.

2A-W-420 at 1320.

1345: dumped purge water into a drum and started pumping purge water from drum into water treatment HCC.

1410: went locker house to pick up coolers and loaded them in the van. Also loaded the rest of equipment Dean has.

1500: left a site to Seattle to drop off coolers to the Lab, to return equipment to field locker and finally to return a van to Enterprise.

12/17/09

Ghazi, S

Chain of Custody Record

No: 3327

The RETEC Group, Inc.
 300 Baker Avenue, Concord, MA 01742
 (978) 374-4422 Phone / (978) 377-1448 Fax
 WWW.RETEC.COM

AECOM
 710 2nd Ave
 Seattle, WA 98104



Project Name: BNSF - Skykomish	Project Number: 60136319-0540	Analysis Requested		
Send Report To: AECOM	Sampler (Print Name): D. Kinney	Analysis Requested		
Address: 710 2nd Ave	Sampler (Print Name): G. Sabbane	Analysis Requested		
STE 1000	Shipment Method: Hand delivered	Analysis Requested		
Seattle, WA 98104	Airbill Number: NA	Analysis Requested		
Phone: (206) 624-9349	Laboratory Receiving: Pace	Analysis Requested		
Fax:		Analysis Requested		
Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers
S-W-15-1709	12/16/09	1215	W	4
S-W-16-		1040		4
2A-W-41-		1425		2
S-W-19-		1540		4
EW-1-	12/17/09	1010		2
GW-1-		1040		2
GW-2-		1125		2
GW-20-		1130		2
GW-3-		1150		2
2A-W-42-		1300		2
2A-W-420-		1320		2
GW-4-		1350		2

Bill to: BNSF
 Purchase Order #: TT0100-J39
 (Bruce Sheppard)

Comments, Special Instructions, etc.
 SGLN - Silica gel
 SGLN - DX W/ SGLN
 NMTPH - DX W/ SGLN
 NMTPH - DX W/ SGLN

Lab Sample ID (to be completed by lab)

Sample Custodian Remarks (Completed By Laboratory):		Turnaround	QA/QC Level	Temperature?
Total # Containers Received?	10	<input checked="" type="checkbox"/> Routine	Level I <input type="checkbox"/>	<input type="checkbox"/>
COC Seals Present?	N	<input type="checkbox"/> 24 Hour	Level II <input type="checkbox"/>	<input type="checkbox"/>
COC Seals Intact?	N/A	<input type="checkbox"/> 1 Week	Level III <input type="checkbox"/>	<input type="checkbox"/>
Received Containers Intact?	Y	Other	Other	<input type="checkbox"/>

Relinquished by: (Signature) Received by: (Signature) Date: 12/17/09 Time: 16:50

Relinquished by: (Signature) Received by: (Signature) Date: 12/17/09 Time: 16:50

Relinquished by: (Signature) Received by: (Signature) Date: 12/17/09 Time: 16:50

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. EW-1
 Sampled By DWR
 weather P/Cloudy, 35°F

WELL INFORMATION	
Depth to water	<u>8.72</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing inlet at ~9.5'</u>

PURGE DATA							
start purge time	<u>0940</u>						
time		<u>0950</u>	<u>0953</u>	<u>0956</u>	<u>0959</u>	<u>1002</u>	<u>1005</u>
DTW	(ft)	<u>8.73</u>	<u>8.73</u>	<u>8.73</u>	<u>8.73</u>	<u>8.73</u>	<u>8.73</u>
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>
pH	(Units)	<u>5.50</u>	<u>5.43</u>	<u>5.35</u>	<u>5.36</u>	<u>5.36</u>	<u>5.35</u>
conductivity	(umhos/cm)	<u>0.029</u>	<u>0.029</u>	<u>0.029</u>	<u>0.029</u>	<u>0.029</u>	<u>0.029</u>
temperature	(deg C)	<u>6.1</u>	<u>6.1</u>	<u>6.1</u>	<u>6.1</u>	<u>6.1</u>	<u>6.0</u>
D.O.	(mg/L)	<u>1.88</u>	<u>1.81</u>	<u>1.70</u>	<u>1.67</u>	<u>1.66</u>	<u>1.62</u>
ORP	(mv)	<u>398</u>	<u>403</u>	<u>411</u>	<u>413</u>	<u>413</u>	<u>414</u>
turbidity	(NTU)	<u>0.52</u>	<u>0.32</u>	<u>0.27</u>	<u>0.07</u>	<u>0.09</u>	<u>0.07</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>EW-1-1209</u>	<u>1010</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. 6W-2
 Sampled By Glanville
 weather cloudy 34 °F

WELL INFORMATION		
Depth to water	10.12	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good	

COMMENTS
inlet tubing ~ 12'
purge water started with some iron flack

PURGE DATA								
start purge time	1055							
time		1105	1108	1111	1114	1117	1120	
DTW	(ft)	10.12	10.12	10.12	10.12	ND	ND	
purge rate	(L/min)	250	250	250	250	250	250	
pH	(Units)	6.39	6.37	6.15	6.09	6.05	6.03	
conductivity	(umhos/cm)	0.049	0.047	0.050	0.050	0.048	0.047	
temperature	(deg C)	6.85	6.83	6.87	6.97	6.99	6.99	
D.O.	(mg/L)	3.63	3.27	2.85	2.12	2.12	2.10	
ORP	(mv)	60.7	64.1	62.1	61.7	61.5	62.4	
turbidity	(NTU)	3.83	3.67	3.71	3.52	2.91	3.92	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
6W-2-1209	1125	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. GW-4
 Sampled By DWIK
 weather cloudy, 35°F

WELL INFORMATION

Depth to water	<u>9.67</u>	(ft)
Depth of well:		(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>None</u>	(ft)
Screen interval:		
well condition:	<u>ok</u>	

COMMENTS

<u>Tubing inlet at ~ 10.5'</u>

PURGE DATA

start purge time	<u>1332</u>				
time		<u>1342</u>	<u>1345</u>	<u>1348</u>	
DTW (ft)		<u>10.61</u>	<u>9.97</u>	<u>9.96</u>	
purge rate (L/min)		<u>0.30</u>	<u>0.225</u>	<u>0.225</u>	
pH (Units)		<u>6.42</u>	<u>6.37</u>	<u>6.38</u>	
conductivity (umhos/cm)		<u>0.089</u>	<u>0.088</u>	<u>0.087</u>	
temperature (deg C)		<u>7.0</u>	<u>7.1</u>	<u>7.0</u>	
D.O. (mg/L)		<u>1.63</u>	<u>1.72</u>	<u>1.79</u>	
ORP (mv)		<u>351</u>	<u>258</u>	<u>360</u>	
turbidity (NTU)		<u>15.9</u>	<u>14.7</u>	<u>14.4</u>	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing				

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>GW-4-1209</u>	<u>1350</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 3-W-41
 Sampled By DWK
 weather Cloudy, 30 °F

WELL INFORMATION	
Depth to water	<u>5.31</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing Inlet at ~6'</u>

PURGE DATA							
start purge time	<u>0947</u>						
time		<u>0952</u>	<u>1000</u>	<u>1003</u>	<u>1006</u>		
DTW	(ft)	<u>5.35</u>	<u>5.35</u>	<u>5.35</u>	<u>5.35</u>		
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.42</u>	<u>5.46</u>	<u>5.46</u>	<u>5.47</u>		
conductivity	(umhos/cm)	<u>0.048</u>	<u>0.048</u>	<u>0.049</u>	<u>0.049</u>		
temperature	(deg C)	<u>8.0</u>	<u>8.0</u>	<u>8.0</u>	<u>8.0</u>		
D.O.	(mg/L)	<u>2.12</u>	<u>2.01</u>	<u>1.96</u>	<u>1.90</u>		
ORP	(mv)	<u>235</u>	<u>235</u>	<u>235</u>	<u>235</u>		
turbidity	(NTU)	<u>3.31</u>	<u>2.60</u>	<u>2.45</u>	<u>2.39</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-41-1209</u>	<u>1010</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 3-W-42
 Sampled By DWR
 weather Rainy, 35 °F

WELL INFORMATION	
Depth to water	<u>8.49</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing met at ~9,25'</u>

PURGE DATA							
start purge time	<u>12:10</u>						
time		<u>12:20</u>	<u>12:23</u>	<u>12:26</u>	<u>12:29</u>		
DTW	(ft)	<u>8.53</u>	<u>8.53</u>	<u>8.53</u>	<u>8.53</u>		
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.25</u>	<u>5.26</u>	<u>5.29</u>	<u>5.31</u>		
conductivity	(umhos/cm)	<u>0.029</u>	<u>0.031</u>	<u>0.032</u>	<u>0.033</u>		
temperature	(deg C)	<u>4.4</u>	<u>4.2</u>	<u>4.1</u>	<u>4.0</u>		
D.O.	(mg/L)	<u>5.75</u>	<u>6.19</u>	<u>6.41</u>	<u>6.52</u>		
ORP	(mv)	<u>183</u>	<u>161</u>	<u>162</u>	<u>168</u>		
turbidity	(NTU)	<u>13.6</u>	<u>12.1</u>	<u>11.7</u>	<u>11.5</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-42-1204</u>	<u>12:30</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 3-W-43
 Sampled By D. H. K.
 weather cloudy, 30 °F

WELL INFORMATION	
Depth to water	<u>4.59</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~ 5.25'</u>

PURGE DATA							
start purge time	<u>1117</u>						
time		<u>1127</u>	<u>1130</u>	<u>1133</u>	<u>1136</u>		
DTW	(ft)	<u>4.60</u>	<u>4.60</u>	<u>4.60</u>	<u>4.60</u>		
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.07</u>	<u>4.99</u>	<u>5.00</u>	<u>5.01</u>		
conductivity	(umhos/cm)	<u>0.028</u>	<u>0.028</u>	<u>0.027</u>	<u>0.027</u>		
temperature	(deg C)	<u>4.7</u>	<u>4.8</u>	<u>4.7</u>	<u>4.7</u>		
D.O.	(mg/L)	<u>7.26</u>	<u>7.26</u>	<u>7.22</u>	<u>7.20</u>		
ORP	(mv)	<u>140</u>	<u>143</u>	<u>142</u>	<u>143</u>		
turbidity	(NTU)	<u>2.13</u>	<u>1.13</u>	<u>1.09</u>	<u>1.06</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-43-1209</u>	<u>1140</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-14
 Sampled By Lyhanis
 weather light rain 34°F

WELL INFORMATION	
Depth to water	9.34 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good

COMMENTS
inlet tubing ~ 12'
purge water is clear.

PURGE DATA						
start purge time	0926					
time		0936	0939	0942		
DTW	(ft)	9.35	9.35	9.35		
purge rate	(L/min)	230	230	230		
pH	(Units)	6.47	6.44	6.42		
conductivity	(umhos/cm)	0.065	0.064	0.069		
temperature	(deg C)	5.88	5.98	6.05		
D.O.	(mg/L)	5.58	5.58	5.59		
ORP	(mv)	66.6	66.7	66.5		
turbidity	(NTU)	0.47	0.22	0.13		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-14-1209	0945	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
↓	↓	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-15
 Sampled By Ghamis
 weather rain 34 °F

WELL INFORMATION	
Depth to water	<u>7.80</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>no holds</u>

COMMENTS
<u>inlet tubing</u>
<u>purge water started with iron flakes orange color. slight product odor.</u>

PURGE DATA								
start purge time	<u>1114</u>							
time		<u>1124</u>	<u>1127</u>	<u>1130</u>	<u>1133</u>	<u>1136</u>	<u>1139</u>	<u>1142</u>
DTW	(ft)	<u>7.96</u>	<u>7.96</u>	<u>7.96</u>	<u>7.96</u>	<u>7.96</u>	<u>NM</u>	<u>NM</u>
purge rate	(L/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>
pH	(Units)	<u>6.45</u>	<u>6.55</u>	<u>6.56</u>	<u>6.58</u>	<u>6.59</u>	<u>6.59</u>	<u>6.59</u>
conductivity	(umhos/cm)	<u>0.074</u>	<u>0.076</u>	<u>0.078</u>	<u>0.079</u>	<u>0.080</u>	<u>0.079</u>	<u>0.080</u>
temperature	(deg C)	<u>7.09</u>	<u>7.45</u>	<u>7.69</u>	<u>7.79</u>	<u>7.73</u>	<u>7.75</u>	<u>7.80</u>
D.O.	(mg/L)	<u>0.63</u>	<u>0.37</u>	<u>0.37</u>	<u>0.27</u>	<u>0.23</u>	<u>0.24</u>	<u>0.23</u>
ORP	(mv)	<u>49.1</u>	<u>42.6</u>	<u>33.1</u>	<u>30.2</u>	<u>25.3</u>	<u>22.8</u>	<u>20.1</u>
turbidity	(NTU)	<u>32.6</u>	<u>29.4</u>	<u>34.2</u>	<u>35.8</u>	<u>28.5</u>	<u>26.4</u>	<u>19.16</u>
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-15-1209</u>	<u>1215</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>↓</u>	<u>↓</u>	<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-15
 Sampled By Glandis
 weather rain 34 °F

WELL INFORMATION	
Depth to water	7.80 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	No solids

COMMENTS
orp and turbidity unstable.

PURGE DATA										
start purge time										
time		1145	1148	1151	1154	1157	1200	1203	1206	
DTW	(ft)	7.96	NM	NM	NM	NM	NM	7.96	NM	NM
purge rate	(L/min)	250	250	250	250	250	250	250	250	250
pH	(Units)	6.59	6.59	6.58	6.58	6.57	6.56	6.56	6.55	6.55
conductivity	(umhos/cm)	0.080	0.079	0.079	0.080	0.079	0.079	0.080	0.079	0.079
temperature	(deg C)	7.80	7.82	7.81	7.85	7.81	7.92	7.91	7.89	7.89
D.O.	(mg/L)	0.26	0.31	0.28	0.33	0.30	0.33	0.28	0.27	0.27
ORP	(mv)	19.1	16.5	14.5	11.4	9.0	6.8	6.6	4.9	4.9
turbidity	(NTU)	15.67	15.23	11.66	9.73	8.37	7.35	7.71	4.48	4.48
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing									

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-15-1209	1215	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
↓	↓	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 5-W-15
 Sampled By Ghanis
 weather rain 34 °F

WELL INFORMATION	
Depth to water	<u>7.80</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>no bolts.</u>

COMMENTS

PURGE DATA							
start purge time							
time		<u>1209</u>	<u>1212</u>				
DTW	(ft)	<u>7.96</u>	<u>NM</u>				
purge rate	(L/min)	<u>250</u>	<u>250</u>				
pH	(Units)	<u>6.54</u>	<u>6.54</u>				
conductivity	(umhos/cm)	<u>0.079</u>	<u>0.079</u>				
temperature	(deg C)	<u>7.85</u>	<u>7.88</u>				
D.O.	(mg/L)	<u>0.26</u>	<u>0.27</u>				
ORP	(mv)	<u>5.0</u>	<u>4.8</u>				
turbidity	(NTU)	<u>5.27</u>	<u>5.79</u>				
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-15-1209</u>	<u>1215</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>↓</u>	<u>↓</u>	<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-16
 Sampled By GS
 weather rain, 35 °F

WELL INFORMATION	
Depth to water	8.16 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	no boulders

COMMENTS
inlet tubing c 10'
purge water is clear

PURGE DATA							
start purge time	1020						
time		1030	1033	1036			
DTW	(ft)	8.16	8.16	8.16			
purge rate	(L/min)	220	220	220			
pH	(Units)	6.25	6.27	6.25			
conductivity	(umhos/cm)	0.044	0.045	0.048			
temperature	(deg C)	2.04	1.92	1.84			
D.O.	(mg/L)	9.19	9.28	9.48			
ORP	(mv)	75.2	74.8	76.7			
turbidity	(NTU)	1.59	1.27	1.23			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-16-1209	1040	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
↓	↓	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 5-W-17
 Sampled By DWL
 weather Rainy, 35°F

WELL INFORMATION	
Depth to water	<u>7.40</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing Inlet at ~8.0'</u>

PURGE DATA						
start purge time	<u>1500</u>					
time		<u>1510</u>	<u>1513</u>	<u>1516</u>		
DTW	(ft)	<u>7.40</u>	<u>7.40</u>	<u>7.40</u>		
purge rate	(L/min)	<u>0.30</u>				
pH	(Units)	<u>6.10</u>	<u>6.08</u>	<u>6.07</u>		
conductivity	(umhos/cm)	<u>0.051</u>	<u>0.051</u>	<u>0.051</u>		
temperature	(deg C)	<u>6.8</u>	<u>6.90</u>	<u>6.9</u>		
D.O.	(mg/L)	<u>4.99</u>	<u>4.98</u>	<u>4.97</u>		
ORP	(mv)	<u>323</u>	<u>327</u>	<u>328</u>		
turbidity	(NTU)	<u>0.28</u>	<u>0.25</u>	<u>0.23</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-17-1209</u>	<u>1520</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 5-W-18
 Sampled By DWK
 weather Rainy, 35°F

WELL INFORMATION	
Depth to water	7.60 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	None (ft)
Screen interval:	
well condition:	OK

COMMENTS
Tubing inlet at ~ 8.25'

PURGE DATA						
start purge time	0955					
time		0905	0908	0911		
DTW	(ft)	7.61	7.61	7.61		
purge rate	(L/min)	0.30				
pH	(Units)	6.20	6.70	6.19		
conductivity	(umhos/cm)	0.084	0.084	0.084		
temperature	(deg C)	7.0	7.0	7.1		
D.O.	(mg/L)	1.08	1.01	0.95		
ORP	(mv)	308	309	308		
turbidity	(NTU)	33.0	31.7	30.9		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
5-W-18-1209	0915	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Dup of
 Well No. 5-W-18
 Sampled By DWL
 weather Rainy, 35 °F

WELL INFORMATION	
Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS

PURGE DATA							
start purge time							
time							
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

Dup of 5-W-18

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-18-1209</u>	<u>0930</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 5-W-19
 Sampled By Blair S
 weather rain 34 °F

WELL INFORMATION	
Depth to water	<u>7.45</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>inlet tubing - 9.50'</u>
<u>purge water is clear.</u>

PURGE DATA							
start purge time	<u>1516</u>						
time		<u>1526</u>	<u>1529</u>	<u>1532</u>	<u>1535</u>		
DTW	(ft)	<u>7.45</u>	<u>7.45</u>	<u>7.45</u>	<u>7.45</u>		
purge rate	(L/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>		
pH	(Units)	<u>6.04</u>	<u>6.02</u>	<u>6.01</u>	<u>6.00</u>		
conductivity	(umhos/cm)	<u>0.044</u>	<u>0.041</u>	<u>0.041</u>	<u>0.041</u>		
temperature	(deg C)	<u>5.79</u>	<u>5.82</u>	<u>5.84</u>	<u>5.84</u>		
D.O.	(mg/L)	<u>3.70</u>	<u>3.68</u>	<u>3.64</u>	<u>3.68</u>		
ORP	(mv)	<u>21.4</u>	<u>18.1</u>	<u>19.0</u>	<u>19.6</u>		
turbidity	(NTU)	<u>0.07</u>	<u>0.11</u>	<u>0.08</u>	<u>0.07</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-19-1209</u>	<u>1540</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>↓</u>	<u>↓</u>	<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-20
 Sampled By DWK
 weather Partly, 35°F

WELL INFORMATION	
Depth to water	<u>7.00</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing Inlet at ~ 7.75'</u>

PURGE DATA						
start purge time	<u>1349</u>					
time		<u>1359</u>	<u>1402</u>	<u>1405</u>	<u>1408</u>	
DTW	(ft)	<u>7.00</u>	<u>7.01</u>	<u>7.05</u>	<u>7.01</u>	
purge rate	(L/min)	<u>0.30</u>				
pH	(Units)	<u>6.12</u>	<u>6.14</u>	<u>6.16</u>	<u>6.14</u>	
conductivity	(umhos/cm)	<u>0.084</u>	<u>0.084</u>	<u>0.084</u>	<u>0.084</u>	
temperature	(deg C)	<u>7.7</u>	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>	
D.O.	(mg/L)	<u>0.48</u>	<u>0.47</u>	<u>0.46</u>	<u>0.47</u>	
ORP	(mv)	<u>338</u>	<u>336</u>	<u>334</u>	<u>332</u>	
turbidity	(NTU)	<u>5.59</u>	<u>3.50</u>	<u>3.41</u>	<u>3.30</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-20-1209</u>	<u>1410</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. S-W-42
 Sampled By pink
 weather Rainy, 35°F

WELL INFORMATION	
Depth to water	<u>6.76</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Tubing inlet at ~ 7.5'</u>
<u>Extra sample volume for lab QC</u>

PURGE DATA							
start purge time	<u>1233</u>						
time		<u>1243</u>	<u>1246</u>	<u>1249</u>			
DTW	(ft)	<u>6.81</u>	<u>6.81</u>	<u>6.81</u>			
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.89</u>	<u>5.90</u>	<u>5.91</u>			
conductivity	(umhos/cm)	<u>0.057</u>	<u>0.057</u>	<u>0.057</u>			
temperature	(deg C)	<u>8.2</u>	<u>8.2</u>	<u>8.2</u>			
D.O.	(mg/L)	<u>1.96</u>	<u>1.95</u>	<u>1.94</u>			
ORP	(mv)	<u>281</u>	<u>281</u>	<u>281</u>			
turbidity	(NTU)	<u>2.62</u>	<u>2.51</u>	<u>2.63</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-42-1209</u>	<u>1255</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>6</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>6</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. S-W-43
 Sampled By DWK
 weather P. Cloudy 35°F

WELL INFORMATION

Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS

<u>Well under 2-3" of</u>
<u>water in large</u>
<u>puddle -</u>
<u>took pictures</u>

PURGE DATA

start purge time								
time								
DTW	(ft)							
purge rate	(L/min)							
pH	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)							
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>S-W-43-1209</u>	<u>N/A</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
	<u>Sample</u>				

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 1B-W-23
 Sampled By Ghani, S
 weather light rain 31°F

WELL INFORMATION	
Depth to water	<u>15.89</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good.</u>

COMMENTS
<u>inlet tubing ~ 17.5'</u>
<u>purge water is cloudy</u>
<u>slight product odor.</u>

PURGE DATA									
start purge time	<u>1316</u>								
time		<u>1326</u>	<u>1329</u>	<u>1332</u>	<u>1335</u>	<u>1338</u>	<u>1341</u>	<u>1344</u>	<u>1347</u>
DTW	(ft)	<u>15.90</u>	<u>15.90</u>	<u>15.90</u>	<u>15.90</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>
purge rate	(L/min)	<u>150</u>							
pH	(Units)	<u>6.34</u>	<u>6.39</u>	<u>6.34</u>	<u>6.34</u>	<u>6.32</u>	<u>6.33</u>	<u>6.25</u>	<u>6.26</u>
conductivity	(umhos/cm)	<u>0.332</u>	<u>0.318</u>	<u>0.230</u>	<u>0.177</u>	<u>0.135</u>	<u>0.111</u>	<u>0.108</u>	<u>0.100</u>
temperature	(deg C)	<u>5.99</u>	<u>5.98</u>	<u>5.99</u>	<u>6.04</u>	<u>6.07</u>	<u>6.05</u>	<u>6.14</u>	<u>6.10</u>
D.O.	(mg/L)	<u>1.25</u>	<u>1.72</u>	<u>3.46</u>	<u>4.23</u>	<u>4.84</u>	<u>5.12</u>	<u>4.78</u>	<u>4.90</u>
ORP	(mv)	<u>69.4</u>	<u>59.5</u>	<u>59.7</u>	<u>57.8</u>	<u>55.3</u>	<u>48.7</u>	<u>53.2</u>	<u>52.2</u>
turbidity	(NTU)	<u>38.3</u>	<u>25.8</u>	<u>19.10</u>	<u>12.42</u>	<u>9.56</u>	<u>9.38</u>	<u>9.60</u>	<u>9.22</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>								

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-23-1209</u>	<u>1350</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 1C-W-1
 Sampled By Ghani, S
 weather cloudy 32 °F

WELL INFORMATION	
Depth to water	<u>13.63</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>inlet tubing ~ 15'</u>
<u>purge water is clear.</u>

PURGE DATA							
start purge time	<u>10 03</u>						
time		<u>1013</u>	<u>1016</u>	<u>1019</u>	<u>1022</u>		
DTW	(ft)	<u>13.64</u>	<u>13.65</u>	<u>13.65</u>	<u>13.65</u>		
purge rate	(L/min)	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>		
pH	(Units)	<u>6.07</u>	<u>6.01</u>	<u>5.69</u>	<u>5.92</u>		
conductivity	(µmhos/cm)	<u>0.075</u>	<u>0.074</u>	<u>0.073</u>	<u>0.074</u>		
temperature	(deg C)	<u>8.02</u>	<u>8.10</u>	<u>8.10</u>	<u>8.14</u>		
D.O.	(mg/L)	<u>6.29</u>	<u>5.95</u>	<u>6.04</u>	<u>5.42</u>		
ORP	(mv)	<u>59.9</u>	<u>52.2</u>	<u>52.6</u>	<u>50.9</u>		
turbidity	(NTU)	<u>2.93</u>	<u>2.83</u>	<u>3.02</u>	<u>3.12</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-1-1209</u>	<u>1025</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 1C-W-7
 Sampled By Ghani S
 weather cloudy rain 31 °F

WELL INFORMATION	
Depth to water	<u>11.35</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>inlet tubing ~ 13'</u>
<u>purge water started with iron Flacks,</u>
<u>turbidity started higher.</u>

PURGE DATA								
start purge time	<u>11:39</u>							
time		<u>1149</u>	<u>1152</u>	<u>1155</u>	<u>1158</u>	<u>1201</u>	<u>1204</u>	<u>1207</u>
DTW	(ft)	<u>1135</u>	<u>1135</u>	<u>1135</u>	<u>1135</u>	<u>1135</u>	<u>NM</u>	<u>NM</u>
purge rate	(L/min)	<u>240</u>						
pH	(Units)	<u>6.20</u>	<u>6.25</u>	<u>6.27</u>	<u>6.28</u>	<u>6.29</u>	<u>6.29</u>	<u>6.29</u>
conductivity	(umhos/cm)	<u>0.072</u>	<u>0.077</u>	<u>0.080</u>	<u>0.082</u>	<u>0.084</u>	<u>0.084</u>	<u>0.086</u>
temperature	(deg C)	<u>6.25</u>	<u>6.62</u>	<u>6.65</u>	<u>6.67</u>	<u>6.72</u>	<u>6.76</u>	<u>6.78</u>
D.O.	(mg/L)	<u>1.24</u>	<u>1.51</u>	<u>1.48</u>	<u>1.68</u>	<u>1.70</u>	<u>1.86</u>	<u>1.88</u>
ORP	(mv)	<u>68.2</u>	<u>63.6</u>	<u>62.0</u>	<u>61.9</u>	<u>61.9</u>	<u>61.8</u>	<u>61.5</u>
turbidity	(NTU)	<u>83.7</u>	<u>14.06</u>	<u>14.48</u>	<u>3.29</u>	<u>1.74</u>	<u>1.87</u>	<u>1.61</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-7-1209</u>	<u>1210</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. 1C-W-8
 Sampled By Glanville
 weather cloudy 32 °F

WELL INFORMATION	
Depth to water	12.85 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	good.

COMMENTS
inlet tubing is 14"
purge water is clear.

PURGE DATA							
start purge time	1046						
time		1056	1059	1102	1105		
DTW	(ft)	230	12.86	12.86	12.86		
purge rate	(L/min)	12.86	230	230	230		
pH	(Units)	5.82	5.82	5.80	5.83		
conductivity	(umhos/cm)	0.060	0.059	0.061	0.057		
temperature	(deg C)	4.17	4.03	3.79	3.66		
D.O.	(mg/L)	1.14	0.88	0.86	0.83		
ORP	(mv)	68.6	69.3	68.8	70.1		
turbidity	(NTU)	2.14	1.29	1.50	1.55		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-8-1209	1110	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/15/09

Well No. ZA-W-40
 Sampled By Ghassis
 weather snow-rain, 31 °F

WELL INFORMATION		
Depth to water	11.94	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
inlet tubing ~ 14
water is cloudy.

PURGE DATA							
start purge time	1453						
time		1503	1506	1509	1512	1515	
DTW	(ft)	11.96	11.96	11.97	11.97	11.97	
purge rate	(L/min)	250	250	250	250	250	
pH	(Units)	6.12	6.10	6.12	6.09	6.10	
conductivity	(umhos/cm)	0.049	0.047	0.043	0.042	0.041	
temperature	(deg C)	5.66	5.73	5.76	5.74	5.75	
D.O.	(mg/L)	4.42	4.34	4.31	4.27	4.28	
ORP	(mv)	57.2	56.1	55.3	54.8	54.3	
turbidity	(NTU)	2.70	1.66	0.98	0.99	1.08	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZA-W-40-1209	1520	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 2A-W-41
 Sampled By C. G. S.
 weather rain 34 °F

WELL INFORMATION	
Depth to water	15.15 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good

COMMENTS
inlet tubing ≈ 17
purge water is clear
ORP unstable

PURGE DATA

start purge time	1340							
time		1350	1353	1356	1359	1402	1405	1408
DTW (ft)		15.15	15.15	15.15	NM	NM	NM	NM
purge rate (L/min)		220	220	220	220	220	220	220
pH (Units)		6.12	6.09	6.07	6.07	6.06	6.06	6.07
conductivity (umhos/cm)		0.072	0.064	0.065	0.064	0.067	0.066	0.065
temperature (deg C)		6.72	6.82	6.99	6.94	6.94	6.95	6.94
D.O. (mg/L)		2.29	2.26	2.24	2.30	2.31	2.31	2.33
ORP (mv)		-4.1	-1.4	1.2	3.5	7.0	7.3	8.2
turbidity (NTU)		1.17	1.23	0.83	0.90	0.52	0.39	0.35
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
2A-W-41-1209	1425	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. 2A-W-41
 Sampled By G. L. Harris
 weather rain 34 °F

WELL INFORMATION		
Depth to water	15.15	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good	

COMMENTS
ORP unstable.

PURGE DATA							
start purge time							
time		14:11	14:14	14:17	14:20		
DTW	(ft)	15.15	NM	NM	NM		
purge rate	(L/min)	220	220	220	220		
pH	(Units)	6.06	6.06	6.07	6.06		
conductivity	(umhos/cm)	0.064	0.065	0.064	0.064		
temperature	(deg C)	6.92	6.92	6.78	6.77		
D.O.	(mg/L)	2.32	2.34	2.35	2.34		
ORP	(mv)	10.7	11.6	12.5	12.6		
turbidity	(NTU)	0.29	0.30	0.20	0.25		
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
2A-W-41-1909	1425	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. ZA-W-42
 Sampled By Ghanis
 weather cloudy 35. °F

WELL INFORMATION		
Depth to water	12.24	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:	-	
well condition:	Good.	

COMMENTS
inlet tubing ~ 100'
purge water started with some iron flakes.
Turbidity and DO unstable.

PURGE DATA								
start purge time		12 25						
time		1235	1238	1241	1244	1247	1250	1253
DTW	(ft)	12.24	12.24	12.24	NM	NM	NM	NM.
purge rate	(L/min)	230	230	230	230	230	230	230
pH	(Units)	5.79	5.79	5.80	5.82	5.84	5.86	5.88
conductivity	(umhos/cm)	0.085	0.084	0.092	0.088	0.088	0.091	0.086
temperature	(deg C)	7.25	7.26	7.16	7.18	7.17	7.25	7.33
D.O.	(mg/L)	0.90	0.82	0.85	0.96	1.11	1.12	1.18
ORP	(mv)	74.6	75.3	76.5	76.9	77.0	77.8	77.4
turbidity	(NTU)	15.72	11.24	5.84	3.40	2.83	1.66	1.34
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZA-W-42-1209	1300	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/17/09

Well No. DWP at ZA-W-42
 Sampled By G. Harris
 weather cloudy 35 °F

WELL INFORMATION	
Depth to water	<u>12.24</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>inlet tubing = 14'</u>
<u>purge water is</u>

PURGE DATA							
start purge time	<u>1225</u>						
time		<u>1250</u>	<u>1259</u>				
DTW	(ft)	<u>12.24</u>	<u>NM</u>				
purge rate	(L/min)	<u>230</u>	<u>230</u>				
pH	(Units)	<u>5.91</u>	<u>5.91</u>				
conductivity	(umhos/cm)	<u>0.090</u>	<u>0.088</u>				
temperature	(deg C)	<u>7.27</u>	<u>7.41</u>				
D.O.	(mg/L)	<u>1.16</u>	<u>1.18</u>				
ORP	(mv)	<u>77.4</u>	<u>77.2</u>				
turbidity	(NTU)	<u>1.25</u>	<u>1.31</u>				
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZA-W-420-1200</u>	<u>1320</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. ZB-W-45
 Sampled By DW/L
 weather Rainy, 35°F

WELL INFORMATION

Depth to water	11.14	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	None	(ft)
Screen interval:		
well condition:	ok	

COMMENTS

Tab My Inlet at ~ 12'

PURGE DATA

start purge time	1039				
time		1049	1052	1055	
DTW	(ft)	11.17	11.17	11.17	
purge rate	(L/min)	0.30			
pH	(Units)	5.66	5.66	5.66	
conductivity	(umhos/cm)	0.050	0.050	0.050	
temperature	(deg C)	7.7	7.6	7.6	
D.O.	(mg/L)	3.74	3.72	3.71	
ORP	(mv)	308	308	308	
turbidity	(NTU)	29.7	28.7	26.9	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing				

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
ZB-W-45-1209	1100	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. ZB-W-46
 Sampled By DWK
 weather rainy, 35°F

WELL INFORMATION	
Depth to water	<u>11.15</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Tubing met at ~ 12:00</u>

PURGE DATA							
start purge time	<u>09:55</u>						
time		<u>10:05</u>	<u>10:08</u>	<u>10:11</u>	<u>10:14</u>	<u>10:17</u>	
DTW	(ft)	<u>11.17</u>	<u>11.17</u>	<u>11.17</u>	<u>11.17</u>	<u>11.17</u>	
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.62</u>	<u>5.60</u>	<u>5.61</u>	<u>5.61</u>	<u>5.62</u>	
conductivity	(umhos/cm)	<u>0.059</u>	<u>0.058</u>	<u>0.057</u>	<u>0.057</u>	<u>0.056</u>	
temperature	(deg C)	<u>9.0</u>	<u>9.0</u>	<u>9.0</u>	<u>9.0</u>	<u>9.0</u>	
D.O.	(mg/L)	<u>3.97</u>	<u>3.99</u>	<u>4.01</u>	<u>4.04</u>	<u>4.10</u>	
ORP	(mv)	<u>308</u>	<u>308</u>	<u>305</u>	<u>304</u>	<u>304</u>	
turbidity	(NTU)	<u>14.4</u>	<u>11.0</u>	<u>5.19</u>	<u>4.98</u>	<u>4.86</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZB-W-46-1209</u>	<u>10:20</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 12/16/09

Well No. Equipment Blank (MW-500)
 Sampled By DWK
 weather Rainy, 35°F

WELL INFORMATION

Depth to water _____ (ft)
 Depth of well: _____ (ft)
 Well diameter: _____ (in)
 Feet of water: _____ (ft)
 Product thickness: _____ (ft)
 Screen interval: _____
 well condition: _____

COMMENTS

PURGE DATA

start purge time									
time									
DTW	(ft)								
purge rate	(L/min)								
pH	(Units)								
conductivity	(umhos/cm)								
temperature	(deg C)								
D.O.	(mg/L)								
ORP	(mv)								
turbidity	(NTU)								
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>MW-500-1209</u>	<u>1235</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 01140-284-0540

Collected by: D. Kinney, Eric Starkson, G. Sobrane

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	12/15/09	1326		12.64				10.60		10.61		ES	
2A-W-7		1358		NM				10.06		9.85		-	Billed
2A-W-9		1304		9.78				7.49		7.42		ES	
2A-W-10		1509		9.75				7.71		7.72			
2B-W-4		1550		2.75				1.03		0.88			
2B-W-11		1520		dry				0.08		0.26			
2B-W-12		1512		5.32				3.37		3.35			
2B-W-13		1515		dry				3.04		2.99			
2B-W-14		1513		dry				1.81		1.82			
2B-W-15		1300		6.16				3.20		3.88			
2B-W-19		-		NM				4.44		4.19			Not located under loc
2B-W-21		1555		8.60				6.67		6.47		ES	
2B-W-30		1325		11.17				8.70		8.78			
2B-W-32		1615		7.15				5.38		5.16			
2B-W-33		1510		9.75				6.90		6.85			
2B-B-21		1259		5.59				2.78		2.76			
2B-W-45		1409		11.11				9.11		9.05			DWB
2B-W-46		1445		11.09				8.80		8.67			
3-W-41		0940		5.31				4.13		4.05			
3-W-42		1207		8.49				6.92		NM			
3-W-43		1111		4.59				3.42		3.40			

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	12/15/09	1313		12.36				10.69		10.44		ES	
MW-2		1310		11.94				9.94		9.66			
MW-3		1308		9.96				6.82		6.56			
MW-4		1511		8.44				6.34		6.32			
MW-5		1303		6.76				4.48		4.4			
MW-9		1321		12.77				10.10		10.11			
MW-10		1319		12.22				10.04		10.04			
MW-11		1315		12.67				10.84		10.75			
MW-12		1258		5.86				2.90		2.78		↓	
MW-13		0901		9.83				7.32		7.28		DWK	
MW-14		0904	13.5	11.72				9.27		9.30		DWK	
MW-15		1330		13.80				10.35		10.40		GS	
MW-16		1500		13.29				11.66		11.34			
MW-18		1317		14.13				12.14		12.08			
MW-38R		1450		4.75				3.44		3.17			
MW-40		1324		12.30				9.90		9.95		↓	

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	Prod. Thick. (ft)		DTW (ft)	Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)			
GW-1	12/15/09	1430		8.31							ES	
GW-2		1435		10.32							↓	
GW-3		1440		15.42							↓	
GW-4		1445		10.03				TR			↓	
1C-W-1		0955		13.63							GS	
1C-W-7		1135		11.35							GS	
1C-W-8		1040		12.85							GS	
3-W-41		0940		5.31							AWK	
3-W-42		1207		8.49							↓	Measurement full of ice
3-W-43		1111		4.59							↓	Measurement full of ice
5-W-14		1328		9.39							↓	Measurement full of ice
5-W-15		1504		7.87							↓	Measurement full of ice
5-W-16		1334		8.20							↓	Measurement full of ice
5-W-17		1520		7.53							↓	Measurement full of ice
5-W-18		1501		7.66							↓	Measurement cover broken
5-W-19		1342		7.57							↓	Under snow pile water
5-W-20		1500		7.12							↓	Under snow pile water
5-W-42		1455		6.85							↓	Under snow pile
5-W-43		-		NM							GS	
EW-1		1640		9.11							↓	Under snow pile
1B-W-23		1310		15.89							↓	Under snow pile
2A-W-40		1450		11.94							↓	Under snow pile
2A-W-41		-		NM							↓	Under snow pile
2A-W-42		-		NM							↓	Under snow pile

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
MW-7	12/15/09	—		NM				9.87	None	9.97	None	
MW-17		—		NM			—	NM		NM		DNK well damaged
2A-W-3		—		NM			—	7.80	Hwy TR	7.85	Hwy TR	DNK well lid frozen
2A-W-11		—		NM				5.01	TR	4.93	TR	
MW-39		—		NM				6.8	None	6.72	None	
5-W-2		—		NM			—	6.05	Hwy TR	5.95	0.2	DNK
5-W-3		—		NM			—	NM		5.15	0.29	DNK
2A-W-4		—		11.02	Hwy TR		TRP	8.07	Hwy TR	8.20	Hwy TR	DNK

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well

- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009	1.32	1.32
Mid Staff Gauge	12/15/2009	1.26	1.64
South Staff Gauge	12/15/2009	0.88	1.31

NR - gauge frozen & snow piled over gauge

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	11/24/2009		10/27/2009		Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	
MW-7	12/16/09	140		12.75				9.87	None	9.97	None	
MW-17								NM		NM		
2A-W-3								7.80	Hvy TR	7.85	Hvy TR	
2A-W-11	12/16	145		7.77				5.01	TR	4.93	TR	
MW-39	12/16	150		9.09				6.8	None	6.72	None	
5-W-2	12/16	210		7.66				6.05	Hvy TR	5.95	0.2	
5-W-3	12/16	220		6.95				NM		5.15	0.29	
2A-W-4								8.07	Hvy TR	8.20	Hvy TR	

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well
- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (11/24/09)
North Staff Gauge	12/15/2009		1.32
Mid Staff Gauge	12/15/2009		1.64
South Staff Gauge	12/15/2009		1.31

Field Activity Log

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AZCOM

Project Name: BNSF Skykomish

Completed By: Ghani, Sebana

Project Number: _____

Date: 01-26-10

Field Activity: Monthly GW Gauging and Sampling

Weather: cloudy, 39°F - 41°F

Personnel on site: Ghani, S, Eric, S

0840: Arrived to the site. Met with Eric and had safety meeting and discussed scope of work.

0850: Bought Ice, and picked up bottles from HCC building.

0905: parked by IC-W-8 and started calibrating equipment and organized stuff in van.

0935: started setting up on IC-W-1.

1000: Began purging, water is clear.

1010: started recording parameters.

1020: Began sampling.

1035: started setting up on IC-W-8.

1044: Began purging, water is clear.

1054: started recording parameters, couldn't record DO reading.

1110: Began sampling.

1125: Finished sampling, packed up and went to gauge product wells.

1345: Finished gauging product wells, began setting up on IC-W-7.

1350: started purging, water is highly turbid, Iron Flakes.

1400: Began recording parameter turbidity is High unstable.

1450: started sampling, also collected IC-W-70.0110.
@ 1500.

1515: Finished sampling and went to help Eric gauging.

1600: went to HCC building and pumped purge water into tank.

1630: left a site

Ghani, Sebana

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	12/15/2009		11/24/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	01/26/10	14 05		12.38				12.36		10.69		ES	
MW-2	1/26	14 00		11.95				11.94		9.94			
MW-3	1/26	13 58		9.77				9.96		6.82			
MW-4	1/26	13 56		7.68				8.44		6.34			
MW-5	1/26	13 51		6.48				6.76		4.48			
MW-9	1/26	14 14		12.44				12.77		10.10			
MW-10	1/26	14 08		12.13				12.22		10.04			
MW-11	1/26	14 50		12.69				12.67		10.84			Disturb in Well.
MW-12	1/26	14 16		5.75				5.86		2.90			
MW-13	1/26	13 45		9.73				9.83		7.32			
MW-14	1/26	13 47		11.58				11.72		9.27			
MW-15	1/26	13 38		12.55				12.80		10.35			
MW-16	1/26	14 22		13.14				13.29		11.68			
MW-18	1/26	14 10		14.10				14.13		12.14			
MW-38R	1/26	14 26		4.65				4.75		3.44			
MW-40	1/26	13 42		12.07				12.30		9.90		✓	

X

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	12/15/2009		11/24/2009		Sign Off	Comments	
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)			
								MW-7	01/26/10	1146				12.32
MW-17		NM		NM		NM	NM	NM		NM				Damaged
2A-W-3		1212		10.04		Hvy. TR	TP	NM		7.80	Hvy. TR			11-0.96
2A-W-11		1154		7.61		Hvy. T	TP	7.77	Trace	5.01	Trace			8-0.39
MW-39		1202		8.97		NONE	TP	9.09	None	6.8	None			10-1.03
5-W-2		1240		7.47		Hvy. TR	TP	7.66	Hvy. TR	6.05	Hvy. TR			8-0.53
5-W-3		1330		7.45	6.65	0.80	pump	6.95	Hvy. TR	NM	NM			7-0.35
2A-W-4		1219		10.55		Hvy. TR	TP	11.02	H.vy. TR	8.07	Hvy. TR	✓		11.5-0.95

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well

- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level
North Staff Gauge	1/26/2010	0.31	NR
Mid Staff Gauge	✓	1.04	1.26
South Staff Gauge	✓	0.85	0.88

act 15:30

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 01140-284-0540
 Date 02/23/10

Well No. 1C-W-1
 Sampled By Abdulghani S
 weather cloudy 39. °F

WELL INFORMATION		
Depth to water	13.60	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
Inlet tubing is 15'
purge water is clear.

PURGE DATA							
start purge time	1012						
time		1022	1025	1028	1031		
DTW	(ft)	13.62	13.62	13.62	13.62		
purge rate	(L/min)	200	200	200	200		
pH	(Units)	6.13	6.11	6.14	6.04		
conductivity	(umhos/cm)	0.056	0.056	0.057	0.059		
temperature	(deg C)	6.57	6.59	6.62	6.63		
D.O.	(mg/L)	9.16	9.12	9.10	9.24		
ORP	(mv)	203.7	212.7	222.8	233.6		
turbidity	(NTU)	1.25	0.56	0.57	0.51		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-1-0210	1035	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 01140-284-0540
 Date 02/23/10

Well No. IC-W-8
 Sampled By Abdelghani S
 weather cloudy 40 °F

WELL INFORMATION	
Depth to water	<u>12.87</u> (ft)
Depth of well:	<u>18.20</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	<u>5.33</u> (ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	<u>-</u>
well condition:	<u>Good</u>

COMMENTS
<u>Inlet tubing = 14'</u>
<u>purge water is clear.</u>

PURGE DATA							
start purge time	<u>10:59</u>						
time	<u>11:09</u>	<u>11:11</u>	<u>11:14</u>	<u>11:17</u>	<u>11:20</u>	<u>11:23</u>	
DTW	(ft)	<u>12.89</u>	<u>12.89</u>	<u>12.89</u>	<u>12.89</u>	<u>NM</u>	
purge rate	(L/min)	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	
pH	(Units)	<u>5.89</u>	<u>5.90</u>	<u>5.91</u>	<u>5.91</u>	<u>5.86</u>	
conductivity	(umhos/cm)	<u>0.074</u>	<u>0.075</u>	<u>0.073</u>	<u>0.074</u>	<u>0.075</u>	
temperature	(deg C)	<u>6.42</u>	<u>6.49</u>	<u>6.55</u>	<u>6.60</u>	<u>6.73</u>	
D.O.	(mg/L)	<u>0.80</u>	<u>0.72</u>	<u>0.67</u>	<u>0.65</u>	<u>0.63</u>	
ORP	(mv)	<u>293.5</u>	<u>292.7</u>	<u>293.1</u>	<u>294.1</u>	<u>295.9</u>	
turbidity	(NTU)	<u>1.00</u>	<u>0.95</u>	<u>1.03</u>	<u>1.04</u>	<u>1.05</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>IC-W-8-0210</u>	<u>11:25</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 01140-284-0540
 Date 02/23/10

Well No. 1C-W-7
 Sampled By Abdelghani & Hassan
 weather cloudy 41 °F

WELL INFORMATION	
Depth to water	11.38 (ft)
Depth of well:	20.98 (ft)
Well diameter:	2 (in)
Feet of water:	9.52 (ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	good.

COMMENTS
Inlet tubing ~ 13'
purge water cloudy, with slight fragment iron flakes.

PURGE DATA							
start purge time	12:16						
time		12:26	12:29	12:32	12:35		
DTW	(ft)	11.39	11.39	11.39	11.39		
purge rate	(L/min)	220	220	220	220		
pH	(Units)	6.41	6.49	6.49	6.52		
conductivity	(umhos/cm)	0.081	0.088	0.091	0.088		
temperature	(deg C)	7.74	7.74	7.75	7.81		
D.O.	(mg/L)	5.88	6.02	6.16	6.18		
ORP	(mv)	293.3	287.2	284.4	278.7		
turbidity	(NTU)	3.17	3.20	2.96	2.91		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-7-0210	12:40	NWTPH-Dx	1L Gl. Amber	2	HCl
1C-W-70-0210	13:00	NWTPH-DX	1L Gl. Amber	2	HCl

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: 60136319-0540 Collected by: Abdelkhalil S. Eric S

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to Water (Outside PVC) (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		12/15/2009		Sign Off	Comments
									DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	02/23/10	14:58		12.95	NA				12.49		12.64		ES	
2A-W-7		16:12		11.75	NA				11.38		NM		AS	
2A-W-9		14:07		9.80	NA				9.43		9.78		ES	
2A-W-10		14:44		9.50	NA				9.14		9.75		ES	
2B-W-4		15:41		3.10	NA				2.70		2.75		AS	
2B-W-11		14:40		1.61	1.14				1.63		Ice		EJ	
2B-W-12		14:46		4.96	4.55				4.72		5.32		EJ	
2B-W-13		14:48		4.98	Dry				4.61		Ice		ES	
2B-W-14		14:49		4.12	Dry				3.70		Ice		ES	
2B-W-15		14:04		6.44	Dry				6.05		6.16		ES	
2B-W-19		15:36		6.91	NA				6.48		NM		AS	
2B-W-21		15:47		9.06	NA				8.68		8.60		AS	
2B-W-30		14:55		11.37	NA				10.87		11.17		ES	
2B-W-32		15:43		7.65	NA				7.22		7.15		AS	
2B-W-33		14:38		9.36	NA				8.53		9.75		ES	
2B-B-21		14:05		5.84	NA				5.42		5.59		ES	
2B-W-45		15:53		11.42	NA				10.99		11.11		AS	
2B-W-46		15:50		11.45	NA				10.93		11.09		AS	
3-W-41		15:40		5.39	NA				5.21		5.31		ES	
3-W-42		15:45		8.65	NA				8.41		8.49		ES	
3-W-43		15:57		4.81	NA				4.62		4.50		AS	

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		12/15/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	02/23/10	15:01	-	12.53	-	-	-	12.38	-	12.36	-	ES	
MW-2		15:04		12.47				11.95		11.94		ES	
MW-3		14:37		10.60				9.77		9.96		ES	
MW-4		14:10		8.06				7.68		8.44		ES	
MW-5		14:08		6.83				6.48		6.76		ES	
MW-9		15:06		12.80				12.44		12.77		ES	
MW-10		15:07		12.56				12.13		12.22		ES	
MW-11		16:04		13.15				12.69		12.67		AS	light trace on probe
MW-12		14:01		6.14				5.75		5.86		ES	
MW-13		13:53		10.09				9.73		9.83		ES	
MW-14		13:55	13.5	11.97				11.58		11.72		ES	
MW-15		13:49		12.97				12.55		12.80		ES	
MW-16		15:35		13.36				13.14		13.29		ES	
MW-18		15:10		14.56				14.10		14.13		ES	
MW-38R		15:48		4.87				4.65		4.75		ES	
MW-40		13:51		12.49			√	12.07		12.30		ES	

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		12/15/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-7	02/23/10	1402	-	12.75	-	NONE	TP	12.32	None	12.75	None	AS	
MW-17		-		NM	-	-	-	NM		NM		AS	Well Damaged
2A-W-3		1420		10.45	-	Hwy Trace	TP	10.04	Hvy TR	NM		AS	
2A-W-11		1410		8.02	-	Trace	TP	7.61	Hvy TR	7.77	TR	AS	
MW-39		1354		9.37	-	NONE	TP	8.97	None	9.09	None	AS	
5-W-2		1439		7.66	-	Hwy Trace	TP	7.47	Hvy TR	NM		AS	
5-W-3		1452		7.43	-7.04	0.39	PUMP	7.45	0.8	NM		AS	
2A-W-4		1428	✓	10.88	-	Hwy Trace	TP	10.55	Hvy TR	11.02	Hvy TR	AS	

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well
- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

1600

Location	Date	Water Level	Water Level (1/28/10)
North Staff Gauge	2/23/2010	0.23	0.31
Mid Staff Gauge	✓	1.09	1.09
South Staff Gauge	✓	0.79	0.85

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 60136319-0540

Collected by:

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
1A-W-4	03/22/10	1600	NM	8.52	None	NM	WL	10.55		8.60		ES	
1A-W-5		1615		9.56	"			11.09		9.21		ES	
1A-W-38				NM				NM		NM			Not Installed
1B-W-2		1636		13.58	None			14.25		13.11		ES	
1B-W-3		1530		14.91				15.55		14.68		ES	
1C-W-1		1555		13.37			↓	14.19		13.19		ES	
1C-W-2		NM		NM	NM		NM	11.11		9.61		ES	
1C-W-3		1605		10.57	None		WL	11.78		10.70		ES	
1C-W-4		1610		12.33	↓			10.89		10.24		ES	
1C-W-7		1357		11.15	↓		↓	12.12		10.95		DWK	
1C-W-8		NM		NM	NM		NM	13.58		NM			NO ACCESS
2A-W-8		0952		14.80	None		WL	16.45		14.60			
2A-W-9		1027		8.82				12.19		8.56			
2A-W-10		1306		8.77				12.68		8.77			
2B-W-4		1112		2.23				5.24		2.11		↓	
5-W-4		1510		6.55				8.91		5.65		ES	
5-W-14		1515		8.98				10.32		9.26			
5-W-15		1503		7.55				8.80		7.75			
5-W-16		1502		7.86				9.00		8.13			
5-W-17		1505		7.19				8.39		7.45			
5-W-18		1525		7.37				8.46		7.61			
5-W-19		1510		7.30				8.28		7.55			
5-W-20		1523		6.88				7.79		7.13			
5-W-42		1625		6.61	↓			7.58		6.65		↓	
5-W-43		1404		6.57			↓	8.23		NM		GS	
5-W-44				NM	NM		↓	NM		NM			Not Installed
5-W-45				NM	NM		↓	NM		NM			Not Installed

Wall not located - new asphalt

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
5-W-50	03/22/10	1426	NM	7.34	NM	NM	WL	8.80		7.35		GS	
5-W-52		1412		6.64				8.64		5.89			
5-W-53		1415		6.84				8.28		6.34			
5-W-54		1419		6.55				7.81		6.23			
5-W-55		1435		6.25				7.56		6.09			
5-W-56		1431		6.91				8.41		6.72			
MW-1		0959		12.43				14.10		12.24			DWK
MW-2		1053		11.95				13.85		11.85			
MW-3		1033		8.99				12.30		8.47			
MW-4		1040		7.26				11.40		7.32			
MW-12		1011		4.62				7.58		4			
MW-14		0976		10.90				13.46		10.12			
MW-16		1132		12.91				14.54		12.46			
MW-18		0956		14.10				16.19		13.49			
MW-32		1500		8.98				10.28		5.82			GS
MW-38R		1045		4.50				5.82		4.26			DWK
1A-W-36				NM				NM		NM			Not Installed
1A-W-37				NM				NM		NM			Not Installed
1B-W-23		1515		15.48				17.43		NM			Not Installed in March
2A-W-40		1508		11.69				13.71		NM			Not Installed in March
2A-W-41		1522		14.70				18.68		NM			Not Installed in March
2A-W-42		1534		12.35				12.94		NM			Not Installed in March
2B-W-45		1127		10.32				12.80		9.97			DWK
2B-W-46		1174		10.22				12.94		9.40			
3-W-41		1157		4.99				5.79		NM			
3-W-42		1149		8.14				9.79		NM			
3-W-43		1138		4.38				6.36		NM			
EW-1		1351		8.78				10.43		10.70			GS
EW-2				NM				NM		NM			Not Installed
GW-1		1373		7.95				10.78		NM			DWK
GW-2		1378		9.91				13.82		8.52			DWK
GW-3								16.03		13.53			ES
GW-4								11.15		10.81			ES

G. Seaborn

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-3	03/22/10	0955	NM	9.50	-	Hvy TR	TP	13.07	Hvy TR	NM		GS	
2A-W-11		0940		6.74	-	TR		9.57	TR	6.09	None		
MW-28		1043		13.61	-	None		15.66	None	13.17	None		
MW-39		0948		7.93	-	None		11.04	None	7.57	None		
5-W-51		1033		7.08	-	TR	↓	8.48	TR	6.85	Hvy TR		
1A-W-2		-		NM	-	-	-	NM		NM			
2A-W-4		1001		10.02	-	Hvy TR	TP	None	Hvy TR	9.00	Hvy TR		
5-W-2		1018		7.14	-	Hvy TR	TP	10.04	Hvy TR	6.87	Hvy TR		
5-W-3		1033		7.22	6.50	0.72	PP	9.70	0.88	6.87	TR		
MW-22		1012		7.39	-	Hvy TR	TP	9.10	TR	7.45	Hvy TR		

Other Notes:

- dirty casing, possible trace product
- dirty well

use tape and paste (TP)

use tape & paste (TP) + peristaltic pump (PP)

Not listed in construction zone

Fluid Level Gauging Form

Project Name: BNSF Skykomish
 Project Number: 60136319-0540
 Collected by: Dean Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to Water (Outside PVC) (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/123/10		1/26/2010		Sign Off	Comments
									DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	03/22/10		NM	12.51	NA	None	NM	WL	12.95		12.49		DWK	
2A-W-7				11.41	NA				11.75		11.38			
2A-W-9				8.82	NA				9.80		9.43			
2A-W-10				8.77	NA				9.50		9.14			
2B-W-4				2.23	NA				3.10		2.70			
2B-W-11				0.99	0.70				1.61		1.63			
2B-W-12				4.34	4.01				4.96		4.72			
2B-W-13				5.51	3.30				4.98		4.61			
2B-W-14				2.51	2.15				4.12		3.70			
2B-W-15				Dry	Dry				6.44		6.05			Dry @ 4.2'
2B-W-19				5.99	NA				6.91		6.48			
2B-W-21				8.11	NA				9.06		8.68			
2B-W-30				10.71	NA				11.37		10.87			
2B-W-32				6.82	NA				7.65		7.22			
2B-W-33				8.32	NA				9.36		8.53			
2B-B-21				4.43	NA				5.84		5.42			
2B-W-45				10.32	NA				11.42		10.99			
2B-W-46				10.22	NA				11.45		10.93			
3-W-41				4.99	NA				5.39		5.21			
3-W-42				8.14	NA				8.65		8.41			
3-W-43				4.38	NA				4.81		4.62			

DWK 3/22/10 Staff gauges,
 1142 North → 0.39'
 1143 Mid → 1.18'
 1144 South → 0.91'

AECOM

D. Kinney

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/23/2010		1/26/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	03/22/10	0959	NM	12.43	N/A	NM	WL	12.83		12.38		DWK	
MW-2		1053		11.95				12.47		11.95			
MW-3		1033		8.99				10.80		9.77			
MW-4		1040		7.26				8.06		7.68			
MW-5		1024		5.97				6.83		6.48			
MW-9		0939		12.11				12.80		12.44			
MW-10		0942		12.11				12.56		12.13			
MW-11		0947		12.75				13.15		12.69			Shaded
MW-12		1011		4.62				6.14		5.75			
MW-13		0924		8.89				10.09		9.73			
MW-14		0926		10.90				11.97		11.58			
MW-15		0930		12.02				12.97		12.55			
MW-16		1132		12.91				13.36		13.14			
MW-18		0956		14.10				14.56		14.10			
MW-38R		1045		4.50				4.87		4.65			
MW-40		0934		11.52				12.49		12.07			

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		1/26/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-7	03/22/10	0930	NM	11.73	-	None	TP	12.75	None	12.32	None	AS	
MW-17				NM	-	-	-	NM		NM			Well Damaged
2A-W-3		0955		9.50	-	Hvy TR	TP	10.45	Hvy TR	10.04	Hvy TR		
2A-W-11		0940		6.74	-	TR		8.02	TR	7.61	Hvy TR		
MW-39		0948		7.93	-	None		9.37	None	8.97	None		
5-W-2		1018		7.14	-	Hvy TR	↓	7.66	Hvy TR	7.47	Hvy TR		
5-W-3		1033		7.22	6.50	0.72	PP	7.43	0.39	7.45	0.8		
2A-W-4		1001		10.02	-	Hvy TR	TP	10.88	Hvy TR	10.55	Hvy TR		

Other Notes:

- clean well - north ('town') half
- clean well - south ('rallyard') half
- dirty casing, possible trace product
- dirty well
- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (2/23/10)
North Staff Gauge	1/17 3/22/2010	0.39	0.23
Mid Staff Gauge	1/18 ↓	1.18	1.02
South Staff Gauge	1/14 ↓	0.91	0.79

DNK ↓

AECOM

River Gauging Form

Project Name: BNSF Skykomish Project Number: 60136319 Measured by: Ghanis, Eric

stake ID	date	time	backsight	foresight	water level	comments
SK-1	3/22/2010	1245	5.32	15.48		backsight = 6W-4
SK-2		1214	3.58	21.08		backsight = 1B-W.3
SK-3		1158	10.47	16.68		backsight = 5-W-17
SK-4		1153	10.47	17.11		
SK-5		1145	10.47	18.73		
ML-1		-	-	-		
ML-2		-	-	-		
ML-3		-	-	-		
ML-4		-	-	-		

stake ID: SK# = Skykomish River gauging locations, ML# = Former Maloney Creek channel gauging locations
 all measurements in feet

backsight: height of level above surveyed point (staff placed at PK nail)

foresight: height of level above gauging point (staff placed in stream bed at SKx, MLx)

water level: depth of water at gauging point

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (AELAM)	Attention: Bruce Sheppard	Company Name: BNSF	Page: 2 of 3	Project No.: 1338202
Address:	Copy To: Renee Knecht	Company Name: BNSF	Address:	REGULATORY AGENCY	
Email To:	Purchase Order No.: TT0100-339	Pace Quote Reference:	Pace Project Manager: Haidi Gori	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Phone:	Project Name: BNSF-Skykomish	Pace Project Manager:	Pace Profile #:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Requested Due Date/TAT: STJ	Project Number: 60136319			Site Location: WA	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives		Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄		
1	1B-W-230-0310	DW	3/24/11 1200				2				
2	5-W-43-	WT	1300				2				
3	EW-1-	WW	1410				2				
4	EW-1D-	P	1505				2				
5	ZA-W-41-	SL	1700				2				
6	ZA-W-40-	OL	0835				2				
7	MW-164-	WP	0915				2				
8	1A-W-4-	AR	0950				2				
9	1A-W-5-	TS	1115				2				
10	5-W-4-	OT	1715				2				
11	5-W-50-						2				
12	ZA-W-10-		1300				2				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>WJ</i>	3/24/11	08:25	<i>[Signature]</i>	3/24/11	08:30	Sealed Cooler (Y/N) Received on Ice (Y/N) Custody (Y/N) Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: **BNSF** Address: _____
 Section B Required Project Information: Report To: **Sarah Albano (AECOM)** Copy To: **Renee Krocht**
 Section C Invoice Information: Attention: **Bruce Sheppard** Company Name: **BNSF** Address: _____
 Regulatory Agency: _____
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location: _____ STATE: **WA**
 Pace Quote Reference: _____
 Pace Project Manager: **Heidi Geri**
 Pace Profile #: _____
 Purchase Order No.: **TT0100-339**
 Project Name: **BNSF-Skykamsk**
 Project Number: **60136319-0567**
 Requested Due Date/TAT: **Std**

Page: 1 of 2
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ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB					
1	S1 = AM - 0310	Drinking Water	S1	G	0910	0910	2	Unpreserved	Y		
2	S2 = AD	Drinking Water	S2	G	0910	0910	2	Unpreserved	N		
3	S3 = BU	Drinking Water	S3	G	0925	0925	2	Unpreserved	Y		
4	S4 = BB	Drinking Water	S4	G	0930	0930	2	Unpreserved	Y		
5	S5 = BD	Drinking Water	S5	G	1000	1000	2	Unpreserved	Y		
6	S6 = AM	Drinking Water	S6	G	1010	1010	2	Unpreserved	Y		
7	S7 = AD	Drinking Water	S7	G	1020	1020	2	Unpreserved	Y		
8	S8 = BU	Drinking Water	S8	G	1030	1030	2	Unpreserved	Y		
9	S9 = BD	Drinking Water	S9	G	1120	1120	2	Unpreserved	Y		
10	S10 = AM	Drinking Water	S10	G	1130	1130	2	Unpreserved	Y		
11	S11 = AD	Drinking Water	S11	G			2	Unpreserved	Y		
12	S12 = BU	Drinking Water	S12	G			2	Unpreserved	Y		

ADDITIONAL COMMENTS: _____

RELINQUISHED BY / AFFILIATION: _____ DATE: 8/24 09:25 TIME: 8:30

ACCEPTED BY / AFFILIATION: _____ DATE: 8/24 09:25 TIME: 8:30

Temp in °C: _____ Received on: _____ Ice (Y/N): _____ Sealed Cooler (Y/N): _____ Custody (Y/N): _____ Samples Intact (Y/N): _____

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YY): _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



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 1309896

Section A
 Required Client Information:
 Company: BNSF
 Address: _____
 Email To: _____
 Phone: _____ Fax: _____
 Requested Due Date/TAT: std

Section B
 Required Project Information:
 Report To: Sarah Albano (AELM)
 Copy To: Renee Koehn
 Purchase Order No.: TT0100-539
 Project Name: BNSF - skykambh
 Project Number: 60136319-0540

Section C
 Invoice Information:
 Attention: Binga Shepard
 Company Name: BNSF
 Address: _____
 Pace Quote Reference: _____
 Pace Project Manager: Haidi Gerl
 Pace Profile #: _____

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location: _____ STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX I CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB				
1	S3 - BD - 0310	Drinking Water	G	3/23/10 17:05			Unpreserved		
2	S3 - CU -	Water	G	12:15			H ₂ SO ₄		
3	S3 - CD -	Waste Water	G	12:25			HNO ₃		
4	S4 - AU -	Product	G	13:30			HCl		
5	S4 - AC -	Soil/Solid	G	13:35			NaOH		
6	S4 - AD -	Oil	G	13:40			Na ₂ S ₂ O ₃		
7	S4 - BU -	Wipe	G	13:55			Other		
8	S4 - BD -	Air	G	14:05			Methanol		
9	S4 - CU -	Tissue	G	14:15					
10	S4 - CD -	Other	G	14:25					
11									
12									

ADDITIONAL COMMENTS
CB

RELINQUISHED BY / AFFILIATION DATE TIME
CB 3/14 08:25

ACCEPTED BY / AFFILIATION DATE TIME
[Signature] 3-24-10 8:30

SAMPLE CONDITIONS
 Received on Ice (Y/N) _____
 Custody Sealed Cooler (Y/N) _____
 Samples Intact (Y/N) _____

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YY): _____

2

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



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1309900

Section A
 Required Client Information:
 Company: BNSF
 Address: _____
 Email To: _____
 Phone: _____ Fax: _____
 Requested Due Date/TAT: STP

Section B
 Required Project Information:
 Report To: Sarah Albano (AE/Com)
 Copy To: Renee Knecht
 Purchase Order No.: TTD100-339
 Project Name: BNSF - Skykomick
 Project Number: 60136319-0540

Section C
 Invoice Information:
 Attention: Bruce Skjeperud
 Company Name: BNSF
 Address: _____
 Pace Quote Reference: _____
 Pace Project Manager: Ned Geri
 Pace Profile #: _____

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location: _____ STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE ID (A-Z, 0-9 / -)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Temp in °C	Received on	Sealed Cooler (Y/N)	Samples Intact (Y/N)
					COMPOSITE START	COMPOSITE END/GRAB								
1		Drinking Water WT	<u>IC-W-1-0310</u>											
2		Water W	<u>1-1-0310</u>											
3		Waste Water WW	<u>1-1-0310</u>											
4		Product P												
5		Soil/Solid SL												
6		Oil OL												
7		Wipe WP												
8		Air AR												
9		Tissue TS												
10		Other OT												
11														
12														

ADDITIONAL COMMENTS

Abd ghani Zebana 05/25/10 1517
3250 1517

RELINQUISHED BY / AFFILIATION DATE TIME
Abd ghani Zebana 05/25/10 1517

ACCEPTED BY / AFFILIATION DATE TIME
Abd ghani Zebana 05/25/10 1517

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Abd ghani Zebana
 SIGNATURE of SAMPLER: Abd ghani Zebana DATE Signed (MM/DD/YY): 05/25/10

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/25/10

Well No. 1C-W-7
 Sampled By Blaumier S
 weather rain 44 °F

WELL INFORMATION		
Depth to water	<u>11.22</u>	(ft)
Depth of well:	<u>20.70</u>	(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:	<u>9.58</u>	(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>Good</u>	

COMMENTS
<u>inlet rising 12.50'</u>
<u>purge water is same</u>
<u>Twin flask</u>

PURGE DATA							
start purge time		<u>1104</u>					
time		<u>1114</u>	<u>1117</u>	<u>1120</u>			
DTW	(ft)	<u>11.22</u>	<u>11.22</u>	<u>11.22</u>			
purge rate	(L/min)	<u>220</u>	<u>220</u>	<u>220</u>			
pH	(Units)	<u>6.38</u>	<u>6.40</u>	<u>6.41</u>			
conductivity	(umhos/cm)	<u>0.094</u>	<u>0.092</u>	<u>0.090</u>			
temperature	(deg C)	<u>7.44</u>	<u>7.45</u>	<u>7.44</u>			
D.O.	(mg/L)	<u>4.98</u>	<u>4.95</u>	<u>5.02</u>			
ORP	(mv)	<u>129.9</u>	<u>128.9</u>	<u>128.6</u>			
turbidity	(NTU)	<u>0.39</u>	<u>0.49</u>	<u>0.21</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-7-0310</u>	<u>1125</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/25/10

Well No. IC-W-1
 Sampled By Abdulhameed Albarazi
 weather rain 44°F

WELL INFORMATION		
Depth to water	13.48	(ft)
Depth of well:	16.6	(ft)
Well diameter:	2	(in)
Feet of water:	3.12	(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	good.	

COMMENTS
inlet tubing = 15'
purge water is clear.

PURGE DATA							
start purge time		0856					
time		0906	0909	0912	0915	0918	
DTW	(ft)	13.49	13.49	13.49	NM	NM	
purge rate	(L/min)	220	220	220	220	220	
pH	(Units)	6.34	6.19	6.14	6.09	6.09	
conductivity	(umhos/cm)	0.053	0.053	0.053	0.053	0.053	
temperature	(deg C)	7.09	7.09	7.08	7.07	7.07	
D.O.	(mg/L)	10.11	10.00	9.95	10.00	9.99	
ORP	(mv)	157.5	165.2	169.9	175.2	176.9	
turbidity	(NTU)	1.44	1.47	0.66	0.72	0.41	
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
IC-W-1-0310	0920	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/22/10

Well No. ZB-W-4
 Sampled By AWK
 weather cloudy, 40 °F

WELL INFORMATION	
Depth to water	<u>2.23</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing inlet at ~ 3.0' below top of casing</u>
<u>sample rate - 0.20 L/min</u>

PURGE DATA							
start purge time	<u>1446</u>						
time		<u>1456</u>	<u>1459</u>	<u>1502</u>	<u>1505</u>	<u>1508</u>	
DTW	(ft)	<u>2.25</u>	<u>2.25</u>	<u>2.25</u>	<u>2.25</u>	<u>2.25</u>	
purge rate	(L/min)	<u>0.40</u>	<u>0.40</u>	<u>0.40</u>	<u>0.40</u>	<u>0.40</u>	
pH	(Units)	<u>4.52</u>	<u>4.51</u>	<u>4.48</u>	<u>4.47</u>	<u>4.47</u>	
conductivity	(umhos/cm)	<u>0.071</u>	<u>0.080</u>	<u>0.074</u>	<u>0.070</u>	<u>0.068</u>	
temperature	(deg C)	<u>5.9</u>	<u>5.9</u>	<u>5.9</u>	<u>5.9</u>	<u>5.9</u>	
D.O.	(mg/L)	<u>0.86</u>	<u>0.78</u>	<u>0.71</u>	<u>0.69</u>	<u>0.68</u>	
ORP	(mv)	<u>100</u>	<u>96</u>	<u>118</u>	<u>122</u>	<u>127</u>	
turbidity	(NTU)	<u>0.70</u>	<u>0.32</u>	<u>0.30</u>	<u>0.35</u>	<u>0.32</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZB-W-4-03D</u>	<u>1510</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/22/10

Well No. MW-38R
 Sampled By DW/
 weather Rainy, 50 °F

WELL INFORMATION	
Depth to water	<u>4.50</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing Inlet at 5.25'</u>

PURGE DATA							
start purge time	<u>1605</u>						
time		<u>1615</u>	<u>1618</u>	<u>1621</u>			
DTW	(ft)	<u>4.51</u>	<u>→</u>	<u>→</u>			
purge rate	(L/min)	<u>0.30</u>	<u>→</u>	<u>→</u>			
pH	(Units)	<u>5.17</u>	<u>5.10</u>	<u>5.23</u>			
conductivity	(umhos/cm)	<u>0.061</u>	<u>0.061</u>	<u>0.064</u>			
temperature	(deg C)	<u>7.0</u>	<u>7.0</u>	<u>7.0</u>			
D.O.	(mg/L)	<u>0.48</u>	<u>0.46</u>	<u>0.43</u>			
ORP	(mv)	<u>280</u>	<u>285</u>	<u>283</u>			
turbidity	(NTU)	<u>1.97</u>	<u>2.13</u>	<u>1.96</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>MW-38R-0310</u>	<u>1625</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. EW-1
 Sampled By Ghanis
 weather Sunny 54 °F

WELL INFORMATION	
Depth to water	8.74 (ft)
Depth of well:	19.60 (ft)
Well diameter:	2 (in)
Feet of water:	10.86 (ft)
Product thickness:	-
Screen interval:	
well condition:	Good

COMMENTS
Duplicate sample collected, labeled: EW-1D-0312
Inlet tubing is 10.00'

PURGE DATA							
start purge time	1331						
time		1341	1344	1347	1350		
DTW	(ft)	8.75	8.75	8.75	8.75		
purge rate	(L/min)	220	220	220	220		
pH	(Units)	5.88	5.78	5.70	5.66		
conductivity	(umhos/cm)	0.045	0.037	0.035	0.035		
temperature	(deg C)	8.51	8.29	8.25	8.19		
D.O.	(mg/L)	9.04	8.72	8.42	8.31		
ORP	(mv)	188.3	192.6	195.7	199.6		
turbidity	(NTU)	0.21	0.16	0.16	0.19		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
EW-1-0312	1355	NWTPH-Dx	1L Gl. Amber	2	HCl
EW-1D-0312 (duplicate)	1410				

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/22/10

Well No. GW-2
 Sampled By Aaron Jankovic
 weather mostly cloudy, showers, 51°F

WELL INFORMATION	
Depth to water	<u>9.89</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>Duplicate sample collected</u>
<u>labeled: GW-2D-031D</u>

PURGE DATA								
start purge time	<u>15:25</u>							
time		<u>13:35</u>	<u>13:38</u>	<u>13:41</u>	<u>13:44</u>	<u>13:47</u>	<u>13:50</u>	<u>13:53</u>
DTW	(ft)	<u>9.89</u>						
purge rate	(L/min)	<u>240</u>						
pH	(Units)	<u>6.13</u>	<u>6.18</u>	<u>6.20</u>	<u>6.21</u>	<u>6.23</u>	<u>6.22</u>	<u>6.24</u>
conductivity	(umhos/cm)	<u>58</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>55</u>	<u>55</u>
temperature	(deg C)	<u>7.88</u>	<u>7.12</u>	<u>6.99</u>	<u>6.90</u>	<u>6.78</u>	<u>6.72</u>	<u>6.89</u>
D.O.	(mg/L)	<u>3.54</u>	<u>2.68</u>	<u>1.97</u>	<u>1.56</u>	<u>1.17</u>	<u>1.03</u>	<u>0.87</u>
ORP	(mv)	<u>96.0</u>	<u>97.0</u>	<u>90.6</u>	<u>88.9</u>	<u>85.5</u>	<u>83.2</u>	<u>78.1</u>
turbidity	(NTU)	<u>1.70</u>	<u>0.99</u>	<u>0.88</u>	<u>0.70</u>	<u>0.46</u>	<u>0.35</u>	<u>0.52</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>GW-2-031D</u>	<u>16:00</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>GW-2D-031D</u>	<u>15:00</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
<u>(duplicate)</u>					

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/22/10

Well No. GW-3
 Sampled By Gyanis
 weather cloudy 37°F

WELL INFORMATION	
Depth to water	15.14 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good

COMMENTS
Inlet tubing. 16.50
purge water. orange with Iron Flacks.
Flow cell was leaking.

PURGE DATA								
start purge time		1638						
time		1708	1711	1714	1717	1720	1723	1726
DTW	(ft)	15.48	15.49	15.49	15.49	15.49	NM	NM
purge rate	(L/min)	230	230	230	230	230	230	230
pH	(Units)	6.13	6.12	6.12	6.11	6.10	6.09	6.08
conductivity	(µmhos/cm)	0.054	0.053	0.052	0.052	0.052	0.052	0.052
temperature	(deg C)	7.77	7.74	7.74	7.92	7.81	7.81	7.69
D.O.	(mg/L)	2.53	1.96	1.82	1.84	1.75	1.68	1.88
ORP	(mv)	49.1	32.4	27.5	31.7	28.1	28.8	26.2
turbidity	(NTU)	142	91.3	86.2	52.5	34.1	16.93	11.33
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-3-0310	1740	NWTPH-Dx	1L Gl. Amber	2	HCl

Date: 03/22/10

2 of 2

Well no.: GW-3

Time	1729	1732	1735
DTW	1549	NM	NM
PH	6.07	6.08	6.09
Cond	0.052	0.051	0.051
Temp	7.82	7.72	7.81
DO	1.88	1.85	1.88
PAR	24.8	25.8	26.8
Turb.	8.53	8.66	8.41

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. GW-4
 Sampled By Dyanis
 weather cloudy 37 °F

WELL INFORMATION		
Depth to water	<u>10.04</u>	(ft)
Depth of well:		(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>Good</u>	

COMMENTS
<u>inlet tubing = 11.04'</u>
<u>purge water is clear.</u>

PURGE DATA							
start purge time	<u>0858</u>						
time		<u>0908</u>	<u>0911</u>	<u>0914</u>			
DTW	(ft)	<u>10.59</u>	<u>10.61</u>	<u>10.58</u>			
purge rate	(L/min)	<u>250</u>	<u>220</u>	<u>220</u>			
pH	(Units)	<u>6.79</u>	<u>6.78</u>	<u>6.72</u>			
conductivity	(umhos/cm)	<u>0.087</u>	<u>0.084</u>	<u>0.084</u>			
temperature	(deg C)	<u>7.12</u>	<u>7.15</u>	<u>7.12</u>			
D.O.	(mg/L)	<u>8.04</u>	<u>7.84</u>	<u>7.80</u>			
ORP	(mv)	<u>213.0</u>	<u>213.4</u>	<u>214.0</u>			
turbidity	(NTU)	<u>3.27</u>	<u>3.30</u>	<u>3.5</u>			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>GW-4-031D</u>	<u>0915</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. ZA-W-11
 Sampled By DW/K
 weather clear, 50 °F

WELL INFORMATION	
Depth to water	6.74 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	TR (ft)
Screen interval:	
well condition:	ok

COMMENTS
Tubing inlet at ~7.5'

PURGE DATA	
start purge time	1639
time	1649
DTW	(ft)
purge rate	(L/min)
pH	(Units)
conductivity	(umhos/cm)
temperature	(deg C)
D.O.	(mg/L)
ORP	(mv)
turbidity	(NTU)
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing

No parameters collected - product in discharge line

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZA-W-11-031D	1650	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. MW-39
 Sampled By DWL
 weather clear, 50 °F

WELL INFORMATION

Depth to water	<u>7.93</u>	(ft)
Depth of well:		(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>None</u>	(ft)
Screen interval:		
well condition:	<u>OK</u>	

COMMENTS

<u>Tubing int at ~ 8.5'</u>

PURGE DATA

start purge time	<u>1526</u>					
time		<u>1536</u>				
DTW	(ft)					
purge rate	(L/min)					
pH	(Units)	<u>No parameters</u>				
conductivity	(umhos/cm)	<u>collected - product in</u>				
temperature	(deg C)	<u>discharge line</u>				
D.O.	(mg/L)					
ORP	(mv)					
turbidity	(NTU)					
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>MW-39-0310</u>	<u>1540</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. SW-51
 Sampled By DW/L
 weather _____ °F

WELL INFORMATION		
Depth to water	7.08	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	TD	(ft)
Screen interval:		
well condition:	OK	

COMMENTS
Tubing inlet at 27.751

PURGE DATA							
start purge time	1708						
time		1718					
DTW	(ft)						
purge rate	(L/min)	No	parameters collected				
pH	(Units)						
conductivity	(umhos/cm)	product in discharge line					
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
SW-51-0310	1720	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. 2A-W-42
 Sampled By Ghannis
 weather clear 39 °F

WELL INFORMATION		
Depth to water	12.28	(ft)
Depth of well:	19.40	(ft)
Well diameter:	2	(in)
Feet of water:	7.12	(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good	

COMMENTS
inlet tubing ≈ 5ft from bottom (14.5')
purge water is orange iron flocks.

PURGE DATA								
start purge time	1005							
time		1015	1018	1021	1024	1027	1030	1033
DTW	(ft)	12.28	12.28	12.28	NM	NM	NM	NM
purge rate	(L/min)	200	200	200	200	200	200	200
pH	(Units)	6.09	6.02	6.04	6.05	6.05	6.08	6.00
conductivity	(umhos/cm)	0.086	0.084	0.085	0.084	0.086	0.085	0.085
temperature	(deg C)	7.94	7.97	7.93	7.95	7.96	7.98	7.98
D.O.	(mg/L)	7.65	7.53	7.47	7.43	7.36	7.31	7.26
ORP	(mv)	195.4	191.9	189.3	187.7	185.2	183.5	181.0
turbidity	(NTU)	19.1	10.3	7.0	5.09	4.25	4.02	3.4
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
2A-W-42-0310	1040	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. 1B-W-23
 Sampled By Ghani, S
 weather Sunny 41 °F

WELL INFORMATION		
Depth to water	<u>15.42</u>	(ft)
Depth of well:	<u>20.25</u>	(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:	<u>4.83</u>	(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>good.</u>	

COMMENTS
<u>Duplicate sample collected</u>
<u>labeled 1B-W-230-031b</u>
<u>inlet tubing = 16.50'</u>
<u>purge water is clear.</u>

PURGE DATA							
start purge time		<u>1120</u>					
time		<u>1130</u>	<u>1133</u>	<u>1136</u>			
DTW	(ft)	<u>15.42</u>	<u>15.42</u>	<u>15.43</u>			
purge rate	(L/min)	<u>150</u>	<u>150</u>	<u>150</u>			
pH	(Units)	<u>6.64</u>	<u>6.51</u>	<u>6.51</u>			
conductivity	(umhos/cm)	<u>6.11</u>	<u>6.104</u>	<u>6.093</u>			
temperature	(deg C)	<u>8.28</u>	<u>8.16</u>	<u>8.26</u>			
D.O.	(mg/L)	<u>10.03</u>	<u>9.98</u>	<u>9.82</u>			
ORP	(mv)	<u>140.1</u>	<u>142.2</u>	<u>141.2</u>			
turbidity	(NTU)	<u>5.3</u>	<u>4.9</u>	<u>5.1</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-23-031a</u>	<u>1140</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>1B-W-230-030</u> <u>(duplicate)</u>	<u>1200</u>	<u>11</u>	<u>11</u>	<u>9</u>	<u>11</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. 5-W-43
 Sampled By Glanis
 weather sunny 52°F

WELL INFORMATION		
Depth to water	<u>6.47</u>	(ft)
Depth of well:	<u>19.50</u>	(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:	<u>13.03</u>	(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>good</u>	

COMMENTS
<u>inlet tubing ≈ 7.50'</u>
<u>purge water is clear</u>

PURGE DATA								
start purge time		<u>1232</u>						
time		<u>1242</u>	<u>1245</u>	<u>1248</u>	<u>1251</u>	<u>1254</u>	<u>1257</u>	
DTW	(ft)	<u>6.48</u>	<u>6.48</u>	<u>6.48</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	
purge rate	(L/min)	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	
pH	(Units)	<u>6.45</u>	<u>6.45</u>	<u>6.51</u>	<u>6.51</u>	<u>6.50</u>	<u>6.46</u>	
conductivity	(umhos/cm)	<u>0.070</u>	<u>0.068</u>	<u>0.066</u>	<u>0.066</u>	<u>0.065</u>	<u>0.066</u>	
temperature	(deg C)	<u>7.16</u>	<u>7.18</u>	<u>7.12</u>	<u>7.14</u>	<u>7.15</u>	<u>7.24</u>	
D.O.	(mg/L)	<u>9.00</u>	<u>8.76</u>	<u>8.52</u>	<u>8.11</u>	<u>8.92</u>	<u>7.78</u>	
ORP	(mv)	<u>175.2</u>	<u>176.6</u>	<u>176.8</u>	<u>177.5</u>	<u>178.6</u>	<u>180.1</u>	
turbidity	(NTU)	<u>2.1</u>	<u>1.0</u>	<u>1.0</u>	<u>0.52</u>	<u>0.47</u>	<u>0.26</u>	
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-43-0310</u>	<u>1300</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. ZA-W-41
 Sampled By Ghani, Sbbak
 weather Sunny 55 °F

WELL INFORMATION	
Depth to water	<u>14.64</u> (ft)
Depth of well:	<u>20.90</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	<u>6.26</u> (ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good.</u>

COMMENTS
<u>inlet tubing 5' from bottom. (15.90')</u>
<u>purge water is clear</u>

PURGE DATA							
start purge time	<u>1524</u>						
time		<u>1534</u>	<u>1537</u>	<u>1540</u>			
DTW	(ft)	<u>14.65</u>	<u>14.65</u>	<u>14.65</u>			
purge rate	(L/min)	<u>230</u>	<u>230</u>	<u>230</u>			
pH	(Units)	<u>6.20</u>	<u>6.20</u>	<u>6.21</u>			
conductivity	(umhos/cm)	<u>0.063</u>	<u>0.064</u>	<u>0.065</u>			
temperature	(deg C)	<u>8.78</u>	<u>8.81</u>	<u>8.94</u>			
D.O.	(mg/L)	<u>9.80</u>	<u>9.70</u>	<u>9.29</u>			
ORP	(mv)	<u>209.4</u>	<u>209.3</u>	<u>207.4</u>			
turbidity	(NTU)	<u>0.92</u>	<u>0.85</u>	<u>0.78</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZA-W-41-0310</u>	<u>1545</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 8/23/10

Well No. 2A-W-40
 Sampled By Chloris R. Yaman
 weather Sunny 55°F

WELL INFORMATION	
Depth to water	11.72 (ft)
Depth of well:	39 (ft)
Well diameter:	2 (in)
Feet of water:	27.28 (ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good.

COMMENTS
inlet tubing 5' from the bottom. a 34
purge water is clear turbidity is high and unstable.

PURGE DATA								
start purge time	1618							
time		1628	1631	1634	1637	1640	1643	1646
DTW	(ft)	11.75	11.75	11.75	11.75	NM	NM	NM
purge rate	(L/min)	220	220	220	220	220	220	220
pH	(Units)	6.42	6.39	6.42	6.40	6.43	6.41	6.40
conductivity	(umhos/cm)	0.042	0.042	0.041	0.040	0.040	0.040	0.040
temperature	(deg C)	8.00	7.88	8.06	7.90	7.88	7.81	7.85
D.O.	(mg/L)	11.75	11.06	10.34	10.23	10.07	9.89	9.77
ORP	(mv)	179.2	179.3	177.6	177.7	176.2	177.4	177.1
turbidity	(NTU)	83.5	66.0	55.3	40.6	30.8	25.8	20.8
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
2A-W-40-0310	1700	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/23/10

Well No. S-W-52
 Sampled By Ann Jamborek
 weather sunny 59 °F

WELL INFORMATION	
Depth to water	6.60 (ft)
Depth of well:	(ft)
Well diameter:	2" (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	G600

COMMENTS
Duplicate sample collected, labeled: S-W-520-0310

		PURGE DATA					
16:13							
start purge time							
time		16:23	16:29	16:32	16:35		
DTW	(ft)	6.70	6.70	6.70	6.70		
purge rate	(L/min)	290	290	290	290		
pH	(Units)	6.07	6.07	6.09	6.08		
conductivity	(umhos/cm)	60	58	60	62		
temperature	(deg C)	9.28	9.18	9.08	9.15		
D.O.	(mg/L)	0.30	0.22	0.22	0.20		
ORP	(mv)	-125.8	-136.4	-135.7	-138.3		
turbidity	(NTU)	3.13	0.64	0.48	0.42		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-52-0310	16:40	NWTPH-Dx	1L Gl. Amber	2	HCl
S-W-520-0310 (duplicate)	15:40	"	"	"	"

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. IC-W-2
 Sampled By DWC
 weather Clear, 40 °F

WELL INFORMATION	
Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>damaged</u>

COMMENTS
<u>Total measured depth = 8.0'</u> <u>Well has been damaged</u> <u>below grade, no visible</u> <u>surface damage</u>

PURGE DATA							
start purge time							
time							
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>IC-W-2-0310</u>	<u>No</u> <u>sample</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 7/24/10

Well No. MW-4
 Sampled By DWIK
 weather P, Cloudy, 40 °F

WELL INFORMATION	
Depth to water	7.28 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	OK

COMMENTS
Tubing inlet at ~ 8'

PURGE DATA							
start purge time	0857						
time		0907	0910	0913	0916		
DTW	(ft)						
purge rate	(L/min)	0.30	→	→	→		
pH	(Units)	5.10	5.13	5.11	5.09		
conductivity	(umhos/cm)	0.037	0.040	0.039	0.044		
temperature	(deg C)	5.8	5.8	5.9	5.9		
D.O.	(mg/L)	4.54	4.73	4.79	4.84		
ORP	(mv)	193	189	195	195		
turbidity	(NTU)	4.17	1.73	1.71	1.58		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
MW-4-0310	0920	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 3-W-41
 Sampled By DW/K
 weather Clear, 45°F

WELL INFORMATION	
Depth to water	<u>6.04</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~6.75'</u>
<u>Pulling up rust colored solids in discharge line</u>
<u>OR - over-range</u>

PURGE DATA							
start purge time	<u>1010</u>						
time		<u>1020</u>	<u>1023</u>	<u>1026</u>	<u>1029</u>		
DTW	(ft)	<u>6.14</u>	<u>6.11</u>	<u>6.11</u>	<u>6.11</u>		
purge rate	(L/min)	<u>0.25</u>					
pH	(Units)	<u>6.04</u>	<u>6.18</u>	<u>6.16</u>	<u>6.15</u>		
conductivity	(umhos/cm)	<u>0.316</u>	<u>0.181</u>	<u>0.179</u>	<u>0.171</u>		
temperature	(deg C)	<u>5.4</u>	<u>5.4</u>	<u>5.4</u>	<u>5.3</u>		
D.O.	(mg/L)	<u>1.02</u>	<u>1.72</u>	<u>1.79</u>	<u>1.78</u>		
ORP	(mv)	<u>156.0</u>	<u>154</u>	<u>157</u>	<u>158</u>		
turbidity	(NTU)	<u>OR</u>					
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-41-0310</u>	<u>1030</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 3-W-42
 Sampled By DWK
 weather clear, 45°F

WELL INFORMATION	
Depth to water	<u>8.08</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing Inlet at ~8.75'</u>

PURGE DATA					
start purge time	<u>1121</u>				
time		<u>1131</u>	<u>1134</u>	<u>1137</u>	
DTW	(ft)	<u>8.09</u>	<u>8.09</u>	<u>8.09</u>	
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	
pH	(Units)	<u>6.11</u>	<u>6.06</u>	<u>6.04</u>	
conductivity	(umhos/cm)	<u>0.045</u>	<u>0.044</u>	<u>0.042</u>	
temperature	(deg C)	<u>4.9</u>	<u>4.8</u>	<u>4.8</u>	
D.O.	(mg/L)	<u>8.57</u>	<u>8.57</u>	<u>8.56</u>	
ORP	(mv)	<u>165</u>	<u>168</u>	<u>171</u>	
turbidity	(NTU)	<u>1.38</u>	<u>1.27</u>	<u>1.35</u>	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing				

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-42-0310</u>	<u>1140</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 3-W-43
 Sampled By Omik
 weather clear, 50°F

WELL INFORMATION	
Depth to water	<u>4.31</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Tubing inlet at ~ 50'</u>

PURGE DATA							
start purge time	<u>1304</u>						
time		<u>1314</u>	<u>1317</u>	<u>1320</u>			
DTW	(ft)	<u>4.35</u>	<u>4.35</u>	<u>4.35</u>			
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>			
pH	(Units)	<u>5.70</u>	<u>5.60</u>	<u>5.66</u>			
conductivity	(umhos/cm)	<u>0.041</u>	<u>0.041</u>	<u>0.041</u>			
temperature	(deg C)	<u>5.5</u>	<u>5.5</u>	<u>5.4</u>			
D.O.	(mg/L)	<u>8.62</u>	<u>8.74</u>	<u>8.70</u>			
ORP	(mv)	<u>225</u>	<u>225</u>	<u>226</u>			
turbidity	(NTU)	<u>0.56</u>	<u>0.51</u>	<u>0.60</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>3-W-43-0310</u>	<u>1325</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. S-W-14
 Sampled By DWIK
 weather Clear, 50 °F

WELL INFORMATION	
Depth to water	<u>9.16</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing inlet at ~10.0'</u>

PURGE DATA							
start purge time	<u>1358</u>						
time		<u>1408</u>	<u>1411</u>	<u>1414</u>			
DTW	(ft)	<u>9.16</u>	<u>9.16</u>	<u>9.16</u>			
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>			
pH	(Units)	<u>6.72</u>	<u>6.71</u>	<u>6.70</u>			
conductivity	(umhos/cm)	<u>0.086</u>	<u>0.087</u>	<u>0.088</u>			
temperature	(deg C)	<u>7.6</u>	<u>7.6</u>	<u>7.6</u>			
D.O.	(mg/L)	<u>4.60</u>	<u>4.60</u>	<u>4.60</u>			
ORP	(mv)	<u>223</u>	<u>223</u>	<u>223</u>			
turbidity	(NTU)	<u>0.33</u>	<u>0.30</u>	<u>0.29</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-14-0310</u>	<u>1420</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. S-W-19
 Sampled By Dwile
 weather Clear, 50 °F

WELL INFORMATION	
Depth to water	<u>7.46</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Extra sample volume for Lab DC</u>
<u>Tubing inlet at ~8.25'</u>

PURGE DATA						
start purge time	<u>1506</u>					
time		<u>1516</u>	<u>1519</u>	<u>1522</u>	<u>1525</u>	
DTW (ft)		<u>7.47</u>				
purge rate (L/min)		<u>0.30</u>				
pH (Units)		<u>5.95</u>	<u>5.96</u>	<u>5.96</u>	<u>5.95</u>	
conductivity (umhos/cm)		<u>0.059</u>	<u>0.059</u>	<u>0.058</u>	<u>0.059</u>	
temperature (deg C)		<u>7.3</u>	<u>7.3</u>	<u>7.2</u>	<u>7.2</u>	
D.O. (mg/L)		<u>7.35</u>	<u>7.35</u>	<u>7.36</u>	<u>7.37</u>	
ORP (mv)		<u>242</u>	<u>242</u>	<u>243</u>	<u>243</u>	
turbidity (NTU)		<u>0.87</u>	<u>0.57</u>	<u>0.47</u>	<u>0.50</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-19-0310</u>	<u>1530</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>5</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>5</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. Equipment Blank (MW-90)
 Sampled By DW/K
 weather Clear, 55 °F

WELL INFORMATION	
Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Rec DI H₂O through tubing</u>

PURGE DATA							
start purge time							
time							
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>MW-502-0310</u>	<u>1555</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. S-W-2D
 Sampled By Amin Jabbari
 weather mostly sunny 56 °F

WELL INFORMATION	
Depth to water	<u>6.99</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2'</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>G.O.D</u>

COMMENTS

PURGE DATA							
start purge time	<u>15:35</u>						
time		<u>15:45</u>	<u>15:48</u>	<u>15:51</u>	<u>15:54</u>	<u>15:57</u>	
DTW	(ft)	<u>6.99</u>	<u>6.99</u>	<u>6.99</u>	<u>6.99</u>	<u>6.99</u>	
purge rate	<u>M</u> (L/min)	<u>285</u>	<u>285</u>	<u>285</u>	<u>285</u>	<u>285</u>	
pH	(Units)	<u>6.63</u>	<u>6.62</u>	<u>6.64</u>	<u>6.64</u>	<u>6.62</u>	
conductivity	(umhos/cm)	<u>102</u>	<u>102</u>	<u>101</u>	<u>101</u>	<u>100</u>	
temperature	(deg C)	<u>8.96</u>	<u>8.90</u>	<u>8.57</u>	<u>8.41</u>	<u>8.21</u>	
D.O.	(mg/L)	<u>0.39</u>	<u>0.35</u>	<u>0.24</u>	<u>0.24</u>	<u>0.23</u>	
ORP	(mv)	<u>-66.1</u>	<u>-65.1</u>	<u>-71.4</u>	<u>-72.6</u>	<u>-73.9</u>	
turbidity	(NTU)	<u>0.33</u>	<u>0.23</u>	<u>0.15</u>	<u>0.29</u>	<u>0.12</u>	
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-2D-0310</u>	<u>16:00</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 5-W-15
 Sampled By Aerin Jambrosic
 weather mostly sunny 56 °F

WELL INFORMATION	
Depth to water	<u>7.63</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>4"</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>Duplicate sample collected, labeled: 5-W-15D-0310</u>
<u>water turbid with yellowish/orange iron floc.</u>
<u>Turbidity not working for first few parameter sets.</u>

PURGE DATA								
start purge time	<u>14:05</u>							
time		<u>14:15</u>	<u>14:18</u>	<u>14:21</u>	<u>14:24</u>	<u>14:27</u>	<u>14:30</u>	
DTW (ft)		<u>7.80</u>	<u>7.80</u>	<u>7.80</u>	<u>7.80</u>	<u>7.80</u>	<u>7.80</u>	
purge rate (L/min)		<u>260</u>	<u>260</u>	<u>260</u>	<u>260</u>	<u>260</u>	<u>260</u>	
pH (Units)		<u>6.67</u>	<u>6.67</u>	<u>6.66</u>	<u>6.65</u>	<u>6.65</u>	<u>6.64</u>	
conductivity (umhos/cm)		<u>79</u>	<u>79</u>	<u>79</u>	<u>78</u>	<u>77</u>	<u>78</u>	
temperature (deg C)		<u>7.91</u>	<u>7.88</u>	<u>7.85</u>	<u>8.01</u>	<u>7.95</u>	<u>7.93</u>	
D.O. (mg/L)		<u>0.27</u>	<u>0.19</u>	<u>0.15</u>	<u>0.11</u>	<u>0.12</u>	<u>0.11</u>	
ORP (mv)		<u>-45.6</u>	<u>-59.9</u>	<u>-69.6</u>	<u>-79.3</u>	<u>-87.7</u>	<u>-85.9</u>	
turbidity (NTU)		<u>NM</u>	<u>NM</u>	<u>NM</u>	<u>10.86</u>	<u>11.81</u>	<u>10.94</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-15-0310</u>	<u>14:35</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>5-W-15D-0310</u>	<u>13:35</u>	<u>11 (w/SGCU)</u>	<u>11</u>	<u>11</u>	<u>11</u>
<u>(duplicate)</u>		<u>11 (w/o SGCU)</u>	<u>11</u>	<u>11</u>	<u>11</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 5-W-17
 Sampled By Aaron Jambasi
 weather mostly sunny 56 °F

WELL INFORMATION	
Depth to water	7.32 (ft)
Depth of well:	(ft)
Well diameter:	2" (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	Good

COMMENTS

PURGE DATA							
start purge time	13:24						
time		13:26	13:29	13:42			
DTW	(ft)	7.32	7.32	7.32			
purge rate	(L/min)	285	285	285			
pH	(Units)	6.32	6.31	6.31			
conductivity	(umhos/cm)	53	53	53			
temperature	(deg C)	8.62	8.63	8.58			
D.O.	(mg/L)	4.85	4.82	4.75			
ORP	(mv)	96.2	96.0	96.0			
turbidity	(NTU)	0.00	0.00	0.00			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
5-W-17-0310	13:45	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/29/10

Well No. SW-16
 Sampled By Avin Jambasin
 weather partly sunny 56 °F

WELL INFORMATION	
Depth to water	<u>7.99</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>Good : missing on well</u>

COMMENTS

PURGE DATA							
start purge time	<u>12:42</u>						
time		<u>12:52</u>	<u>12:55</u>	<u>12:58</u>	<u>13:01</u>		
DTW	(ft)	<u>7.99</u>	<u>7.99</u>	<u>7.99</u>	<u>7.99</u>		
purge rate	<u>285</u> mL/min	<u>285</u>	<u>285</u>	<u>285</u>	<u>285</u>		
pH	(Units)	<u>6.81</u>	<u>6.93</u>	<u>7.00</u>	<u>6.96</u>		
conductivity	(umhos/cm)	<u>33</u>	<u>35</u>	<u>36</u>	<u>36</u>		
temperature	(deg C)	<u>8.14</u>	<u>8.25</u>	<u>8.20</u>	<u>8.08</u>		
D.O.	(mg/L)	<u>8.89</u>	<u>8.86</u>	<u>8.54</u>	<u>8.28</u>		
ORP	(mv)	<u>77.1</u>	<u>68.0</u>	<u>68.4</u>	<u>71.1</u>		
turbidity	(NTU)	<u>1.68</u>	<u>0.88</u>	<u>0.81</u>	<u>0.75</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>SW-16-0310</u>	<u>13:05</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
	<u>13:05</u>	<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. S-W-18
 Sampled By Abdulhameed Bano
 weather sunny / 54 °F

WELL INFORMATION	
Depth to water	<u>7.53</u> (ft)
Depth of well:	<u>18.50</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>good.</u>

COMMENTS
<u>Inlet tubing ≈ 9.0'</u>
<u>purge water is clear.</u>
<u>turbidity unstable.</u>
<u>also ORP.</u>

PURGE DATA									
start purge time		<u>1539</u>							
time		<u>1549</u>	<u>1552</u>	<u>1555</u>	<u>1558</u>	<u>1601</u>	<u>1604</u>	<u>1607</u>	<u>1610</u>
DTW	(ft)	<u>7.53</u>	<u>7.53</u>	<u>7.53</u>	<u>7.53</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>	
purge rate	(L/min)	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>
pH	(Units)	<u>6.38</u>	<u>6.44</u>	<u>6.46</u>	<u>6.42</u>	<u>6.45</u>	<u>6.44</u>	<u>6.44</u>	<u>6.45</u>
conductivity	(µmhos/cm)	<u>0.103</u>	<u>0.106</u>	<u>0.109</u>	<u>0.111</u>	<u>0.112</u>	<u>0.112</u>	<u>0.112</u>	<u>0.113</u>
temperature	(deg C)	<u>8.92</u>	<u>8.63</u>	<u>8.59</u>	<u>8.42</u>	<u>8.17</u>	<u>8.28</u>	<u>8.25</u>	<u>8.32</u>
D.O.	(mg/L)	<u>5.48</u>	<u>5.33</u>	<u>5.13</u>	<u>5.07</u>	<u>5.08</u>	<u>4.94</u>	<u>4.85</u>	<u>4.75</u>
ORP	(mv)	<u>92.2</u>	<u>71.0</u>	<u>54.0</u>	<u>44.0</u>	<u>36.6</u>	<u>29.4</u>	<u>25.8</u>	<u>21.4</u>
turbidity	(NTU)	<u>6.7</u>	<u>3.4</u>	<u>2.8</u>	<u>1.6</u>	<u>1.5</u>	<u>0.9</u>	<u>0.7</u>	<u>0.6</u>
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-18-0310</u>	<u>1645</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>"</u>	<u>"</u>	<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

Date: 03/24/10

Well No: 5-W-18

Time	1613	1616	1619	1622	1625	1628	1631	1634	1637	1640
DTW	7.53	NM								
purge rate	230	230	230	230	230	230	230	230	230	230
pH	6.43	6.43	6.44	6.45	6.44	6.45	6.45	6.45	6.40	6.44
cond	0.113	0.114	0.114	0.114	0.114	0.113	0.113	0.114	0.114	0.114
Temp	8.53	8.50	8.52	8.49	8.52	8.42	8.33	8.61	8.62	8.67
DO	4.66	4.62	4.59	4.58	4.55	4.58	4.60	4.47	4.46	4.49
ORP	17.8	15.2	13.1	10.8	9.1	7.4	5.7	3.9	3.6	3.3
Turbi	0.6	0.6	0.5	0.4	0.5	0.5	0.4	0.6	0.7	0.7

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. ZB-W-46
 Sampled By Abdelghani Ibbou
 weather sunny 54 °F

WELL INFORMATION	
Depth to water (inclined)	10.07 (ft)
Depth of well: (inclined)	23.0 (ft)
Well diameter:	2 (in)
Feet of water:	12.93 (ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	No bulds.

COMMENTS
inlet tubing = 11.50'
purge water is cloudy and shelly, became clear
DG unstable.

PURGE DATA								
start purge time	13.38							
time		1348	1351	1354	1357	1400	1403	
DTW (ft)		10.09	10.09	10.09	NM	NM	NM	
purge rate (L/min)		200	200	200	200	200	200	
pH (Units)		5.94	5.95	5.93	5.91	5.92	5.87	
conductivity (umhos/cm)		0.035	0.035	0.035	0.035	0.035	0.035	
temperature (deg C)		9.10	8.77	8.77	8.88	8.90	8.95	
D.O. (mg/L)		11.50	10.64	9.80	9.28	8.90	8.74	
ORP (mv)		88.2	89.8	94.8	98.2	101.2	107.6	
turbidity (NTU)		0.54	0.49	0.78	0.71	0.63	0.51	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZB-W-46-0310	1405	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. ZB-W-45
 Sampled By Abdulkhaliq Sebbake
 weather Sunny 55 °F

WELL INFORMATION	
Depth to water	<u>10.16 (inclined) (ft)</u>
Depth of well:	<u>22.50 (inclined) (ft)</u>
Well diameter:	<u>2 (in)</u>
Feet of water:	<u>(ft)</u>
Product thickness:	<u>— (ft)</u>
Screen interval:	
well condition:	<u>No beds</u>

COMMENTS
<u>Inlet tubing ≈ 11.50'</u>
<u>purge water is clear.</u>
<u>DO unstable</u>

PURGE DATA							
start purge time		<u>1438</u>					
time		<u>1448</u>	<u>1451</u>	<u>1454</u>	<u>1457</u>	<u>1500</u>	
DTW	(ft)	<u>10.17</u>	<u>10.17</u>	<u>10.17</u>	<u>NM</u>	<u>NM</u>	
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	
pH	(Units)	<u>5.64</u>	<u>5.64</u>	<u>5.62</u>	<u>5.63</u>	<u>—</u>	
conductivity	(umhos/cm)	<u>0.042</u>	<u>0.043</u>	<u>0.043</u>	<u>0.043</u>	<u>—</u>	
temperature	(deg C)	<u>8.40</u>	<u>8.38</u>	<u>8.36</u>	<u>8.39</u>	<u>—</u>	
D.O.	(mg/L)	<u>8.00</u>	<u>7.52</u>	<u>7.10</u>	<u>6.88</u>	<u>—</u>	
ORP	(mv)	<u>142.1</u>	<u>144.9</u>	<u>147.4</u>	<u>148.3</u>	<u>—</u>	
turbidity	(NTU)	<u>3.0</u>	<u>2.86</u>	<u>2.50</u>	<u>2.6</u>	<u>—</u>	
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZB-W-45-0310</u>	<u>1500</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 1B-W-3
 Sampled By Ghani.S
 weather clear 37 °F

WELL INFORMATION	
Depth to water	<u>14.97</u> (ft)
Depth of well:	<u>21.60</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	<u>6.63</u> (ft)
Product thickness:	<u>---</u> (ft)
Screen interval:	
well condition:	<u>No holds</u>

COMMENTS
<u>Inlet tubing is 16'</u>
<u>purge water is clear</u>

PURGE DATA								
start purge time	<u>0900</u>							
time		<u>0910</u>	<u>0913</u>	<u>0916</u>	<u>0919</u>	<u>0922</u>	<u>0925</u>	
DTW	(ft)	<u>15.00</u>	<u>15.00</u>	<u>15.00</u>	<u>15.00</u>	<u>NM</u>	<u>NM</u>	
purge rate	(L/min)	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	<u>230</u>	
pH	(Units)	<u>6.48</u>	<u>6.50</u>	<u>6.51</u>	<u>6.50</u>	<u>6.49</u>	<u>6.46</u>	
conductivity	(umhos/cm)	<u>0.083</u>	<u>0.083</u>	<u>0.083</u>	<u>0.082</u>	<u>0.081</u>	<u>0.080</u>	
temperature	(deg C)	<u>7.14</u>	<u>7.15</u>	<u>7.17</u>	<u>7.19</u>	<u>7.20</u>	<u>7.22</u>	
D.O.	(mg/L)	<u>7.92</u>	<u>7.63</u>	<u>7.44</u>	<u>7.35</u>	<u>7.27</u>	<u>7.23</u>	
ORP	(mv)	<u>208.5</u>	<u>208.3</u>	<u>208.2</u>	<u>209.9</u>	<u>209.4</u>	<u>209.2</u>	
turbidity	(NTU)	<u>8.10</u>	<u>2.08</u>	<u>1.11</u>	<u>0.56</u>	<u>0.37</u>	<u>0.38</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-3-031D</u>	<u>0930</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. 1B-W-2
 Sampled By Ghanis
 weather Sunny 39°F

WELL INFORMATION		
Depth to water	<u>13.62</u>	(ft)
Depth of well:	<u>16.70</u>	(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>Good</u>	

COMMENTS
<u>inlet tubing ~ 15'</u>
<u>purge water is clear.</u>
<u>1012 well dried out. stopped pumping to recover</u>
<u>1025 resume pumping.</u>

PURGE DATA

start purge time	<u>0959</u>							
time		<u>1009</u>	<u>1012</u>	<u>1028</u>	<u>1032</u>	<u>1035</u>	<u>1038</u>	<u>1041</u>
DTW	(ft)	<u>13.74</u>	<u>13.27</u>	<u>14.45</u>	<u>14.60</u>	<u>14.65</u>	<u>14.73</u>	<u>14.79</u>
purge rate	(L/min)	<u>220</u>	<u>220</u>	<u>110</u>	<u>110</u>	<u>110</u>	<u>90</u>	<u>90</u>
pH	(Units)	<u>5.77</u>	<u>-</u>	<u>5.78</u>	<u>5.76</u>	<u>5.72</u>	<u>5.68</u>	<u>5.74</u>
conductivity	(umhos/cm)	<u>0.138</u>	<u>-</u>	<u>0.171</u>	<u>0.174</u>	<u>0.175</u>	<u>0.176</u>	<u>0.177</u>
temperature	(deg C)	<u>8.97</u>	<u>-</u>	<u>10.16</u>	<u>10.48</u>	<u>10.60</u>	<u>10.84</u>	<u>10.75</u>
D.O.	(mg/L)	<u>7.06</u>	<u>-</u>	<u>6.92</u>	<u>6.74</u>	<u>6.88</u>	<u>6.76</u>	<u>6.85</u>
ORP	(mv)	<u>200.4</u>	<u>-</u>	<u>198.0</u>	<u>197.2</u>	<u>196.6</u>	<u>196.2</u>	<u>194.6</u>
turbidity	(NTU)	<u>0.38</u>	<u>-</u>	<u>18.2</u>	<u>14.8</u>	<u>13.5</u>	<u>9.48</u>	<u>7.20</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>1B-W-2-0310</u>	<u>1055</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

Date: 03/24/10

Well n^o: 1B-W-2

Time.	1044	1047	1050
DTW	14.86	14.88	
pH	5.72	5.72	
Cond	0.177	0.177	
Temp	10.70	10.75	
DO	6.83	6.72	
ORP	193.1	192.8	
Turbidity	7.91	7.49	

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. ZA-W-9
 Sampled By Abdelghani Elhanna
 weather Sunny 50°F

WELL INFORMATION		
Depth to water	8.75	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good	

COMMENTS
inlet tubing = 10.50'
purge water is cloudy with odor. suspended black white in water.
DO unstable.

PURGE DATA								
start purge time		11:49						
time		11:59	12:02	12:05	12:08	12:11	12:14	12:17
DTW	(ft)	8.91	8.89	8.89	8.89	NM	NM	NM
purge rate	(L/min)	220	200	200	200	200	200	200
pH	(Units)	5.72	5.78	5.73	5.72	5.70	5.71	5.71
conductivity	(umhos/cm)	0.057	0.048	0.038	0.036	0.035	0.035	0.034
temperature	(deg C)	9.34	9.22	9.24	9.23	9.27	9.23	9.28
D.O.	(mg/L)	12.30	10.61	8.43	7.81	7.31	6.98	6.66
ORP	(mv)	126.4	116.5	114.1	111.7	108.8	105.1	101.7
turbidity	(NTU)	2.61	2.51	2.07	2.04	2.09	1.91	1.56
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZA-W-9-0310	12:25	NWTPH-Dx	1L Gl. Amber	2	HCl

Date: 03/24/10

Well No: 2A-W-9.

Time	1220	1223
DTW	8.89	NM
Purge rate	200	200
PH	5.70	5.70
Cond	0.034	0.033
Temp	9.21	9.04
DO	6.48	6.42
ORP	99.2	96.0
Turbidity	1.64	1.70

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 3/24/10

Well No. S-W-42
 Sampled By Aaron Jankovic
 weather mostly sunny 56 °F

WELL INFORMATION	
Depth to water	<u>6.70</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>(Good)</u>

COMMENTS
<u>probe had clear and colorless originally. @ 16:30 started pulling orange iron flow.</u>

PURGE DATA								
start purge time	<u>16:16</u>							
time		<u>16:26</u>	<u>16:29</u>	<u>16:32</u>	<u>16:35</u>	<u>16:38</u>	<u>16:41</u>	<u>16:44</u>
DTW	(ft)	<u>6.72</u>	<u>6.72</u>	<u>6.72</u>	<u>6.72</u>	<u>6.72</u>	<u>6.72</u>	<u>6.72</u>
purge rate	<u>M</u> (L/min)	<u>275</u>	<u>275</u>	<u>275</u>	<u>275</u>	<u>275</u>	<u>275</u>	<u>275</u>
pH	(Units)	<u>6.47</u>	<u>6.44</u>	<u>6.41</u>	<u>6.35</u>	<u>6.35</u>	<u>6.33</u>	<u>6.30</u>
conductivity	(umhos/cm)	<u>49</u>	<u>48</u>	<u>46</u>	<u>47</u>	<u>47</u>	<u>48</u>	<u>49</u>
temperature	(deg C)	<u>8.93</u>	<u>8.73</u>	<u>8.55</u>	<u>8.80</u>	<u>8.90</u>	<u>8.90</u>	<u>8.93</u>
D.O.	(mg/L)	<u>3.98</u>	<u>3.84</u>	<u>3.91</u>	<u>3.64</u>	<u>3.41</u>	<u>3.26</u>	<u>3.12</u>
ORP	(mv)	<u>8.7</u>	<u>15.2</u>	<u>18.9</u>	<u>25.5</u>	<u>26.6</u>	<u>27.5</u>	<u>28.2</u>
turbidity	(NTU)	<u>0.19</u>	<u>0.22</u>	<u>51.6</u>	<u>5.41</u>	<u>2.57</u>	<u>1.17</u>	
purge and sample equip.		<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-42-0310</u>	<u>16:45</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

Date: 03/24/10

20F2

Well n-°: MW-3

Time	1757	1800
DTW	10.78	NM
Purge rate	230	230
PH	5.92	5.90
Cond	0.070	0.070
Temp	7.60	7.70
DO	5.25	5.05
ORP	70.5	72.5
Turbi	26.5	27.2

**BNSF - Skykomish
Sentry Well Sampling Log**

Well No.	Sampler	Sample Date	Sample Time
S1-AU	D. Kandy	3/23/10	2 0900
S1-AD			2 0910
S1-BU			4 0920
S1-BD			6 0930
S2-AU			2 1000
S2-AD			2 1010
S2-BU			2 1020
S2-BD			2 1030
S3-AU			2 1120
S3-AD			2 1130
S3-BU			2 1155
S3-BD			2 1205
S3-CU			2 1215
S3-CD			2 1225
S4-AU			4 1330
S4-AD			2 1340
S4-BU			2 1355
S4-BD			2 1405
S4-CU			2 1415
S4-CD			2 1425

Duplicate:
S1-BB-0310
(09:25)

Duplicate:
S4-AC-0310
(13:35)

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 60136319-0540

Collected by:

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
1A-W-4	03/22/10	1610	NM	8.52	NONE	NM	WL	10.55		8.60		ES	
1A-W-5		1615		9.56				11.09		9.21		ES	
1A-W-38				NM				NM		NM			Not Installed
1B-W-2		1536		13.58	NONE			14.25		13.11		ES	
1B-W-3		1530		14.91				15.55		14.68		ES	
1C-W-1		1555		13.37				14.19		13.19		ES	
1C-W-2		NM		NM	NM		NM	11.11		9.61		ES	Wall not located - new asphalt
1C-W-3		1605		10.57	NONE		WL	11.78		10.70		ES	
1C-W-4		1610		10.33				10.89		10.24		ES	
1C-W-7		1357		11.15				12.12		10.95		DWK	
1C-W-8		NM		NM	NM		NM	13.58		NM			NO ACCESS
2A-W-8		0952		14.80	NONE		WL	16.45		14.60		DWK	
2A-W-9		1027		8.82				12.19		8.56			
2A-W-10		1306		8.77				12.68		8.77			
2B-W-4		1112		2.23				5.24		2.11			
5-W-4		1510		6.55				8.91		5.65		ES	
5-W-14		1515		8.98				10.32		9.26			
5-W-15		1507		7.55				8.80		7.75			
5-W-16		1502		7.86				9.00		8.13			
5-W-17		1505		7.19				8.39		7.45			
5-W-18		1505		7.37				8.46		7.61			
5-W-19		1514		7.30				8.28		7.55			
5-W-20		1527		6.88				7.79		7.13			
5-W-42		1625		6.61				7.58		6.65			
5-W-43		1404		6.57			WL	8.23		NM		GS	
5-W-44				NM	NM			NM		NM			Not Installed
5-W-45				NM	NM			NM		NM			Not Installed

G. Sebban

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-3	03/22/10	0955	NM	9.50	-	Hvy TR	TP	13.07	Hvy TR	NM		GS	
2A-W-11		0940		6.74	-	TR		9.57	TR	6.09	None		
MW-28		1043		13.61	-	None		15.66	None	13.17	None		
MW-39		0948		7.93	-	None		11.04	None	7.57	None		
5-W-51		1033		7.08	-	TR	↓	8.48	TR	6.85	Hvy TR		
1A-W-2		-		NM	-	-	-	NM		NM			
2A-W-4		1001		10.02	-	Hvy TR	TP	None	Hvy TR	9.00	Hvy TR		
5-W-2		1018		7.14	-	Hvy TR	TP	10.04	Hvy TR	6.87	Hvy TR		
5-W-3		1033		7.22	6.50	0.72	PP	9.70	0.88	6.87	TR		
MW-22		1012		7.39	-	Hvy TR	TP	9.10	TR	7.45	Hvy TR		

Other Notes:

- dirty casing, possible trace product
- dirty well
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

At extended
Not tested (in construction zone)

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 60136319-0540

Collected by: Dean Koney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to Water (Outside PVC) (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/123/10		1/26/2010		Sign Off	Comments
									DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	03/22/10		NA	12.51	NA	None	NA	WL	12.95		12.49		DWK	
2A-W-7				11.41	NA				11.75		11.38			
2A-W-9				8.82	NA				9.80		9.43			
2A-W-10				8.77	NA				9.50		9.14			
2B-W-4				2.23	NA				3.10		2.70			
2B-W-11				0.99	0.70				1.61		1.63			
2B-W-12				4.34	4.01				4.96		4.72			
2B-W-13				5.51	3.30				4.98		4.61			
2B-W-14				2.51	2.15				4.12		3.70			
2B-W-15				Day	Day				6.44		6.05			Day 6 4.2'
2B-W-19				5.99	NA				6.91		6.48			
2B-W-21				8.11	NA				9.06		8.68			
2B-W-30				10.71	NA				11.37		10.87			
2B-W-32				6.82	NA				7.65		7.22			
2B-W-33				8.32	NA				9.36		8.53			
2B-B-21				4.43	NA				5.84		5.42			
2B-W-45				10.32	NA				11.42		10.99			
2B-W-46				10.22	NA				11.45		10.93			
3-W-41				4.99	NA				5.39		5.21			
3-W-42				8.14	NA				8.65		8.41			
3-W-43				4.38	NA				4.81		4.62			

DWK 3/22/10 Staff gauges;
 1142 North → 0.39'
 1143 Mid → 1.18'
 1144 South → 0.91'

AECOM

D. Kinroy

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/23/2010		1/26/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	03/22/10	0959	NM	12.43	N/A	NM	WL	12.83		12.38		DWK	
MW-2		1053		11.95				12.47		11.95			
MW-3		1033		8.99				10.60		9.77			
MW-4		1040		7.26				8.06		7.68			
MW-5		1024		5.97				6.83		6.48			
MW-9		0939		12.11				12.80		12.44			
MW-10		0942		12.11				12.56		12.13			
MW-11		0947		12.75				13.15		12.69			Shaded
MW-12		1011		4.62				6.14		5.75			
MW-13		0924		8.89				10.09		9.73			
MW-14		0926		10.90				11.97		11.58			
MW-15		0930		12.02				12.97		12.55			
MW-16		1132		12.91				13.36		13.14			
MW-18		0956		14.10				14.56		14.10			
MW-38R		1045		4.50				4.87		4.65			
MW-40		0934		11.52				12.49		12.07			

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		1/28/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-7	03/22/10	0930	NM	11.73	-	NM	TP	12.75	None	12.32	None	SS	
MW-17				NM				NM					Well Damaged
2A-W-3		0955		9.50		Hvy TR	TP	10.45	Hvy TR	10.04	Hvy TR		
2A-W-11		0940		6.74		TR		8.02	TR	7.61	Hvy TR		
MW-39		0948		7.93		NM		9.37	None	8.97	None		
5-W-2		1018		7.14		Hvy TR	↓	7.66	Hvy TR	7.47	Hvy TR		
5-W-3		1033		7.22	6.50	0.72	PP	7.43	0.39	7.45	0.8		
2A-W-4		1001		10.07		Hvy TR	TP	10.88	Hvy TR	10.55	Hvy TR	N	

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well
- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (2/23/10)
North Staff Gauge	1/17 3/22/2010	0.39	0.23
Mid Staff Gauge	1/17 ↓	1.18	1.02
South Staff Gauge	1/14 ↓	0.91	0.79

DNK ↓

AECOM

River Gauging Form

Project Name: BNSF Skykomish Project Number: 60136319 Measured by: Ghanis, Eric

stake ID	date	time	backsight	foresight	water level	comments
SK-1	3/22/2010	1245	5.32	15.48		backsight: GW-4
SK-2		1214	3.58	21.08		backsight: 1B-W-3
SK-3		1158	10.47	16.68		backsight: 5-W-17
SK-4		1153	10.47	17.11		
SK-5		1145	10.47	18.73		
ML-1						
ML-2						
ML-3						
ML-4						

stake ID: SK# = Skykomish River gauging locations, ML# = Former Matoney Creek channel gauging locations
all measurements in feet

backsight: height of level above surveyed point (staff placed at PK nail)

foresight: height of level above gauging point (staff placed in stream bed at SKx, MLx)

water level: depth of water at gauging point

Fluid Level Gauging Form

Project Name: BNSF Skykomish
 Project Number: 60136319-0540
 Collected by: Dean Kinsey

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to Water (Outside PVC) (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/12/3/10		1/26/2010		Sign Off	Comments
									DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-5	03/22/10	1002	NM	13.51	NA	NONE	NM	WL	12.95		12.49		DNK	
2A-W-7		1249		11.41	NA				11.75		11.38		DNK	
2A-W-9		1027		8.82	NA				9.80		9.43		DNK	
2A-W-10		1306		9.77	NA				9.50		9.14		DNK	
2B-W-4		1112		2.23	NA				3.10		2.70		DNR	
2B-W-11		1309		0.99	0.70				1.61		1.63		DNK	
2B-W-12		1116		4.34	4.21				4.96		4.72		DNK	
2B-W-13		1303		5.51	3.30				4.98		4.61		DNK	
2B-W-14		1300		2.51	2.15				4.12		3.70		DWIC	
2B-W-15		1013		DRY	DRY				6.44		6.05		DNK	DRY 4.7'
2B-W-19		1104		5.09	NA				6.91		6.48		DNR	
2B-W-21		1121		9.11	NA				9.06		8.68		DNK	
2B-W-30		1207		10.71	NA				11.37		10.87		DNK	
2B-W-32		1108		6.82	NA				7.65		7.22		DNK	
2B-W-33		1031		8.32	NA				9.36		8.53		DWIC	
2B-B-21		1017		4.43	NA				5.84		5.42		DNK	
2B-W-45		1127		10.32	NA				11.42		10.99		DNK	
2B-W-46		1124		10.22	NA				11.45		10.93		DNK	
3-W-41		1157		4.99	NA				5.39		5.21		DWIC	
3-W-42		1149		8.14	NA				8.65		8.41		DNR	
3-W-43		1130		4.38	NA				4.81		4.62		DNK	

3/22/10 staff gauges =
 1142 North - 0.39'
 1143 mid - 1.18'
 1144 south - 0.91'

AECOM

D. Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	2/23/2010		1/26/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-1	03/22/10	0959	NM	17.43	N/A	NM	WL	12.83		12.38		DNK	
MW-2		1033		11.95				12.47		11.95		DNK	
MW-3		1033		8.99				10.60		9.77		DNK	
MW-4		1040		7.26				8.06		7.68		DNK	
MW-5		1024		5.97				6.83		6.48		DNK	
MW-9		0939		12.11				12.80		12.44		DNK	
MW-10		0942		12.11				12.56		12.13		DNK	
MW-11		0947		17.75				13.15		12.69		DNK	Shallow
MW-12		1011		4.62				6.14		5.75		DNK	
MW-13		0924		8.89				10.09		9.73		DNK	
MW-14		0926	13.50	10.90				11.97		11.58		DNK	
MW-15		0930	NM	12.02				12.97		12.55		DNK	
MW-16		1132		12.91				13.36		13.14		DNK	
MW-18		0956		14.10				14.56		14.10		DNK	
MW-38R		1045		4.20				4.87		4.65		DNK	
MW-40		0934		11.52				12.49		12.07		DNK	

G. Sobhan

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
2A-W-3	03/22/10	0955		9.50		Hwy Trace	TP	13.07	Hvy TR	NM		AS/ES	13
2A-W-11		0940		6.74		Trace	TP	9.57	TR	6.09	None	AS/ES	
MW-28		1043		13.61		None	TP	15.66	None	13.17	None	AS/ES	
MW-39		0949		7.93		None	TP	11.04	None	7.57	None	AS/ES	
5-W-51		1033		7.08		Trace	TP	8.48	TR	6.85	Hvy TR	AS/ES	
1A-W-2		-		N/A		-	-	NM		NM			Not located (in construction zone)
2A-W-4		-		-		-	-	None	Hvy TR	9.00	Hvy TR		Abandoned
5-W-2		1018		7.14		Hvy Trace	TP	10.04	Hvy TR	6.87	Hvy TR		
5-W-3		1033		7.08	6.50			9.70	0.88	6.87	TR		6.50
MW-22		1012		7.39		Hvy Trace	TP	9.10	TR	7.45	Hvy TR		

Other Notes:

- dirty casing, possible trace product
- dirty well
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: 60136319-0540 Collected by: *Dee Koney*

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
X 1A-W-4	03/22/10		NM		NM	NM	WL	10.55		8.60			
X 1A-W-5								11.09		9.21			
X 1A-W-38		NM		NM	NM	NM		NM		NM			Not Installed
1B-W-2								14.25		13.11			
1B-W-3								15.55		14.68			
1C-W-1								14.19		13.19			
X 1C-W-2		NM		NM	NM			11.11		9.61			DNK ball not reset
1C-W-3								11.78		10.70			
1C-W-4								10.89		10.24			
X 1C-W-7		1357		14.5				12.12		10.95			
X 1C-W-8		NM		NM				13.58		NM			
X 2A-W-8		0952		14.80				16.45		14.60			
X 2A-W-9		1027		8.82				12.19		8.56			
X 2A-W-10		1306		8.72				12.68		8.77			
X 2B-W-4		1112		4.23				5.24		2.11			
5-W-4								8.91		5.65			
5-W-14								10.32		9.26			
5-W-15								8.80		7.75			
5-W-16								9.00		8.13			
5-W-17								8.39		7.45			
5-W-18								8.46		7.61			
5-W-19								8.28		7.55			
5-W-20								7.79		7.13			
5-W-42								7.58		6.65			
5-W-43								8.23		NM			
X 5-W-44		NM		NM				NM		NM			Not Installed
X 5-W-45		NM		NM				NM		NM			Not Installed

Fluid Level Gauging Form

Project Name: BNSF Skykomish

Project Number: 60136319-0540

Collected by: Eric Sterkerson

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
1A-W-4	03/22/10	4:20		8.52				10.55		8.60			
1A-W-5	3/22	4:15		9.56				11.09		9.21			
1A-W-38				NM				NM		NM			Not Installed
1B-W-2	3/22	3:36		13.58				14.25		13.11			
1B-W-3	3/22	3:30		14.91				15.55		14.68			
1C-W-1	3/22	3:55		13.37				14.19		13.19			
1C-W-2				NM				11.11		9.61			DNK well not located
1C-W-3	3/22	4:05		10.57				11.78		10.70			
1C-W-4	3/22	4:10		10.33				10.89		10.24			
1C-W-7								12.12		10.95			
1C-W-8								13.58		NM			
2A-W-8								16.45		14.60			
2A-W-9								12.19		8.56			
2A-W-10								12.68		8.77			
2B-W-4								5.24		2.11			
5-W-4	3/22	3:10		6.55				8.91		5.65			
5-W-14	3/22	3:15		8.98				10.32		9.26			
5-W-15	3/22	3:07		7.55				8.80		7.75			
5-W-16	3/22	3:02		7.86				9.00		8.13			
5-W-17	3/22	3:05		7.19				8.39		7.45			
5-W-18	3/22	3:25		7.37				8.46		7.61			
5-W-19	3/22	3:18		7.30				8.28		7.55			
5-W-20	3/22	3:22		6.88				7.79		7.13			
5-W-42	3/22	4:25		6.61				7.58		6.65			
5-W-43								8.23		NM			
5-W-44				NM				NM		NM			Not Installed
5-W-45				NM				NM		NM			Not Installed

G. Sabane

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
5-W-50	03/22/10	1426		7.34				8.80		7.35		GS	
5-W-52		1412		6.64				8.64		5.89			
5-W-53		1415		6.84				8.28		6.34			
5-W-54		1419		6.55				7.81		6.23			
5-W-55		1435		6.25				7.56		6.09			
5-W-56		1431		6.91				8.41		6.72			
MW-1								14.10		12.24			
MW-2								13.85		11.85			
MW-3								12.30		8.47			
MW-4								11.40		7.32			
MW-12								7.58	4				
MW-14			13.5					13.46		10.12			
MW-16								14.54		12.46			
MW-18								16.19		13.49			
MW-32		1500		8.98				10.28		5.82		GS	
MW-38R								5.82		4.26			
1A-W-36				NM				NM		NM			Not Installed
1A-W-37				NM				NM		NM			Not Installed
1B-W-23		1515		15.48				17.43		NM		GS	Not Installed in March
2A-W-40		1508		11.69				13.71		NM			Not Installed in March
2A-W-41		1522		14.70				18.68		NM			Not Installed in March
2A-W-42		1534		12.35				12.94		NM			Not Installed in March
2B-W-45								12.80		9.97			
2B-W-46								12.94		9.40			
3-W-41								5.79		NM			
3-W-42								9.79		NM			
3-W-43								6.36		NM			
EW-1		1351		8.78				10.43		10.70		GS	
EW-2				NM				NM		NM			Not Installed
GW-1								10.78		NM			Not Installed in March
GW-2								13.82		8.52			
GW-3								16.03		13.53		B3	
GW-4								11.15		10.81		ES	

5-W-43 = 1404 - 6.51

D. Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	9/21/2009		3/23/2009		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
5-W-50	03/22/10		N/A		N/A	N/A	WL	8.80		7.35			
5-W-52								8.64		5.89			
5-W-53								8.28		6.34			
5-W-54								7.81		6.23			
5-W-55								7.56		6.09			
5-W-56								8.41		6.72			
X MW-1		0959		12.43				14.10		12.24		DNK	
X MW-2		1053	11.95	7.76				13.85		11.85		DNK	
X MW-3		1033		8.99				12.30		8.47		DNK	
X MW-4		1040		7.26				11.40		7.32		DNK	
X MW-12		1011		4.62				7.58		4		DNK	
X MW-14		0926		10.90				13.46		10.12		DNK	
X MW-16		1137		12.91				14.54		12.46		DNK	
X MW-18		0950		14.10				16.19		13.49		DNK	
MW-32								10.28		5.82		DNK	
MW-38R		1045		4.50				5.82		4.26		DNK	
X 1A-W-36		NM		NM				NM		NM			Not Installed
X 1A-W-37		NM		NM				NM		NM			Not Installed
1B-W-23								17.43		NM			Not Installed in March
2A-W-40								13.71		NM			Not Installed in March
2A-W-41								18.68		NM			Not Installed in March
2A-W-42								12.94		NM			Not Installed in March
X 2B-W-45		1127		10.32				12.80		9.97		DNK	
X 2B-W-46		1124		10.22				12.94		9.40		DNK	
X 3-W-41		1153		9.99				5.79		NM		DNK	
X 3-W-42		1149		8.14				9.79		NM		DNK	
X 3-W-43		1134		4.38				6.36		NM		DNK	
EW-1								10.43		10.70			
X EW-2		NM		NM				NM		NM			Not Installed
X GW-1		1323		7.95				10.78		NM		DNK	Not Installed in March
X GW-2		1328		9.91				13.82		8.52		DNK	
GW-3								16.03		13.53			
GW-4								11.15		10.81			

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Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	1/26/2010		1/26/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)		
MW-7	03/22/10	0930		11.73	-	None		12.75	None	12.32	None		13 -
MW-17								NM		NM			Well Damaged
2A-W-3								10.45	Hvy TR	10.04	Hvy TR		
2A-W-11								8.02	TR	7.61	Hvy TR		
MW-39								9.37	None	8.97	None		
5-W-2								7.66	Hvy TR	7.47	Hvy TR		
5-W-3		1127		7.22	6.50			7.43	0.39	7.45	0.8		
2A-W-4		1201		10.02		Hvy TR	Dump	10.88	Hvy TR	10.55	Hvy TR		

Other Notes:

- clean well - north ('town') half
- clean well - south ('railyard') half
- dirty casing, possible trace product
- dirty well
- use water level meter (WL)
- use water level meter (WL)
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (2/23/10)
North Staff Gauge	3/22/2010		0.23
Mid Staff Gauge			1.02
South Staff Gauge			0.79

3/22/09 40's, rainy

8:30 on site

8:40 Safety Meeting w/ Ghoni & Dean

9:00 Start quarterly Sampling/gauging

1:00 break

	depth	time
FWU	9.15	1:44
WU	11.30	1:46
CU	16.44	1:52
EU	9.52	1:57
PLW-4	13.78	1:54
GW-1	7.96	1:42
GW-2	9.92	1:40
GW-3	15.11	1:50
GW-4	9.98	1:55

2:30 Continue quarterly Sampling/gauging

4:30 off site

3/23/10 sunny, 40's

8:30 on-site

8:45 NPDES Sampling

9:00 treatment building

Before GAC @ 9:15
 After Primary @ 9:20
 MCC-EFF @ 9:25

Effluent:
 pH = 6.58
 turbidity = 0.00

Influent:
 pH = 5.77
 turbidity = 10.85

before sand units:
 turbidity = 400

Daily Tailgate H&S Meeting Attendance Sheet

AECOM Project No.: 60136319 Client Site No.: _____
 Project Name: Skykamich Project Activities: GW Sampling
 Presented By: D. Kinney Date: 3/23/10

Topics Discussed:	Client Specific Topics:
<input checked="" type="checkbox"/> Contents of Site HASP	<input checked="" type="checkbox"/> Trails
<input checked="" type="checkbox"/> Review JSAs/THAs	
<input checked="" type="checkbox"/> Stop Work Authority	<input checked="" type="checkbox"/> Trickle
<input checked="" type="checkbox"/> Site Safety Officer: <u>Eric Storkorson</u>	<input checked="" type="checkbox"/> Glass bottles, acid preserv

Required PPE:

- Steel Toe Boots
 - Hard Hat
 - Traffic Vest
 - Safety Glasses
 - Nitrile Gloves
 - Hearing Protection
 - Long Sleeves
 - Long Pants
 - Knee Pads
 - Other:
- Contaminants of Concern:**
- Petroleum Products
 - Other:
- Fitness for Duty:**
- Are there any preexisting physical conditions that would prevent field staff from performing their assigned tasks

- Emergency Procedures:**
- Meeting Location: Office trailer
- Nearest Hospital: Monroe
- Safety Equipment Locations:**
- First Aid Kit:
 - Eye Wash Station:
 - Fire Extinguisher:
- Driving:**
- Accidents are costly
 - Back up safely
 - Cell phone use not permitted
- All Onsite Equipment / Vehicles Inspected Prior to Work

- General Housekeeping:**
- Clean as We Go
 - Location to Store Drums:
- Weather:**
- P. Cloudy, 40°F
- Traffic Control Plan:**
- Cones/Barricades
 - Other:
- Physical Hazards:**
- Slips, Trips and Falls
 - Safe Lifting Technique
 - Pinch Points
 - Biological Blackberlex
 - Other:

Afternoon Safety Break Topics: _____

Site Specific Hazards: _____

Attendees:

Name	Signature	Company
<u>Aaron Jambrosic</u>	<u>[Signature]</u>	<u>AECOM</u>
<u>Dan Kinney</u>	<u>[Signature]</u>	<u>AECOM</u>
<u>Abdelghani Klsan</u>	<u>[Signature]</u>	<u>AECOM</u>

Daily Tailgate H&S Meeting Attendance Sheet

AECOM Project No.: 60136319 Client Site No.: _____
 Project Name: BNSF-Skykomish Project Activities: GW Sampling
 Presented By: D. Kinney Date: 3/24/10

Topics Discussed:	Client Specific Topics:
<input type="checkbox"/> Contents of Site HASP	<input checked="" type="checkbox"/> Trailers
<input checked="" type="checkbox"/> Review JSAs/THAs	<input checked="" type="checkbox"/> Glass bottles & acid preservation
<input checked="" type="checkbox"/> Stop Work Authority	<input type="checkbox"/> Traffic
<input checked="" type="checkbox"/> Site Safety Officer: <u>D. Kinney</u>	

Required PPE:

<input checked="" type="checkbox"/> Steel Toe Boots <input checked="" type="checkbox"/> Hard Hat <input checked="" type="checkbox"/> Traffic Vest <input checked="" type="checkbox"/> Safety Glasses <input checked="" type="checkbox"/> Nitrile Gloves <input type="checkbox"/> Hearing Protection <input type="checkbox"/> Long Sleeves <input type="checkbox"/> Long Pants <input type="checkbox"/> Knee Pads <input type="checkbox"/> Other:	Emergency Procedures: Meeting Location: <u>Office Trailer</u> Nearest Hospital: <u>Marroe</u>	General Housekeeping: <input checked="" type="checkbox"/> Clean as We Go <input type="checkbox"/> Location to Store Drums:
	Safety Equipment Locations: <input checked="" type="checkbox"/> First Aid Kit: <input type="checkbox"/> Eye Wash Station: <input checked="" type="checkbox"/> Fire Extinguisher:	Weather: <u>P. Cloudy 40° F</u>
Contaminants of Concern: <input checked="" type="checkbox"/> Petroleum Products <input type="checkbox"/> Other:	Driving: <input checked="" type="checkbox"/> Accidents are costly <input type="checkbox"/> Back up safely <input checked="" type="checkbox"/> Cell phone use not permitted	Traffic Control Plan: <input checked="" type="checkbox"/> Cones/Barricades <input type="checkbox"/> Other:
Fitness for Duty: <input type="checkbox"/> Are there any preexisting physical conditions that would prevent field staff from performing their assigned tasks	<input type="checkbox"/> All Onsite Equipment / Vehicles Inspected Prior to Work	Physical Hazards: <input checked="" type="checkbox"/> Slips, Trips and Falls <input checked="" type="checkbox"/> Safe Lifting Technique <input type="checkbox"/> Pinch Points <input checked="" type="checkbox"/> Biological <u>Blackberries</u> <input type="checkbox"/> Other:

Afternoon Safety Break Topics: _____

Site Specific Hazards: _____

Attendees:

Name	Signature	Company
<u>Dean Kinney</u>	<u>[Signature]</u>	<u>AECOM</u>
<u>Abdelghani Elwan</u>	<u>[Signature]</u>	<u>AECOM</u>
<u>Aman Jambore</u>	<u>[Signature]</u>	<u>AECOM</u>
_____	_____	_____
_____	_____	_____

FIELD ACTIVITY LOG

AECOM

PROJECT NAME: BNSF - Skykanish
 PROJECT NO: 60136318-0540
 DAY & DATE: Weds Mar 24th, 2010

COMPLETED BY: D. Kinney
 APPROVED BY: _____
 SHEET 1 OF 1

FIELD ACTIVITY SUBJECT: Groundwater Sampling
 DESCRIPTION OF DAILY ACTIVITIES & EVENTS:

TIME	
0730	Arrived onsite & setup to sample
0745	Safety mtg
0755	At bunkhouse, loaded supplies & went to WTP
0810	Calibrated meter & pumped purge water into system
0845	Setup on MW-4
0857	Started purging MW-4
0910	sampled MW-4 to NWTFH-DX
1010	Started purging 3-W-41
1030	sampled 3-W-41 to NWTFH-DX (w/ & w/o silica gel cleanup)
1121	Started purging 3-W-42
1140	sampled 3-W-42 (same as 3-W-41)
1155	Lunch, then dumped purge water
1204	started purging 3-W-43
1225	sampled 3-W-43 (same as 3-W-41)
1358	started purging 5-W-14
1410	sampled 5-W-14 (same as 3-W-41)
1506	started purging 5-W-19
1530	sampled 5-W-19 (same as 3-W-41); took lab RC volume
1555	Took equipment blanks; labeled: MW-500-0310
1610	Went to bunkhouse & organized supplies & equip
1635	Pumping purge water to WTP & doing COLS
1730	Gauged RW & IW wells
1815	Packing up to leave
1840	left site

VISITORS ONSITE:

CHANGES FROM PLANS OR IMPORTANT DECISIONS:

WEATHER CONDITIONS:
P. Cloudy to Clear, 40-55°F

IMPORTANT TELEPHONE CALLS:
well IC-W-2 damaged, called Sarah Albano

PERSONNEL ONSITE: Dean Kinney

Field Activity Log

Project Name: BNSF Skykomish

Completed By: Abdulghani Sebbane

Project Number:

Date: 03/22/16

Field Activity: Semi-annual GW Sampling.

Weather: cloudy to clear. 37-52°F.

Personnel on site: Ghani, S.; Dean, K.; Eric, S.

0800: Arrived to the site. had safety meeting with Dean and Eric, discussed scope of work.

0845: organized equipment in van.

0930: started gauging product wells with Eric. we used Tape and paste for all product wells, except S-W-3 we pumped it to get water level.

1130: Began surveying skykomish river in 5 points.

1415: started calibrating equipment and getting ready to sample.

1615: Began setting up on GW-3.

1638: started purging, water is orange with iron flakes.

1648: Began recording parameters, turbidity high unstable.

1740: started sampling, when finished, packed up. cleaned up. met with Dean and Aaron to gether data results of gauging.

1820: left a site.

Abdulghani Sebbane

Field Activity Log

Page: 1 of 1

AECOM

Project Name: BNSF Skykomish
Project Number:
Field Activity: Semi-Annual GW Sampling
Completed By: Blainie
Date: 03/23/10
Weather: cloudy 57°F
Personnel on site: Blainie, Si, Mark, Aaron, J.

- 0730: Arrived to the site, had safety meeting with Dean and Aaron and discussed scope of work.
- 0815: started calibrating equipment.
- 0840: Began setting up on GW-11.
- 0850: started purging water is.
- 0908: Began recording parameters.
- 0915: started sampling.
- 0940: Began setting up on 2A-W-42.
- 1005: started purging, water is orange from Fleck.
- 1015: Began recording parameters.
- 1040: started sampling, packed up.
- 1100: Began setting up on 1B-W-23.
- 1120: started purging, water is.
- 1130: Began recording parameters.
- 1140: started sampling, also collected 1B-W-230 at 12:00 (Dup).
- 1220: Began setting up on 5-W-43.
- 1232: started purging, water is clear.
- 1242: Began recording parameters.
- 1355: started sampling, also collected dup GW-10-0310 at 1410.
- 1430: Finished sampling, packed up, had lunch break.
- 1500: back to the site started setting up on 2A-W-41.
- 1524: started purging.
- 1534: Began recording parameters.
- 1545: started sampling.
- 1600: Began setting up on 2A-W-40.
- 1618: started purging, water is cloudy.
- 1628: Began recording parameters, turbidity is high, unstable.
- 1700: started sampling.
- 1735: Dumped purge water, dropped coolers in Aaron's van.
- 1820: left a site.

Field Activity Log

Project Name: BNSF SKYKOMISH
Project Number: _____
Field Activity: Semi-annual GW
Sampling

Completed By: Abdolphani Sebame
Date: 03/24/10
Weather: cloudy to clear, 37°F.
Personnel on site: Ghani, S.; Dean, K. Azcom, J.

0745: Arrived to the site, had safety meeting with Dean discussed scope of work, picked up bottles, coolers and PPE.

0815: started calibrating equipment.

0835: Began setting up on 1B-W-3.

0900: started purging water is clear.

0910: Began recording parameters turbidity unstable.

0930: started sampling.

0945: Began setting up on 1B-W-2.

0959: started purging water is clear.

1009: Began recording parameters.

1055: started sampling.

1012: well dried out. stopped pumping to recover well.

1025: Resumed purging.

1028: Resumed recording parameter, turbidity raised to 18.2 NTU.

1055: started sampling, 11:30 finished sampling, packed up.

1135: Began setting up on 2A-W-9.

1149: started purging, water is cloudy with white flacks and odor.

1209: Began recording parameters DO unstable.

1225: started sampling.

1300: had a lunch break.

1330: back to site and started setting up on 2B-W-46.

1338: started purging, water is cloudy and smelly to clear.

1348: Began recording parameters.

1405: started sampling.

Field Activity Log

Project Name: BNSF Skykomish

Completed By: Abdulhadi & Aaron

Project Number:

Date: 03/24/10

Field Activity: Semi-annual GW sampling

Weather: Sunny 54°F

Personnel on site: Ghani, S, Dean, R, Aaron, J.

- 1430: started setting up on 2B-W-25
- 1438: Began purging water is clear.
- 1448: started recording parameters. DO unstable.
- 1500: Began sampling, when finished dumped purge water into ^{drum}
- 1530: started setting up on 5-W-18.
- 1539: Began purging, water is clear.
- 1549: started recording parameters. DO and ORP unstable.
- 1645: Began sampling.
- 1715: started setting up on MW-3
- : Began purging. water is orange with iron flakes.
- : started recording parameter. DO, ORP - turbidity unstable.
- 1805: started sampling.
- 1830: Dumped purge water.
- 1845: loaded van with coolers. packed up.
- 1900: left a site.

Abdulhadi & Aaron 03/24/10

Field Activity Log

Project Name: BNSF Skykomish Completed By: Abolghani Selham
Project Number: _____ Date: 03/25/10
Field Activity: Semi-annual GW Weather: rain. 44°F.
Sampling Personnel on site: Ghani, S.

- 0800: Arrived to the site. started reicing coolers.
- 0815: started calibrating equipment.
- 0840: Began setting up on IC-W-1
- 0856: started purging, water is clear.
- 0906: Began recording parameters.
- 0920: started sampling.
- 0930: Began setting up on IC-W-8.
- 0941: started purging, water is clear.
- 0951: Began recording parameters. DO was false.
- 1010: started sampling.
- 1045: Began setting up on IC-W-7.
- 1104: started purging, water is clear. started with little iron flask.
- 1114: Began recording parameters.
- 1125: started sampling.
- 1215: Dumped purge water and pumped it to tank HCC building.
- 1230: Reiced coolers and packed up equipment.
- 1240: left site.

~~Ghani Selham 03/25/10~~

Project Name: Skykomish

Completed By: Aaron JAMBROVIC

Project Number: 64136311-0540

Date: 3/22/10

Field Activity: GW Gauging and sampling

Weather: mostly cloudy / showers, 51 °F

Personnel on site: Aaron Jambrovic / Dean Kimmey / Ghoni Seibon.

12:15 Depart Seattle for Skykomish for site work gauging and sampling
 Call Dean Kimmey and tell him I am on my way. Depart.

14:15 Arrive in Skykomish Dean PPE

14:30 Dean Kimmey pulls up, discuss scope and H.P.S.. I will be
 sampling GW-1, GW-2 and AW-36 if time permits
 today. Go to find Ghoni to obtain sampling equipment
 and forms.

14:50 Begin meter calibration, YSI 556 and Hyd. h. meter

15:10 meter calibration ok, begin set up on AW-2. after
 picking up ice from Gas station.

15:25 Begin purging GW-2

16:00 end purging / begin sampling GW-2

16:20 Complete sampling at GW-2 / Duplicates collected. GW-20-0210
 @ 15:00

Move to GW-1 and begin set up.

16:26 begin purging AW-1.

16:56 end purging / begin sampling GW-1.

~~17:00~~ begin clean up at site.

17:02 check in with Ghoni, his flow cell is leaking / give
 him my YSI to begin taking parameters at his
 well location.

17:15 help repair YSI flow cell.

17:30 put purge water in drum in HCC building for water treatment

17:45 organize samples. Coordinate with Dean and Ghoni schedule
 and plan for tomorrow sampling

18:00 Depart Site.

 3/22/10

Project Name: Skykomish

Completed By: Aaron Jambousek

Project Number: 60136319-0540

Date: 3/23/10

Field Activity: 6" sampling

Weather:

Personnel on site: Aaron Jambousek / Dean Kinney / Ghazi Salimani

- 05:25 Depart for Skykomish for 6" sampling.
- 07:10 arrive on site. Begin set up. Begin calibrating meters, YSI 556 and turbidity meter.
- 07:30 meters calibrate ok. Dean Kinney arrives on site.
- 07:40 Dean lead H&I tail gate meeting (see tail gate meeting form).
- 07:50 discuss scope and individual activities; get work assignments.
- 08:00 Begin set up on MW-16. (see sampling form for sampling details)
- 08:12 Begin purging MW-16.
- 08:35 end purging begin sampling MW-16
end sampling MW-16. clean up and move to 1A-W-4.
- 08:56 Begin purging 1A-W-4
- 09:15 end purging 1A-W-4 / begin sampling
- 09:22 complete sampling 1A-W-4. Clean up and set up on 1A-W-5.
- 09:32 Begin purging 1A-W-5
- 09:50 end purging / begin sampling 1A-W-5
- 10:00 complete sampling 1A-W-5.
- 10:15 set up on 5-W-4
- 10:26 Begin purging 5-W-4
- 11:15 end purging / begin sampling 5-W-4
- 11:27 complete sampling 5-W-4.
- 11:50 Begin purging 5-W-50.
- 12:15 end purging / begin sampling 5-W-50
Complete sampling. Eric Stokerson arrives will begin sample wells that require 2 people to back push into.
- 13:16 Begin purging 2A-W-10
- 13:48 end purging / begin sampling 2A-W-10
- 13:50 complete sampling 2A-W-10.

Project Name: Skykomish Completed By: Aaron Jambrosic
 Project Number: _____ Date: 3/23/10
 Field Activity: GW Monitoring Weather: Sunny 59°F
 Personnel on site: Aaron Jambrosic / Dean King /
Ghaz Jambrosic

- 1355 setting up on IC-W-3
- 14:06 begin purging IC-W-3
- 14:19 water becomes very turbid, also water was draining down so had to slow pump speed to 100 from 250 and 1200 gal/min.
- 14:45 complete purging begin sampling IC-W-3
- 15:05 complete sampling IC-W-3
- 15:09 begin purging IC-W-4
- 15:35 end purging / begin sampling IC-W-4
- 15:55 complete sampling IC-W-4. clean up at well
- 16:05 set up on S-W-52
- 16:13 begin purging S-W-52
- 16:40 end purging / begin sampling S-W-52
- 17:40 sampling complete at S-W-52. Duplicate collected S-W-520-0310 @
- 17:16 begin purging S-W-56
- 17:35 end purging S-W-56 / begin sampling
- 17:45 complete sampling S-W-56. cleanup at well location. Package all samples.
- 1800 meet Dean and Ghaz and load all samples into my van for delivery to lab, complete COCs. Ensure all samples are iced.
- 1830 Depart site.
- 1930 stop in Monroe to get additional ice for samples, and fill ice to all coolers.
- 2030 Arrive back in Seattle EOD.

Ca J 3/23/10

Project Name: Skykomish	Completed By: Aaron Jambrosie
Project Number: 60136314-0540	Date: 3/24/10
Field Activity: GW Monitoring	Weather: mostly sunny 50-60°F
	Personnel on site: Aaron Jambrosie / Dean Kinney / Ghazi Sabari

- 07:30 Depart for Pacer Laboratory to deliver samples and pick up additional bottles and caddies
- 08:25 samples delivered to the lab and supplies picked up
Depart for Skykomish.
- 10:15 Arrive in Skykomish, check in with Dean. Discuss scope and H&S.
- 10:20 Load equipment and set up for sampling
- 10:40 Begin calibrating meter 751 556 and turbid. 3 meter.
- 10:50 Meter calibrate ok. Begin set up on S-W-53.
- 11:06 Begin purging S-W-53. (see sampling forms)
- 11:45 end purging / begin sampling S-W-53
- 11:55 complete sampling S-W-53. clean up and begin setup at S-W-54.
- 11:58 Begin purging S-W-54
- 12:25 end purging / begin sampling S-W-54
- 12:35 complete sampling S-W-54. clean up move to S-W-16
- 12:42 Begin purging S-W-16
- 13:05 end purging / begin sampling S-W-16
- 13:22 complete sampling S-W-16. set up on S-W-17
- 13:24 Begin purging S-W-17.
- 13:45 end purging S-W-17 / begin sampling.
- 14:03 complete sampling S-W-17. set up on S-W-15
- 14:05 Begin purging S-W-15.
- 14:15 turbid. 3 meter not working, not able to measure for first procedure sets. Call dean, he is over by will borrow his.

Project Name: SkjKamishCompleted By: Aaron JambroseProject Number: 60136319-0540Date: 3/24/10Field Activity: GW MonitoringWeather: mostly sunny 56°FPersonnel on site: Aaron Jambrose / Penn Kinney / Ghani Sabuni

14:35 end purging S-W-15 / begin sampling

15:15 complete sampling S-W-15. Duplicate collected S-W-156-0310 @ 13:35. Clean up at well. Go empty purge water into drum.

15:30 set up on S-W-20

15:35 begin purging S-W-20

16:00 end purging / begin sampling S-W-20

16:15 complete sampling S-W-20. Begin set up on S-W-42

16:16 begin purging S-W-42

16:26 end purging / begin sampling S-W-42

17:00 complete sampling S-W-42. set up on S-W-55

17:08 begin purging S-W-55

17:25 end purging / begin sampling S-W-55

17:35 complete sampling S-W-55. Begin clean up at site for the day.

ice all sample rollers, clean equipment, unload equipment load samples in Ghani's van.

18:30 complete site clean up. Depart site for Seattle

20:30 Arrive back in Seattle. EOD

 3/24/10



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: AECOM	Report To: Sarah Albano	Attention: Bruce Shoppard	Company Name: BUSE	Page: () of ()	1309843
Address: 710 2nd Ave.	Copy To: Renee Knecht	Address: BUSE	Address: BUSE	REGULATORY AGENCY	
Seattle, WA 98104	Purchase Order No.: T70100-179	Pace Quote Reference: H200600	Pace Project Manager: H200600	NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/>	
Phone: 206-621-9341	Project Name: BUSE Skykomish	Site Location	STATE: WA	UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/>	
Requested Due Date/TAT:	Project Number: 6036319-0540				

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
			COMPOSITE START	COMPOSITE END/GRAB									
1	IC-W-1-0410	Drinking Water DW	4/27/10 1255		G		Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Y					
2	IC-W-8-0410	Waste Water WW	4/27/10 1340		G			Y					
3	IC-W-80-0410	Product P	4/27/10 1400		G			Y					
4	IC-W-7-0410	Soil/Solid SL	4/27/10 1535		G			Y					
5		Oil OL											
6		Wipe WP											
7		Air AR											
8		Tissue TS											
9		Other OT											
10													
11													
12													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Abdolkhani Subbar	4/27/10	1550	Abdolkhani Subbar	4/27/10	1552	Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Abdolkhani Subbar

SIGNATURE of SAMPLER: *Abdolkhani Subbar*

DATE Signed (MM/DD/YY): 4/27/10

Field Activity Log

Page: of

AECOM

Project Name: BNSF-SKYKOMISH

Completed By: Abdelghani Sebbane

Project Number: _____

Date: 04/27/10

Field Activity: Monthly GW
Sampling

Weather: rain. 49° F.

Personnel on site: Ghani. Sebbane

1100: Arrived to the site. Signed in at the AECOM and strickler sign sheets.

1115: Bought Ice. and picked up bottles from banker house.

1130: started calibrating equipments.

1200: Began setting up on IC-W-1

1228: started purging. water is clear

1238: Began reading/recording parameters.

1255: started sampling.

1310: Began setting up on IC-W-8.

1315: started purging, water is clear.

1325: Began recording parameters.

1340: started sampling, collected also duplicate IC-W-80 at 1400.

1420: Took lunch.

1500: back to site and started setting up on IC-W-7

1515: Began purging.

1525: started recording parameters

1535: Began sampling.

1545: cleaned up packed up. dumped purge water into WWTP. HCC building.

1600: left a site.

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 5/26/10

Well No. 1C-W-7
 Sampled By prk
 weather Partly cloudy, 50 °F

WELL INFORMATION	
Depth to water	<u>11.18</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~12.0' bgs</u>
<u>Substantial amount of Fe floc in purge water initially, then cleared</u>

PURGE DATA

start purge time							
time	<u>1056</u>						
DTW	(ft)	<u>11.06</u>	<u>11.09</u>	<u>11.12</u>	<u>11.15</u>	<u>11.16</u>	<u>11.21</u>
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>
pH	(Units)	<u>5.38</u>	<u>5.46</u>	<u>5.50</u>	<u>5.49</u>	<u>5.48</u>	<u>5.53</u>
conductivity	ms (umhos/cm)	<u>0.085</u>	<u>0.087</u>	<u>0.072</u>	<u>0.067</u>	<u>0.072</u>	<u>0.071</u>
temperature	(deg C)	<u>8.8</u>	<u>8.9</u>	<u>8.9</u>	<u>8.9</u>	<u>8.9</u>	<u>8.9</u>
D.O.	(mg/L)	<u>4.17</u>	<u>4.10</u>	<u>4.09</u>	<u>4.05</u>	<u>4.08</u>	<u>4.09</u>
ORP	(mv)	<u>254</u>	<u>255</u>	<u>254</u>	<u>257</u>	<u>250</u>	<u>257</u>
turbidity	(NTU)	<u>49.7</u>	<u>6.90</u>	<u>5.09</u>	<u>5.40</u>	<u>2.68</u>	<u>2.49</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>1C-W-7-0510</u>	<u>1125</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60136319-0540
 Date 5/26/10

Well No. 1C-W-8
 Sampled By DWK
 weather Rainy, 50 °F

WELL INFORMATION	
Depth to water	<u>12.66</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Tubing inlet at ~ 13.5</u> <u>lbs</u>

PURGE DATA

start purge time	time	DTW	purge rate	pH	conductivity	temperature	D.O.	ORP	turbidity	purge and sample equip.
<u>0953</u>										
	<u>1008</u>	<u>12.69</u>	<u>0.30</u>	<u>5.41</u>	<u>0.0124</u>	<u>9.5</u>	<u>0.71</u>	<u>248</u>	<u>1.29</u>	Peristaltic pump and silicone/polyethylene tubing
	<u>1011</u>	<u>12.69</u>		<u>5.40</u>	<u>0.0121</u>	<u>9.6</u>	<u>0.72</u>	<u>1.22</u>		
	<u>1014</u>	<u>12.69</u>		<u>5.41</u>	<u>0.0130</u>	<u>9.7</u>	<u>0.72</u>	<u>1.17</u>		

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>1C-W-8-0510</u>	<u>1020</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>1C-W-8-0510</u> <u>(duplicate)</u>	<u>1030</u>	<u>NWTPH-Dx</u>	<u>"</u>	<u>"</u>	<u>"</u>

CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Section D Requested Analysis Filtered (Y/N)
Company: BNSF	Report To: Sarah Albano (AECOM)	Attention: Bruce Sheppard	Requested Analysis Filtered (Y/N)
Address:	Copy To: Renee Knecht	Company Name: BNSF	
Email To:	Purchase Order No.: IT0100-T30	Address:	Requested Analysis Filtered (Y/N)
Phone: 402-624-9344	Project Name: BNSF-Skykomish	Pace Quote Reference: Heldi Gar	
Requested Due Date/TAT: std	Project Number: 60136319-0540	Pace Project Manager: Heldi Gar	Requested Analysis Filtered (Y/N)
		Pace Profile #:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX J CODE	SAMPLE CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)	Temp in °C	Received on	Custody Sealed Cooler	Samples Intact
					COMPOSITE START	COMPOSITE END/GRAB									
1	IC-W-1-051D	Drinking Water	W	G	5/26/10	10:40		2	Unpreserved	Y					
2	IC-W-8-	Water	↓	G	5/26/10	10:20		2	H ₂ SO ₄	Y					
3	IC-W-80-	Waste Water	↓	G	5/26/10	10:30		2	HNO ₃	Y					
4	IC-W-7-	Product	↓	G	5/26/10	11:25		2	HCl	Y					
5		Soil/Solid							NaOH						
6		Oil							Na ₂ S ₂ O ₃						
7		Wipe							Other						
8		Air							Methanol						
9		Tissue													
10		Other													
11															
12															

ADDITIONAL COMMENTS * Wb silica gel cleanup 5/26/10	RELINQUISHED BY / AFFILIATION 5/26/10 1445 Charles R. B. / Pace	DATE 5/26/10	TIME 1445	ACCEPTED BY / AFFILIATION 5/26/10 1445	DATE 5/26/10	TIME 1445
SAMPLER NAME AND SIGNATURE						
PRINT Name of SAMPLER: Dean W. Kinney						
SIGNATURE of SAMPLER: <i>[Signature]</i>						
DATE Signed (MM/DD/YY): 05/26/10						

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **RNCE** Report To: **Sarah Abano (AECOM)** Attention: **Bruce Sheppard** Company Name: **BNSF**

Address: **Paul Biand** Copy To: **Paul Biand** Address: **BNSF**

Email To: **328624-3349** Project Name: **BNSF - Skykomish** Pace Quote Reference: **Heidi Ger**

Phone: **328624-3349** Project Number: **60136319-0549** Pace Project Manager: **Heidi Ger** Pace Profile #:

Requested Due Date/TAT: **3rd**

Purchase Order No.:

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location STATE: **WA**

Page: **1** of **1**
1255257

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃				
1	WW-1-0510	DW WT WW P SL OL WP AR TS OT				2										
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

ADDITIONAL COMMENTS

REINQUISHED BY / AFFILIATION: **328624 (AECOM) 5/26/10** DATE: **5/26/10** TIME: **1445** ACCEPTED BY / AFFILIATION: **Paul Biand** DATE: **5/26/10** TIME: **1445**

SAMPLER NAME AND SIGNATURE: **Dean W. Kinney**

PRINT Name of SAMPLER: **Dean W. Kinney**

SIGNATURE of SAMPLER: **Dean W. Kinney** DATE Signed (MM/DD/YY): **05/26/10**

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Fluid Level Gauging Form

Project Name: BNSF Skykomish
 Project Number: 60154595
 Collected by: Dean Kinney, Fred Merrill, & Ghani Sabbarne

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-36	06/29/10			NM				NM			Not Installed
1A-W-37				NM				NM			Not Installed
1A-W-38				NM				NM			Not Installed
1B-W-23		1106		16.85	None		WL			FM	
1B-W-24				NM				NM			Not Installed
1C-W-1		1040		13.03	None		WL			GS	
1C-W-7		1348		10.86							
1C-W-8		1127		12.36							
2A-W-5		1135		12.62							
2A-W-7		1156		11.04							
2A-W-8		1146		14.31							
2A-W-9		0958		9.79							
2A-W-10		0953		9.71							
2A-W-40		1346		11.78							
2A-W-41		1055		16.34						FM	
2A-W-42		1637		12.08						FM	
2B-W-4		1026		2.79						DWK	
2B-W-45		1215		11.32						"	
2B-W-46		1208		16.32						FM	
2B-W-47				NM				NM			Not Installed
2B-W-48				NM				NM			Not Installed
2B-W-11		1034		2.20	None		WL				
2B-W-12		1030		5.30							
2B-W-13		1040		4.85							
2B-W-14		1037		4.01							
2B-W-15		1055		DCY							
2B-W-19		1015		6.51							
2B-W-21		1044		8.68							
2B-W-30		1130		11.27							
2B-W-32		1019		7.21							
2B-W-33		0950		9.43							
2B-B-21		1052		5.87							

Dry @ 4.180

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
5-W-14	6/29/10	0938		8.34	None		W/L			FM	
5-W-15		1402		7.10							
5-W-16		0957		7.15							
5-W-17		1002		6.52							
5-W-18		1355		6.69							
5-W-19		0954		6.52							
5-W-20		0949		6.17							
5-W-42		0916		6.19							
5-W-43		1415		6.91							
5-W-44				NM				NM			Not Installed
MW-1	06/29/10	1141		11.99	None		W/L			DWL	
MW-2		0943		11.49							
MW-3		1002		9.24							
MW-4		1005		8.48							
MW-5		1008		6.79							
MW-9		1534		12.91							
MW-10		1557		12.24							
MW-11		1600		12.61							
MW-12		1050		6.03							
MW-13		1112		10.18							
MW-14		1115	13.5	12.09							
MW-15		1118		13.18							
MW-16		1158		13.71						FM	
MW-18		1137		14.06						DWL	
MW-38R		1010		4.42						FM	
MW-40		1200		12.72							
EW-1		1033		11.92							
EW-2A								NM			Not Installed
GW-1		1026		9.05	None		W/L			FM	
GW-2		1043		11.62							
GW-3		1116		15.75							
GW-4		1135		9.46							

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-7	06/29/10	1405		13.10	NONE		TPP	13.07	Hvy TR	DWK	
2A-W-3		1512		11.81	Hvy TR			13.07	Hvy TR		
2A-W-11		1351		7.86	Hvy TR			9.57	TR		
MW-28		1413		13.64	TR			15.66	None		
MW-39		1476		9.23	TR			11.04	None		
2A-W-4		1500		11.36	Hvy TR			None	Hvy TR		
5-W-3				NM				9.70	0.88		
MW-22				NM				9.10	TR		Abandoned 41

Other Notes:

- dirty casing, possible trace product
- dirty well
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (5/26/10)
North Staff Gauge	6/29/2010		0.55
Mid Staff Gauge	6/29/2010		1.14
South Staff Gauge	6/29/2010		0.91

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: 60154595 Collected by: D. Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-36	06/29/10			NM				NM			Not Installed
1A-W-37				NM				NM			Not Installed
1A-W-38				NM				NM			Not Installed
1B-W-23											
1B-W-24				NM				NM			Not Installed
1C-W-1											
1C-W-7											
1C-W-8											
X 2A-W-5		1135		12.62	None		WL			DWK	
X 2A-W-7		1150		11.04			↓				
X 2A-W-8		1146		14.13							
X 2A-W-9		0950		9.79	None		AF			DWK	
X 2A-W-10		0952		9.71	11		AL			DWK	
2A-W-40											
2A-W-41											
2A-W-42		1637		12.08	None		WL			DWK	
X 2B-W-4		1026		2.79	None		WL			DWK	
2B-W-45											
2B-W-46											
2B-W-47											
2B-W-48				NM				NM			Not Installed
X 2B-W-11		1024		2.20	None		WL				
X 2B-W-12		1030		5.30							
X 2B-W-13		1040		4.85							
X 2B-W-14		1027		4.01							
X 2B-W-15		1055		DNV							
X 2B-W-19		1015		6.51	None						
X 2B-W-21		1044		8.68							
X 2B-W-30		1120		11.27							
X 2B-W-32		1019		7.21							
X 2B-W-33		0950		9.43							
X 2B-B-21		1052		5.87							

Depth to Level Contain Pic (ft)

1.15
4.51
3.62
Dry
Dry

✓ ✓ ✓

65
65
65

✓ ✓

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-7	06/29/10	1407		13.10	NM		TOP	13.07	Hvy TR	DNK	
2A-W-3		1512		11.81	Hvy TR	Hvy TR	TOP	13.07	Hvy TR		
2A-W-11		1351		7.86	Hvy TR	Hvy TR	TOP	9.57	TR		
MW-28		1413		13.64	TR	TR	TOP	15.66	None		
MW-39		1426		9.23	TR	TR	TOP	11.04	None		
2A-W-4		1500		11.36	Hvy TR	Hvy TR	TOP	None	Hvy TR	N	Abandoned
5-W-3				NM				9.70	0.88	DNK	
MW-22				NM				9.10	TR	DNK	

Other Notes:

- dirty casing, possible trace product
- dirty well
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (5/26/10)
North Staff Gauge	6/29/2010	1607	1607
Mid Staff Gauge	6/29/2010	1608	1608
South Staff Gauge	6/29/2010	1609	1609

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: Collected by: F. MERRILL

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-36	06/29/10			NM				NM			Not Installed
1A-W-37				NM				NM			Not Installed
1A-W-38				NM				NM			Not Installed
1B-W-23	6/29/10	1008		16.85				NM		FM	
1B-W-24				NM				NM			Not Installed
1C-W-1											
1C-W-7											
1C-W-8											
2A-W-5											
2A-W-7											
2A-W-8											
2A-W-9											
2A-W-10											
2A-W-40	6/29/10	1346		11.75						FM	
2A-W-41	6/29/10	1055		16.34						FM	
2A-W-42											
2B-W-4											
2B-W-45	6/29/10	1215		11.32						FM	
2B-W-46	6/29/10	1008		16.34						FM	
2B-W-47				NM				NM			Not Installed
2B-W-48				NM				NM			Not Installed
2B-W-11											
2B-W-12											
2B-W-13											
2B-W-14											
2B-W-15											
2B-W-19											
2B-W-21											
2B-W-30											
2B-W-32											
2B-W-33											
2B-B-21											

COPIES TO BE MADE
DATE 6/29/10

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
F 5-W-14	6/29/10	0938		5.34						FM	
5-W-15	6/29/10	1402		7.10							
5-W-16	6/29/10	0957		7.15							
5-W-17	6/29/10	1002		8.52							
5-W-18	6/29/10	1355		7.68							
5-W-19	6/29/10	0949	0954	6.17							
5-W-20	6/29/10	0942		6.17							
5-W-42	6/29/10	0916		6.19							
5-W-43	6/29/10	1415		6.91							
5-W-44				NM							Not Installed
MW-1	06/29/10							NM			
MW-2											
MW-3											
MW-4											
MW-5											
MW-9											
MW-10											
MW-11											
MW-12											
MW-13											
MW-14			13.5								
MW-15											
MW-16	6/29/10	1155		13.71						FM	
MW-18											
MW-38R	6/29/10	1010		4.42						FM	
MW-40	6/29/10	220		12.72						FM	
EW-1	6/29/10	1033		11.92						FM	
EW-2A											
GW-1	6/29/10	1036		9.05				NM			Not Installed In March
GW-2	6/29/10	1045		11.62						FM	
GW-3	6/29/10	1116		15.25							
GW-4	6/29/10	1135		9.46							

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010			Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)		
TP MW-7	06/29/10							13.07	Hvy TR			
2A-W-3								13.07	Hvy TR			
2A-W-11								9.57	TR			
TP MW-28								15.66	None			
TP MW-39								11.04	None			
2A-W-4								None	Hvy TR			
TP S-W-3				VM	VM			9.70	0.88			
TP MW-22				VM	VM			9.10	TR			

Other Notes:

- dirty casing, possible trace product
- dirty well
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (5/26/10)
North Staff Gauge	6/29/2010		
Mid Staff Gauge	6/29/2010		
South Staff Gauge	6/29/2010		

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:
Company: **BNSF**
Address:
Email To:
Phone:
Requested Due Date/TAT: **std**

Section B
Required Project Information:
Report To: **Sarah Albano (AECOM)**
Copy To: **Renee Karch**
Purchase Order No.: **TT0100-539**
Project Name: **BNSF - Skykomish**
Project Number: **60154595-0540**

Section C
Invoice Information:
Attention: **Bruce Sheppard**
Company Name: **BNSF**
Address:
Pace Quote Reference:
Pace Project Manager: **Heidi Geri**
Pace Profile #:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location: **WA**
STATE: **WA**

Page: **1** of **3**
1338458

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE ID (A-Z, 0-9 / -)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB						
1		DW	0610	WT		6/29/10	1110	2	Unpreserved			
2		Water				1150		2	H ₂ SO ₄			
3		Waste Water				1415		2	HNO ₃			
4		Product				1545		2	HCl			
5		Soil/Solid				1545		2	NaOH			
6		Oil				1650		2	Na ₂ S ₂ O ₃			
7		Wipe				1705		2	Methanol			
8		Air				1740		2	Other			
9		Tissue				6/30/10	0930	2				
10		Other				1000		2				
11						1050		2				
12						1020		2				

ADDITIONAL COMMENTS
Abdylhamid Subhan 07/01/10 0925

RELINQUISHED BY / AFFILIATION
[Signature]

RECEIVED BY / AFFILIATION
[Signature]

DATE: **7-1-10** TIME: **0925**

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER:

2

Temp In °C: _____
Received on Ice (Y/N): _____
Custody Sealed Cooler (Y/N): _____
Samples Intact (Y/N): _____



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: BNSF	Report To: Sarah Albano (AECOM)	Attention: Bruce Sheppard
Address: BNSF	Copy To: Renee Knecht	Company Name: BNSF
Phone: std	Purchase Order No.: TT01DD-739	Address: WA
Requested Due Date/TAT: std	Project Name: BNSF-Skykomish	REGULATORY AGENCY: <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
	Project Number: std	Site Location STATE: WA

Page: **3** of **3**
1338460

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME			
1	EW - 1	-061D WT					2					
2	GW - 3		6/30/10	0910			2					
3	GW - 3D			1500			2					
4	2A-W-40			1500			2					
5	2A-W-400			1400			2					
6	GW-1			0855			2					
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS						
	<i>Abdulgani Albano</i>	07/01/10	0925	<i>[Signature]</i>	7-1-10	0925	Temp in °C Received on Ice (Y/N) Custody (Y/N) Sealed Cooler (Y/N) Samples Intact (Y/N)						
<table border="1"> <tr> <td colspan="2">SAMPLER NAME AND SIGNATURE</td> </tr> <tr> <td>PRINT Name of SAMPLER:</td> <td>DATE Signed (MM/DD/YY):</td> </tr> <tr> <td>SIGNATURE of SAMPLER:</td> <td></td> </tr> </table>								SAMPLER NAME AND SIGNATURE		PRINT Name of SAMPLER:	DATE Signed (MM/DD/YY):	SIGNATURE of SAMPLER:	
SAMPLER NAME AND SIGNATURE													
PRINT Name of SAMPLER:	DATE Signed (MM/DD/YY):												
SIGNATURE of SAMPLER:													

Field Activity Log

Page: 2 of 2 **AECOM**

Project Name: Skykomish BNSF Completed By: Adolpho S. Salgado
Project Number: Date: 06/29/10
Field Activity: Quarterly CQW Weather: cloudy 58°F.
Sampling Personnel on site: G. Harris, Dean K. Fred M.

0815: Arrived to the site, had safety meeting with Dean and Fred, and discussed scope of work.

0845: went to buy fuel and organized equipment in van.

0930: started calibrating equipment.

1010: Began setting up on IC-W-1.

1043: started purging, water is clear.

1057: Began recording parameters.

1100: Ron from Ecology came by me and we talked a little bit about what I was doing.

1110: started sampling.

1115: Began setting up on IC-W-8.

1130: started purging, water is clear.

1140: Began recording parameters.

1150: started collecting samples. last bottle, Home owner.

Filled out Mower. Grass cutter with Gas 10 ft from me. I still smell a Gas odor. I resample last bottle.

1220: Began setting up on IC-W-7. uncovered well under gravel.

1230: Took lunch.

1330: Back to site. started setting up on IC-W-7.

1351: started purging, water started with Iron Flacks, then became clear.

1401: Began recording parameters, turbidity unstable.

1415: started sampling.

1435: went to dump purge water and gave Fred equipment.

1515: Began setting up on GW-4.

1525: started purging, water is clear.

Field Activity Log

Project Name: BNSF Skykomish
Project Number: _____
Field Activity: Quarterly GW
Sampling.

Completed By: Abdelghani Sellam
Date: 06/29/10
Weather: partly cloudy 60° F.
Personnel on site: Ghania S.; Dean K.; Fred M.

- 1535: Began recording parameters.
- 1545: started sampling.
- 1610: Began setting up on 1B-W-23. DTB = 20.20 ft.
- 1622: started purging.
- 1632: Began recording parameters. turbidity unstable due to draw down.
- 1705: started collecting samples.
- 1736: Finished sampling, dumped purge water into drum.
- 1830: left a site.

Abdelghani Sellam

Field Activity Log

Page: 1 of 1

AECOM

Project Name: BUSF Skykomish Completed By: Abdelghani Sebbae
Project Number: _____ Date: 06/30/10
Field Activity: Quarterly GW Weather: cloudy. 59°F.
Sampling Personnel on site: Ghani, S; Dean K; Fred M.

- 0730: Arrived to the site, had safety meeting with Dean and Fred and Eric. discussed scope of work.
- 0800: Began calibrating equipment.
- 0835: Started setting up on BW-1.
- 0845: Began purging, water is clear.
- 0855: started recording parameters.
- 0910: Began sampling.
- 0940: Started setting up on 2A-W-41.
- 0957: Began purging, water is clear.
- 1007: started recording parameters.
- 1020: Began collecting samples.
- 1040: started setting up on 5-W-18.
- 1049: Began purging, water is clear.
- 1059: started recording parameters. ORP, DO unstable.
- 1145: Began sampling also collecting duplicate.
5-W-180-0610. at 1200.
- 1300: Took a lunch, got water bottle and cooler with FC.
- 1330: back to the site and started setting up on GW-3.
- 1347: started purging, water is orange with iron flocks.
- 1357: Began recording parameters. turbidity, DO, ORP unstable.
- 1500: started sampling. also collected duplicate.
GW-30-0610 at 1530.
- 1535: Began setting up on 5-W-19.
- 1548: started purging water is clear.
- 1558: Began recording parameters.
- 1605: started sampling.
- 1630: cleaned up. organized coolers in van. and added FC.
- 1735: left a site.

FIELD ACTIVITY LOG

AECOM

PROJECT NAME: BNSF - Skycoach
 PROJECT NO: 60154595-0540
 DAY & DATE: June 30th, 2010

COMPLETED BY: D. Kinney
 APPROVED BY: _____
 SHEET 1 OF 1

FIELD ACTIVITY SUBJECT: GW Sampling
 DESCRIPTION OF DAILY ACTIVITIES & EVENTS:

TIME	
0715	D. Kinney arrived onsite & went to bunkhouse to unload supplies
0740	Went to office to file & had safety mtg
0755	Calibrated meters (YSI model 5360 HF Scientific Model 711)
0810	Pumping out purge water into treatment system
0905	Started purging 2B-W-46, GS & FM sampling
0930	Sampled 2B-W-46 for NWTPH-DX
0942	Started purging 2B-W-45
1000	Sampled 2B-W-45 for NWTPH-DX
1029	Started purging 2A-W-10
1050	Sampled 2A-W-10 for NWTPH-DX
1120	Went to Lunch
1210	Returned & setup on 5-W-14
1224	Started purging 5-W-14
1250	Sampled 5-W-14 for NWTPH-DX
1318	Started purging 5-W-15
1350	Sampled 5-W-15 for NWTPH-DX
1431	Started purging 5-W-16
1500	Sampled 5-W-16 for NWTPH-DX
1525	Pumping purge water into treatment system
1615	Loading Coolers & equipment
1645	Left site to get address

VISITORS ONSITE:	CHANGES FROM PLANS OR IMPORTANT DECISIONS: <u>None</u>
WEATHER CONDITIONS: <u>P. Cloudy, 50 - 60 °F</u>	IMPORTANT TELEPHONE CALLS: <u>None</u>
PERSONNEL ONSITE: <u>Dean Kinney, Fred</u>	

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. 1B-W-23
 Sampled By Abdelghani Selban
 weather cloudy 59°F

WELL INFORMATION	
Depth to water	16.87 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	Good.

COMMENTS
Inlet tubing = 18'
purge water is cloudy.
water level draw down reduced flow rate, turbidity unstable

PURGE DATA								
start purge time		1622						
time		1632	1635	1638	1641	1644	1647	1650
DTW	(ft)	17.64	17.76	17.86	17.93	17.98	18.07	18.12
purge rate	(L/min)	150	150	120	110	110	110	100
pH	(Units)	6.51	6.46	6.45	6.48	6.51	6.52	6.49
conductivity	(umhos/cm)	0.234	0.230	0.222	0.229	0.230	0.228	0.223
temperature	(deg C)	10.95	10.94	11.69	11.85	11.76	11.56	11.43
D.O.	(mg/L)	3.69	3.34	3.27	3.22	3.47	3.38	3.26
ORP	(mv)	150.9	161.9	164.8	165.0	164.7	164.9	165.3
turbidity	(NTU)	7.12	10.19	14.98	12.10	10.75	15.19	19.29
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1B-W-23-0610	1705	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. 1B-W-23
 Sampled By Abdelghani Sebbar
 weather partly cloudy 60°F

WELL INFORMATION	
Depth to water	16.87 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	Good

COMMENTS
water level keep drawing down. Turbidity unstable.

PURGE DATA							
start purge time							
time		16:53	16:56	16:59	17:02		
DTW	(ft)	18.16	18.20	18.23	18.27		
purge rate	(L/min)	100	100	100	100		
pH	(Units)	6.47	6.42	6.38	6.41		
conductivity	(umhos/cm)	0.222	0.209	0.204	0.205		
temperature	(deg C)	11.56	11.67	11.97	11.67		
D.O.	(mg/L)	2.89	2.70	2.54	2.59		
ORP	(mv)	163.0	158.1	154.6	152.7		
turbidity	(NTU)	24.30	24.2	23.4	22.89		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1B-W-23-0610	1705	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. 1C-W-1
 Sampled By Bhagiri Seltam
 weather cloudy 58 °F

WELL INFORMATION		
Depth to water	13.03	(ft)
Depth of well:	16.60	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	<u>Good</u>	

COMMENTS
<u>Inlet tubing = 14.50'</u>
<u>purge water is clear.</u>
<u>Do unstable.</u>

PURGE DATA							
start purge time	1043						
time		1058	1100	1103	1106		
DTW	(ft)	13.04	13.04	13.04	N/A		
purge rate	(L/min)	220	220	220	220		
pH	(Units)	6.26	6.25	6.26	6.25		
conductivity	(umhos/cm)	0.065	0.065	0.066	0.066		
temperature	(deg C)	9.65	9.71	9.81	9.79		
D.O.	(mg/L)	7.45	7.89	8.08	8.11		
ORP	(mv)	180.9	183.5	184.3	185.3		
turbidity	(NTU)	0.81	0.76	0.71	0.72		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-1-0610</u>	<u>1110</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. 1C-W-7
 Sampled By Abdelghani Sebbane
 weather partly cloudy 61 °F

WELL INFORMATION		
Depth to water	10.86	(ft)
Depth of well:	20.70	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
Inlet tubing ≈ 13'
purge water started with iron flocks, then cleared off.

PURGE DATA							
start purge time	1351						
time		1401	1404	1407	1410		
DTW	(ft)	10.86	10.86	10.86	NM		
purge rate	(L/min)	210	210	210	210		
pH	(Units)	6.26	6.27	6.27	6.27		
conductivity	(umhos/cm)	0.093	0.093	0.093	0.093		
temperature	(deg C)	10.43	10.15	10.14	10.28		
D.O.	(mg/L)	2.84	2.81	2.83	2.81		
ORP	(mv)	119.1	124.7	125.8	127.2		
turbidity	(NTU)	5.23	2.05	2.29	2.15		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-7-0612	1415	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. 1C-W-8
 Sampled By Abdolkhan, Sillman
 weather cloudy 59°F

WELL INFORMATION	
Depth to water	<u>12.36</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>good</u>

COMMENTS
<u>Inlet tubing ~ 14'</u>
<u>purge water is clear.</u>

PURGE DATA						
start purge time	<u>1130</u>					
time		<u>1140</u>	<u>1143</u>	<u>1146</u>	<u>1149</u>	
DTW	(ft)	<u>12.38</u>	<u>12.38</u>	<u>12.38</u>	<u>NM</u>	
purge rate	(L/min)	<u>210</u>	<u>210</u>	<u>210</u>	<u>210</u>	
pH	(Units)	<u>6.24</u>	<u>6.24</u>	<u>6.23</u>	<u>6.24</u>	
conductivity	(umhos/cm)	<u>0.070</u>	<u>0.071</u>	<u>0.071</u>	<u>0.071</u>	
temperature	(deg C)	<u>13.10</u>	<u>13.11</u>	<u>13.20</u>	<u>13.36</u>	
D.O.	(mg/L)	<u>0.96</u>	<u>0.52</u>	<u>0.69</u>	<u>0.48</u>	
ORP	(mv)	<u>125.1</u>	<u>116.0</u>	<u>112.7</u>	<u>109.9</u>	
turbidity	(NTU)	<u>1.52</u>	<u>1.68</u>	<u>1.30</u>	<u>1.42</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-8-0610</u>	<u>1150</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/29/10

Well No. GW-2
 Sampled By F. Merrill
 weather _____ °F

WELL INFORMATION	
Depth to water	<u>11.61</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>TURBIDITY METER NOT FUNCTIONING</u> <u>Correctly: VISUAL OBSERVATION</u> <u>< 5 NTU</u>

PURGE DATA							
start purge time	<u>1608</u>	<u>1623/1624</u>	<u>1626</u>				
time		<u>1625</u>	<u>1627</u>	<u>1629</u>			
DTW	(ft)	<u>11.61</u>	<u>11.61</u>	<u>11.61</u>			
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>			
pH	(Units)	<u>6.25</u>	<u>6.24</u>	<u>6.26</u>			
conductivity	(umhos/cm)	<u>0.053</u>	<u>0.053</u>	<u>0.052</u>			
temperature	(deg C)	<u>10.19</u>	<u>10.17</u>	<u>10.06</u>			
D.O.	(mg/L)	<u>0.54</u>	<u>0.38</u>	<u>0.37</u>			
ORP	(mv)	<u>-192.0</u>	<u>-187.9</u>	<u>-185.1</u>			
turbidity	(NTU)	<u>< 5 NTU</u>	<u>< 5 NTU</u>	<u>< 5 NTU</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>GW-2-0610</u>	<u>1630</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. GW-3
 Sampled By Abdulghani & Blake
 weather cloudy 60°F

WELL INFORMATION	
Depth to water	<u>15.65</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>Duplicate sample collected, labeled: GW-30-0610</u>
<u>Inlet Tubing ≈ 17.0'</u>
<u>purge water started with brown flakes that cleared - kept pouring out. turbidity very high</u>

PURGE DATA								
start purge time		<u>1347</u>						
time		<u>1357</u>	<u>1400</u>	<u>1403</u>	<u>1406</u>	<u>1409</u>	<u>1412</u>	<u>1415</u>
DTW	(ft)	<u>16.02</u>	<u>16.05</u>	<u>16.06</u>	<u>16.06</u>	<u>16.07</u>	<u>16.07</u>	<u>16.07</u>
purge rate	(L/min)	<u>210</u>	<u>210</u>	<u>180</u>	<u>180</u>	<u>180</u>	<u>170</u>	<u>170</u>
pH	(Units)	<u>6.24</u>	<u>6.24</u>	<u>6.26</u>	<u>6.25</u>	<u>6.24</u>	<u>6.23</u>	<u>6.24</u>
conductivity	(umhos/cm)	<u>0.088</u>	<u>0.068</u>	<u>0.068</u>	<u>0.071</u>	<u>0.072</u>	<u>0.071</u>	<u>0.070</u>
temperature	(deg C)	<u>10.35</u>	<u>10.10</u>	<u>10.18</u>	<u>10.25</u>	<u>10.14</u>	<u>10.11</u>	<u>10.05</u>
D.O.	(mg/L)	<u>0.52</u>	<u>0.43</u>	<u>0.31</u>	<u>0.31</u>	<u>0.27</u>	<u>0.26</u>	<u>0.23</u>
ORP	(mv)	<u>22.4</u>	<u>19.8</u>	<u>16.7</u>	<u>18.4</u>	<u>18.5</u>	<u>19.2</u>	<u>20.8</u>
turbidity	(NTU)	<u>469</u>	<u>410</u>	<u>208</u>	<u>215</u>	<u>749</u>	<u>339</u>	<u>966</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>GW-3-0610</u>	<u>1500</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>GW-30-0610</u>	<u>1530</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>
<u>(duplicate)</u>					

20P3

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. GW-3
 Sampled By Ghani Sebbano
 weather cloudy 60 °F

WELL INFORMATION	
Depth to water	15.65 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good.

COMMENTS

PURGE DATA								
start purge time								
time		1418	1421	1424	1427	1430	1433	1436
DTW	(ft)	16.07	16.07	16.07	NM	16.08	16.08	16.08
purge rate	(L/min)	170	170	170	170	170	170	170
pH	(Units)	6.23	6.23	6.22	6.21	6.21	6.21	6.20
conductivity	(umhos/cm)	0.070	0.071	0.072	0.072	0.072	0.073	0.073
temperature	(deg C)	9.92	10.04	10.05	10.08	10.16	10.24	10.35
D.O.	(mg/L)	0.25	0.58	0.64	0.63	0.55	0.49	0.39
ORP	(mv)	25.0	30.8	35.1	36.9	40.1	42.1	43.8
turbidity	(NTU)	9.14	85.2	60.8	52.6	37.0	27.1	23.9
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
See pg 1		NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/29/10

Well No. GW-4
 Sampled By Abdelghani Sebake
 weather partly cloudy 61°F

WELL INFORMATION		
Depth to water	9.49	(ft)
Depth of well:	20.70	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
Inlet tubing = 10.50
purge water is clear.

PURGE DATA						
start purge time	1525					
time		1535	1538	1541	1544	
DTW	(ft)	9.90	9.89	9.89	9.89	
purge rate	(L/min)	220	190	190	190	
pH	(Units)	6.40	6.43	6.45	6.45	
conductivity	(umhos/cm)	0.083	0.083	0.083	0.084	
temperature	(deg C)	9.44	9.55	9.45	9.43	
D.O.	(mg/L)	3.24	2.71	2.65	2.56	
ORP	(mv)	151.9	152.3	152.2	153.4	
turbidity	(NTU)	1.73	1.85	1.88	1.91	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>BW-4-0610</u>	<u>1545</u>	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. S-W-14
 Sampled By DWK
 weather P, Cloudy, 55°F

WELL INFORMATION		
Depth to water	8.51	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	—	(ft)
Screen interval:		
well condition:	OK	

COMMENTS
Tubing inlet at ~9.25'

PURGE DATA								
start purge time		1224						
time		1234	1237	1240	1247			
DTW	(ft)	8.51	—————→					
purge rate	(L/min)	0.30	—————→					
pH	(Units)	6.24	6.24	6.25	6.25			
conductivity	(µmhos/cm)	0.079	0.077	0.081	0.080			
temperature	(deg C)	10.9	9.5	9.3	9.3			
D.O.	(mg/L)	5.20	6.23	6.25	6.26			
ORP	(mv)	204	205	206	206			
turbidity	(NTU)	0.96	1.10	1.06	1.01			
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-14-0610	1250	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. S-W-15
 Sampled By DWK
 weather P, Cloudy, 55°F

WELL INFORMATION	
Depth to water	<u>6.52</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	

COMMENTS
<u>Tubing Inlet at ~ 2.5'</u>

PURGE DATA								
start purge time	<u>1318</u>							
time		<u>1328</u>	<u>1331</u>	<u>1334</u>	<u>1337</u>	<u>1340</u>	<u>1342</u>	<u>1346</u>
DTW	(ft)	<u>7.05</u>	<u>7.01</u>	<u>7.00</u>	<u>6.98</u>	<u>6.98</u>	<u>6.98</u>	<u>6.98</u>
purge rate	(L/min)	<u>0.30</u>	<u>0.20</u>					
pH	(Units)	<u>6.45</u>	<u>6.44</u>	<u>6.45</u>	<u>6.45</u>	<u>6.45</u>	<u>6.45</u>	<u>6.45</u>
conductivity	(µmhos/cm)	<u>0.174</u>	<u>0.172</u>	<u>0.172</u>	<u>0.171</u>	<u>0.171</u>	<u>0.170</u>	<u>0.170</u>
temperature	(deg C)	<u>11.5</u>	<u>11.5</u>	<u>11.5</u>	<u>11.4</u>	<u>11.4</u>	<u>11.4</u>	<u>11.4</u>
D.O.	(mg/L)	<u>1.05</u>	<u>0.99</u>	<u>0.89</u>	<u>0.61</u>	<u>0.50</u>	<u>0.43</u>	<u>0.42</u>
ORP	(mv)	<u>125</u>	<u>130</u>	<u>129</u>	<u>127</u>	<u>126</u>	<u>126</u>	<u>125</u>
turbidity	(NTU)	<u>45.4</u>	<u>40.3</u>	<u>33.2</u>	<u>25.6</u>	<u>12.1</u>	<u>12.3</u>	<u>12.0</u>
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-15-0610</u>	<u>1350</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. 5-W-16
 Sampled By DWIK
 weather P. Cloudy, 60°F

WELL INFORMATION	
Depth to water	<u>7.35</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing inlet at ~8.0'</u>

PURGE DATA							
start purge time	<u>1431</u>						
time		<u>1441</u>	<u>1444</u>	<u>1447</u>	<u>1450</u>	<u>1453</u>	<u>1456</u>
DTW	(ft)	<u>7.20</u>	<u>7.35</u>	<u>7.35</u>	<u>7.36</u>	<u>7.36</u>	<u>7.36</u>
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>6.73</u>	<u>6.73</u>	<u>6.72</u>	<u>6.74</u>	<u>6.74</u>	<u>6.76</u>
conductivity	mS (umhos/cm)	<u>0.137</u>	<u>0.135</u>	<u>0.134</u>	<u>0.134</u>	<u>0.134</u>	<u>0.133</u>
temperature	(deg C)	<u>17.0</u>	<u>17.0</u>	<u>17.1</u>	<u>17.1</u>	<u>17.1</u>	<u>17.0</u>
D.O.	(mg/L)	<u>3.68</u>	<u>3.71</u>	<u>3.73</u>	<u>3.82</u>	<u>3.82</u>	<u>3.86</u>
ORP	(mv)	<u>119</u>	<u>118</u>	<u>118</u>	<u>118</u>	<u>117</u>	<u>117</u>
turbidity	(NTU)	<u>4.50</u>	<u>2.97</u>	<u>2.11</u>	<u>4.69</u>	<u>4.84</u>	<u>4.55</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-16-0610</u>	<u>1500</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. S-W-17
 Sampled By F. Mearns
 weather P. Cloudy, 65°F

WELL INFORMATION	
Depth to water	6.70 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
TUBING INLET @ 7.70

PURGE DATA							
start purge time	0920						
time		0930	0933	0936	0939	0941	
DTW	(ft)	6.72	6.72	6.72	6.76		
purge rate	(L/min)	150	150	150	150		
pH	(Units)	6.03	6.06	6.06	6.07		
conductivity	(umhos/cm)	0.055	0.057	0.057	0.057		
temperature	(deg C)	9.19	8.93	8.92	8.90		
D.O.	(mg/L)	5.00	4.86	4.82	4.82		
ORP	(mv)	-10.0	-24.2	-23.5	-21.5		
turbidity	(NTU)	1.93	0.71	0.97	0.83		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-17-0610	0940	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. S-W-18
 Sampled By Abdelghani Sellame
 weather cloudy 60°F

WELL INFORMATION		
Depth to water	6.83	(ft)
Depth of well:	18.50	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
Duplicate sample collected, Labeled: S-W-180-0610
Tubing ~ 8'
ORP and turbidity, DO unstable.

PURGE DATA								
start purge time		1049						
time		1059	1102	1105	1108	1111	1114	1117
DTW	(ft)	6.83	6.83	6.83	6.84	NM	NM	NM
purge rate	(L/min)	220	220	220	220	220	220	220
pH	(Units)	7.17	7.19	7.20	7.21	7.22	7.22	7.22
conductivity	(umhos/cm)	0.190	0.190	0.190	0.190	0.191	0.190	0.191
temperature	(deg C)	10.92	10.95	10.92	10.80	10.80	10.80	10.88
D.O.	(mg/L)	0.44	0.38	0.34	0.25	0.24	0.31	0.24
ORP	(mv)	32.1	15.3	2.6	-4.4	-8.2	-14.1	-13.8
turbidity	(NTU)	7.17	5.58	4.83	4.53	4.89	4.96	5.47
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-18-0610	1145	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
/	1145	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl
S-W-180-0610	1200	/	/	/	/
(duplicate)	1200	/	/	/	/

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 08/30/10

Well No. 5-W-18
 Sampled By Abdulghani Sebore
 weather cloudy 60°F

WELL INFORMATION	
Depth to water	6.83 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	good.

COMMENTS

PURGE DATA								
start purge time								
time		1020	1023	1026	1029	1032	1135	1138
DTW	(ft)	6.83	6.83	NM	NM	NM	NM	NM
purge rate	(L/min)	220	220	220	220	220	220	220
pH	(Units)	7.22	7.23	7.24	7.24	7.24	7.24	7.24
conductivity	(umhos/cm)	0.191	0.192	0.193	0.193	0.193	0.193	0.193
temperature	(deg C)	10.90	11.03	10.91	10.87	10.93	10.87	10.84
D.O.	(mg/L)	0.21	0.17	0.19	0.18	0.17	0.15	0.14
ORP	(mv)	-16.2	-18.3	-23.5	-24.0	-26.3	-28.9	-29.3
turbidity	(NTU)	4.90	4.74	4.58	4.17	4.50	4.46	4.75
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
5-W-18-0610	1145	NWTPH-Dx w/sgu	1L Gl. Amber	2	HCl
5-W-18-0610	1145	NWTPH-DX w/sgu	"	2	HCl
5-W-180-0610	1200	"	"	2	HCl
5-W-180-0610	1200	"	"	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. 5-W-18
 Sampled By Ghanias
 weather cloudy 60°F

WELL INFORMATION	
Depth to water	<u>6.83</u> (ft)
Depth of well:	<u>1850</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>good</u>

COMMENTS

PURGE DATA							
start purge time							
time		<u>1141</u>	<u>1144</u>				
DTW	(ft)	<u>6.83</u>	<u>6.83</u>				
purge rate	(L/min)	<u>220</u>	<u>220</u>				
pH	(Units)	<u>7.24</u>	<u>7.24</u>				
conductivity	(umhos/cm)	<u>0.193</u>	<u>0.193</u>				
temperature	(deg C)	<u>10.88</u>	<u>10.90</u>				
D.O.	(mg/L)	<u>0.13</u>	<u>0.14</u>				
ORP	(mv)	<u>-30.3</u>	<u>-30.3</u>				
turbidity	(NTU)	<u>4.88</u>	<u>4.40</u>				
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-18-0610</u>	<u>1145</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u> " "</u>	<u> " "</u>	<u> " "</u>	<u> " "</u>	<u> 2 "</u>	<u> " "</u>
<u>5-W-180-0610</u>	<u>1200</u>	<u> " "</u>	<u> " "</u>	<u> 2 "</u>	<u>HCl</u>
<u> " "</u>	<u> " "</u>	<u> " "</u>	<u> " "</u>	<u> 2 "</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. 5-W-19
 Sampled By Ghani, Selsaw
 weather cloudy 60 °F

WELL INFORMATION	
Depth to water	6.76 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	good

COMMENTS
inlet tubing = 7.76'
purge water is clear.

PURGE DATA							
start purge time		1548					
time		1558	1601	1604			
DTW	(ft)	6.77	6.77	6.77			
purge rate	(L/min)	300	300	300			
pH	(Units)	6.43	6.45	6.46			
conductivity	(umhos/cm)	0.050	0.049	0.048			
temperature	(deg C)	8.97	9.04	8.90			
D.O.	(mg/L)	7.04	6.90	6.93			
ORP	(mv)	130.5	132.2	133.9			
turbidity	(NTU)	0.61	0.49	0.65			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
5-W-19-0610	1605	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/2010

Well No. S-W-20
 Sampled By F. Merrick
 weather Sunny w/ clouds 65°F

WELL INFORMATION	
Depth to water	6.25 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
Extra sample volume for Lab QC
TUBING INLET @ 7.25ft

PURGE DATA							
start purge time	(ft)	302					
time		1254	1257	1300	1305	1308	
DTW		6.27	6.27	6.27	6.27	6.27	
purge rate	(L/min)	200	200	200	200	200	
pH	(Units)	7.19	7.20	7.21	7.20	7.20	
conductivity	(umhos/cm)	0.189	0.189	0.191	0.190	0.189	
temperature	(deg C)	11.06	11.12	11.12	11.06	11.10	
D.O.	(mg/L)	0.22	0.17	0.14	0.13	0.13	
ORP	(mv)	-96.4	-106.4	-121.0	-124.5	-126.5	
turbidity	(NTU)	6.57	4.48	3.89	3.40	3.97	
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-20-0610	1310	NWTPH-Dx (w/SGCU)	1L Gl. Amber	5	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	5	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. S-W-42
 Sampled By F. MERILL
 weather Sunny some 65°F
clouds

WELL INFORMATION	
Depth to water	6.30 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
Tubing @ 730 ft BGS.

PURGE DATA										
start purge time		1025			1104					
time		1052	1055	1058	1101	1104	1107	1112	1115	1115
DTW	(ft)	6.30	6.30	6.31	6.31	6.31	6.31	6.31	6.31	6.31
purge rate	(L/min)	220	220	220	220	220	220	220	220	220
pH	(Units)	6.49	6.49	6.47	6.46	6.46	6.48	6.49	6.50	6.51
conductivity	(umhos/cm)	0.103	0.107	0.109	0.111	0.111	0.116	0.117	0.117	0.118
temperature	(deg C)	10.60	10.761	10.65	10.71	10.66	10.52	10.52	10.53	10.55
D.O.	(mg/L)	2.14	1.95	1.91	1.64	1.53	1.31	1.26	1.22	1.19
ORP	(mv)	-245	-31.0	-41.9	-39.9	-48.9	-59.2	-61.2	-67.0	-69.9
turbidity	(NTU)	3.35	4.64	2.56	2.06	1.53	1.98	1.79	2.04	2.05
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-42-0610	1120	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

DTW 1115 1115
 pH 6.52
 Cond 0.117
 Temp 10.59
 DO 1.16
 ORP -72.2
 TURB 2.15

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/29/10

Well No. S-W-43
 Sampled By F McEILL
 weather _____ °F

WELL INFORMATION	
Depth to water	<u>7.90</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
* TURBIDITY METER NOT CALIBRATED
CONDUCTIVITY - US CM/CM OBS. NOT > 5
NTU < 5

PURGE DATA					
start purge time	<u>1518</u>				
time		<u>1134</u>	<u>1137</u>	<u>1140</u>	
DTW	(ft)	<u>7.91</u>	<u>7.91</u>	<u>7.91</u>	
purge rate	(L/min)	<u>190</u>	<u>190</u>	<u>190</u>	
pH	(Units)	<u>5.99</u>	<u>6.02</u>	<u>6.00</u>	
conductivity	(umhos/cm)	<u>0.041</u>	<u>0.040</u>	<u>0.040</u>	
temperature	(deg C)	<u>11.08</u>	<u>10.92</u>	<u>10.81</u>	
D.O.	(mg/L)	<u>1.39</u>	<u>1.40</u>	<u>1.44</u>	
ORP	(mv)	<u>-122.1</u>	<u>-121.7</u>	<u>-123.2</u>	
turbidity	(NTU) *	<u>< 5 NTU</u>	<u>< 5 NTU</u>	<u>< 5 NTU</u>	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing				

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-43-0610</u>	<u>1545</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. 2A-W-10
 Sampled By DW/K
 weather P. Cloudy, 55 °F

WELL INFORMATION	
Depth to water	9.83 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	OK

COMMENTS
Tubing inlet at ~ 10.75'

PURGE DATA							
start purge time	1029						
time		1039	1042	1045	1048		
DTW	(ft)	9.84					
purge rate	(L/min)	0.30					
pH	(Units)	6.27	6.26	6.25	6.24		
conductivity	µmhos/cm	0.221	0.200	0.198	0.195		
temperature	(deg C)	10.1	10.2	10.2	10.2		
D.O.	(mg/L)	0.91	0.92	0.93	0.94		
ORP	(mv)	177	179	180	180		
turbidity	(NTU)	6.87	6.52	6.44	6.15		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
2A-W-10-0610	1050	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. 2A-W-40
 Sampled By FIN
 weather P. Cloudy, 65 °F

WELL INFORMATION	
Depth to water	<u>9.14 (fm)</u> <u>11.88</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Duplicate sample collected</u> <u>labeled: 2A-W-400-0610</u>
<u>TURBINE MILET @ 12.88 ft BGS</u>

PURGE DATA								
start purge time	<u>1425</u>	<u>(fm)</u>	<u>1441</u>					
time		<u>0830</u>	<u>0833</u>	<u>1444</u>	<u>1447</u>	<u>1450</u>	<u>1453</u>	<u>1456</u>
DTW	(ft)		<u>11.88</u>	<u>11.88</u>	<u>11.88</u>	<u>11.88</u>	<u>11.88</u>	<u>11.88</u>
purge rate	(L/min)	<u>200</u>						
pH	(Units)	<u>6.16 (fm)</u>	<u>6.52</u>	<u>6.48</u>	<u>6.45</u>	<u>6.41</u>	<u>6.40</u>	<u>6.39</u>
conductivity	(umhos/cm)	<u>0.067</u>	<u>0.059</u>	<u>0.053</u>	<u>0.052</u>	<u>0.050</u>	<u>0.048</u>	<u>0.047</u>
temperature	(deg C)	<u>10.53</u>	<u>10.74</u>	<u>10.91</u>	<u>10.89</u>	<u>10.67</u>	<u>10.84</u>	<u>10.1101</u>
D.O.	(mg/L)	<u>0.62</u>	<u>6.19</u>	<u>6.13</u>	<u>6.16</u>	<u>6.19</u>	<u>6.13</u>	<u>6.03</u>
ORP	(mv)	<u>-657</u>	<u>-39.1</u>	<u>-34.9</u>	<u>-33.3</u>	<u>-30.8</u>	<u>-29.6</u>	<u>-28.8</u>
turbidity	(NTU)	<u>4.54</u>	<u>2.40</u>	<u>2.04</u>	<u>1.83</u>	<u>1.32</u>	<u>1.14</u>	<u>1.61</u>
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>2A-W-40-0610</u>	<u>1500</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>2A-W-400-0610</u> <u>(duplicate)</u>	<u>1400</u>	<u>n</u>	<u>n</u>	<u>n</u>	<u>n</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. ZA-W-41
 Sampled By Abdulghani Selman
 weather cloudy 59 °F

WELL INFORMATION		
Depth to water	<u>16.46</u>	(ft)
Depth of well:	<u>21</u>	(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>—</u>	(ft)
Screen interval:		
well condition:	<u>Good</u>	

COMMENTS
<u>Inlet tubing = 18'</u>
<u>purge water is clear.</u>

PURGE DATA						
start purge time	<u>0957</u>					
time		<u>1007</u>	<u>1010</u>	<u>1013</u>	<u>1016</u>	
DTW	(ft)	<u>16.47</u>	<u>16.46</u>	<u>16.47</u>	<u>16.47</u>	
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	
pH	(Units)	<u>6.17</u>	<u>6.19</u>	<u>6.19</u>	<u>6.19</u>	
conductivity	(umhos/cm)	<u>0.054</u>	<u>0.054</u>	<u>0.054</u>	<u>0.055</u>	
temperature	(deg C)	<u>9.65</u>	<u>9.57</u>	<u>9.55</u>	<u>9.54</u>	
D.O.	(mg/L)	<u>5.28</u>	<u>5.32</u>	<u>5.08</u>	<u>5.07</u>	
ORP	(mv)	<u>197.7</u>	<u>198.6</u>	<u>199.2</u>	<u>199.9</u>	
turbidity	(NTU)	<u>1.20</u>	<u>0.97</u>	<u>0.88</u>	<u>0.99</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZA-W-41-0610</u>	<u>1020</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/29/10

Well No. 2A-W-42
 Sampled By F.MERLIN
 weather OVERCAST 60 °F

WELL INFORMATION	
Depth to water	12.08 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
TUBING @ 13.08 BUS
ORP METER @ 1728 SIGNS
TO INCREASE / DECREASE RAPIDLY /
SPORADICALLY - ASSUME ORP IS STABLE
ORP METER IS MALFUNCTIONING

PURGE DATA									
start purge time	1650								
time		1703	1706	1709	1712	1715	1718	1721	1724
DTW	(ft)	12.09	12.09	12.09	12.09	12.09	12.09	12.09	12.09
purge rate	(L/min)	200	200	200	200	200	200	200	200
pH	(Units)	5.88	5.89	5.89	5.89	5.95	5.95	5.95	5.99
conductivity	(umhos/cm)	0.088	0.089	0.089	0.089	0.089	0.089	0.089	0.089
temperature	(deg C)	11.03	11.30	11.21	11.53	11.12	10.98	10.99	10.87
D.O.	(mg/L)	0.71	0.59	0.56	0.65	0.67	0.69	0.70	0.70
ORP	(mv)	-170.1	-180.6	-178.0	-156.2	-163.3	-183.3	-137.1	-134.8
turbidity	(NTU)	17.7	13.16	17.65	22.7	20.5	9.31	10.24	7.57
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
2A-W-42-0610	1740	NWTPH-Dx	1L Gl. Amber	2	HCl

TIME 1727 1730 1733 1736
 TEMP 10.93 10.78 10.97 10.92
 COND 0.089 0.089 0.089 0.089
 DO 0.69 0.72 0.78 0.78
 pH 6.00 6.03 6.04 6.05
 ORP -131.5 144.3 144.3 129.7
 DTW 12.09 12.09 12.09 12.09
 TURB 6.02 4.09 4.21 2.25

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. ZB-W-45
 Sampled By DW/C
 weather P. Cloudy 55°F

WELL INFORMATION	
Depth to water	<u>11.40</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	
well condition:	<u>o/c</u>

COMMENTS
<u>Tubing Inlet set at 12'</u>

PURGE DATA						
start purge time	<u>0942</u>					
time		<u>0952</u>	<u>0955</u>	<u>0958</u>		
DTW	(ft)	<u>11.40</u>	<u>11.40</u>	<u>11.40</u>		
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>		
pH	(Units)	<u>5.39</u>	<u>5.36</u>	<u>5.37</u>		
conductivity	(umhos/cm)	<u>0.044</u>	<u>0.041</u>	<u>0.040</u>		
temperature	(deg C)	<u>8.5</u>	<u>8.4</u>	<u>8.4</u>		
D.O.	(mg/L)	<u>5.89</u>	<u>5.90</u>	<u>5.82</u>		
ORP	(mv)	<u>131</u>	<u>133</u>	<u>136</u>		
turbidity	(NTU)	<u>1.77</u>	<u>1.78</u>	<u>1.72</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZB-W-45-0610</u>	<u>1000</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 6/30/10

Well No. ZB-W-46
 Sampled By DWK
 weather P, Cloudy, 50°F

WELL INFORMATION	
Depth to water	<u>11.38</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Tubing Inlet at ~ 12'</u>

PURGE DATA					
start purge time	<u>1905</u>				
time		<u>0915</u>	<u>0918</u>	<u>0921</u>	<u>0924</u>
DTW	(ft)	<u>11.38</u>	<u>→</u>	<u>→</u>	<u>→</u>
purge rate	(L/min)	<u>0.30</u>	<u>→</u>	<u>→</u>	<u>→</u>
pH	(Units)	<u>5.25</u>	<u>5.25</u>	<u>5.24</u>	<u>5.25</u>
conductivity mS	(umhos /cm)	<u>0.046</u>	<u>0.045</u>	<u>0.045</u>	<u>0.045</u>
temperature	(deg C)	<u>8.2</u>	<u>8.2</u>	<u>8.2</u>	<u>8.2</u>
D.O.	(mg/L)	<u>5.85</u>	<u>5.62</u>	<u>5.61</u>	<u>5.61</u>
ORP	(mv)	<u>140</u>	<u>114</u>	<u>108</u>	<u>113</u>
turbidity	(NTU)	<u>0.29</u>	<u>0.28</u>	<u>0.26</u>	<u>0.27</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>				

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>ZB-W-46-0610</u>	<u>0930</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 06/30/10

Well No. EW-1
 Sampled By Abdelghani Sellam
 weather partly cloudy 60°F

WELL INFORMATION		
Depth to water	9.18	(ft)
Depth of well:	19.60	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good.	

COMMENTS
Inlet tubing ≈ 11.00'
purge water cloudy.

PURGE DATA							
start purge time		0845					
time		0855	0858	0901	0904	0907	
DTW	(ft)	9.18	9.18	9.18	9.18	9.18	
purge rate	(L/min)	210	210	210	210	210	
pH	(Units)	5.95	5.96	5.96	5.96	5.95	
conductivity	(umhos/cm)	0.036	0.035	0.035	0.035	0.034	
temperature	(deg C)	10.94	10.85	10.76	10.72	10.55	
D.O.	(mg/L)	0.90	1.05	0.90	0.91	0.86	
ORP	(mv)	178.9	179.6	181.5	183.9	184.9	
turbidity	(NTU)	6.89	1.10	0.67	0.60	0.61	
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>EW-1-061D</u>	<u>0910</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>



TRS Environmental
Equipment Now Service Beyond

1830 West Airfield Drive
DFW Airport, Texas 75261

Calibration Certificate Traceability Statement

Asset Number: 1101434
MFG/Model Number: YSI/556-02
Serial Number: 09J100079
Description: MULTIPARAMETER
Customer: AECOM
Address: 710 2ND AVE. SUITE 1000
SEATTLE WA 98104

Customer P.O. No: 60136319-0540
Rental Agreement Number: 1399416-0
Certificate Number: 13994160110143410624

This certifies that the above product was calibrated to manufacturer's specifications using approved procedures and traceable measurement standards.

This calibration was performed by TRS-Environmental, located at 1830 West Airfield Drive DFW Airport, TX 75261.

The Quality System of TRS-Environmental is registered by UL DQS Certificate Number 10000112 to the Quality Management System Standard ISO 9001:2008.

Measurement standards are calibrated at planned intervals. Traceability is to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) or other recognized National Metrology Institute (NMI), natural physical constants, consensus standards, or by ratio type measurements using self calibrating techniques. Supporting documentation relative to traceability is available for review by appointment.

This instrument is initially being sent to the above customer calibrated and fully functional.

This certificate pertains to only the asset listed above and cannot be reproduced, except in full, without written approval of TRS-Environmental.

To determine the date for recalibration, the customer should use an interval that satisfies their own organization's internal quality system requirements.

Conditions of calibration are as follows:

Calibration Date: Jun 24, 2010

Calibrated By: ERIC KOOSHA

Quality Assurance:



Peel Off Sticker Here --->

TRS-Environmental 800-532-3384
ID: 1101434 Date: 06/24/10
KOOSHAER

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: AIECOM	Report To: Sarah Albano	Attention: Bruce Shepard	Company Name: BNSP	Page: 1	of 1
Address: 710 2nd Ave, Suite 1000	Copy To: Doree Kreckl	Address: 800 1st Ave, Suite 1000	Address: 800 1st Ave, Suite 1000	1318894	
Phone: 206-624-9300	Purchase Order No.: 60154595-0540	Project Name: CRIST. SKYKUMISH	Project Profile #: 60154595-0540	REGULATORY AGENCY	
Requested Due Date/TAT: 5/12/10	Project Number: 60154595-0540	Project Manager: Heidi Ger.	Reference: WA	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
		Pace Project Manager: Heidi Ger.	Pace Profile #: WA	Site Location: WA	

ITEM #	Matrix Codes MATRIX L CODE Drinking Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB						
1	1C-W-1-0710	X		07/27 1030			2				
2	1C-W-2-0710	X		07/27 1115			2				
3	1C-W-7-0710	V		07/27 1220			2				
4	1B-W-23-0710	X		07/27 1335			2				
5	1B-W-230-0710	X		07/27 1400			2				
6											
7											
8											
9											
10											
11											
12											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Abdelghani Sabay / AIECOM	07/27/10	1735	Abdelghani Sabay / Pace	7/27/10	1730	Received on Ice (Y/N) <input type="checkbox"/> Custody Sealed Cooler (Y/N) <input type="checkbox"/> Samples Intact (Y/N) <input type="checkbox"/>

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **Abdelghani Sabay**

SIGNATURE of SAMPLER: *Abdelghani Sabay*

DATE Signed (MM/DD/YYYY): **07/27/10**

Field Activity Log

Page: 1 of 1

AECOM

Project Name: BNSF Skykomish Completed By: Abdelghani, Sebbane
Project Number: 61036219-0540 Date: 07/27/10
Field Activity: Monthly GW Weather: 85°F Sunny
Sampling Personnel on site: Ghani, Sebbane

0845: Arrived to the site, signed in at Strider and AECOM office. Had safety meeting with Eric.
0900: Picked up cooler with bottles from HCC building.
0915: Started calibrating equipment YSE and turbidity meter.
0945: Began setting up on IC-W-1
1006: started purging.
1016: Began recording parameters.
1030: started sampling.
1045: Began setting up on IC-W-8
1051: started purging. Water is clear.
1101: Began recording parameters.
1115: started sampling.
1135: Began setting up - on IC-W-7.
1150: started purging, water is orange with iron flakes.
1200: Began recording parameters.
1220: started collecting samples.
1235: Began setting up on IB-W-23.
1249: started purging, water started clear then became turbid.
1259: Began recording parameters, turbidity, DO unstable.
1335: started sampling, also collected duplicate of IB-W-23c-0710 at 1400.
1435: Finished sampling, and went to HCC building to dispose a purge water, packed samples with more ICE.
1520: left a site.

Abdelghani Sebbane 07/27/10

Field Activity Log

Page: of

AECOM

Project Name: BNSF Skykomish Completed By: Abdelghani Sebbane
Project Number: _____ Date: 08/31/10
Field Activity: Monthly GW Weather: light rain .52°F
Sampling Personnel on site: Ghani Sebbane

1100: Arrived to the site, signed in at strider and AECOM office. Had Health and Safety briefing from Eric.
1115: Bought. Pk.
1125: Started calibrating equipment. YSI and turbidity meter
1200: Began setting up on IC-W-1
1220: started purging, water is clear.
1230: Began recording parameters.
1240: Started Sampling.
1255: Began setting up on IC-W-8.
1314: started purging, water is clear.
1324: Began recording parameters. DO unstable.
1350: Started Sampling.
1405: Began setting up on IC-W-7.
1424: Started purging, water is clear.
1434: Began recording parameters.
1440: Started Sampling.
1510: Took break.
1545: Started setting up on 1B-W-23.
1600: Began purging, water started clear and then began to get turbide. by the time.
1610: Started recording parameters. turbidity unstable.
1635: Started Sampling, also collected duplicate 1B-W-230 at 1700.
1730: Disposed purge water to the drum inside Hcc building
1750: left a site.

Abdelghani Sebbane

Fluid Level Gauging Form

Project Name: BNSF Skykomish
 Project Number: 60154595-0540
 Collected by: Dooney, F. Merrill & G. Sebban

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-4	09/20/10	1128	NM	9.47	None	None	WL	8.52		DWK	
1A-W-5				NM				9.56			Well Abandoned
1A-W-38				NM				NM			Not Installed
1B-W-2				13.51	None	None	WL	13.58		FM	
1B-W-3				14.91				14.91		GS	
1C-W-1				13.63				13.37		"	
1C-W-2				NM				NM			Well destroyed during sewer work
1C-W-3				10.87	None	None	WL	10.57			
1C-W-4				10.45				10.33		FM	
1C-W-7				11.52				11.15		GS	
1C-W-8				12.98				NM		FM	
2A-W-5				13.95				12.51		DWK	
2A-W-7				11.81				11.41			
2A-W-8				15.00				14.89			
2A-W-9				11.41				8.82			
2A-W-10				11.54				8.77			
2B-W-4				3.81				2.23			
5-W-4				NM				6.55		DWK	Well abandoned
5-W-14				9.19	None	None	WL	8.98			
5-W-15				7.35				7.55			
5-W-16				8.02				7.86			
5-W-17				7.35				7.19			
5-W-18				7.57				7.37			
5-W-19				7.44				7.30			
5-W-20				7.00				6.88			
5-W-42				6.75				6.61			
5-W-43				NM				6.51			Well buried; not to capture
5-W-44				NM				NM			Not Installed
5-W-50				7.74	None	None	WL	7.34		FM	
5-W-52				NM				6.64		DWK	Well Abandoned
5-W-53				NM				6.84		"	"
5-W-54				6.85	None	None	WL	6.55		FM	
5-W-55				6.42				6.25			
5-W-56				6.58				6.91			

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-1	09/20/10	10:33	N/A	13.09	None	None	WL	12.43		DWL	
MW-2		09:55		17.72				11.95			
MW-3		09:58		10.78				8.99			
MW-4		09:43		10.12				7.26			
MW-5		09:46		8.19				5.97			
MW-9		1:04		13.32				12.11			
MW-10		1:00		13.10				12.11			
MW-11		10:58		13.73				12.75			
MW-12				NM				4.62			Well abandoned
MW-12R				NM				NM			Not Installed
MW-13		10:15		10.31				8.89			
MW-14		10:17	13.5	12.78				10.90			
MW-15		10:07	13.5	13.52				12.02			
MW-16		10:22		13.57				12.91			
MW-18		10:37		15.10				14.10			
MW-32		1:31		9.19				8.98			
MW-38R		1:59		4.92				4.50			
MW-40		10:10		12.98				11.52			
1A-W-36				NM				NM			Not Installed
1A-W-37				NM				NM			Not Installed
1B-W-23		1:74		16.52				15.48			
1B-W-24				NM				NM			Not Installed
2A-W-40		15:40		12.42				11.69			
2A-W-41		14:03		17.14				14.70			
2A-W-42		14:15		9.65				12.35			
2B-W-45				NM				10.32			Well abandoned
2B-W-46				NM				10.22			Well abandoned
2B-W-47				NM				NM			Not Installed
2B-W-48				NM				NM			Not Installed
3-W-41				NM				4.99			Well abandoned
3-W-42				NM				8.14			Well abandoned
3-W-43				NM				4.38			Well abandoned

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
2A-W-3	09/20/10	0953	NM	10.95	Hwy TR	Hwy TR	TOP	9.50	Hvy TR	PM	17-105
MW-7		0938	NM	13.23	None	None	"	11.73	None		14-077
2A-W-11				NM				6.74	TR		Well abandoned
MW-28		0940	NM	14.55	None	None	TOP	13.61	None		155-0.95
MW-39				NM				7.93	None		Well abandoned
5-W-51		1015	NM	7.51	Hwy TR	Hwy TR	TOP	7.08	TR		8-0.49
1A-W-2				NM				NM			Not located (in construction zone)
2A-W-4		1001	NM	10.76	Hwy TR	Hwy TR	TOP	10.02	Hvy TR		12-1.24
5-W-2				NM				7.14	Hvy TR		Well abandoned
5-W-3				NM				7.22	0.72		Well abandoned
MW-22				NM				7.39	Hvy TR		Well abandoned

Other Notes:

- dirty casing, possible trace product
- dirty well

- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)

River Gauging Form

Project Name: **BNSF Skykomish**

Project Number: **60154595-0540**

Measured by: F. Merrill & G. Seiborne

stake ID	date	time	backsight	foresight	water level	comments
SK-1	9/20/10	1648	5.43	15.23		GW-4
SK-2		1625	4.36	21.60		1B-W-3
SK-3		1610	10.74	16.73		5-W-17
SK-4		1615	10.73	17.11		5-W-17
SK-5		1600	10.74	18.83		5-W-17
ML-1						Not measured - construction
ML-2						has diverted creek through
ML-3						pipng, no accessible
ML-4						points to measure

stake ID: SK# = Skykomish River gauging locations, ML# = Former Maloney Creek channel gauging locations
all measurements in feet

backsight: height of level above surveyed point (staff placed at PK nail)

foresight: height of level above gauging point (staff placed in stream bed at SKx, MLx)

water level: depth of water at gauging point

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 4
 Invoice Number: 1390943

Section A
 Required Client Information:
 Company: BNSF
 Address: Sarah Albano (AECOM)
 Report To: Renee Knecht
 Copy To: Bruce Sheppard
 Email To: BNSF
 Project Name: TT0100-J39
 Project Number: BNSF-Skykemish
 Requested Due Date/TAT: std

Section B
 Required Project Information:
 Report To: Sarah Albano (AECOM)
 Copy To: Renee Knecht
 Project Name: TT0100-J39
 Project Number: BNSF-Skykemish

Section C
 Invoice Information:
 Attention: Bruce Sheppard
 Company Name: BNSF
 Address: BNSF
 Pace Quote Reference: BNSF-Skykemish
 Pace Project Manager: BNSF-Skykemish
 Pace Profile #: 60154595-0540

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location: WA
 STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX I CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		DATE	TIME	DATE	TIME	SAMPLE CONDITIONS	
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME						DATE
1	1B-W-23	DW	9/22/10	0910	WT	WT										
2	5-W-14	WT	9/22/10	0945												
3	5-W-17	WW	10/5/10													
4	5-W-170	P	11/6/10													
5	5-W-15	SL	12/10/10													
6	5-W-16	OL	13/4/10													
7	5-W-47	WP	12/30/10													
8	EW-1	AR	10/9/10													
9	5-W-43	TS	11/30/10													
10	5-W-19	OT	11/4/10													
11	5-W-70	Other	15/20/10													
12	5-W-55	Other	14/3/10													

ADDITIONAL COMMENTS
 5-W-16-0910: Extra sample volume provided for lab QC

RELINQUISHED BY / AFFILIATION
 [Signature] 9/22/10 1752

ACCEPTED BY / AFFILIATION
 [Signature] 9/22/10 1752

DATE
 9/22/10 1752

TIME
 1752

Temp in °C

Received on

Custody Sealed Cooler

Samples Intact

SAMPLER NAME AND SIGNATURE
 [Signature]

PRINT Name of SAMPLER:
 [Name]

SIGNATURE of SAMPLER:
 [Signature]

DATE Signed (MM/DD/YY):
 [Date]

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Section D Requested Analysis Filtered (Y/N)
Company: BNSF	Report To: Seah Albard (AECOM)	Attention: Bruce Sheppard	
Address:	Copy To: Renee Knecht	Company Name: BNSF	
Email To:	Purchase Order No.: TT0100-539	Address:	
Phone:	Project Name: BNSF-Skykomish	Pace Quote Reference:	
Requested Due Date/TAT: std	Project Number: 60154595-0540	Pace Project Manager:	
		Pace Profile #:	
		REGULATORY AGENCY	
		<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> RCRA <input type="checkbox"/> UST <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> OTHER	
		Site Location	
		STATE: WA	

Page: **Z** of **Z**
1309842

ITEM #	Matrix Codes MATRIX / CODE	Matrix Codes DW WT WW P SL OL WP AR TS OT	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB							
1	S3-BD	Drinking Water			G						
2	S3-CU	Water			G						
3	S3D-CU	Waste Water			G						
4	S3-LA	Product			G						
5	S4-AA	Soil/Solid			G						
6	S4-AA	Oil			G						
7	S4-AA	Wipe			G						
8	S4-AA	Air			G						
9	S4-AA	Tissue			G						
10	S4-AA	Other			G						
11											
12											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i>	9/22/10	1752	<i>[Signature]</i>	9/22/10	1752	

Temp in °C		Received on	Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

2

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/24/10

Well No. S-W-20
 Sampled By DWK
 weather P, cloudy, 65°F

WELL INFORMATION	
Depth to water	<u>6.98</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~ 7.75'</u>

PURGE DATA							
start purge time	<u>1500</u>						
time		<u>1510</u>	<u>1513</u>	<u>1516</u>	<u>1519</u>		
DTW	(ft)	<u>6.98</u>	<u>6.98</u>	<u>6.98</u>	<u>6.98</u>		
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>		
pH	(Units)	<u>6.54</u>	<u>6.58</u>	<u>6.59</u>	<u>6.61</u>		
conductivity	(umhos/cm)	<u>0.211</u>	<u>0.214</u>	<u>0.215</u>	<u>0.215</u>		
temperature	(deg C)	<u>14.2</u>	<u>14.2</u>	<u>14.2</u>	<u>14.2</u>		
D.O.	(mg/L)	<u>4.21</u>	<u>3.57</u>	<u>3.52</u>	<u>3.50</u>		
ORP	(mv)	<u>378</u>	<u>375</u>	<u>370</u>	<u>368</u>		
turbidity	(NTU)	<u>1.71</u>	<u>1.12</u>	<u>1.09</u>	<u>1.01</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-20-0910</u>	<u>1520</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 2A-W-40
 Sampled By Ahmed Ghani Selwan
 weather clear 47 °F

WELL INFORMATION	
Depth to water	<u>12.15</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	<u>no holds</u>

COMMENTS
<u>Inlet tubing ~ 25 ft.</u>
<u>purge water is clear</u>

PURGE DATA							
start purge time		<u>0851</u>					
time		<u>0901</u>	<u>0904</u>	<u>0907</u>	<u>0910</u>		
DTW	(ft)	<u>12.15</u>	<u>12.15</u>	<u>12.15</u>	<u>12.15</u>		
purge rate	(L/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>		
pH	(Units)	<u>6.27</u>	<u>6.18</u>	<u>6.08</u>	<u>6.01</u>		
conductivity	(umhos/cm)	<u>0.046</u>	<u>0.044</u>	<u>0.048</u>	<u>0.050</u>		
temperature	(deg C)	<u>10.20</u>	<u>9.85</u>	<u>9.43</u>	<u>9.37</u>		
D.O.	(mg/L)	<u>5.87</u>	<u>5.59</u>	<u>5.23</u>	<u>5.07</u>		
ORP	(mv)	<u>133.1</u>	<u>131.8</u>	<u>131.5</u>	<u>130.3</u>		
turbidity	(NTU)	<u>1.1</u>	<u>0.5</u>	<u>0.5</u>	<u>0.9</u>		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>2A-W-40-0910</u>	<u>0915</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 2A-W-41
 Sampled By Abdelghani Sebani
 weather Sunny 62 °F

WELL INFORMATION	
Depth to water	<u>16.82</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>Inlet tubing ~ 20 Ft.</u>
<u>purge water is clear.</u>
<u>DO unstable.</u>

PURGE DATA

start purge time							
time	<u>0946</u>	<u>0956</u>	<u>0959</u>	<u>1002</u>	<u>1005</u>	<u>1008</u>	
DTW	(ft)	<u>16.82</u>	<u>16.82</u>	<u>16.82</u>	<u>NM</u>	<u>16.82</u>	
purge rate	(L/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	
pH	(Units)	<u>5.10</u>	<u>5.08</u>	<u>5.09</u>	<u>5.16</u>	<u>5.27</u>	
conductivity	(umhos/cm)	<u>0.060</u>	<u>0.062</u>	<u>0.063</u>	<u>0.063</u>	<u>0.059</u>	
temperature	(deg C)	<u>10.05</u>	<u>10.06</u>	<u>9.99</u>	<u>9.97</u>	<u>10.03</u>	
D.O.	(mg/L)	<u>4.49</u>	<u>3.88</u>	<u>3.41</u>	<u>3.25</u>	<u>3.16</u>	
ORP	(mv)	<u>140.3</u>	<u>135.7</u>	<u>133.2</u>	<u>133.9</u>	<u>133.7</u>	
turbidity	(NTU)	<u>0.9</u>	<u>1.7</u>	<u>1.3</u>	<u>0.9</u>	<u>0.6</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>2A-W-41-0910</u>	<u>1010</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 2A-W-42
 Sampled By Abdelghani Sibani
 weather Sunny 60 °F

WELL INFORMATION	
Depth to water	<u>12.42</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good.</u>

COMMENTS
<u>Inlet tubing ~ 20 ft.</u>
<u>purge water is cloudy with some iron flakes DO and turbidity unstable</u>

PURGE DATA

start purge time	time	1102	1105	1108	1111	1114	1117	1120
DTW	(ft)	12.42	12.42	12.42	12.42	NM	NM	12.42
purge rate	(L/min)	250	250	250	250	250	250	250
pH	(Units)	5.33	5.47	5.47	5.48	5.51	5.54	5.60
conductivity	(umhos/cm)	0.100	0.105	0.106	0.107	0.107	0.107	0.108
temperature	(deg C)	12.78	12.64	12.42	12.30	12.22	12.09	11.94
D.O.	(mg/L)	0.56	0.35	0.29	0.27	0.42	0.49	0.48
ORP	(mv)	95.7	85.7	82.6	84.5	88.1	89.8	90.5
turbidity	(NTU)	52.7	47.5	48.3	32.9	17.9	12.7	8.3
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>2A-W-42-0910</u>	<u>1140</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. GW-1
 Sampled By Abdelghani Sebbar
 weather partly cloudy 57°F

WELL INFORMATION	
Depth to water	<u>9.54</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	
well condition:	<u>Good.</u>

COMMENTS
<u>Inlet tubing ≈ 10.50</u>
<u>purge water is clear</u>
<u>DO unstable.</u>

PURGE DATA								
start purge time	<u>1217</u>							
time		<u>1227</u>	<u>1230</u>	<u>1233</u>	<u>1236</u>	<u>1239</u>	<u>1242</u>	<u>1245</u>
DTW	(ft)	<u>9.61</u>	<u>9.61</u>	<u>9.61</u>	<u>9.61</u>	<u>NM</u>	<u>9.61</u>	<u>9.61</u>
purge rate	(L/min)	<u>250</u>						
pH	(Units)	<u>5.79</u>	<u>5.70</u>	<u>5.66</u>	<u>5.67</u>	<u>5.67</u>	<u>5.65</u>	<u>5.64</u>
conductivity	(umhos/cm)	<u>0.055</u>	<u>0.056</u>	<u>0.058</u>	<u>0.058</u>	<u>0.060</u>	<u>0.060</u>	<u>0.0</u>
temperature	(deg C)	<u>12.20</u>	<u>12.06</u>	<u>11.96</u>	<u>11.93</u>	<u>11.91</u>	<u>11.92</u>	<u>11.88</u>
D.O.	(mg/L)	<u>0.53</u>	<u>0.34</u>	<u>0.32</u>	<u>0.24</u>	<u>0.20</u>	<u>0.22</u>	<u>0.22</u>
ORP	(mv)	<u>86.3</u>	<u>88.6</u>	<u>89.2</u>	<u>88.0</u>	<u>86.6</u>	<u>87.5</u>	<u>87.3</u>
turbidity	(NTU)	<u>1.5</u>	<u>1.0</u>	<u>1.2</u>	<u>1.1</u>	<u>0.9</u>	<u>0.8</u>	<u>0.8</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>GW-1-0910</u>	<u>1250</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. GN-2
 Sampled By Abdelghani S. El-Sakka
 weather partly cloudy 56°F

WELL INFORMATION	
Depth to water	12.10 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	Good

COMMENTS
Duplicate sample collected
Inlet tubing ~ 13.10 ft.
Do unstable
purge water is ok.
Tranche dug across a street 18 ft. to east side of well. 15 ft deep.

PURGE DATA								
start purge time		1404						
time		1414	1417	1420	1423	1426	1429	1432
DTW	(ft)	12.11	12.11	12.11	12.11	NM	NM	12.11
purge rate	(L/min)	250	250	250	250	250	250	250
pH	(Units)	5.66	5.64	5.65	5.64	5.62	5.61	5.58
conductivity	(umhos/cm)	0.057	0.057	0.056	0.057	0.059	0.056	0.058
temperature	(deg C)	12.66	12.67	12.60	12.53	12.52	12.22	12.39
D.O.	(mg/L)	0.82	0.60	0.51	0.37	0.30	0.28	0.21
ORP	(mv)	37.9	36.0	34.2	34.9	36.5	36.9	39.9
turbidity	(NTU)	4.4	3.5	2.9	2.3	1.8	1.9	1.6
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-2-0910	1440	NWTPH-Dx	1L Gl. Amber	2	HCl
GW-20-0910 (Dup)	1500	"	"	"	"

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 09/22/10

Well No. GW-2
 Sampled By Abdelghani Setbon
 weather partly cloudy 56°F

WELL INFORMATION		
Depth to water	12.10	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	-	(ft)
Screen interval:		
well condition:	Good	

COMMENTS

PURGE DATA							
start purge time		1404					
time		1435	1438				
DTW	(ft)	12.11	12.11				
purge rate	(L/min)	250	250				
pH	(Units)	5.58	5.59				
conductivity	(umhos/cm)	0.057	0.059				
temperature	(deg C)	12.45	12.52				
D.O.	(mg/L)	0.22	0.22				
ORP	(mv)	41.2	41.6				
turbidity	(NTU)	1.4	1.3				
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-2-0910	1440	NWTPH-Dx	1L Gl. Amber	2	HCl
GW-20-0910	1500	"	"	2	"
Dup.					

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. E-W-55
 Sampled By ML
 weather 62 °F

WELL INFORMATION	
Depth to water	<u>7.60</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>TUBING NET 1 FT BELOW DTW</u>

PURGE DATA							
start purge time	<u>1405</u>						
time		<u>1426</u>	<u>1429</u>	<u>1432</u>			
DTW	(ft)	<u>7.60</u>	<u>7.60</u>	<u>7.60</u>			
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>			
pH	(Units)	<u>6.04</u>	<u>6.02</u>	<u>6.00</u>			
conductivity	(umhos/cm)	<u>0.069</u>	<u>0.068</u>	<u>0.066</u>			
temperature	(deg C)	<u>18.63</u>	<u>17.93</u>	<u>17.42</u>			
D.O.	(mg/L)	<u>6.06</u>	<u>6.37</u>	<u>6.28</u>			
ORP	(mv)	<u>153.6</u>	<u>157.0</u>	<u>160.9</u>			
turbidity	(NTU)	<u>3.14</u>	<u>1.98</u>	<u>1.75</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>E-W-55-0910</u>	<u>1435</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 5-W-19
 Sampled By DWK
 weather P Cloudy, 65°F

WELL INFORMATION	
Depth to water	<u>7.43</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~ 8.25'</u>

PURGE DATA							
start purge time	<u>1419</u>						
time		<u>1429</u>	<u>1432</u>	<u>1435</u>	<u>1438</u>		
DTW (ft)		<u>7.43</u>					
purge rate (L/min)		<u>0.50</u>					
pH (Units)		<u>6.21</u>	<u>6.22</u>	<u>6.24</u>	<u>6.25</u>		
conductivity (umhos/cm)		<u>0.053</u>	<u>0.05</u>	<u>0.05</u>	<u>0.05</u>		
temperature (deg C)		<u>9.6</u>	<u>9.6</u>	<u>9.6</u>	<u>9.6</u>		
D.O. (mg/L)		<u>7.82</u>	<u>7.81</u>	<u>7.81</u>	<u>7.80</u>		
ORP (mv)		<u>369</u>	<u>370</u>	<u>370</u>	<u>370</u>		
turbidity (NTU)		<u>0.95</u>	<u>0.90</u>	<u>0.89</u>	<u>0.84</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-19-0910</u>	<u>1440</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. S-W-16
 Sampled By DMK
 weather P. Cloudy, 60 °F

WELL INFORMATION	
Depth to water	<u>8.03</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Extra sample volume for Lab QC</u>
<u>Tubing inlet at ~ 9.0'</u>

PURGE DATA							
start purge time	<u>1322</u>						
time		<u>1332</u>	<u>1335</u>	<u>1338</u>			
DTW	(ft)	<u>8.06</u>	<u>8.06</u>	<u>8.06</u>			
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>			
pH	(Units)	<u>6.69</u>	<u>6.73</u>	<u>6.74</u>			
conductivity	(umhos/cm)	<u>0.103</u>	<u>0.105</u>	<u>0.106</u>			
temperature	(deg C)	<u>14.8</u>	<u>14.6</u>	<u>14.5</u>			
D.O.	(mg/L)	<u>7.35</u>	<u>7.15</u>	<u>7.00</u>			
ORP	(mv)	<u>318</u>	<u>316</u>	<u>314</u>			
turbidity	(NTU)	<u>1.01</u>	<u>0.94</u>	<u>0.90</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-16-0910</u>	<u>1340</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	<u>5</u>	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	<u>5</u>	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. S-W-42
 Sampled By _____
 weather _____ °F

WELL INFORMATION	
Depth to water	<u>6.70</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>BIOFLOX COMES UP INTER-</u>
<u>MITTENTLY & AFFECTS TURB</u>
<u>READING - TURB. WILL NOT</u>
<u>BE USED AS STABILIZATION</u>
<u>PARAMETER</u>

PURGE DATA							
start purge time	<u>1156</u>						
time		<u>1214</u>	<u>1217</u>	<u>1220</u>	<u>1223</u>	<u>1226</u>	
DTW	(ft)	<u>6.75</u>	<u>6.95</u>	<u>6.75</u>	<u>6.75</u>	<u>6.75</u>	
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	
pH	(Units)	<u>6.32</u>	<u>6.34</u>	<u>6.34</u>	<u>6.35</u>	<u>6.33</u>	
conductivity	(umhos/cm)	<u>0.064</u>	<u>0.069</u>	<u>0.070</u>	<u>0.074</u>	<u>0.073</u>	
temperature	(deg C)	<u>11.46</u>	<u>11.48</u>	<u>11.59</u>	<u>11.56</u>	<u>11.52</u>	
D.O.	(mg/L)	<u>3.49</u>	<u>3.21</u>	<u>2.295</u>	<u>2.83</u>	<u>2.69</u>	
ORP	(mv)	<u>96.2</u>	<u>103.9</u>	<u>89.5</u>	<u>85.1</u>	<u>88.0</u>	
turbidity	(NTU)	<u>13.05</u>	<u>7.21</u>	<u>5.98</u>	<u>4.62</u>	<u>11.25</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-42-0910</u>	<u>1230</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. S-W-43
 Sampled By FM
 weather 62 sunny °F

WELL INFORMATION	
Depth to water	<u>7.19</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>TUBING & WELP 1 FT BELOW DTW</u>

PURGE DATA

start purge time							
time	<u>1105</u>						
DTW	(ft)	<u>7.19</u>	<u>7.19</u>	<u>7.19</u>	<u>7.19</u>		
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>		
pH	(Units)	<u>5.75</u>	<u>5.73</u>	<u>5.73</u>	<u>5.73</u>		
conductivity	(umhos/cm)	<u>0.054</u>	<u>0.055</u>	<u>0.055</u>	<u>0.055</u>		
temperature	(deg C)	<u>10.85</u>	<u>10.98</u>	<u>11.10</u>	<u>11.01</u>		
D.O.	(mg/L)	<u>1.98</u>	<u>2.00</u>	<u>1.93</u>	<u>1.89</u>		
ORP	(mv)	<u>93.2</u>	<u>100.6</u>	<u>104.1</u>	<u>104.9</u>		
turbidity	(NTU)	<u>6.88</u>	<u>3.85</u>	<u>3.33</u>	<u>3.85</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>S-W-43-0910</u>	<u>1130</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 5-W-15
 Sampled By DWK
 weather P. Cloudy, 50 °F

WELL INFORMATION	
Depth to water	<u>7.75</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~ 8.5'</u>

PURGE DATA							
start purge time	<u>1138</u>						
time		<u>1148</u>	<u>1151</u>	<u>1154</u>			
DTW	(ft)	<u>7.85</u>	<u>7.85</u>	<u>7.85</u>			
purge rate	(L/min)	<u>0.32</u>	<u>0.32</u>	<u>0.32</u>			
pH	(Units)	<u>6.53</u>	<u>6.54</u>	<u>6.55</u>			
conductivity	(umhos/cm)	<u>0.137</u>	<u>0.137</u>	<u>0.137</u>			
temperature	(deg C)	<u>9.6</u>	<u>9.6</u>	<u>9.6</u>			
D.O.	(mg/L)	<u>2.51</u>	<u>2.50</u>	<u>2.48</u>			
ORP	(mv)	<u>332</u>	<u>330</u>	<u>330</u>			
turbidity	(NTU)	<u>11.1</u>	<u>10.7</u>	<u>10.2</u>			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-15-0910</u>	<u>1200</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 5-W-17
 Sampled By AWK
 weather clear, 50 °F

WELL INFORMATION	
Depth to water	<u>7.39</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Duplicate sample</u>
<u>Tabling inlet at ~ 8.0'</u>

PURGE DATA							
start purge time		<u>1029</u>					
time		<u>1039</u>	<u>1042</u>	<u>1045</u>			
DTW	(ft)	<u>7.39</u>	<u>7.39</u>	<u>7.39</u>			
purge rate	(L/min)	<u>0.50</u>	<u>0.50</u>	<u>0.50</u>			
pH	(Units)	<u>6.18</u>	<u>6.21</u>	<u>6.19</u>			
conductivity	(umhos/cm)	<u>0.057</u>	<u>0.057</u>	<u>0.057</u>			
temperature	(deg C)	<u>9.4</u>	<u>9.2</u>	<u>9.1</u>			
D.O.	(mg/L)	<u>7.48</u>	<u>7.44</u>	<u>7.41</u>			
ORP	(mv)	<u>367</u>	<u>360</u>	<u>357</u>			
turbidity	(NTU)	<u>0.10</u>	<u>0.13</u>	<u>0.11</u>			
purge and sample equip.		Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-17-0910</u>	<u>1050</u>	<u>NWTPH-Dx (w/SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
		<u>NWTPH-Dx (w/o SGCU)</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>5-W-17-0910</u>	<u>1100</u>	<u>" (")</u>	<u>"</u>	<u>2</u>	<u>HCl</u>
<u>(Dup)</u>		<u>" (")</u>	<u>"</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 5-W-1A
 Sampled By DWK
 weather Clear, 45°F

WELL INFORMATION	
Depth to water	<u>9.17</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~10,0'</u>

PURGE DATA							
start purge time		<u>0922</u>					
time		<u>0932</u>	<u>0935</u>	<u>0938</u>	<u>0941</u>		
DTW	(ft)	<u>9.17</u>					
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>6.47</u>	<u>6.40</u>	<u>6.38</u>	<u>6.37</u>		
conductivity	(umhos/cm)	<u>0.065</u>	<u>0.064</u>	<u>0.064</u>	<u>0.064</u>		
temperature	(deg C)	<u>8.4</u>	<u>8.4</u>	<u>8.3</u>	<u>8.3</u>		
D.O.	(mg/L)	<u>8.15</u>	<u>8.27</u>	<u>8.27</u>	<u>8.27</u>		
ORP	(mv)	<u>369</u>	<u>370</u>	<u>369</u>	<u>368</u>		
turbidity	(NTU)	<u>5.02</u>	<u>2.44</u>	<u>2.49</u>	<u>2.25</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-1A-0910</u>	<u>0945</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/22/10

Well No. 1B-W-23
 Sampled By FM
 weather 52 sunny °F

WELL INFORMATION	
Depth to water	<u>17.35</u> 16.35 (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>EXPERIENCE DRAWDOWN -</u>
<u>REDUCE RATE TO 100 ML</u>
<u>TUBING INLET 1 FT BELOW</u>
<u>DTW</u>

PURGE DATA							
start purge time	<u>0848</u>						
time		<u>0857</u>	<u>0900</u>	<u>0903</u>	<u>0906</u>		
DTW	(ft)	<u>17.00</u>	<u>17.10</u>	<u>12.18</u>	<u>17.25</u>		
purge rate	(L/min)	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>		
pH	(Units)	<u>6.28</u>	<u>6.39</u>	<u>6.45</u>	<u>6.48</u>		
conductivity	(umhos/cm)	<u>0.206</u>	<u>0.200</u>	<u>0.198</u>	<u>0.198</u>		
temperature	(deg C)	<u>13.18</u>	<u>13.10</u>	<u>13.37</u>	<u>13.31</u>		
D.O.	(mg/L)	<u>5.91</u>	<u>6.50</u>	<u>6.84</u>	<u>7.04</u>		
ORP	(mv)	<u>147.1</u>	<u>145.1</u>	<u>143.8</u>	<u>144.1</u>		
turbidity	(NTU)	<u>49.9</u>	<u>59.1</u>	<u>61.5</u>	<u>55.3</u>		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-23-0910</u>	<u>0910</u>	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/2/10

Well No. S-W-18
 Sampled By DWK
 weather clear, 45°F

WELL INFORMATION	
Depth to water	<u>7.49</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~8.25'</u>

PURGE DATA							
start purge time	<u>0844</u>						
time		<u>0854</u>	<u>0857</u>	<u>0900</u>			
DTW	(ft)	<u>7.49</u>	<u>7.49</u>	<u>7.49</u>			
purge rate	(L/min)	<u>0.30</u>	<u>0.30</u>	<u>0.30</u>			
pH	(Units)	<u>6.57</u>	<u>6.61</u>	<u>6.65</u>			
conductivity	(umhos/cm)	<u>0.225</u>	<u>0.225</u>	<u>0.225</u>			
temperature	(deg C)	<u>10.3</u>	<u>10.3</u>	<u>10.3</u>			
D.O.	(mg/L)	<u>2.64</u>	<u>2.53</u>	<u>2.44</u>			
ORP	(mv)	<u>344</u>	<u>342</u>	<u>340</u>			
turbidity	(NTU)	<u>6.67</u>	<u>6.13</u>	<u>6.51</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-18-091D</u>	<u>0905</u>	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCl
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 2A-W-9
 Sampled By DWK
 weather P. Cloudy, 60 °F

WELL INFORMATION	
Depth to water	<u>10.81</u> (ft)
Depth of well:	<u>19.15</u> (ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>Guard posts damaged & monument lock) My area destroyed dirt below pad is exposed</u>

COMMENTS
<u>Tubing inlet at ~ 11.5'</u>
<u>Extra sample volume for lab QC</u>

PURGE DATA							
start purge time	<u>1728</u>						
time		<u>1738</u>	<u>1741</u>	<u>1744</u>			
DTW	(ft)	<u>10.84</u>	<u>10.84</u>	<u>10.84</u>			
purge rate	(L/min)	<u>0.30</u>					
pH	(Units)	<u>5.84</u>	<u>5.83</u>	<u>5.84</u>			
conductivity	(umhos/cm)	<u>0.314</u>	<u>0.313</u>	<u>0.312</u>			
temperature	(deg C)	<u>11.9</u>	<u>11.9</u>	<u>11.9</u>			
D.O.	(mg/L)	<u>2.84</u>	<u>2.78</u>	<u>2.75</u>			
ORP	(mv)	<u>316</u>	<u>316</u>	<u>316</u>			
turbidity	(NTU)	<u>2.78</u>	<u>2.59</u>	<u>2.56</u>			
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>2A-W-9-0910</u>	<u>1745</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>6</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. IC-W-1
 Sampled By Rhian. Sebban
 weather partly cloudy 58°F

WELL INFORMATION	
Depth to water	13.53 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	loose bolts

COMMENTS
inlet tubing ~ 14.50'
purge water is clear

PURGE DATA

start purge time	0936				
time		0946	0949	0952	0955
DTW (ft)		13.54	13.54	13.54	13.54
purge rate (L/min)		250	250	250	250
pH (Units)		5.20	5.08	5.08	5.13
conductivity (umhos/cm)		0.056	0.056	0.053	0.052
temperature (deg C)		11.23	11.27	11.28	11.30
D.O. (mg/L)		7.25	7.00	6.74	6.72
ORP (mv)		172.4	170	166.6	163.1
turbidity (NTU)		1.51	1.58	1.37	0.87
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing				

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
IC-W-1-091D	1000	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1C-W-8
 Sampled By Gloria Robbins
 weather partly sunny 58°F

WELL INFORMATION	
Depth to water	<u>12.87</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>Inlet tubing ~ 13.90'</u>
<u>purge water is clear.</u>

PURGE DATA

start purge time	<u>10/14</u>				
time		<u>10:24</u>	<u>10:27</u>	<u>10:30</u>	<u>10:33</u>
DTW (ft)		<u>12.88</u>	<u>12.88</u>	<u>12.88</u>	<u>12.88</u>
purge rate (L/min)		<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>
pH (Units)		<u>5.66</u>	<u>5.73</u>	<u>5.78</u>	<u>5.80</u>
conductivity (umhos/cm)		<u>0.047</u>	<u>0.050</u>	<u>0.055</u>	<u>0.062</u>
temperature (deg C)		<u>13.66</u>	<u>13.80</u>	<u>13.85</u>	<u>13.86</u>
D.O. (mg/L)		<u>1.41</u>	<u>1.10</u>	<u>1.05</u>	<u>1.04</u>
ORP (mv)		<u>122.5</u>	<u>116.3</u>	<u>111.4</u>	<u>108.4</u>
turbidity (NTU)		<u>2.43</u>	<u>2.24</u>	<u>2.23</u>	<u>2.14</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>				

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>1C-W-8-010</u>	<u>10:35</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1C-W-3
 Sampled By Cyhan, Seltzer
 weather sunny 60 °F

WELL INFORMATION	
Depth to water	11.22 (ft)
Depth of well:	16.00 (ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	Good.

COMMENTS
Inlet tubing ~ 12.20'
purge water is cloudy and high turbidity.

PURGE DATA							
start purge time	1102						
time		1112	1115	1118	1121		
DTW	(ft)	11.88	11.92	11.96	11.98		
purge rate	(L/min)	150	150	120	120		
pH	(Units)	5.81	5.81	5.85	5.87		
conductivity	(umhos/cm)	0.035	0.036	0.036	0.036		
temperature	(deg C)	13.82	14.46	14.60	14.66		
D.O.	(mg/L)	5.40	5.59	5.54	5.64		
ORP	(mv)	102.6	104.2	103.6	103.6		
turbidity	(NTU)	627	787	879	887		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-3-0910	1125	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1C-W-4
 Sampled By Ghani Seltan
 weather Sunny 64 °F

WELL INFORMATION		
Depth to water	<u>10.41</u>	(ft)
Depth of well:		(ft)
Well diameter:	<u>2</u>	(in)
Feet of water:		(ft)
Product thickness:	<u>-</u>	(ft)
Screen interval:		
well condition:	<u>Good.</u>	

COMMENTS
<u>Inlet tubing 11.50'</u>
<u>purge water is clear</u>

PURGE DATA							
start purge time		<u>1210</u>					
time		<u>1220</u>	<u>1223</u>	<u>1226</u>	<u>1229</u>		
DTW	(ft)	<u>10.52</u>	<u>10.52</u>	<u>10.52</u>	<u>10.52</u>		
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>		
pH	(Units)	<u>5.46</u>	<u>5.41</u>	<u>5.38</u>	<u>5.35</u>		
conductivity	(umhos/cm)	<u>0.045</u>	<u>0.045</u>	<u>0.047</u>	<u>0.049</u>		
temperature	(deg C)	<u>11.07</u>	<u>10.97</u>	<u>10.90</u>	<u>10.88</u>		
D.O.	(mg/L)	<u>1.01</u>	<u>0.89</u>	<u>0.90</u>	<u>0.90</u>		
ORP	(mv)	<u>131.9</u>	<u>134.6</u>	<u>136.6</u>	<u>138.5</u>		
turbidity	(NTU)	<u>1.69</u>	<u>1.74</u>	<u>1.19</u>	<u>1.02</u>		
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-4-091D</u>	<u>1230</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1C-W-7
 Sampled By Ghassan Sabbak
 weather cloudy 58 °F

WELL INFORMATION	
Depth to water	<u>11.35</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Good</u>

COMMENTS
<u>inlet tubing ~ 12.40'</u>
<u>purge water is clear.</u>
<u>DO unstable</u>

PURGE DATA								
start purge time		<u>1427</u>						
time		<u>1437</u>	<u>1440</u>	<u>1443</u>	<u>1446</u>	<u>1449</u>	<u>1452</u>	<u>1455</u>
DTW	(ft)	<u>11.36</u>	<u>11.36</u>	<u>11.36</u>	<u>11.36</u>	<u>NM</u>	<u>NM</u>	<u>NM</u>
purge rate	(L/min)	<u>250</u>						
pH	(Units)	<u>5.91</u>	<u>5.85</u>	<u>5.84</u>	<u>5.84</u>	<u>5.85</u>	<u>5.86</u>	<u>5.86</u>
conductivity	(umhos/cm)	<u>0.066</u>	<u>0.072</u>	<u>0.066</u>	<u>0.066</u>	<u>0.066</u>	<u>0.067</u>	<u>0.067</u>
temperature	(deg C)	<u>11.96</u>	<u>11.91</u>	<u>12.05</u>	<u>12.08</u>	<u>12.18</u>	<u>12.15</u>	<u>12.12</u>
D.O.	(mg/L)	<u>0.97</u>	<u>0.89</u>	<u>0.79</u>	<u>0.69</u>	<u>0.59</u>	<u>0.54</u>	<u>0.50</u>
ORP	(mv)	<u>104.6</u>	<u>102.6</u>	<u>99.4</u>	<u>96.1</u>	<u>94.0</u>	<u>92.1</u>	<u>90.8</u>
turbidity	(NTU)	<u>0.51</u>	<u>0.42</u>	<u>0.35</u>	<u>0.41</u>	<u>0.30</u>	<u>0.27</u>	<u>0.29</u>
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1C-W-7-1910</u>	<u>1505</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. GW-4
 Sampled By Abdelghani Selbani
 weather cloudy 56 °F

WELL INFORMATION	
Depth to water	10.06 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	- (ft)
Screen interval:	
well condition:	Good.

COMMENTS
Inlet tubing = 11.10
purge water is clear.
DO unstable.

PURGE DATA								
start purge time	1532							
time		1542	1545	1548	1551	1554	1557	
DTW	(ft)	10.48	10.50	10.45	10.42	10.41	10.41	
purge rate	(L/min)	250	250	200	200	200	200	
pH	(Units)	5.92	5.82	5.79	5.73	5.69	5.69	
conductivity	(umhos/cm)	0.066	0.059	0.071	0.068	0.068	0.067	
temperature	(deg C)	11.06	10.77	10.71	10.73	10.71	10.73	
D.O.	(mg/L)	0.98	1.05	1.18	1.43	1.58	1.58	
ORP	(mv)	91.4	97.6	100.3	104.1	107.7	109.9	
turbidity	(NTU)	1.24	1.17	2.17	2.26	2.47	2.63	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-4-PA10	1600	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. GW-3
 Sampled By Abdelghani Sebban
 weather overcast 59 °F

WELL INFORMATION	
Depth to water	15.72 (ft)
Depth of well:	(ft)
Well diameter:	2 (in)
Feet of water:	(ft)
Product thickness:	— (ft)
Screen interval:	
well condition:	missing one bolt.

COMMENTS
inlet tubing = 16.70'
purge water started with Iron Flakes orange color.

PURGE DATA							
start purge time	1628						
time		1638	1641	1644	1647		
DTW	(ft)	15.98	15.98	15.98	15.98		
purge rate	(L/min)	200	200	200	200		
pH	(Units)	6.12	6.11	6.08	6.06		
conductivity	(umhos/cm)	0.148	0.152	0.152	0.151		
temperature	(deg C)	10.57	10.48	10.40	10.31		
D.O.	(mg/L)	1.95	1.88	1.80	1.72		
ORP	(mv)	109.8	109.9	106.5	100.4		
turbidity	(NTU)	10.90	10.00	9.20	10.20		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-3-0210	1650	NWTPH-Dx	1L Gl. Amber	2	HCl

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1B-W-3
 Sampled By FM
 weather 52 °F

WELL INFORMATION	
Depth to water	<u>14.81</u> (ft)
Depth of well:	<u>—</u> (ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	
well condition:	<u>GOOD</u>

COMMENTS
<u>1 FT BELOW DTW</u>
<u>Biofloc</u>

PURGE DATA							
start purge time	<u>0925</u>						
time		<u>0940</u>	<u>0943</u>	<u>0946</u>	<u>0949</u>	<u>0952</u>	
DTW	(ft)	<u>14.82</u>	<u>14.82</u>	<u>14.82</u>	<u>14.82</u>		
purge rate	(L/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>		
pH	(Units)	<u>6.50</u>	<u>6.50</u>	<u>6.48</u>	<u>6.50</u>		
conductivity	(umhos/cm)	<u>0.098</u>	<u>0.097</u>	<u>0.094</u>	<u>0.093</u>		
temperature	(deg C)	<u>10.38</u>	<u>10.38</u>	<u>10.41</u>	<u>10.42</u>		
D.O.	(mg/L)	<u>2.19</u>	<u>2.20</u>	<u>2.31</u>	<u>2.36</u>		
ORP	(mv)	<u>56.0</u>	<u>52.3</u>	<u>56.4</u>	<u>59.5</u>		
turbidity	(NTU)	<u>3.88</u>	<u>3.60</u>	<u>3.65</u>	<u>3.42</u>		
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-3-0910</u>	<u>0950</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1B-W-2
 Sampled By FM
 weather 60° °F

WELL INFORMATION	
Depth to water	<u>13.85</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>EXPERIENCED DRAWDOWN -</u>
<u>LOWER PURGE RATE TO 80 ML/MIN</u>
<u>TO ACCOMMODATE</u>

PURGE DATA							
start purge time	<u>1024</u>						
time		<u>1035</u>	<u>1040</u>	<u>1043</u>	<u>1046</u>	<u>1049</u>	
DTW	(ft)	<u>14.35</u>	<u>14.35</u>	<u>14.25</u>	<u>14.28</u>	<u>14.29</u>	<u>14.30</u>
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>80</u>	<u>80</u>	<u>80</u>	
pH	(Units)	<u>5.67</u>	<u>5.52</u>	<u>5.52</u>	<u>5.53</u>	<u>5.55</u>	
conductivity	(umhos/cm)	<u>0.238</u>	<u>0.237</u>	<u>0.240</u>	<u>0.251</u>	<u>0.258</u>	
temperature	(deg C)	<u>12.23</u>	<u>12.24</u>	<u>12.51</u>	<u>12.56</u>	<u>12.61</u>	
D.O.	(mg/L)	<u>4.89</u>	<u>4.10</u>	<u>3.81</u>	<u>3.61</u>	<u>3.76</u>	
ORP	(mv)	<u>166.9</u>	<u>174.5</u>	<u>172.8</u>	<u>172.9</u>	<u>173.7</u>	
turbidity	(NTU)	<u>2.86</u>	<u>2.24</u>	<u>1.58</u>	<u>1.03</u>	<u>1.19</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1B-W-2-0910</u>	<u>1050</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 1A-W-4
 Sampled By FM
 weather 64° °F

WELL INFORMATION	
Depth to water	<u>9.01</u> (ft)
Depth of well:	<u>20</u> (ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	<u>—</u> (ft)
Screen interval:	<u>—</u>
well condition:	<u>Good</u>

COMMENTS
<u>TUBING INLET IS PLACED 1 FT BELOW DTW</u>

PURGE DATA								
start purge time	<u>1126</u>							
time		<u>1136</u>	<u>1139</u>	<u>1142</u>	<u>1145</u>	<u>1148</u>	<u>1151</u>	
DTW	(ft)	<u>9.10</u>	<u>9.11</u>	<u>9.11</u>	<u>9.11</u>	<u>9.11</u>	<u>9.11</u>	
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	
pH	(Units)	<u>6.91</u>	<u>6.23</u>	<u>6.21</u>	<u>6.24</u>	<u>6.27</u>	<u>6.36</u>	<u>6.35</u>
conductivity	(umhos/cm)	<u>0.118</u>	<u>0.086</u>	<u>0.072</u>	<u>0.067</u>	<u>0.065</u>	<u>0.064</u>	
temperature	(deg C)	<u>10.06</u>	<u>9.66</u>	<u>9.59</u>	<u>9.46</u>	<u>9.50</u>	<u>9.49</u>	
D.O.	(mg/L)	<u>6.91</u>	<u>6.89</u>	<u>6.86</u>	<u>7.30</u>	<u>7.11</u>	<u>7.12</u>	
ORP	(mv)	<u>139.4</u>	<u>146.9</u>	<u>152.2</u>	<u>152.0</u>	<u>150.3</u>	<u>154.9</u>	
turbidity	(NTU)	<u>2.30</u>	<u>0.41</u>	<u>0.65</u>	<u>1.52</u>	<u>1.97</u>	<u>2.33</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>1A-W-4-0910</u>	<u>1155</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. MW-38A
 Sampled By EM
 weather 62 sunny °F

WELL INFORMATION	
Depth to water	<u>4.55</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>TUBING INLET PLACED 1 FT BELOW DTW</u>

PURGE DATA								
start purge time	<u>1215</u>							
time		<u>1226</u>	<u>1229</u>	<u>1232</u>	<u>1235</u>	<u>1243</u>	<u>1246</u>	<u>1249</u>
DTW	(ft)	<u>4.57</u>	<u>4.57</u>	<u>4.57</u>	<u>4.57</u>	<u>4.57</u>	<u>4.57</u>	<u>4.57</u>
purge rate	(L/min)	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>	<u>220</u>
pH	(Units)	<u>6.21</u>	<u>6.16</u>	<u>6.15</u>	<u>6.10</u>	<u>6.15</u>	<u>6.15</u>	<u>6.15</u>
conductivity	(umhos/cm)	<u>0.055</u>	<u>0.054</u>	<u>0.052</u>	<u>0.051</u>	<u>0.050</u>	<u>0.050</u>	<u>0.050</u>
temperature	(deg C)	<u>8.94</u>	<u>8.65</u>	<u>8.51</u>	<u>8.41</u>	<u>8.33</u>	<u>8.36</u>	<u>8.46</u>
D.O.	(mg/L)	<u>1.66</u>	<u>1.04</u>	<u>0.56</u>	<u>0.36</u>	<u>0.270.15</u>	<u>0.16</u>	<u>0.16</u>
ORP	(mv)	<u>162.1</u>	<u>164.4</u>	<u>162.6</u>	<u>163.9</u>	<u>161.3</u>	<u>159.7</u>	<u>159.1</u>
turbidity	(NTU)	<u>3.94</u>	<u>1.84</u>	<u>4.20</u>	<u>NM</u>	<u>4.95</u>	<u>3.68</u>	<u>3.51</u>
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>MW-38A-0910</u>	<u>1250</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 5-W-50
 Sampled By fm
 weather 58 °F

WELL INFORMATION	
Depth to water	<u>7.05</u> (ft)
Depth of well:	<u>—</u> (ft)
Well diameter:	<u>2"</u> (in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>Duplicate samples collected</u>

PURGE DATA							
start purge time	<u>1528 1538</u>						
time		1536	1559	1602	1605	1608	
DTW	(ft)	<u>7.07</u>	<u>7.07</u>	<u>7.07</u>	<u>7.07</u>	<u>7.07</u>	
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	
pH	(Units)	<u>6.15</u>	<u>6.15</u>	<u>6.15</u>	<u>6.15</u>	<u>6.15</u>	
conductivity	(umhos/cm)	<u>0.213</u>	<u>0.215</u>	<u>0.218</u>	<u>0.218</u>	<u>0.219</u>	
temperature	(deg C)	<u>13.61</u>	<u>13.64</u>	<u>13.64</u>	<u>13.59</u>	<u>13.64</u>	
D.O.	(mg/L)	<u>0.22</u>	<u>0.22</u>	<u>0.20</u>	<u>0.19</u>	<u>0.22</u>	
ORP	(mv)	<u>-75.5</u>	<u>-80.8</u>	<u>-83.8</u>	<u>-80.7</u>	<u>-79.7</u>	
turbidity	(NTU)	<u>12.23</u>	<u>14.03</u>	<u>11.84</u>	<u>11.69</u>	<u>10.83</u>	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-50-0910</u>	<u>1610</u>	NWTPH-Dx	1L Gl. Amber	2	HCl
<u>5-W-500-0912</u> <u>(Dup)</u>	<u>1510</u>	<u> </u>	<u> </u>	<u>2</u>	<u> </u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 5-W-54
 Sampled By FM
 weather 62 °F

WELL INFORMATION	
Depth to water	<u>6.60</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS
<u>TUBING W/LET</u>

PURGE DATA								
start purge time	<u>1411</u>							
time		<u>1421</u>	<u>1424</u>	<u>1427</u>	<u>1430</u>	<u>1438</u>	<u>1441</u>	<u>1444</u>
DTW	(ft)	<u>200</u>						
purge rate	(L/min)	<u>6.67</u>						
pH	(Units)	<u>6.01</u>	<u>6.04</u>	<u>6.09</u>	<u>6.14</u>	<u>6.19</u>	<u>6.20</u>	<u>6.19</u>
conductivity	(umhos/cm)	<u>0.117</u>	<u>0.122</u>	<u>0.122</u>	<u>0.123</u>	<u>0.126</u>	<u>0.125</u>	<u>0.123</u>
temperature	(deg C)	<u>14.62</u>	<u>14.20</u>	<u>14.03</u>	<u>13.99</u>	<u>14.61</u>	<u>14.66</u>	<u>14.16</u>
D.O.	(mg/L)	<u>2.47</u>	<u>2.17</u>	<u>1.94</u>	<u>1.45</u>	<u>0.98</u>	<u>0.92</u>	<u>0.85</u>
ORP	(mv)	<u>161.5</u>	<u>161.9</u>	<u>161.1</u>	<u>158.4</u>	<u>154.7</u>	<u>151.4</u>	<u>148.9</u>
turbidity	(NTU)	<u>13.94</u>	<u>4.63</u>	<u>4.21</u>	<u>4.13</u>	<u>3.64</u>	<u>5.86</u>	<u>6.16</u>
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing							

1448 1451
200 200
6.67 6.67
6.19 6.19
0.124 0.124
14.68 14.55
0.79 0.73
145.1 144.5
3.06 2.94

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>5-W-54-0910</u>	<u>1500</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
	<u>1454</u>	<u>1457</u>			
<u>pH</u>	<u>6.20</u>	<u>6.21</u>			
<u>COND</u>	<u>0.124</u>	<u>0.124</u>			
<u>TEMP</u>	<u>0.70 14.80</u>	<u>14.74</u>			
<u>DO</u>	<u>0.70 0.67</u>	<u>0.67</u>			
<u>Turb</u>	<u>1.88</u>	<u>1.83</u>			

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. S-W-56
 Sampled By AM
 weather 64 °F

WELL INFORMATION	
Depth to water	<u>6.89</u> (ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	<u> </u> (ft)
Screen interval:	
well condition:	

COMMENTS
<u>TUBING INLET 1 FT BELOW DTW</u>

PURGE DATA

start purge time									
time	<u>1655</u>								
DTW	(ft)	<u>1705</u>	<u>1708</u>	<u>1711</u>	<u>1714</u>				
DTW	(ft)	<u>6.92</u>	<u>6.92</u>	<u>6.92</u>	<u>6.92</u>				
purge rate	(L/min)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>				
pH	(Units)	<u>5.91</u>	<u>5.91</u>	<u>5.91</u>	<u>5.92</u>				
conductivity	(umhos/cm)	<u>0.282</u>	<u>0.283</u>	<u>0.282</u>	<u>0.281</u>				
temperature	(deg C)	<u>16.03</u>	<u>16.73</u>	<u>16.03</u>	<u>16.05</u>				
D.O.	(mg/L)	<u>0.76</u>	<u>0.75</u>	<u>0.76</u>	<u>0.82</u>				
ORP	(mv)	<u>117.5</u>	<u>118.2</u>	<u>116.4</u>	<u>114.3</u>				
turbidity	(NTU)	<u>4.69</u>	<u>5.49</u>	<u>6.56</u>	<u>6.29</u>				
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>								

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>S-W-56-0912</u>	<u>1715</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. MW-3
 Sampled By DWIC
 weather P. Cloudy, 50 °F

WELL INFORMATION	
Depth to water	<u>9.44</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>+</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing inlet at ~ 10,25'</u>

PURGE DATA

start purge time	time	DTW (ft)	purge rate (L/min)	pH (Units)	conductivity (umhos/cm)	temperature (deg C)	D.O. (mg/L)	ORP (mv)	turbidity (NTU)	purge and sample equip.
<u>1540</u>		<u>9.48</u>	<u>0.30</u>	<u>5.58</u>	<u>0.304</u>	<u>13.7</u>	<u>4.60</u>	<u>228</u>	<u>5.09</u>	Peristaltic pump and silicone/polyethylene tubing
	<u>1550</u>	<u>9.48</u>	<u>0.30</u>	<u>5.60</u>	<u>0.304</u>	<u>13.7</u>	<u>4.59</u>	<u>227</u>	<u>4.59</u>	
	<u>1553</u>	<u>9.48</u>	<u>0.30</u>	<u>5.61</u>	<u>0.304</u>	<u>13.7</u>	<u>4.56</u>	<u>226</u>	<u>4.76</u>	

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>MW-3-0910</u>	<u>1600</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. MW-4
 Sampled By DWIK
 weather P, cloudy, 60 °F

WELL INFORMATION	
Depth to water	<u>9.00</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>-</u> (ft)
Screen interval:	
well condition:	<u>Locking area damaged</u>

COMMENTS
<u>Tabling inlet at 210.0'</u>

PURGE DATA							
start purge time		<u>1612</u>					
time		<u>1622</u>	<u>1625</u>	<u>1628</u>	<u>1631</u>	<u>1634</u>	
DTW	(ft)	<u>9.01</u>	<u>→</u>	<u>→</u>	<u>→</u>	<u>→</u>	
purge rate	(L/min)	<u>0.30</u>	<u>→</u>	<u>→</u>	<u>→</u>	<u>→</u>	
pH	(Units)	<u>4.63</u>	<u>4.66</u>	<u>4.68</u>	<u>4.69</u>	<u>4.71</u>	
conductivity	(umhos/cm)	<u>0.063</u>	<u>0.068</u>	<u>0.071</u>	<u>0.074</u>	<u>0.076</u>	
temperature	(deg C)	<u>10.8</u>	<u>10.8</u>	<u>10.8</u>	<u>10.8</u>	<u>10.8</u>	
D.O.	(mg/L)	<u>2.92</u>	<u>2.66</u>	<u>2.51</u>	<u>2.46</u>	<u>2.41</u>	
ORP	(mv)	<u>198</u>	<u>190</u>	<u>186</u>	<u>182</u>	<u>180</u>	
turbidity	(NTU)	<u>4.22</u>	<u>3.10</u>	<u>2.01</u>	<u>1.98</u>	<u>2.12</u>	
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>MW-4-091D</u>	<u>1635</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/21/10

Well No. 2A-W-10
 Sampled By DWK
 weather P. Cloudy, 60 °F

WELL INFORMATION	
Depth to water	<u>10.45</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>none</u> (ft)
Screen interval:	
well condition:	<u>OK</u>

COMMENTS
<u>Duplicate collected Tubing inlet at ~11.25'</u>

PURGE DATA

start purge time		PURGE DATA					
time	<u>1654</u>		<u>1704</u>	<u>1707</u>	<u>1710</u>		
DTW	(ft)	<u>10.30</u>	<u>10.30</u>	<u>10.60</u>			
purge rate	(L/min)	<u>10.58</u>	<u>10.59</u>	<u>10.30</u>			
pH	(Units)	<u>5.56</u>	<u>5.55</u>	<u>5.55</u>			
conductivity	(umhos/cm)	<u>0.656</u>	<u>0.624</u>	<u>0.618</u>			
temperature	(deg C)	<u>12.0</u>	<u>12.0</u>	<u>12.0</u>			
D.O.	(mg/L)	<u>3.32</u>	<u>3.30</u>	<u>3.32</u>			
ORP	(mv)	<u>293</u>	<u>293</u>	<u>293</u>			
turbidity	(NTU)	<u>7.26</u>	<u>7.47</u>	<u>7.01</u>			
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>2A-W-10-0910</u>	<u>1715</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
<u>2A-W-10-0910</u> <u>(DWP)</u>	<u>1725</u>	<u>H</u>	<u>"</u>	<u>"</u>	<u>"</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/20/10

Well No. 2B-W-4
 Sampled By DMK
 weather Raining, 55 °F

WELL INFORMATION	
Depth to water	<u>3.81</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Inlet at ~4.75'</u>
<u>Conductivity fluctuating</u>

PURGE DATA

start purge time	time	DTW	purge rate	pH	conductivity	temperature	D.O.	ORP	turbidity	purge and sample equip.
<u>1443</u>	<u>1453</u>	<u>3.81</u>	<u>0.30</u>	<u>4.51</u>	<u>0.076</u>	<u>13.0</u>	<u>3.40</u>	<u>237</u>	<u>2.01</u>	<u>Peristaltic pump and silicone/polyethylene tubing</u>
	<u>1456</u>			<u>4.52</u>	<u>0.077</u>	<u>13.0</u>	<u>3.32</u>	<u>226</u>	<u>1.21</u>	
	<u>1459</u>			<u>4.58</u>	<u>0.081</u>	<u>12.9</u>	<u>3.31</u>	<u>234</u>	<u>1.19</u>	
	<u>1502</u>			<u>4.59</u>	<u>0.076</u>	<u>12.9</u>	<u>3.30</u>	<u>224</u>	<u>1.26</u>	

SAMPLE INFORMATION

sample number	time	analysis	container	# bottles	preservative
<u>2B-W-4-0910</u>	<u>1505</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/20/10

Well No. MW-16
 Sampled By DWK
 weather Rainy, 55°F

WELL INFORMATION	
Depth to water	<u>13.55</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>None</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing label at ~14.25</u>
<u>conductivity fluctuation</u>

PURGE DATA							
start purge time	<u>1529</u>						
time		<u>1549</u>	<u>1552</u>	<u>1555</u>	<u>1558</u>	<u>1601</u>	
DTW	(ft)	<u>13.55</u>	<u>13.55</u>	<u>13.55</u>	↔		
purge rate	(L/min)	<u>0.30</u>	↔				
pH	(Units)	<u>4.37</u>	<u>4.42</u>	<u>4.46</u>	<u>4.50</u>	<u>4.51</u>	
conductivity	(umhos/cm)	<u>0.046</u>	<u>0.037</u>	<u>0.039</u>	<u>0.042</u>	<u>0.041</u>	
temperature	(deg C)	<u>11.2</u>	<u>11.2</u>	<u>11.2</u>	<u>11.0</u>	<u>11.0</u>	
D.O.	(mg/L)	<u>5.01</u>	<u>5.48</u>	<u>5.49</u>	<u>5.41</u>	<u>5.36</u>	
ORP	(mv)	<u>308</u>	<u>300</u>	<u>278</u>	<u>265</u>	<u>258</u>	
turbidity	(NTU)	<u>2.93</u>	<u>1.94</u>	<u>1.71</u>	<u>1.75</u>	<u>1.70</u>	
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>MW-16-0910</u>	<u>1605</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/20/10

Well No. S-W-51
 Sampled By DWK
 weather Rainy, 55 °F

WELL INFORMATION	
Depth to water	<u>7.51</u> (ft)
Depth of well:	(ft)
Well diameter:	<u>2</u> (in)
Feet of water:	(ft)
Product thickness:	<u>Heavy TR</u> (ft)
Screen interval:	
well condition:	<u>ok</u>

COMMENTS
<u>Tubing Inlet at ~8.25</u>

PURGE DATA							
start purge time	<u>1703</u>						
time		<u>1713</u>					
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	<u>Peristaltic pump and silicone/polyethylene tubing</u>						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-51-0910</u>	<u>1715</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/20/10

Well No. S-W-52
 Sampled By DNK
 weather _____ °F

WELL INFORMATION	
Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS

PURGE DATA							
start purge time							
time							
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-52-0910</u>	<u>N/A</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
	<u>Sample</u>				

GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
 Project No. 60154595-0540
 Date 9/20/10

Well No. S-W-53
 Sampled By DWZ
 weather _____ °F

WELL INFORMATION	
Depth to water	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS

PURGE DATA							
start purge time							
time							
DTW	(ft)						
purge rate	(L/min)						
pH	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and sample equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
<u>S-W-53-0910</u>	<u>NH</u>	<u>NWTPH-Dx</u>	<u>1L Gl. Amber</u>	<u>2</u>	<u>HCl</u>
	<u>Sample</u>				

**BNSF - Skykomish
Sentry Well Sampling Log**

Well No.	Sampler	Sample Date	Sample Time
S1-AU	DWIC	9/21/10	0900
S1-AD			0925
S1-BU			0940
S1-BD			0950
S2-AU			1015
S2-AD			1025
S2-BU			1040
S2-BD			1055
S3-AU			1215
S3-AD			1225
S3-BU			1235
S3-BD			1245
S3-CU			1310
S3-CD			1330
S4-AU			1345
S4-AD			1355
S4-BU			1405
S4-BD			1415
S4-CU			1430
S4-CD			1440

Lab QC collected

Duplicate -
S20-BU-0910
10:50

Duplicate
S30-CU-0910

AECOM ENVIRONMENT

FIELD ACTIVITY LOG

PROJECT BNSF - Skykomish

COMPLETED BY D. Kinney

JOB NO. 60154595-0540

APPROVED BY _____

DAY & DATE Mon Sept 20th 2010

SHEET 1 OF 1

FIELD ACTIVITY SUBJECT: Groundwater gauging & sampling
 DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	
0745	D. Kinney onsite & setting up to sample
0820	Safety mtg
0830	Went to bunkhouse to unload sample coolers & organize van
0930	started gauging → GS & FM doing product wells
1235	lunch
1325	Went to finish gauging
1415	Calibrated meters; PSI (model 550) & Pakton (model T-100)
1443	Started purging 2B-W-4
1505	Sampled 2B-W-4 for NWTPD-PX
1539	Started purging MW-16
1605	Sampled MW-16 (same as 2B-W-4)
1625	Looked at wells W/FM & GS
1703	Started purging 5-W-51
1715	Sampled 5-W-51 (same as 2B-W-4)
1730	Went to gauge wells that were under water earlier
1800	Looking at gauging forms & checking that all wells got sampled
1855	Left site

VISITORS ON SITE: <u>None</u>	CHANGES FROM PALNS OR IMPORTANT DECISIONS: <u>None</u>
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WEATHER CONDITIONS: <u>Raining, 50-60°F</u>	IMPORTANT TELEPHONE CALLS: <u>None</u>
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PERSONNEL ON SITE: Dean Kinney, Fred Merrill & Ghani Sebbane

AECOM ENVIRONMENT

FIELD ACTIVITY LOG

PROJECT BNSF-Skykawkh

COMPLETED BY D. Kinney

JOB NO. 6054595-0540

APPROVED BY _____

DAY & DATE Tues Sept 21st 2010

SHEET 1 OF 1

FIELD ACTIVITY SUBJECT:
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

GW Sampling

TIME	
0735	Arrived onsite
0750	Safety mtg
0805	Went to bunk house and bagged ice and got van set to sample
0845	Calibrated VSI (model 556) & Oatton (model F100)
0900	Started sampling vaults (see sampling forms)
1120	Finished vaults 5-1 & 5-2 & went to lunch
1155	Returned from lunch & setup at vault 5-3
1455	Finished sampling vaults 5-3 & 5-4
1515	Went to bunk house & switched out coolers
1540	Started purging MW-3
1600	Sampled MW-3 for MTPH-Dy
1612	Started purging MW-4
1635	Sampled MW-4 (same as MW-3)
1654	Started purging ZA-W-10
1715	Sampled ZA-W-10 (same as MW-3); took duplicate labeled: ZA-W-100-0910
1728	Started purging ZA-W-9
1745	Sampled ZA-W-9 (took extra volume for lab QC)
1805	Dumped purge water & went to bunkhouse
1815	Working on icing down coolers
1855	Left site

VISITORS ON SITE:

None

CHANGES FROM PALNS OR IMPORTANT DECISIONS:

None

WEATHER CONDITIONS:

P. Cloudy, 50-60°F

IMPORTANT TELEPHONE CALLS:

Talked to Sarah about not being able to locate 5-W-43

PERSONNEL ON SITE:

Dean Kinney, Fred Merrill & Ghani Sebane

AECOM ENVIRONMENT

FIELD ACTIVITY LOG

PROJECT SM SF - Gyanesh COMPLETED BY D Kinney
 JOB NO. 60157595-0500 APPROVED BY _____
 DAY & DATE Tues. Sept 22, 2010 SHEET 1 OF 2

FIELD ACTIVITY SUBJECT: GW Sampling
 DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	
0700	Arrived onsite & had safety mtg.
0720	Went to bankhouse & setup, received all sample coolers
0800	Went to start on levas wells
0810	Calibrated meters - VSI (model 556) & Oakton (model T400)
0844	Started purging 5-W-18
0905	sampled 5-W-18 for NWTPH-Ds (w/ & w/o CGCW)
0922	Started purging 5-W-14
0945	sampled 5-W-14 (same as 5-W-18)
1005	Went to locate 5-W-43
1020	started purging 5-W-17
1050	sampled 5-W-17 (same as 5-W-18); took duplicate labeled 5-W-18-0910
1138	started purging 5-W-15
1200	sampled 5-W-15 (same as 5-W-18)
1225	Lunch
1255	Returned from lunch & got addn coolers
1322	Started purging 5-W-16
1340	sampled 5-W-16; took extra volume for Lab/QC
1419	Started purging 5-W-19
1440	sampled 5-W-19 (same as 5-W-18)

VISITORS ON SITE: _____ CHANGES FROM PALNS OR IMPORTANT DECISIONS: _____

WEATHER CONDITIONS: clear, 45-65 OF IMPORTANT TELEPHONE CALLS: _____

PERSONNEL ON SITE: Dean Kinney, Fred Merrill & Ghani Sebbane

Field Activity Log

Page: 1 of 1

AECOM

Project Name: BRISF. Skykomish

Completed By: Abdulghani Abbas

Project Number: _____

Date: 09/20/10

Field Activity: Semi-annual

Weather: rain, 55°F

groundwater sampling

Personnel on site: Abdulghani, Dean, K. Fred, M.

0815: Arrived to the site. Signed for a strider and BRISF
OFFIC and met with Dean.

0820: Had safety meeting with workers

0830: Moved a rotor to bunker house, and organized equipment
inside area.

0930: Began gauging Product wells with Fred.

1030: Started gauging P7 wells by the wall.

1200: Finished gauging, had a lunch break.

1300: Back to the site. Started gauging the rest of Dean wells.

1545: started surveying a stream

1700: Finished surveying sky river, and started
gauging vaults the wall.

1745: hauled out GW-3, and gauged it.

1800: Finished gauging, and went through all gauging list.

1845: left a site

~~Abdulghani, Abbas: 09/20/10~~

Field Activity Log

Page: 1 of 2 **AECOM**

Project Name: BWSF Skykomish Completed By: Abdelphani Selham
Project Number: 601-54595-0540 Date: 09/22/10
Field Activity: Semi-annual Weather: clear 44°F
GW Sampling Personnel on site: Bhansi S; Dean K; Fred M.

- 0715: Arrived to the site. Signed in at Strider and AECOM trailers.
- 0730: Had safety meeting with Dean and Fred and discussed Scope of Work.
- 0745: Received coolers with Fresh FC.
- 0800: started calibrating equipment PSI-turbidity meter.
- 0835: Began setting up on 2A-W-40
- 0851: started purging, water is clear.
- 0901: Began recording parameters.
- 0915: started sampling.
- 0935: Began setting up on 2A-W-41
- 0946: started purging, water is clear.
- 0956: Began recording parameters. DO unstable.
- 1010: started sampling.
- 1030: Began setting up on 2AW-42.
- 1052: started purging, water is cloudy with some Iron flakes.
- 1102: Began recording parameters. DO, turbidity unstable.
- 1140: started sampling, also collected duplicate.
~~2A-W-42-0910~~
- 1205: Began setting up on GW-1.
- 1217: started purging, water is clear.
- 1227: Began recording parameters. DO unstable.
- 1240: started sampling.
- 1310: Took lunch Break.
- 1350: Back to the site and started setting up on GW-2.
- 1404: Began purging, water is clear.
- 1414: started recording parameters. DO unstable.

Field Activity Log

Project Name: BMSF - Skykomish Completed By: Abdulghani, Sebaan
Project Number: _____ Date: 09/22/10
Field Activity: Semi-annual Weather: partly cloudy 56°F.
GW Sampling - Personnel on site: Ghannis, Fred M, Dean, K.

1440 : started sampling also collected duplicate. GW-20-0910 @ 1500.

1530 : Finished sampling, started cleaning up and packing samples in coolers and refreshing E.C.

1610 : Disposed purge water into drum and pumped it into HCC tank, and loaded out empty containers of Liquid Caustic Soda.

1700 : left site.

Abdulghani, Sebaan 09/22/10

Field Activity Log

Page: 1 of 2 AECOM

Project Name: RMSF SkyKornish

Completed By: Abdulhadi Sellane

Project Number: _____

Date: 09/21/16

Field Activity: Semi-annual

Weather: cloudy 58°F

GW Sampling.

Personnel on site: Gianni S, Fred, Jr; Dean K.

0748: Arrived to the site, signed in at Stricker and AECOM office trailer.

0800: Had meeting with Dean and Fred, discussed scope of work.

0820: organized and set up equipment in van. (IC; labels; buckets, gloves)

0830: started calibrating equipment vs I-556 and turbidity meter. HACH 2100P.

0915: started setting up on IC-W-1.

0936: Began purging, water is clear.

0946: started recording parameter

1000: Began sampling.

1010: started setting up on IC-W-8.

1011: Began purging, water is clear.

1024: started recording parameters.

1035: Began sampling.

1050: started setting up on IC-W-3.

1102: Began purging. water is clear. After 10 min started recording parameter. turbidity very high 627 NTU.

1125: started sampling.

1155: Began setting up on IC-W-4.

1210: started purging, water is clear.

1220: Began recording parameters.

1230: started sampling. cleaned up, packed up.

1300: Took lunch break.

1405: started setting up on IC-W-7.

1427: Began purging water is clear.

1437: started recording parameters. DO unstable.

Field Activity Log

Project Name: BUSF Skykomish Completed By: Abdulkarim Sellam
Project Number: _____ Date: 09/21/10
Field Activity: Semi annual Weather: cloudy 56°F
GW sampling. Personnel on site: Harri S; Dean K; Fred M.

- 1505: Began sampling.
- 1525: started setting up on GW-4.
- 1532: Began purging, water is clear.
- 1542: started recording parameters. DO unstable.
- 1600: Began sampling.
- 1620: started setting up on GW-3.
- 1628: Began purging, water started with some iron flocks.
- 1638: started recording parameters.
- 1650: Began sampling.
- 1720: Finished sampling, cleaned up, Disposed purge water into Hec building drum, pumped purge water into a Tank.
- 1830: packed and organized samples into coolers with ice.
- 1900: left a site.

Abdulkarim Sellam

River Gauging Form

Project Name: **BNSF Skynomish** Project Number: **60154595-0540** Measured by: F. Merrill & G. Sebbans

stake ID	date	time	backsight	foresight	water level	comments
SK-1	9/20/10	1648	5.43	15.83		GW-4
SK-2		1625	4.36	21.60		1B-W-3
SK-3		1610	10.74	16.73		SW-17
SK-4		1615	10.73	17.11		SW-17
SK-5		1600	10.74	18.83		SW-17
ML-1						Not measured - construction
ML-2						has diverted creek through
ML-3						pipng no accessible
ML-4						points to measure

stake ID: SK# = Skynomish River gauging locations, ML# = Former Maloney Creek channel gauging locations

all measurements in feet

backsight: height of level above surveyed point (staff placed at PK nail)

foresight: height of level above gauging point (staff placed in stream bed at SKx, MLx)

water level: depth of water at gauging point

5-W-17
 MW-17 10.74
 DOWN RIVER 18.83
 BARCEL 16.73

2.
 SW-17
 10.73
 17.11
 MIDDLE

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: 60154595-0540 Collected by: D. Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-4	09/20/10	1128	NM	9.47	None	None	WL	8.52		DWK	Well Abandoned
1A-W-5				NM				9.56			Not Installed
1A-W-38				NM				NM			
1B-W-2								13.58			
1B-W-3								14.91			
1C-W-1								13.37			
1C-W-2				NM				NM			Well destroyed during sewer work
1C-W-3								10.57			
1C-W-4								10.33			
1C-W-7								11.15			
1C-W-8								NM			
2A-W-5				13.95	None	None	WL	12.51		DWK	
2A-W-7				11.81				11.41			
2A-W-8				15.00				14.89			
2A-W-9								8.82			
2A-W-10								8.77			
2B-W-4				3.91				2.23			Well abandoned
5-W-4				NM				6.55			
5-W-14				9.19	None	None	WL	8.98			
5-W-15				7.75				7.55			
5-W-16				8.02				7.86			
5-W-17				7.35				7.19			
5-W-18				7.52				7.37			
5-W-19				7.44				7.30			
5-W-20				7.00				6.88			
5-W-42				6.75				6.61			
5-W-43				NM				6.51			Well backed, not installed
5-W-44				NM				NM			Not Installed
5-W-50								7.34			
5-W-52				NM				6.64			Well Abandoned
5-W-53				NM				6.84			Well h
5-W-54								6.55			
5-W-55								6.25			
5-W-56								6.91			

Fluid Level Gauging Form

Project Name: BNSF Skykomish Project Number: 60154595-0540 Collected by: Fred Mearl

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-4	09/20/10							8.52			
1A-W-5								9.56			
1A-W-38				NM				NM			Not Installed
1B-W-2								13.58			
1B-W-3								14.91			
1C-W-1								13.37			
1C-W-2				NM				NM			Well destroyed during sewer work
1C-W-3								10.57			
1C-W-4				10.45	NONE	NONE	H ₂ O LEVEL	10.33		FM	
1C-W-7		14:57						11.15			
1C-W-8								NM			
2A-W-5								12.51			
2A-W-7								11.41			
2A-W-8								14.89			
2A-W-9								8.82			
2A-W-10								8.77			
2B-W-4								2.23			
5-W-4				NM				6.55			Well abandoned
5-W-14								8.98			
5-W-15								7.55			
5-W-16								7.86			
5-W-17								7.19			
5-W-18								7.37			
5-W-19								7.30			
5-W-20								6.88			
5-W-42								6.61			
5-W-43								6.51			
5-W-44				NM				NM			Not Installed
5-W-50			1345	7.34	NONE	NONE	H ₂ O LEVEL	7.34		FM	
5-W-52				ABANDONED				6.64		FM	
5-W-53				ABANDONED				6.84		FM	
5-W-54			1402	6.55	NONE	NONE	H ₂ O LEVEL	6.55		FM	
5-W-55			1416	6.25	NONE	NONE		6.25		FM	
5-W-56			1412	6.91	NONE	NONE		6.91		FM	

FM

F

Fluid Level Gauging Form

G. Sebbane

Project Name: BNSF Skykomish
 Project Number: 60154595-0540
 Collected by:

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
1A-W-4	09/20/10							8.52			
1A-W-5								9.56			
1A-W-38				NM				NM			Not installed
F 1B-W-2		1701	NM	13.51	NONE			13.58		GS	
G 1B-W-3		1654	NM	14.91	NONE			14.91		GS	
G 1C-W-1		1440	NM	13.63	NONE			13.37		GS	
1C-W-2				NM				NM			Well destroyed during sewer work
G 1C-W-3		1448	NM	10.87	NONE			10.57		GS	
G 1C-W-4								10.33		GS	
G 1C-W-7		1450	NM	11.52	NONE			11.15		GS	
G 1C-W-8		1443	NM	12.98	NONE			NM		GS	
2A-W-5								12.51			
2A-W-7								11.41			
2A-W-8								14.89			
2A-W-9								8.82			
2A-W-10								8.77			
2B-W-4								2.23			
5-W-4				NM				6.55			Well abandoned
5-W-14								8.98			
5-W-15								7.55			
5-W-16								7.86			
5-W-17								7.19			
5-W-18								7.37			
5-W-19								7.30			
5-W-20								6.88			
5-W-42								6.61			
5-W-43								6.51			
5-W-44				NM				NM			Not installed
5-W-50								7.34			
5-W-52								6.64			
G 5-W-53				NM				6.84			not located
5-W-54								6.55			
5-W-55								6.25			
5-W-56								6.91			

2AW-40 : 12.42 @ 1540.

D. Kinney

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-1	09/20/10	0553	NM	13.09	None	None	WL	12.43		DNK	
MW-2		0935		12.70				11.95			
MW-3		0938		10.78				8.99			
MW-4		0942		10.17				7.26			
MW-5		0946		8.19				5.97			
MW-9		110		13.32				12.11			
MW-10		1100		13.70				12.11			
MW-11		1058		13.73				12.75			
MW-12				NM				4.62			Well abandoned
MW-12R				NM				NM			Not installed
MW-13		1015		10.31	None	None	WL	8.89			
MW-14		1017	13.5	12.29				10.90			
MW-15		1007	13.5	13.52				12.02			
MW-16		1027		13.57				12.91			
MW-18		1027		15.10				14.10			
MW-32		1331		0.19				8.98			
MW-38R		1150		4.92				4.50			
MW-40		1018		12.98				11.52			
1A-W-36				NM				NM			Not installed
1A-W-37				NM				NM			Not installed
1B-W-23		1124		16.52	None	None	WL	15.48			
1B-W-24				NM				NM			Not installed
2A-W-40								11.69			
2A-W-41								14.70			
2A-W-42								12.35			
2B-W-45				NM				10.32			Well abandoned
2B-W-46				NM				10.22			Well abandoned
2B-W-47				NM				NM			Not installed
2B-W-48				NM				NM			Not installed
3-W-41				NM				4.99			Well abandoned
3-W-42				NM				8.14			Well abandoned
3-W-43				NM				4.38			Well abandoned

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-1	09/20/10							12.43			
MW-2								11.95			
MW-3								8.99			
MW-4								7.26			
MW-5								5.97			
MW-9								12.11			
MW-10								12.11			
MW-11								12.75			
MW-12				NM				4.62			Well abandoned
MW-12R				NM				NM			Not installed
MW-13								8.89			
MW-14			13.5					10.90			
MW-15			13.5					12.02			
MW-16								12.91			
MW-18								14.10			
MW-32								8.98			
MW-38R								4.50			
MW-40								11.52			
1A-W-36				NM				NM			Not installed
1A-W-37				NM				NM			Not installed
1B-W-23								15.48			
1B-W-24				NM				NM			Not installed
2A-W-40	08/29/10	15:40		12.42	NONE			11.69			
2A-W-41								14.70			
2A-W-42								12.35			
2B-W-45				NM				10.32			Well abandoned
2B-W-46				NM				10.22			Well abandoned
2B-W-47				NM				NM			Not installed
2B-W-48				NM				NM			Not installed
3-W-41				NM				4.99			Well abandoned
3-W-42				NM				8.14			Well abandoned
3-W-43				NM				4.38			Well abandoned

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
MW-1	09/20/10							12.43			
MW-2								11.95			
MW-3								8.99			
MW-4								7.26			
MW-5								5.97			
MW-9								12.11			
MW-10								12.11			
MW-11								12.75			
MW-12				NM				4.62			Well abandoned
MW-12R				NM				NM			Not Installed
MW-13								8.89			
MW-14			13.5					10.90			
MW-15			13.5					12.02			
MW-16								12.91			
MW-18								14.10			
MW-32								8.98			
MW-38R								4.50			
MW-40								11.52			
1A-W-36				NM				NM			Not Installed
1A-W-37				NM				NM			Not Installed
1B-W-23								15.48			
1B-W-24				NM				NM			Not Installed
2A-W-40								11.69			
2A-W-41								14.70			
2A-W-42	9/20/10 1415		NM 9.65					12.35			
2B-W-45				NM				10.32			Well abandoned
2B-W-46				NM				10.22			Well abandoned
2B-W-47				NM				NM			Not Installed
2B-W-48				NM				NM			Not Installed
3-W-41				NM				4.99			Well abandoned
3-W-42				NM				8.14			Well abandoned
3-W-43				NM				4.38			Well abandoned

FL

F. Merrill & G. Sabana

(Handwritten initials)

PAGE 3

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010		Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)		
EW-1	09/20/10	1320	NM	9.55	NONE	NONE	H ₂ O LEVEL	8.78		FM	
EW-2				NM				NM		FM	Not installed
GW-1		1330		12.39				7.95		FM	
GW-2		1342		9.83				9.91		FM	
GW-3		1420		10.25				15.11		FM	
GW-4		1755		15.73			H ₂ O	9.98		FM	padlock on top of NM
PZ-1R		0200		10.20			H ₂ O LEVEL			FM	
PZ-2N		1156		11.63						FM	
PZ-2S		1152		9.83						FM	
PZ-3N		1145		13.97						FM	
PZ-3S		1152					TTP			FM	11-0.62
PZ-4N		1157		14.64			H ₂ O LEVEL			FM	
PZ-4S		1158		11.79						FM	
PZ-5N		1120		10.24						FM	
PZ-5S		1124		10.24	H ₂ O	H ₂ O	TTP			FM	11-1.07
PZ-6N		1101		13.29	NONE	NONE	H ₂ O LEVEL			FM	
PZ-6S		1105			H ₂ O	H ₂ O	-TTP			FM	4-0.47
PZ-7N		1052		12.40	NONE	NONE	H ₂ O LEVEL			FM	
PZ-7S		1054		9.08	NONE	NONE				FM	
PZ-8	9/20/10	1046		10.20	NONE	NONE				FM	

2 A.W. 41 = 17.14 @ 1403.

(Handwritten initials in a circle)

F. MERRILL S. Johnson

Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	3/22/2010			Sign Off	Comments
								DTW (ft)	Prod. Thick. (ft)	DTW (ft)		
2A-W-3	09/20/10	0953	NM		HVTR	HV. TR	TOP	9.50	Hvy TR		FM	12 - 1.05
MW-7		0938	NM		NONE	NONE	H	11.73	None		FM	14 - 0.77
2A-W-11			NM					6.74	TR			Well abandoned
MW-28		0940	NM		NONE	NONE	TOP	13.61	None		FM	15.5 - 0.95
MW-39			NM					7.93	None			Well abandoned
5-W-51		1015	NM		HVTR	HVTR	TOP	7.08	TR		FM	8 - 0.49
1A-W-2			NM					NM				Not located (in construction zone)
2A-W-4		1001	NM		HVTR	HVTR	TOP	10.02	Hvy TR		FM	12 - 1.24
5-W-2			NM					7.14	Hvy TR			Well abandoned
5-W-3			NM					7.22	0.72			Well abandoned
MW-22			NM					7.39	Hvy TR			Well abandoned

Other Notes:

- dirty casing, possible trace product
- use tape and paste (TP)
- use tape & paste (TP) + peristaltic pump (PP)
- dirty well

(FM)

FMV: 10.57 @ 1720 From valid
 CV: 16.24 @ 1725 From valid
 EV: 9.67 @ 1730 From steel pipe
 WV: 13.50 @ 1740 From 1rd.

G. Sebbane & F. Merrill

IW-01 : 8.80 NONE @ 1159
PW-04 : 9-0.74 TRACE @ 1115
RW-02 : 13.53 NONE @ 1138
RW-05 : 10.43 NONE.

LOW-FLOW GROUND WATER SAMPLING FORM

AECOM

Project Name: Skykomish BNSF
 Project Number: 60154595-0540
 Date: 10/26/10
 Weather: 41 °F cloudy light rain.

Well ID: 1C-W-7
 Sample ID: 1C-W-7-1010
 Well Condition: Good

PRE-PURGE INFORMATION

Initial Depth to Water* (ft): 10.84
 Depth to Product* (ft): -
 Product Thickness (ft): -
 Water Column (ft): 9.96
 Water Volume in Well (gal): 1.63
 Inner Casing Diameter (Inch): 2
 Inner Casing Material: PVC
 Start Purge Time: 1228

Purge/Sample Method: Low-flow
 Purge/Sample Equipment: Peristaltic Pump
 Sampling Tube Material: Polyethylene/Silicone
 Screened Interval Depth Range* (ft): 10-20.8
 Tubing Inlet Depth* (ft): 12
 Total Well Depth* (feet): 20.8

PURGING INFORMATION

Time	Purge Rate (mL/min)	Depth to Water (ft)	Volume Purged (gal)	Temp (°C)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	pH (SI Unites)	ORP mV	Turbidity (NTU)	Comments
1238	250	10.85		10.29	0.084	1.86	5.58	237.7	0.75	
1241	250	10.85		10.31	0.085	1.88	5.60	244.1	0.76	
1244	250	10.85		10.36	0.084	1.87	5.61	250.1	0.66	
1245	-	-	-	-	-	-	-	-	-	

SAMPLING INFORMATION

Sample ID	Sample Time	Analysis	Method	Container	No. of Bottles	Preservative
1C-W-7-1010	1245	TPH Diesel	NWTPH-Dx W/O SGCU	1 L Amber Glass	2	HCl
		TPH Diesel	NWTPH-Dx W/ SGCU	1 L Amber Glass	2	HCl

STABILIZATION RANGES

Dissolved Oxygen: +/- 10%
 Conductivity: +/- 10%
 Temperature: +/- 10 %
 pH: +/- 0.1 unit
 Redox Potential: +/- 10%
 Turbidity: +/- 10%

COMMENTS & OBSERVATIONS: (slow recharge, turbidity, odor, sheen, PID readings)

purge water is clear.

USEFUL INFORMATION

* = Measured from top of inner casing
 DTW - Depth to Water
 Initial purge 15 minutes, then measure at 3 minute intervals
 Water Levels Measured with an Electronic Water Level Meter
 Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L
 4" casing: 1 ft = 0.656 gal = 2.48 L
 1 gal = 3785.4 mL

Field Activity Log

Page: of

AECOM

Project Name: Skykomish BNSF Completed By: Abdelghani Sebane
Project Number: _____ Date: 10/26/10
Field Activity: Monthly GW Weather: rain 40°F
Sampling Personnel on site: Bhoni Sebane

- 0910: Arrived to the site, signed in at AECOM and Stricker offices, met with ERIC and had safety meeting.
- 0930: started calibrating equipment.
- 1000: went to buy TG.
- 1015: Began setting up on IC-W-1
- 1035: started purging, water is clear.
- 1045: Began recording parameters.
- 1055: started sampling.
- 1110: Began setting up on IC-W-8.
- 1117: started purging, water is clear.
- 1127: Began recording parameters.
- 1140: started sampling, also collected duplicate IC-W-80-1010 at 1220.
- 1215: Began setting up on IC-W-7.
- 1228: started purging, water is clear.
- 1238: Began recording parameters.
- 1245: started collecting samples.
- 1310: Finished sampling and started packing up and cleaning, disposed purge water into a drum at Hec building.
- 1400: signed out, and left a site to the Lab.

~~Abdelghani Sebane~~

Well Decommissioning Forms

5/3/10 Well Abandonment

- 0645 M. Gradson onsite. All safety focus stay onsite.
- 0650 Sit in at Strider safety meeting.
- 0700 Sit in at AECOM safety meeting.
Steel plates, eye boards, samplings
Fire station emergency meeting, leather, Pallets, etc.
Cars, rail tracks, school/kids, check out when done for the day @ AECOM STRIDER.
- 0710 Cascade should be here about 8am. Discuss plan with Eric.
- 0730 Walked around to find the locations of MW-22, SW-3, SW-2, 1A-W-5, and MW-17.
- 0750 Went for Cascade - organize safety info, send Renee an update.
- 0830 Called Cascade to contact driller.
- 0840 Left a message for driller - Ryan.
- 0900 Talked to Simi Nice - he said they had a flat tire last night and couldn't start work until 0830 (DOT regulations), so they will be on their way soon.
- 0920 Ryan - Cascade called and said they are on their way and will arrive in about an hour and a half. Notified Renato.

5/3/10 Well Abandonment

- 1030 Cascade onsite - Have safety meetings and move trucks.
- 1100 Thunder & lightning. The area won't start work until 30 minutes after the last lightning/thunder.
- 1150 Lunch break
- 1230 Set up to begin drilling at MW-22 (15.5 feet deep).
- 1300 Begin drilling of MW-22 to overbore and abandon the well.
- 1355 Completed overbore in MW-22. Backfilled with 3 bags of bentonite & 1.5 bags below ground surface. Hydrofractured chips covered with dirt.
- 1400 Move rig to next location SW-3 (17 feet). Decom everything.
- 1405 Talked to Renee, she said to put concrete on the top of 1A-W-5 and MW-17 will likely take a while to get the concrete out - needs concrete on the top too.
- She hasn't heard anything from Ecology, but said she would let me know. T2-1 should be last and the 3) 3-W- wells can also be whipped in three days / tomorrow.
- 1418 Begin drilling @ SW-5.

5/3/10 Well Abandonment

1500 slow going because there was a lot of concrete

- 1500 S-W-3 abandoned using 6 bags of bentonite to 2 feet bags
- 1530 Move to S-W-2 and set up
- 1540 Begin drilling S-W-2 (22 feet)
- 1635 Completed decommissioning S-W-2 using 4 bags of bentonite to 1 foot bags. Extra bags of bentonite used at S-W-2 and S-W-3 to contain the ground water at the surface.

Note: All soil was stockpiled at each location and covered by plastic to be removed by Strider. Tomorrow I will check with Eric to determine where the soil can be stockpiled for the other 2 overdrill wells.

- 1650 Clean up and decon equipment again (all equipment is deconed after each location).
- Kevin got water to hydrate the bentonite.
- 1710 Closed gates to excavation area and walked to truck area.
- 1730 Signal everyone out @ AECOM trailer
- 1740 AECOM + Cascade offsite will meet at 0700.

Mandy Goodson

5/4/10 Well Abandonment

0650 AECOM onsite. Check in @ Strider trailer and sign in at safety meeting sheet.

- 0700 Attend AECOM HHS meeting.
- 0705 Driller's sign in at Strider
- 0708 Driller's sign in with AECOM and attend tailgate HHS meeting, then go over their hazards as well.
- 0720 Cret set up at 1A-W-5 to overdrill (19.5 feet) and concrete at the top.

Check utility plans with Wrenner, ND utilities are present near 1A-W-5. Talked to Renee - she suggested that we remove the well monument when capping the 3-W wells and add concrete and dirt if there is any. (Continuing to set up at 1A-W-5)

- 0850 Checked with Renee to make sure we can use the borehole to remove the monument at S-W-43, she said that is fine, just not to start too early.
- 0900 Completed drilling 1A-W-5, little sand was recovered and the pie was pushed up ~~to the~~ broken at about 3.5 feet from the bottom of the well (all the bentonite was removed). 5 bags of bentonite used to fill to 1 foot below ground surface. Concrete to surface in 2 bags of concrete used.

5/4/10 Well Abandonment

- 0912 Eric called to say he took out the water level meter at PZ-1.
- 0920 Collected Permit don't have to seal the PZ / PVC down to the surface - can fill with bentonite to abandon.
- 0930 Setting up at MW-17 (20.5 ft bags) Well is destroyed (no cap for PVC or monument cover).
- 1030 Used 4 bags of bentonite to decommission MW-17 (after drilling at 0940). The seal is on black plastic and white plastic for stander to disassemble / or move to the seal handling facility. Bentonite to 2 feet bags. Will use 2 feet of concrete (7 bags used).
- 1120 Chipping up PZ-1 - used less than 1 bag of bentonite and capped with a 2" slip cap.
- 1130 Added less than 1 bag to 3-W-43 Will come back to hydrate and remove the well box.
- 1135 Added less than 1 bag of bentonite to 3-W-42, will come back to hydrate and remove the well box.
- 1140 Filled less than one bag of bentonite to 3-W-41 and will come back to hydrate and remove the well box.

5/4/10 Well Abandonment

- 1150 Finish clearing around MW-17.
- 1155 Labeled 2 water drums to be moved to the water drum storage area with the kerosene.
- 1235 Got the monument out from 3-W-43 location, finish with 1 bag of concrete and topped with soil.
- 1240 Took out 3-W-42 and finished with 1 bag of concrete and soil to the top.
- 1254 Removed monument from 3-W-41 and received 2 bags of concrete and topped with dirt (Chips were also hydrated).
- 1300 Checked with Renee, she hasn't heard anything from Ecology, so she suggested we continue to clean up. Cascade continuing to store tools and equipment and finish paperwork. Cascade will sign out when finished.
- 1430 AFECOM and Cascade sign out at Stander and AFECOM trailers. See well decommissioning forms.
- 1435 Cascade offsite.
AFECOM offsite.

Mindy J. Gaddis



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

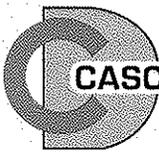
CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omece Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT <i>Washco</i>		PROJECT NO <i>Shiloh 2002 Well</i>	DATE <i>02 Aug 2002</i>	DAY <i>Monday</i>							
JOB LOCATION <i>1122 2002 Ave. Shiloh 2002 Well</i>		DIG ALERT #	CD-LP# <i>1122 2002</i>								
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK			HOURS		Total Hrs	Charge Hrs			
		Please explain reasons for Down Time and Standby Time and Shop Time			Start	Stop					
		AM Shop Time			8:15	9:15	1.0				
		Travel to Site			9:15	10:30		1.15			
		<i>Spun out 11.5' casing, down the case, set up</i>			10:30	12:00		1.30			
		<i>Use 2' bit down to 12' depth - Take down</i>			12:00	12:30	0.5				
		<i>Still 5' depth - not equipped to the 1st</i>			12:30						
		<i>edge down - set up - etc. - Remold down box</i>				1:30		1.0			
<i>11-22</i>	<i>16'</i>	<i>change bit to 16' chp up, down, punch</i>			1:30	2:30		0.5			
		<i>back to 12' depth - Remold down box</i>			2:30	3:30		0.5			
<i>11-23</i>	<i>18'</i>	<i>change bit to 18' chp up, down, punch</i>			3:30	4:30		1.0			
		<i>back to 12' depth - Remold down box</i>			4:30	5:30		0.5			
<i>11-24</i>	<i>20'</i>	<i>change bit to 20' chp up, down, punch</i>			5:30	6:45		0.75			
		<i>clean up, punch equipment, make equipment</i>			6:45						
		<i>look up, look up, etc.</i>				8:15		0.75			
		Travel to Shop			5:30	6:15		0.75			
		PM Shop Time	<i>Rest time - Parked - etc.</i>		6:15	7:30		0.75			
Total Ft.		TOTAL CHARGEABLE RIG HOURS					<i>9.25</i>				
RIG ENGINE HOURS:		START	STOP		TOTAL						
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	<i>0811</i>	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"			
SUPPORT TRUCK #	<i>32832</i>	SNOW FENCE RENTAL	20'	SCREEN			READYMIX	WELL COVER 12"			
SUPPORT TRUCK #	<i>11852</i>	CONTINUOUS SAMPLER	10'	SCREEN			QUICKSET	MONUMENT CASING			
TRAILER #	<i>08312</i>	CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN			PORTLAND	BOLLARDS			
BOBCAT	<i>485</i>	# OF CORE CUTS	20'	BLANK			ASPHALT	SOIL DRUMS			
AUTO HAMMER		# OF BULLDOG CUTS	10'	BLANK			BENTONITE GROUT	DEVELOPMENT DRUMS			
GROUT MIXER		# OF SERVICE RUNS	5'	BLANK			BENTONITE CHIPS	19	DECON DRUMS		
GROUT PUMP		# OF SAW CUTS	5'	PP SCREEN			BENTONITE POWDER		HOLE COVER PLATES		
PERISTALTIC PUMP		PORTABLE RESTROOM	10'	PP SCREEN			BENTONITE PELLETS		PLASTIC SHEETING		
FORKLIFT/HOPPER				SLIP CAP			BENTONITE GRANULAR		TRAFFIC CONTROL		
LABOR				THREADED CAPS			SAMPLER TUBES		CORE BOXES		
CREW WITH PER DIEM	<i>2</i>	CHARGEABLE EXTRA LABOR HRS			LOCKING CAPS		SHELBY TUBES		PLYWOOD		
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS		SOIL SAMPLES		
<i>John G. Smith</i>		1.0	8.25	10.25	CENTRALIZERS		GW PROBE POINTS		WATER SAMPLES		
<i>Bob Smith</i>		1.0	2.25	9.5	LOCKS		MACRO LINERS		HYDRO PUNCH SAMPLES		
<i>Mike Smith</i>		1.0	2.25	9.5	UTILITIES FOUND OR HIT	<i>None</i>	SAMPLER SHOE		AUGER PLUGS		
REMARKS		<i>2:30 - 3:15 to 7:30 - 0.5 for lunch</i>									
		<i>3:15 - 3:45 to 6:15 - 0.5 for lunch</i>									
		<i>4:15 - 4:45 to 6:15 - 0.5 for lunch</i>									
		<i>Notes: 1st 11.5' to 12' depth (using 11.5' and 11.5')</i>									

Client Signature *John G. Smith*

Operator Signature *Bob Smith*



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Ormeo Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT <i>Alcon</i>		PROJECT NO <i>SKYWAY/1010</i>		DATE <i>04 May 2010</i>	DAY <i>Tuesday</i>						
JOB LOCATION <i>13600 SE Ambler Rd, Woodinville, WA</i>			DIG ALERT #		CD-LP# <i>010-202</i>						
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK			HOURS		Total Hrs	Charge Hrs			
		Please explain reasons for Down Time and Standby Time and Shop Time			Start	Stop					
		AM Shop Time	<i>Prep work</i>			<i>6:15</i>	<i>6:15</i>	<i>.25</i>			
		Travel to Site	<i>Fuel up P# 582</i>			<i>6:15</i>	<i>7:15</i>		<i>1.0</i>		
			<i>Setup 20' H.C. equipment - clean up equipment - set up</i>			<i>7:15</i>	<i>8:15</i>		<i>1.0</i>		
			<i>mix bentonite to the 10' screen - set up</i>			<i>8:15</i>	<i>8:15</i>		<i>0.8</i>		
<i>101</i>	<i>20'</i>		<i>drill down 20' - stop up - clean up - mix</i>			<i>8:15</i>					
			<i>Equipment to the next screen - down - set up</i>				<i>9:15</i>		<i>1.0</i>		
<i>101</i>	<i>21'</i>		<i>drill down 21' - stop up - clean up - mix</i>			<i>9:15</i>					
			<i>Down 21' - clean up - set up - set up</i>				<i>11:15</i>		<i>2.0</i>		
			<i>mix to 21' - stop up - clean up - set up</i>			<i>11:15</i>					
<i>101</i>	<i>15'</i>		<i>PZ-1 - back down to 15'</i>								
<i>101</i>	<i>16'</i>		<i>PZ-1 - back down to 16'</i>								
<i>101</i>	<i>20'</i>		<i>PZ-1 - back down to 20'</i>								
<i>101</i>	<i>19'</i>		<i>PZ-1 - back down to 19'</i>				<i>1:15</i>		<i>1.0</i>		
			<i>clean up - load equipment - shop (1.0)</i>			<i>1:15</i>					
			<i>back to the shop, work on equipment</i>				<i>2:30</i>		<i>1.05</i>		
		Travel to Shop				<i>2:30</i>	<i>3:45</i>		<i>1.05</i>		
		PM Shop Time									
Total Ft.		TOTAL CHARGEABLE RIG HOURS									
RIG ENGINE HOURS:		START	STOP		TOTAL						
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	ITEM	QTY	ITEM	QTY		
<i>20110</i>						SAND		WELL COVER 8"			
<i>20582</i>	SNOW FENCE RENTAL	20' SCREEN				READYMIX	<i>10</i>	WELL COVER 12"			
<i>20582</i>	CONTINUOUS SAMPLER	10' SCREEN				QUICKSET		MONUMENT CASING			
<i>20223</i>	CONTINUOUS SAMPLER FOOTAGE	5' SCREEN				PORTLAND		BOLLARDS			
<i>425</i>	# OF CORE CUTS	20' BLANK				ASPHALT		SOIL DRUMS			
	# OF BULLDOG CUTS	10' BLANK				BENTONITE GROUT		DEVELOPMENT DRUMS			
	# OF SERVICE RUNS	5' BLANK				BENTONITE CHIPS	<i>10</i>	DECON DRUMS	<i>2</i>		
	# OF SAW CUTS	5' PP SCREEN				BENTONITE POWDER		HOLE COVER PLATES			
	PORTABLE RESTROOM	10' PP SCREEN				BENTONITE PELLETS		PLASTIC SHEETING			
		SLIP CAP		<i>3</i>		BENTONITE GRANULAR		TRAFFIC CONTROL			
LABOR				THREADED CAPS		SAMPLER TUBES		CORE BOXES			
CREW WITH PER DIEM				LOCKING CAPS		SHELBY TUBES		PLYWOOD			
CHARGEABLE EXTRA LABOR HRS				DRIVE SHOE		PROBE POINTS		SOIL SAMPLES			
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	CENTRALIZERS	GW PROBE POINTS		WATER SAMPLES			
<i>Kevin Gaudin</i>					LOCKS	MACRO LINERS		HYDROPUNCH SAMPLES			
<i>Kevin Gaudin</i>						SAMPLER SHOE		AUGER PLUGS			
				UTILITIES FOUND OR HIT				DRILL OUT BITS			
REMARKS											

Client Signature *Mindy Gaudin* Operator Signature *[Signature]*

AECOM - Monitoring Well Decommissioning Form

Project #: W054595-0580
 Date: 7/12/10
 Personnel: IC. Knecht
 Driller/Company: Cascade Drilling, Inc

Location ID	Time	DTB of well	Method	Type of Material	# of Bags	Material to ft bgs	Bags of concrete	Notes
5-W-52	0920-1030	16 bgs	SONIC	bentonite chips	3	2'	2	well on school property overdrill
2B-W-19	1142	19	chip in place	bentonite chips	1	0.6'		chip in place
2B-W-32	1144	19	chip in place	bentonite chip	3	1		chip in place
2B-W-21	1154	19	chip in place	bentonite chip		1		chip in place
2B-W-46	1202	24	chip in place	bentonite chips	2/3	1		chip in place
2B-W-45	1215	22	chip in place	bentonite	1 1/3	1		chip in place
2B-W-30	1600	19	overdrill	bentonite	5	1		well surround in clean gravel to level off
MW-39	0854-1000	22.5	overdrill	bentonite chips	6/5	1	3	
2B-W-14	0851	11	chip in place	bentonite	< 4			chip - cut PVC to grade
2B-W-13	0855	11	chip in place	bent.	< 4			chip - cut PVC to grade
MW-12		15.5	overdrill	bentonite				
2B-W-15	1045	11.5	chip in place	bentonite chips	< 4			cut PVC to grade
2B-W-22	1048	11	chip in place	bentonite	< 4			cut PVC to grade
2A-W-11	1200-1245	17	over drill	bentonite	5	1		in grass & dirt area filled last 1' w/native
MW-12	1255-1330	15.5	overdrill	bentonite	4	1		in grass & dirt area filled last 1' w/native
Notes: 2B-W-12	1340	10	chip in place	bentonite	3/4			cut PVC to grade
DTB - Depth to Bottom								

Material - type of decommissioning material used (bentonite chips, bentonite grout, cement grout, etc)
 DTB - feet below ground surface

7/12/10

7/14/10



CASCAD DRILLING, L.P.
LEADERS IN SAFETY

CASCAD DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omece Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT <i>AECOM</i>		PROJECT NO		DATE <i>7/12/16</i>		DAY			
JOB LOCATION <i>Starburst</i>			DIG ALERT #			CD-LP# <i>W10298</i>			
Well #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time				HOURS		Total Hrs	Charge Hrs
Bore #						Start	Stop		
		AM Shop Time				<i>5:45</i>	<i>6:30</i>	<i>45</i>	<i>70</i>
		Travel to Site				<i>6:30</i>	<i>7:30</i>	<i>1</i>	<i>1</i>
		<i>Put top H+3</i>				<i>7:30</i>	<i>8:00</i>	<i>30</i>	
		<i>verified equipment + set up per SW-32</i>				<i>8:00</i>	<i>1:00</i>	<i>1:15</i>	<i>15</i>
		<i>Drill out SW-32 14' dia</i>				<i>9:30</i>	<i>10:30</i>	<i>15</i>	<i>15</i>
		<i>Lunch</i>				<i>10:30</i>	<i>11:45</i>	<i>1:15</i>	
		<i>Chip in place 26-W-19, 26-W-32, 26-W-21</i>				<i>11:45</i>			
		<i>26-W-4, 26-W-45</i>					<i>2:00</i>	<i>3</i>	<i>3</i>
		<i>Talk with studebant with site with Renee</i>				<i>2:00</i>	<i>2:30</i>	<i>15</i>	<i>15</i>
		<i>moving rig and set up on pad Drill well</i>				<i>2:30</i>			
		<i>NO-</i>					<i>4:30</i>	<i>2</i>	<i>2</i>
		<i>move rig to playing area</i>				<i>4:30</i>	<i>5:45</i>	<i>1:15</i>	<i>15</i>
		<i>leave from site after leave dig</i>				<i>5:45</i>	<i>7:00</i>	<i>1:15</i>	
		Travel to Shop							
		PM Shop Time				<i>5:45</i>	<i>6:45</i>	<i>1</i>	<i>1</i>
Total Ft.		TOTAL CHARGEABLE RIG HOURS				<i>6:45</i>	<i>7:00</i>	<i>15</i>	<i>21</i>
RIG ENGINE HOURS:		START	STOP			TOTAL		<i>17:42</i>	
EQUIPMENT				CASING			MATERIALS		
DRILL RIG #	<i>100</i>	COMPRESSOR/JACKHAMMER		TYPE	SLOT	2	4	SAND	WELL COVER 8"
SUPPORT TRUCK #	<i>502</i>	SNOW FENCE RENTAL		20'	SCREEN			READYMIX	WELL COVER 12"
SUPPORT TRUCK #	<i>503</i>	CONTINUOUS SAMPLER		10'	SCREEN			QUICKSET	MONUMENT CASING
TRAILER #	<i>233</i>	CONTINUOUS SAMPLER FOOTAGE		5'	SCREEN			PORTLAND	BOLLARDS
BOBCAT	<i>10</i>	# OF CORE CUTS		20'	BLANK			ASPHALT	SOIL DRUMS
AUTO HAMMER		# OF BULLDOG CUTS		10'	BLANK			BENTONITE GROUT	DEVELOPMENT DRUMS
GROUT MIXER		# OF SERVICE RUNS		5'	BLANK			BENTONITE CHIPS	DECON DRUMS
GROUT PUMP		# OF SAW CUTS		5'	PP SCREEN			BENTONITE POWDER	HOLE COVER PLATES
PERISTALTIC PUMP		PORTABLE RESTROOM		10'	PP SCREEN			BENTONITE PELLETS	PLASTIC SHEETING
FORKLIFT/HOPPER		<i>1000</i>	<i>200</i>	SLIP CAP				BENTONITE GRANULAR	TRAFFIC CONTROL
LABOR				THREADED CAPS			SAMPLER TUBES		
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS		LOCKING CAPS			SHELBY TUBES		
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	"	SOIL SAMPLES
<i>SL-2</i>				<i>7:30</i>	CENTRALIZERS		GW PROBE POINTS		WATER SAMPLES
<i>JOHN J</i>				<i>12</i>	LOCKS		MACRO LINERS		HYDROPUNCH SAMPLES
<i>KEVIN R</i>				<i>12</i>			SAMPLER SHOE		AUGER PLUGS
				UTILITIES FOUND OR HIT			DRILL OUT BITS		
REMARKS									
<i>Starburst</i>	<i>5:45</i>	<i>10:30-11:00</i>	<i>7:00</i>	<i>Travel to shop</i>					
<i>Starburst</i>	<i>5:45</i>	<i>10:30-11:00</i>	<i>6:15</i>						
<i>Starburst</i>	<i>5:45</i>	<i>10:30-11:00</i>	<i>6:15</i>						

Client Signature *[Signature]*

Operator Signature *[Signature]*



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 # CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omec Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT <i>APcom</i>		PROJECT NO		DATE <i>7/13/11</i>	DAY <i>Tue July</i>				
JOB LOCATION <i>Stapline</i>			DIG ALERT #		CD-LP# <i>1029</i>				
Well #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time and Standby Time and Shop Time			HOURS		Total Hrs	Charge Hrs	
Bore #					Start	Stop			
		AM Shop Time							
		Travel to Site	<i>5:45 am + hour</i>	<i>7:30</i>	<i>8:30</i>	<i>1</i>	<i>1</i>		
		<i>Rest Top + Hrs</i>		<i>9:30</i>	<i>9:00</i>	<i>1.5</i>	<i>1.5</i>		
		<i>Chip in place 2B-4-33 and 2B-4-11</i>		<i>9:00</i>	<i>10:30</i>	<i>1.5</i>	<i>1.5</i>		
		<i>Plan</i>		<i>10:30</i>	<i>11:00</i>	<i>1.5</i>	<i>1.5</i>		
		<i>Work on Rig</i>		<i>11:00</i>	<i>11:30</i>	<i>1.5</i>	<i>-</i>		
		<i>Work</i>		<i>11:30</i>	<i>12:00</i>	<i>-</i>	<i>-</i>		
		<i>Work on Rig</i>		<i>12:00</i>	<i>12:30</i>	<i>1.5</i>	<i>-</i>		
		<i>Work for Slender</i>		<i>12:30</i>	<i>2:45</i>	<i>-</i>	<i>-</i>		
		<i>Make and set up on 5-4-53</i>		<i>2:45</i>	<i>3:15</i>	<i>1.5</i>	<i>1.5</i>		
		<i>Drill out and chipwell</i>		<i>3:15</i>	<i>4:15</i>	<i>1</i>	<i>1</i>		
		<i>move equipment to staging area</i>		<i>4:15</i>	<i>4:45</i>	<i>1.5</i>	<i>1.5</i>		
		Travel to Shop	<i>+ Rest Top</i>	<i>4:45</i>	<i>6:30</i>	<i>1.75</i>	<i>1.75</i>		
		PM Shop Time							
Total Ft.		TOTAL CHARGEABLE RIG HOURS							
RIG ENGINE HOURS:		START	STOP			TOTAL			
EQUIPMENT				CASING		MATERIALS			
DRILL RIG #	<i>166</i>	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND	WELL COVER 8"	
SUPPORT TRUCK #	<i>523</i>	SNOW FENCE RENTAL	20'	SCREEN			READYMIX	2	WELL COVER 12"
SUPPORT TRUCK #	<i>523</i>	CONTINUOUS SAMPLER	10'	SCREEN			QUICKSET		MONUMENT CASING
TRAILER #	<i>237</i>	CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN			PORTLAND		BOLLARDS
BOBCAT		# OF CORE CUTS	20'	BLANK			ASPHALT		SOIL DRUMS
AUTO HAMMER		# OF BULLDOG CUTS	10'	BLANK			BENTONITE GROUT		DEVELOPMENT DRUMS
GROUT MIXER		# OF SERVICE RUNS	5'	BLANK			BENTONITE CHIPS	<i>6</i>	DECON DRUMS
GROUT PUMP		# OF SAW CUTS	5'	PP SCREEN			BENTONITE POWDER		HOLE COVER PLATES
PERISTALTIC PUMP		PORTABLE RESTROOM	10'	PP SCREEN			BENTONITE PELLETS		PLASTIC SHEETING
FORKLIFT/HOPPER		<i>Plan</i>	<i>Plan</i>	SLIP CAP			BENTONITE GRANULAR		TRAFFIC CONTROL
LABOR				THREADED CAPS			SAMPLER TUBES		CORE BOXES
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS		LOCKING CAPS			SHELBY TUBES		PLYWOOD
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	"	SOIL SAMPLES
<i>Steve</i>				<i>7.5</i>	CENTRALIZERS		GW PROBE POINTS		WATER SAMPLES
<i>Jeffrey</i>				<i>9.25</i>	LOCKS		MACRO LINERS		HYDROPUNCH SAMPLES
<i>David</i>				<i>9.5</i>			SAMPLER SHOE		AUGER PLUGS
				UTILITIES FOUND OR HIT					DRILL OUT BITS
REMARKS		<i>Start</i>	<i>Stop</i>	<i>Stop</i>					
<i>Steve</i>	<i>11:00</i>	<i>7:30</i>	<i>11:30</i>	<i>12:00</i>	<i>5:30</i>	<i>Hour + Jeffrey meeting</i>			
<i>Jeffrey</i>	<i>7:30</i>	<i>11:30</i>	<i>12:00</i>	<i>5:30</i>	<i>Site</i>				
<i>David</i>	<i>7:30</i>	<i>11:30</i>	<i>12:00</i>	<i>5:30</i>	<i>Steve for Huber's change</i>				
					<i>Workshop + new shop</i>				

Client Signature _____

Operator Signature _____



CASCADe DRILLING, L.P.
LEADERS IN SAFETY

CASCADe DRILLING DAILY WORK REPORT

PO Box 1184 - Woodinville, WA 98072 - 425-485-8908 #CASCADL91508
13600 SE Ambler Road - Clackamas, OR 97015 - 503-775-4118 #CCB-187984
555 S. Harbor Blvd. - La Habra, CA 90631 - 562-929-8176 #C57-938110
3632 Omece Circle - Rancho Cordova, CA 95742 #C57-938110

CLIENT <i>AE Corp</i>		PROJECT NO		DATE <i>7/14/16</i>	DAY <i>Wednesday</i>						
JOB LOCATION <i>Shelburne</i>			DIG ALERT #		CD-LP# <i>610298</i>						
Well # Bore #	Depth Drilled	DESCRIPTION OF WORK				HOURS		Total Hrs	Charge Hrs		
		Please explain reasons for Down Time and Standby Time and Shop Time				Start	Stop				
<i>530</i>	<i>57</i>	AM Shop Time				<i>5:30</i>	<i>5:45</i>	<i>75</i>	<i>75</i>		
<i>57</i>	<i>92</i>	Travel to Site				<i>5:45</i>	<i>7:00</i>	<i>120</i>	<i>120</i>		
		<i>HHS</i>				<i>7:00</i>	<i>7:15</i>	<i>15</i>	<i>15</i>		
		<i>fuel Rig + input</i>				<i>7:15</i>	<i>7:45</i>	<i>30</i>	<i>30</i>		
<i>mw-9</i>		<i>move Rig and set up on Mw-9</i>				<i>7:45</i>	<i>8:30</i>	<i>45</i>	<i>45</i>		
		<i>pull out bollard + well</i>				<i>8:30</i>	<i>10:00</i>	<i>90</i>	<i>90</i>		
		<i>move Rig</i>				<i>10:00</i>	<i>10:30</i>	<i>30</i>	<i>30</i>		
		<i>pull bollard on mw-12 + mw-16</i>				<i>10:30</i>	<i>11:15</i>	<i>45</i>	<i>45</i>		
		<i>locks</i>				<i>11:15</i>	<i>11:45</i>	<i>30</i>	<i>30</i>		
		<i>set up and pull out mw-11 17' deep</i>				<i>11:45</i>	<i>12:45</i>	<i>60</i>	<i>60</i>		
		<i>set up and pull out mw-17 10' deep</i>				<i>12:45</i>	<i>1:45</i>	<i>60</i>	<i>60</i>		
		<i>move equipment + change place wells</i>				<i>1:45</i>	<i>2:15</i>	<i>30</i>	<i>30</i>		
		<i>Peron</i>				<i>2:15</i>	<i>2:30</i>	<i>15</i>	<i>15</i>		
		<i>clean up site and load trucks</i>				<i>2:30</i>	<i>4:00</i>	<i>90</i>	<i>90</i>		
		Travel to Shop				<i>4:00</i>					
		PM Shop Time									
Total Ft.		TOTAL CHARGEABLE RIG HOURS									
RIG ENGINE HOURS:		START	STOP		TOTAL						
EQUIPMENT				CASING				MATERIALS			
DRILL RIG #	<i>166</i>	COMPRESSOR/JACKHAMMER	TYPE	SLOT	2	4	SAND		WELL COVER 8"		
SUPPORT TRUCK #	<i>545</i>	SNOW FENCE RENTAL	20'	SCREEN			READYMIX	<i>5</i>	WELL COVER 12"		
SUPPORT TRUCK #	<i>553</i>	CONTINUOUS SAMPLER	10'	SCREEN			QUICKSET		MONUMENT CASING		
TRAILER #	<i>233</i>	CONTINUOUS SAMPLER FOOTAGE	5'	SCREEN			PORTLAND		BOLLARDS		
BOBCAT	<i>✓</i>	# OF CORE CUTS	20'	BLANK			ASPHALT		SOIL DRUMS		
AUTO HAMMER		# OF BULLDOG CUTS	10'	BLANK			BENTONITE GROUT		DEVELOPMENT DRUMS		
GROUT MIXER		# OF SERVICE RUNS	5'	BLANK			BENTONITE CHIPS	<i>15</i>	DECON DRUMS		
GROUT PUMP		# OF SAW CUTS	5'	PP SCREEN			BENTONITE POWDER		HOLE COVER PLATES		
PERISTALTIC PUMP		PORTABLE RESTROOM	10'	PP SCREEN			BENTONITE PELLETS		PLASTIC SHEETING		
FORKLIFT/HOPPER		<i>Peron</i>	<i>263</i>	SLIP CAP			BENTONITE GRANULAR		TRAFFIC CONTROL		
LABOR				THREADED CAPS			SAMPLER TUBES		CORE BOXES		
CREW WITH PER DIEM		CHARGEABLE EXTRA LABOR HRS		LOCKING CAPS			SHELBY TUBES		PLYWOOD		
NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS	DRIVE SHOE		PROBE POINTS	"	SOIL SAMPLES		
<i>Steve</i>					CENTRALIZERS		GW PROBE POINTS		WATER SAMPLES		
<i>Jeffrey</i>					LOCKS		MACRO LINERS		HYDROPUNCH SAMPLES		
<i>Kevin</i>							SAMPLER SHOE		AUGER PLUGS		
				UTILITIES FOUND OR HIT				DRILL OUT BITS			
REMARKS		<i>Start</i>	<i>Stop</i>	<i>6:00</i>	<i>Stop</i>						
<i>Start</i>		<i>5:30</i>		<i>11:15-11:45</i>							
<i>2nd stop</i>		<i>6:00</i>		<i>11:15-11:45</i>							
<i>Peron R</i>		<i>6:00</i>		<i>11:15-11:45</i>							

Client Signature

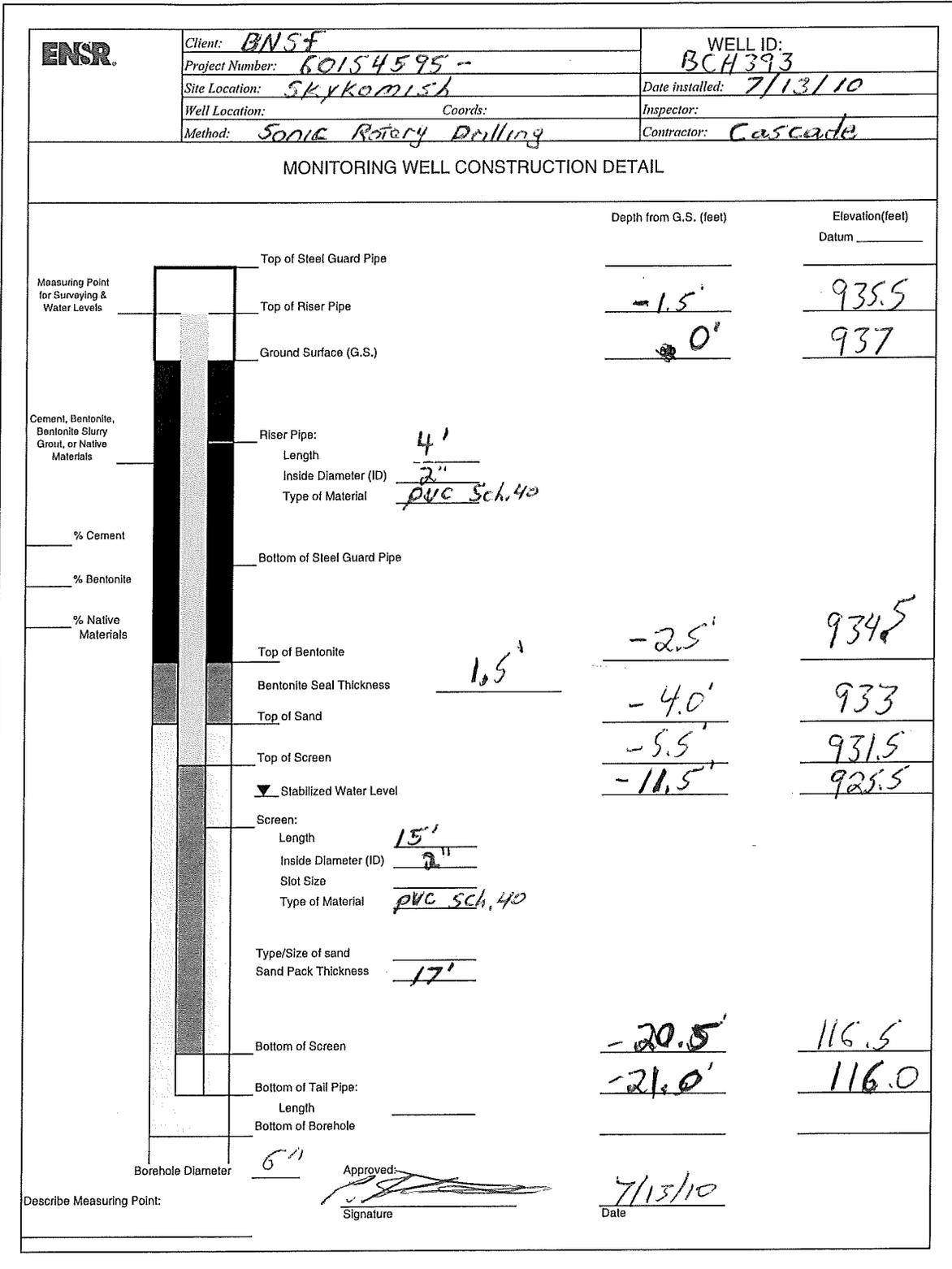
Operator Signature

Well Installation Form

SOP NUMBER: 7220

PZ-1A

Figure 1 Monitoring Well Construction Detail



Appendix B

Laboratory and Data Validation Reports

**(Note: the laboratory and data validation
reports are provided on the attached
CD-ROM.)**

ANALYTICAL REPORT

Job Number: 580-15915-1

Job Description: BNSF Skykomish Groundwater Monitoring

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, WA 98104
Attention: Sarah Albano



Approved for release.
Kate Haney
Project Manager II
10/21/2009 5:08 PM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
10/21/2009

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424
Tel (253) 922-2310 Fax (253) 922-5047 www.testamericainc.com



Job Narrative
580-15915-1

Comments

No additional comments.

Receipt

All samples were received in good condition within temperature requirements.

GC Semi VOA

No analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

METHOD SUMMARY

Client: AECOM, Inc.

Job Number: 580-15915-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 580-15915-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Client Matrix</u>	<u>Date/Time Sampled</u>	<u>Date/Time Received</u>
580-15915-1	PZ - 1 - 1009	Water	10/08/2009 1415	10/09/2009 0830

Analytical Data

Client: AECOM, Inc.

Job Number: 580-15915-1

Client Sample ID: PZ - 1 - 1009

Lab Sample ID: 580-15915-1

Client Matrix: Water

Date Sampled: 10/08/2009 1415

Date Received: 10/09/2009 0830

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-52428	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-52431	Lab File ID:	AA01275.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	10/21/2009 0957		Final Weight/Volume:	2 mL
Date Prepared:	10/20/2009 1530		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	ND		0.047
Lube Oil	ND		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	92		50 - 150

Quality Control Results

Client: AECOM, Inc.

Job Number: 580-15915-1

Method Blank - Batch: 580-52431

**Method: NWTPH-Dx
Preparation: 3510C**

Lab Sample ID: MB 580-52431/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/21/2009 0901
Date Prepared: 10/20/2009 1530

Analysis Batch: 580-52428
Prep Batch: 580-52431
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01272.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
Diesel Range Organics (C12-C24)	ND		0.050
Lube Oil	ND		0.10
Surrogate	% Rec	Acceptance Limits	
o-Terphenyl	90	50 - 150	

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch:

**Method: NWTPH-Dx
Preparation: 3510C**

LCS Lab Sample ID: LCS 580-52431/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/21/2009 0920
Date Prepared: 10/20/2009 1530

Analysis Batch: 580-52428
Prep Batch: 580-52431
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01273.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-52431/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/21/2009 0938
Date Prepared: 10/20/2009 1530

Analysis Batch: 580-52428
Prep Batch: 580-52431
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01274.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Diesel Range Organics (C12-C24)	103	103	70 - 140	0	27		
Lube Oil	102	101	66 - 125	1	27		
Surrogate	LCS % Rec		LCSD % Rec	Acceptance Limits			
o-Terphenyl	99		98	50 - 150			

Calculations are performed before rounding to avoid round-off errors in calculated results.

Login Sample Receipt Check List

Client: AECOM, Inc.

Job Number: 580-15915-1

Login Number: 15915

Creator: Presley, Kim

List Number: 1

List Source: TestAmerica Tacoma

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

ANALYTICAL REPORT

Job Number: 580-16274-1

Job Description: BNSF Skykomish Groundwater Monitoring

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, WA 98104
Attention: Denell Warren



Approved for release.
Kate Haney
Project Manager II
11/4/2009 10:22 AM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
11/04/2009

cc: Sarah Albano
Mark Havighorst
Aaron Huntington
Karen Kane
Eric Storkerson
Halah Voges

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424
Tel (253) 922-2310 Fax (253) 922-5047 www.testamericainc.com



Job Narrative
580-16274-1

Comments

No additional comments.

Receipt

All samples were received in good condition within temperature requirements.

GC Semi VOA

No analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

METHOD SUMMARY

Client: AECOM, Inc.

Job Number: 580-16274-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 580-16274-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-16274-1	PZ-1-1009	Water	10/27/2009 1545	10/28/2009 1315
580-16274-2	1C-W-8-1009	Water	10/27/2009 1455	10/28/2009 1315
580-16274-3	1B-W-23-1009	Water	10/27/2009 1155	10/28/2009 1315
580-16274-4	1C-W-1-1009	Water	10/27/2009 1255	10/28/2009 1315
580-16274-5	1C-W-7-1009	Water	10/27/2009 1105	10/28/2009 1315

Analytical Data

Client: AECOM, Inc.

Job Number: 580-16274-1

Client Sample ID: PZ-1-1009

Lab Sample ID: 580-16274-1

Date Sampled: 10/27/2009 1545

Client Matrix: Water

Date Received: 10/28/2009 1315

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-53166	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-53116	Lab File ID:	AA01653.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	11/02/2009 2103		Final Weight/Volume:	2 mL
Date Prepared:	10/30/2009 1616		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	0.67		0.047
Lube Oil	0.19		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	104		50 - 150

Analytical Data

Client: AECOM, Inc.

Job Number: 580-16274-1

Client Sample ID: 1C-W-8-1009

Lab Sample ID: 580-16274-2

Client Matrix: Water

Date Sampled: 10/27/2009 1455

Date Received: 10/28/2009 1315

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-53166	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-53116	Lab File ID:	AA01654.D
Dilution:	10		Initial Weight/Volume:	1050 mL
Date Analyzed:	11/02/2009 2121		Final Weight/Volume:	2 mL
Date Prepared:	10/30/2009 1616		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	3.8		0.48
Lube Oil	1.0		0.95

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	106		50 - 150

Analytical Data

Client: AECOM, Inc.

Job Number: 580-16274-1

Client Sample ID: 1B-W-23-1009

Lab Sample ID: 580-16274-3

Date Sampled: 10/27/2009 1155

Client Matrix: Water

Date Received: 10/28/2009 1315

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-53166	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-53116	Lab File ID:	AA01655.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	11/02/2009 2140		Final Weight/Volume:	2 mL
Date Prepared:	10/30/2009 1616		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	0.53		0.047
Lube Oil	0.49		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	100		50 - 150

Analytical Data

Client: AECOM, Inc.

Job Number: 580-16274-1

Client Sample ID: 1C-W-1-1009

Lab Sample ID: 580-16274-4

Client Matrix: Water

Date Sampled: 10/27/2009 1255

Date Received: 10/28/2009 1315

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-53240	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-53116	Lab File ID:	AA01694.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	11/03/2009 1609		Final Weight/Volume:	2 mL
Date Prepared:	10/30/2009 1616		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	0.33		0.047
Lube Oil	0.27		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	92		50 - 150

Analytical Data

Client: AECOM, Inc.

Job Number: 580-16274-1

Client Sample ID: 1C-W-7-1009

Lab Sample ID: 580-16274-5

Client Matrix: Water

Date Sampled: 10/27/2009 1105

Date Received: 10/28/2009 1315

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-53240	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-53116	Lab File ID:	AA01695.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	11/03/2009 1628		Final Weight/Volume:	2 mL
Date Prepared:	10/30/2009 1616		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
Diesel Range Organics (C12-C24)	1.3		0.047
Lube Oil	0.27		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	99		50 - 150

Quality Control Results

Client: AECOM, Inc.

Job Number: 580-16274-1

Method Blank - Batch: 580-53116

**Method: NWTPH-Dx
Preparation: 3510C**

Lab Sample ID: MB 580-53116/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/02/2009 2006
Date Prepared: 10/30/2009 1616

Analysis Batch: 580-53166
Prep Batch: 580-53116
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01650.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
Diesel Range Organics (C12-C24)	ND		0.050
Lube Oil	ND		0.10
Surrogate	% Rec		Acceptance Limits
o-Terphenyl	99		50 - 150

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 580-53116**

**Method: NWTPH-Dx
Preparation: 3510C**

LCS Lab Sample ID: LCS 580-53116/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/02/2009 2025
Date Prepared: 10/30/2009 1616

Analysis Batch: 580-53166
Prep Batch: 580-53116
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01651.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-53116/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/02/2009 2044
Date Prepared: 10/30/2009 1616

Analysis Batch: 580-53166
Prep Batch: 580-53116
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA01652.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 2 mL
Injection Volume: 1 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Diesel Range Organics (C12-C24)	103	106	70 - 140	3	27		
Lube Oil	100	105	66 - 125	5	27		
Surrogate		LCS % Rec	LCSD % Rec			Acceptance Limits	
o-Terphenyl		107	106			50 - 150	

Calculations are performed before rounding to avoid round-off errors in calculated results.



CHAIN OF CUSTODY
BNSF PROJECT INFORMATION

BNSF Project Number: 01140
BNSF Project Name: Skykomish
BNSF Contact: Bruce Sheppard

TURNAROUND TIME
 1-day Rush
 2-day Rush
 3-day Rush
 5- to 8-day Rush
 Standard 10-Day
 Other

DELIVERABLES
 BNSF Standard (Level II)
 Level III
 Level IV
 Other Deliverables?
 EDD Req. Format?

LABORATORY INFORMATION
 Laboratory: TEST AMERICA
 Project Manager: katz Haney
 Address: 5755 8th St. E
 City/State/Zip: FIRE, WA 98424-1317
 Phone: 253-922-2310
 Fax: 253-922-2310

CONSULTANT INFORMATION
 Company: AECOM Environment
 Address: 710 2nd Ave
 City/State/Zip: Seattle, WA 98104
 Phone: 206-624-9319
 Fax: 206-624-9319

LAB WORK ORDER: 10274
 SHIPMENT INFORMATION
 Shipment Method: Hand Del. very
 Tracking Number:
 Project Number: 01140-284-0540
 Project Manager: Sarah Albano
 Email:
 Phone: 206-624-9319
 Fax:

METHODS FOR ANALYSIS

Matrix	Type (Comp/Grab)	Filtered Y/N	Sampler	Date	Time	Containers	Sample Identification	Sample Collection	Comments	LAB USE
W			FM	10/27/09	1545	2	PZ-1-1009			1
W			FM	10/27/09	1445	2	1C-W-8-1009		SAMREC 1455	1
W			FM	10/27/09	1155	2	1B-W-23-1009			3
W			FM	10/27/09	1255	2	1C-W-1-1009			4
W			FM	10/27/09	1105	2	1C-W-7-1009			5

LABORATORY INFORMATION
 Project Manager: katz Haney
 Phone: 253-922-2310
 Fax: 253-922-2310

CONSULTANT INFORMATION
 Company: AECOM Environment
 Address: 710 2nd Ave
 City/State/Zip: Seattle, WA 98104
 Phone: 206-624-9319
 Fax: 206-624-9319

SHIPMENT INFORMATION
 Shipment Method: Hand Del. very
 Tracking Number:
 Project Number: 01140-284-0540
 Project Manager: Sarah Albano
 Email:
 Phone: 206-624-9319
 Fax:

RECEIVED BY: Abdulgrani Sebbaro
 RECEIVED BY: Michelle Abdul
 RECEIVED BY: Michelle Abdul
 RECEIVED BY: Michelle Abdul

RECEIVED BY: Michelle Abdul
 RECEIVED BY: Michelle Abdul
 RECEIVED BY: Michelle Abdul
 RECEIVED BY: Michelle Abdul

Comments and Special Analytical Requirements:
 @ Lab 1315 Temp 3.7°C TB 1.2°C
 Cooler Dsc Lc Green/Blue Wet Packs
 Packing Bubble Bags

DUPLICATE - CONSULTANT

Login Sample Receipt Check List

Client: AECOM, Inc.

Job Number: 580-16274-1

Login Number: 16274

List Source: TestAmerica Tacoma

Creator: Luna, Francisco

List Number: 1

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

November 05, 2009

Renee Knecht
AECOM (BNSF)
710 2nd Avenue, Suite 1000
Seattle, WA 98104

RE: Project: Skykomish
Pace Project No.: 252419

Dear Renee Knecht:

Enclosed are the analytical results for sample(s) received by the laboratory on October 30, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Natalie Taylor

natalie.taylor@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 8

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CERTIFICATIONS

Project: Skykomish

Pace Project No.: 252419

Washington Certification IDs

Washington Certification #: C1229

Oregon Certification #: WA200007

Florida/NELAP Certification #: E87617

Alaska CS Certification #: UST-025

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

Page 2 of 8

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SAMPLE ANALYTE COUNT

Project: Skykomish

Pace Project No.: 252419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
252419001	3-W-42	NWTPH-Dx	KRK	8	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Skykomish

Pace Project No.: 252419

Sample: 3-W-42		Lab ID: 252419001	Collected: 10/30/09 10:30	Received: 10/30/09 13:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	11/03/09 10:30	11/04/09 16:42		
Diesel Range SG	ND	mg/L	0.076	1	11/03/09 10:30	11/04/09 18:32		
Motor Oil Range	ND	mg/L	0.38	1	11/03/09 10:30	11/04/09 16:42	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	11/03/09 10:30	11/04/09 18:32	64742-65-0	
n-Octacosane (S)	77	%	50-150	1	11/03/09 10:30	11/04/09 16:42	630-02-4	
n-Octacosane (S) SG	89	%	50-150	1	11/03/09 10:30	11/04/09 18:32	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	11/03/09 10:30	11/04/09 16:42	84-15-1	
o-Terphenyl (S) SG	99	%	50-150	1	11/03/09 10:30	11/04/09 18:32	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish

Pace Project No.: 252419

QC Batch: OEXT/1622

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 252419001

METHOD BLANK: 14701

Matrix: Water

Associated Lab Samples: 252419001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.080	11/04/09 17:01	
Motor Oil Range SG	mg/L	ND	0.40	11/04/09 17:01	
n-Octacosane (S) SG	%	94	50-150	11/04/09 17:01	
o-Terphenyl (S) SG	%	101	50-150	11/04/09 17:01	

LABORATORY CONTROL SAMPLE & LCSD: 14702

14703

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range SG	mg/L	5	4.4	4.6	88	92	51-147	5	30	
Motor Oil Range SG	mg/L	5	4.2	4.5	85	91	20-160	7	30	
n-Octacosane (S) SG	%				90	92	50-150			
o-Terphenyl (S) SG	%				95	95	50-150			

QUALITY CONTROL DATA

Project: Skykomish

Pace Project No.: 252419

QC Batch: OEXT/1623

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 252419001

METHOD BLANK: 14704

Matrix: Water

Associated Lab Samples: 252419001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	11/04/09 12:43	
Motor Oil Range	mg/L	ND	0.40	11/04/09 12:43	
n-Octacosane (S)	%	91	50-150	11/04/09 12:43	
o-Terphenyl (S)	%	106	50-150	11/04/09 12:43	

LABORATORY CONTROL SAMPLE & LCSD: 14705

14706

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	5	4.7	4.7	93	95	51-147	2	30	
Motor Oil Range	mg/L	5	4.5	4.7	91	93	20-160	3	30	
n-Octacosane (S)	%				93	93	50-150			
o-Terphenyl (S)	%				99	98	50-150			

QUALIFIERS

Project: Skykomish

Pace Project No.: 252419

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish

Pace Project No.: 252419

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
252419001	3-W-42	EPA 3510	OEXT/1622	NWTPH-Dx	GCSV/1313
252419001	3-W-42	EPA 3510	OEXT/1623	NWTPH-Dx	GCSV/1312

Sample Condition Upon Receipt



Client Name: AECOM/BNSF

Project # 252419

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Optional:
 Proj. Due Date:
 Proj. Name:

Tracking #: _____
 Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on Ice, cooling process has begun

Cooler Temperature 2.1 Biological Tissue Is Frozen: Yes No
 Temp should be above freezing to 6°C

Date and Initials of person examining contents: ATB 10/30/09 1350

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>H₂O</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Prepared for:
BNSF

November 21, 2009

Organic
Limited Data Validation Report

BNSF Skykomish
Sitewide Groundwater Monitoring
Groundwater with Water QC Samples
Test America, Inc. data
September - October 2009

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

AECOM, Inc.
November 2009
Document No.: 60136319.0545

Overview

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from September – October 2009 are listed in the Table of Samples Analyzed (pages 2-3). Limited data validation was performed on a total of seventy nine groundwater samples and one equipment rinse blank water QC sample.

Samples were analyzed by TestAmerica, Inc. of Tacoma, WA. The verified analysis was Diesel Range Organics (DRO) and Lube Oil by WDOE method NWTPH-Dx (with and without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 4-8. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity (TestAmerica data only)
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) results
MS, MSD (matrix spike, matrix spike duplicate) results
Laboratory duplicate (or spiked duplicate) results
Field duplicate results (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

None required.

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data provided. There were no rejected or missing data points associated with this data set. The data are suitable for their intended use without qualification.

Table of Samples Analyzed
BNSF Skykomish – Sitewide Groundwater Monitoring
Groundwater Samples
TestAmerica (Tacoma, WA) Laboratory Reports (as listed)
September – October 2009

Matrix	Sample ID		Sample Date and Time	Lab SDG	Lab Sample ID
Groundwater	S1-AD-0909		9/22/2009 08:55	580157022	580-15702-01
Groundwater	S1-AU-0909		9/22/2009 09:10	580157022	580-15702-02
Groundwater	S1-BD-0909		9/22/2009 09:25	580157022	580-15702-03
Groundwater	S1-BU-0909		9/22/2009 09:35	580157022	580-15702-04
Groundwater	S2-BD-0909		9/22/2009 10:35	580157022	580-15702-05
Groundwater	S2-BU-0909		9/22/2009 10:45	580157022	580-15702-06
Groundwater	S2-AD-0909		9/22/2009 10:05	580157022	580-15702-07
Groundwater	S2-AU-0909		9/22/2009 10:15	580157022	580-15702-08
Groundwater	S20-BU-0909	S2-BU-0909 Dup	9/22/2009 10:55	580157022	580-15702-09
Groundwater	S3-AD-0909		9/22/2009 12:25	580157022	580-15702-10
Groundwater	S3-AU-0909		9/22/2009 12:35	580157022	580-15702-11
Groundwater	S3-BD-0909		9/22/2009 12:50	580157022	580-15702-12
Groundwater	S3-BU-0909		9/22/2009 13:30	580157022	580-15702-13
Groundwater	S3-CD-0909		9/22/2009 13:55	580157022	580-15702-14
Groundwater	S3-CU-0909		9/22/2009 14:05	580157022	580-15702-15
Groundwater	S4-AD-0909		9/22/2009 14:30	580157022	580-15702-16
Groundwater	S4-AU-0909		9/22/2009 14:55	580157022	580-15702-17
Groundwater	S4-BD-0909		9/22/2009 15:15	580157022	580-15702-18
Groundwater	S4-BU-0909		9/22/2009 15:25	580157022	580-15702-19
Groundwater	S4-CD-0909		9/22/2009 15:40	580157022	580-15702-20
Groundwater	S4-CU-0909		9/22/2009 15:55	580157022	580-15702-21
Groundwater	S40-AD-0909	S4-AD-0909 Dup	9/22/2009 14:40	580157022	580-15702-22
Groundwater	1C-W-4-0909		9/22/2009 13:55	580157021	580-15702-23
Groundwater	1C-W-3-0909		9/22/2009 11:45	580157021	580-15702-24
Groundwater	1C-W-2-0909		9/22/2009 16:35	580157021	580-15702-25
Groundwater	GW-4-0909		9/22/2009 17:15	580157021	580-15702-26
Groundwater	MW-39-0909		9/22/2009 16:40	580157021	580-15702-27
Groundwater	2A-W-11-0909		9/22/2009 17:15	580157021	580-15702-28
Groundwater	5-W-51-0909		9/22/2009 17:50	580157021	580-15702-29
Groundwater	2B-W-46-0909		9/23/2009 09:35	580157021	580-15702-30
Groundwater	2B-W-45-0909		9/23/2009 10:15	580157021	580-15702-31
Groundwater	2B-W-450-0909	2B-W-45-0909 Dup	9/23/2009 10:30	580157021	580-15702-32
Water QC	MW-500-0909	Equipment Rinse Blank	9/23/2009 08:25	580157021	580-15702-33
Groundwater	2A-W-9-0909		9/23/2009 11:30	580157021	580-15702-34
Groundwater	MW-3-0909		9/23/2009 13:20	580157021	580-15702-35
Groundwater	MW-41-0909		9/23/2009 14:00	580157021	580-15702-36
Groundwater	3W-41-0909		9/23/2009 15:15	580157021	580-15702-37
Groundwater	2A-W-10-0909		9/21/2009 16:30	580157021	580-15702-38
Groundwater	2B-W-4-0909		9/21/2009 16:25	580157021	580-15702-39
Groundwater	5-W-52-0909		9/22/2009 10:05	580157021	580-15702-40
Groundwater	5-W-53-0909		9/22/2009 10:55	580157021	580-15702-41
Groundwater	5-W-530-0909	5-W-53-0909 Dup	9/22/2009 09:55	580157021	580-15702-42
Groundwater	5-W-54-0909		9/22/2009 11:50	580157021	580-15702-43
Groundwater	MW-38R-0909		9/22/2009 13:45	580157021	580-15702-44
Groundwater	5-W-18-0909		9/22/2009 14:55	580157021	580-15702-45
Groundwater	5-W-55-0909		9/22/2009 16:40	580157021	580-15702-46

Continued on next page

Table of Samples Analyzed
BNSF Skykomish – Sitewide Groundwater Monitoring
Groundwater Samples
TestAmerica (Tacoma, WA) Laboratory Reports (as listed)
September – October 2009

Matrix	Sample ID		Sample Date and Time	Lab SDG	Lab Sample ID
Groundwater	5-W-56-0909		9/22/2009 15:50	580157021	580-15702-47
Groundwater	1C-W-1-0909		9/22/2009 09:15	580157021	580-15702-48
Groundwater	1C-W-8-0909		9/22/2009 09:55	580157021	580-15702-49
Groundwater	1C-W-7-0909		9/22/2009 15:00	580157021	580-15702-50
Groundwater	1C-W-70-0909	1C-W-7-0909 Dup	9/22/2009 15:20	580157021	580-15702-51
Groundwater	3-W-42-0909		9/23/2009 16:00	580157021	580-15702-52
Groundwater	3-W-43-0909		9/23/2009 16:45	580157021	580-15702-53
Groundwater	MW-16-0909		9/23/2009 17:45	580157021	580-15702-54
Groundwater	MW-160-0909	MW-16-0909 Dup	9/23/2009 17:55	580157021	580-15702-55
Groundwater	5-W-50-0909		9/23/2009 08:50	580157021	580-15702-56
Groundwater	5-W-17-0909		9/23/2009 09:25	580157021	580-15702-57
Groundwater	5-W-170-0909	5-W-17-0909 Dup	9/23/2009 08:25	580157021	580-15702-58
Groundwater	5-W-16-0909		9/23/2009 10:25	580157021	580-15702-59
Groundwater	5-W-14-0909		9/23/2009 11:20	580157021	580-15702-60
Groundwater	5-W-15-0909		9/23/2009 13:55	580157021	580-15702-61
Groundwater	5-W-42-0909		9/23/2009 14:35	580157021	580-15702-62
Groundwater	5-W-19-0909		9/23/2009 15:20	580157021	580-15702-63
Groundwater	5-W-20-0909		9/23/2009 16:10	580157021	580-15702-64
Groundwater	5-W-43-0909		9/23/2009 17:30	580157021	580-15702-65
Groundwater	5-W-4-0909		9/23/2009 18:05	580157021	580-15702-66
Groundwater	2A-W-42-0909		9/23/2009 09:00	580157021	580-15702-67
Groundwater	1B-W-23-0909		9/23/2009 10:40	580157021	580-15702-68
Groundwater	1B-W-3-0909		9/23/2009 14:40	580157021	580-15702-69
Groundwater	GW-3-0909		9/23/2009 12:55	580157021	580-15702-70
Groundwater	1B-W-2-0909		9/23/2009 15:55	580157021	580-15702-71
Groundwater	1A-W-4-0909		9/23/2009 17:40	580157021	580-15702-72
Groundwater	EW-1-0909		9/23/2009 00:00	580157021	580-15702-73
Groundwater	2A-W-40-0909		9/24/2009 09:15	580157021	580-15702-74
Groundwater	2A-W-41-0909		9/24/2009 10:25	580157021	580-15702-75
Groundwater	1A-W-5-0909		9/24/2009 11:20	580157021	580-15702-76
Groundwater	GW-2-0909		9/24/2009 09:20	580157021	580-15702-77
Groundwater	GW-20-0909	GW-2-0909 Dup	9/24/2009 09:30	580157021	580-15702-78
Groundwater	GW-1-0909		9/24/2009 10:25	580157021	580-15702-79
Groundwater	PZ - 1 - 1009		10/8/2009 14:15	580159151	580-15915-1

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish		Laboratory: TestAmerica, Inc., Bothell, WA				
Project Reference: Sitewide Groundwater Monitoring		Sample Matrix: Groundwater samples				
AECOM Project: 60136319.0545		Sample Start Date: 09/21/2009				
Validator/Date Validated: Sue Milcan 11/21/2009 (completed)		Sample End Date: 10/08/2009				
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater Samples, September - October 2009 (pages 2-3).						
Parameters Reviewed: Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (without Acid/Silica Gel cleanup).						
Laboratory Project IDs (SDGs): 580157021, 580157022, 580159151						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptabl e	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptabl e	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing equipment rinse blank results for evidence of sample contamination stemming from field/sampling contamination. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), matrix spike, matrix spike duplicate (MS, MSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS, MSD, and ICS %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptabl e	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data require qualification based on these measurements, and overall method compliance is acceptable, based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable without qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
Data validation qualifiers assigned during this review:						
None required						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
Comments: There were no problems noted in the provided case narratives, and no laboratory flags were assigned to any data points.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
Comments: All requested analyses as documented on the original COCs were completed.						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
Comments: All samples were received intact and in good condition with cooler temperatures of 1.0°C to 6.7°C as noted on the COC forms. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. Samples received at greater than 6°C were determined to be in acceptable condition since no other preservation issues were noted and temperatures were well below 24°C (room temperature). No action is required other than to note these observations.						
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
Comments: The reported method met the COC requests and is in compliance with the parameters requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
Comments: The reporting limits (RLs) are achievable by the quoted method. All samples were reported at undiluted levels.						
Note that the laboratory did not report any trace analyte concentrations \geq method detection limit (MDL) but $<$ practical quantitation limit/reporting limit (PQL/RL) for any methods.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
Comments: Only analytes applicable to the requested method were reported.						
8. Were sample holding times met?	X	Yes		No	SM	Initials
Comments: The method-required extraction and analytical holding times were met for all submitted sample data.						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
Comments: All results were reported as mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
Comments: No laboratory flags were assigned.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: Supplied laboratory method blanks were free of target analyte contamination.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: The equipment rinse blank sample, MW-500-0909, was free of target analyte contamination. Field blank and/or trip blank samples were not submitted/not required for this data set.						
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples.						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, or were within laboratory control charted QC limits for organic target analytes as allowed for SW-846 organic methods.						
16. Were matrix spike recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Project-specific MS and MSD recoveries were within laboratory (method) control charted QC limits.						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD and MS/MSD samples were within data validation QC limits of 0-20%. <i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

18. Were organic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	SM	Initials
Duplicate Sample No.	1C-W-70-0909	Primary Sample No.	1C-W-7-0909			
Duplicate Sample No.	2B-W-450-0909	Primary Sample No.	2B-W-45-0909			
Duplicate Sample No.	5-W-170-0909	Primary Sample No.	5-W-17-0909			
Duplicate Sample No.	5-W-530-0909	Primary Sample No.	5-W-53-0909			
Duplicate Sample No.	GW-20-0909	Primary Sample No.	GW-2-0909			
Duplicate Sample No.	MW-160-0909	Primary Sample No.	MW-16-0909			
Duplicate Sample No.	S20-BU-0909	Primary Sample No.	S2-BU-0909			
Duplicate Sample No.	S40-AD-0909	Primary Sample No.	S4-AD-0909			
<p>Comments: Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs were not applicable due to results that were undetected in both samples, or results that were within +/- the RL. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.</p> <p>The following RPDs were calculated:</p>						
Method	Units	Analyte	1C-W-70-0909	1C-W-7-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.25	0.24	4.1	
NWTPH-Dx	mg/L	Lube Oil	0.11	0.13	16.7	
Method	Units	Analyte	5-W-170-0909	5-W-17-0909	RPD	Qualifiers
NWTPH-Dx-SG	mg/L	DRO	0.078	< 0.047	+/- RL	
Method	Units	Analyte	5-W-530-0909	5-W-53-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.27	0.30	10.5	
NWTPH-Dx	mg/L	Lube Oil	0.22	0.23	4.4	
Method	Units	Analyte	GW-20-0909	GW-2-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.15	0.16	6.5	
NWTPH-Dx	mg/L	Lube Oil	0.10	0.10	0.0	

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory.</i></p>						
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
<p>Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:</p> <p>The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.</p> <p>The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file was returned to the database manager in Seattle, WA on 11/21/2009.</p>						
<p>24. General Comments: Data were evaluated based on validation criteria set forth in the <i>USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review</i>, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per <i>WDOE Analytical Methods for Petroleum Hydrocarbons</i>, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.</p>						

Prepared for:
BNSF

December 28, 2009

Organic
Limited Data Validation Report

BNSF Skykomish
Sitewide Groundwater Monitoring
Groundwater with Water QC Samples
Test America, Inc. data
Pace Analytical Services, Inc. data
October 2009

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

AECOM, Inc.
December 2009
Document No.: 60136319.0545

Overview

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from October 2009 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of six groundwater samples.

Samples were analyzed by TestAmerica, Inc. of Tacoma, WA (TA-Tacoma) and Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle). The reviewed analysis from TA-Tacoma was Diesel Range Organics C₁₂-C₂₄ and Lube Oil by WDOE method NWTPH-Dx (without Silica Gel cleanup). The reviewed analysis from Pace-Seattle was Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (with and without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 3-6. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) recoveries
Laboratory duplicate (or spiked duplicate) RPDs
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

None required.

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data provided. There were no rejected or missing data points associated with this data set. The data are suitable for their intended use without qualification.

Table of Samples Analyzed
BNSF Skykomish – Sitewide Groundwater Monitoring
Groundwater Samples
TestAmerica (TA-Tacoma) and Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
October 2009

Matrix	Sample ID	Sample Date and Time		Lab SDG	Lab Sample ID
TA-Tacoma Samples:					
Groundwater	PZ-1-1009	10/27/2009	15:45	580-16274	580-16274-1
Groundwater	1C-W-8-1009	10/27/2009	14:55	580-16274	580-16274-2
Groundwater	1B-W-23-1009	10/27/2009	11:55	580-16274	580-16274-3
Groundwater	1C-W-1-1009	10/27/2009	12:55	580-16274	580-16274-4
Groundwater	1C-W-7-1009	10/27/2009	11:05	580-16274	580-16274-5
Pace-Seattle Samples:					
Groundwater	3-W-42	10/30/2009	10:30	252419	252419-001

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish	Laboratory: TestAmerica, Inc. of Tacoma, WA (TA-Tacoma); Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle)					
Project Reference: Sitewide Groundwater Monitoring	Sample Matrix: Groundwater samples					
AECOM Project: 60136319.0545	Sample Start Date: 10/27/2009					
Validator/Date Validated: Sue Milcan 12/28/2009 (completed)	Sample End Date: 10/30/2009					
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater Samples, October 2009 (page 2).						
Parameters Reviewed: TA-Tacoma - Diesel Range Organics C ₁₂ -C ₂₄ and Lube Oil by WDOE method NWTPH-Dx (without Silica Gel cleanup). Pace-Seattle - Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (with and without Silica Gel cleanup).						
Laboratory Project IDs (SDGs): TA-Tacoma 580-16274; Pace-Seattle 252419.						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was not determined for this data set since field duplicate samples were not submitted for analysis. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements, and overall laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was not determined for this data set since field, equipment, and/or trip blank samples were not submitted for analysis/not required. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data require qualification based on these measurements, and overall method compliance is acceptable, based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable without qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
Data validation qualifiers assigned during this review:						
None required						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
Comments: There were no problems noted in the provided case narratives, and no laboratory flags were assigned to any data points.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
Comments: All requested analyses as documented on the original COCs were completed.						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
Comments: All samples were received intact and in good condition with cooler temperatures of 3.7°C and temperature blank of 1.2°C at TA-Tacoma and cooler temperature of 2.1°C at Pace-Seattle. Sample receipt condition/temperature were noted on signed and accepted COC records and/or on Condition of Sample Receipt forms provided. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. No action is required other than to note this observation.						
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
Comments: The reported method met the COC requests and is in compliance with the parameters requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
<p>Comments: The reporting limits (RLs) are achievable by the quoted method. All samples were reported at undiluted levels.</p> <p>Note that neither laboratory reported any trace analyte concentrations \geq method detection limit (MDL) but $<$ practical quantitation limit/reporting limit (PQL/RL) for any samples.</p>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
Comments: Only analytes applicable to the requested method were reported.						
8. Were sample holding times met?	X	Yes		No	SM	Initials
Comments: The method-required extraction and analytical holding times were met for all submitted sample data.						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
Comments: All results were reported as mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
Comments: No laboratory flags were assigned.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: Supplied laboratory method blanks were free of target analyte contamination.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?		Yes		No	SM	Initials
Comments: Not applicable – Field, equipment, and/or trip blank samples were not submitted/not required for this data set.						
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples.						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and were also within laboratory control charted QC limits.						
16. Were matrix spike recoveries within control limits?		Yes		No	SM	Initials
Comments: Not applicable – MS/MSD data were not reported by either laboratory. Refer to LCS/LCSD analysis for laboratory precision and accuracy assessment (items 15 and 17).						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD samples were within data validation QC limits of 0-20%. <i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

18. Were organic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Yes	X	No	SM	Initials
Duplicate Sample No.		Primary Sample No.				
Comments: Not applicable - Field duplicate samples were not submitted for analysis. Field precision was not evaluated.						
22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory.</i>						
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
<p>Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:</p> <p>The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.</p> <p>The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file was returned to the database manager in Seattle, WA on 12/28/2009.</p>						
<p>24. General Comments: Data were evaluated based on validation criteria set forth in the <i>USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review</i>, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per <i>WDOE Analytical Methods for Petroleum Hydrocarbons</i>, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.</p>						

December 08, 2009

Sarah Albano
AECOM (BNSF)
710 2nd Avenue, Suite 1000
Seattle, WA 98104

RE: Project: Skykomish (BNSF)
Pace Project No.: 252574

Dear Sarah Albano:

Enclosed are the analytical results for sample(s) received by the laboratory on November 25, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Skykomish (BNSF)

Pace Project No.: 252574

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Skykomish (BNSF)

Pace Project No.: 252574

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
252574001	3-W-42-1109	NWTPH-Dx	KRK	8	PASI-S
252574002	3-W-420-1109	NWTPH-Dx	KRK	8	PASI-S
252574003	PZ-1-1109	NWTPH-Dx	KRK	4	PASI-S
252574004	1C-W-7-1109	NWTPH-Dx	KRK	4	PASI-S
252574005	1C-W-1-1109	NWTPH-Dx	KRK	4	PASI-S
252574006	1C-W-8-1109	NWTPH-Dx	KRK	4	PASI-S
252574007	1B-W-23-1109	NWTPH-Dx	KRK	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Skykomish (BNSF)

Pace Project No.: 252574

Sample: 3-W-42-1109		Lab ID: 252574001	Collected: 11/24/09 10:25	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	12/03/09 10:30	12/04/09 19:03		
Diesel Range SG	ND	mg/L	0.076	1	12/03/09 10:30	12/04/09 18:44		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 19:03	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 18:44	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	12/03/09 10:30	12/04/09 19:03	630-02-4	
n-Octacosane (S) SG	115	%	50-150	1	12/03/09 10:30	12/04/09 18:44	630-02-4	
o-Terphenyl (S)	97	%	50-150	1	12/03/09 10:30	12/04/09 19:03	84-15-1	
o-Terphenyl (S) SG	111	%	50-150	1	12/03/09 10:30	12/04/09 18:44	84-15-1	

Sample: 3-W-420-1109		Lab ID: 252574002	Collected: 11/24/09 11:00	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	12/03/09 10:30	12/04/09 19:40		
Diesel Range SG	ND	mg/L	0.076	1	12/03/09 10:30	12/04/09 19:22		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 19:40	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 19:22	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	12/03/09 10:30	12/04/09 19:40	630-02-4	
n-Octacosane (S) SG	110	%	50-150	1	12/03/09 10:30	12/04/09 19:22	630-02-4	
o-Terphenyl (S)	100	%	50-150	1	12/03/09 10:30	12/04/09 19:40	84-15-1	
o-Terphenyl (S) SG	105	%	50-150	1	12/03/09 10:30	12/04/09 19:22	84-15-1	

Sample: PZ-1-1109		Lab ID: 252574003	Collected: 11/24/09 12:05	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.1	mg/L	0.076	1	12/03/09 10:30	12/04/09 19:59		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 19:59	64742-65-0	
n-Octacosane (S)	106	%	50-150	1	12/03/09 10:30	12/04/09 19:59	630-02-4	
o-Terphenyl (S)	107	%	50-150	1	12/03/09 10:30	12/04/09 19:59	84-15-1	

Sample: 1C-W-7-1109		Lab ID: 252574004	Collected: 11/24/09 13:20	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.19	mg/L	0.075	1	12/03/09 10:30	12/04/09 20:18		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 20:18	64742-65-0	
n-Octacosane (S)	104	%	50-150	1	12/03/09 10:30	12/04/09 20:18	630-02-4	
o-Terphenyl (S)	100	%	50-150	1	12/03/09 10:30	12/04/09 20:18	84-15-1	

Date: 12/08/2009 04:07 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Skykomish (BNSF)

Pace Project No.: 252574

Sample: 1C-W-1-1109		Lab ID: 252574005	Collected: 11/24/09 14:05	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.087	mg/L	0.075	1	12/03/09 10:30	12/04/09 20:56		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 20:56	64742-65-0	
n-Octacosane (S)	107	%	50-150	1	12/03/09 10:30	12/04/09 20:56	630-02-4	
o-Terphenyl (S)	102	%	50-150	1	12/03/09 10:30	12/04/09 20:56	84-15-1	

Sample: 1C-W-8-1109		Lab ID: 252574006	Collected: 11/24/09 14:45	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.0	mg/L	0.080	1	12/03/09 10:30	12/04/09 21:14		
Motor Oil Range	ND	mg/L	0.40	1	12/03/09 10:30	12/04/09 21:14	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	12/03/09 10:30	12/04/09 21:14	630-02-4	
o-Terphenyl (S)	89	%	50-150	1	12/03/09 10:30	12/04/09 21:14	84-15-1	

Sample: 1B-W-23-1109		Lab ID: 252574007	Collected: 11/24/09 15:35	Received: 11/25/09 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.16	mg/L	0.075	1	12/03/09 10:30	12/04/09 21:33		
Motor Oil Range	ND	mg/L	0.38	1	12/03/09 10:30	12/04/09 21:33	64742-65-0	
n-Octacosane (S)	106	%	50-150	1	12/03/09 10:30	12/04/09 21:33	630-02-4	
o-Terphenyl (S)	102	%	50-150	1	12/03/09 10:30	12/04/09 21:33	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish (BNSF)

Pace Project No.: 252574

QC Batch: OEXT/1723 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 252574001, 252574002, 252574003, 252574004, 252574005, 252574006, 252574007

METHOD BLANK: 16796 Matrix: Water
 Associated Lab Samples: 252574001, 252574002, 252574003, 252574004, 252574005, 252574006, 252574007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	12/04/09 17:47	
Diesel Range SG	mg/L	ND	0.080	12/04/09 17:28	1n,J
Motor Oil Range	mg/L	ND	0.40	12/04/09 17:47	
Motor Oil Range SG	mg/L	ND	0.40	12/04/09 17:28	
n-Octacosane (S)	%	101	50-150	12/04/09 17:47	
n-Octacosane (S) SG	%	112	50-150	12/04/09 17:28	
o-Terphenyl (S)	%	101	50-150	12/04/09 17:47	
o-Terphenyl (S) SG	%	104	50-150	12/04/09 17:28	

LABORATORY CONTROL SAMPLE: 16797

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	5	3.9	78	51-147	
Diesel Range SG	mg/L	5	3.9	79	51-147	
Motor Oil Range	mg/L	5	4.3	87	20-160	
Motor Oil Range SG	mg/L	5	4.4	87	20-160	
n-Octacosane (S)	%			105	50-150	
n-Octacosane (S) SG	%			109	50-150	
o-Terphenyl (S)	%			94	50-150	
o-Terphenyl (S) SG	%			96	50-150	

SAMPLE DUPLICATE: 16803

Parameter	Units	252574001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	.037J		
Diesel Range SG	mg/L	ND	.058J		
Motor Oil Range	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S)	%		107	6	
n-Octacosane (S) SG	%		110	6	
o-Terphenyl (S)	%		104	6	
o-Terphenyl (S) SG	%		102	9	

QUALIFIERS

Project: Skykomish (BNSF)

Pace Project No.: 252574

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

1n Reported result is below the reporting limit, but above the MDL for this analyte.

J Analyte detected below reporting limit, therefore result is an estimate.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish (BNSF)

Pace Project No.: 252574

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
252574001	3-W-42-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574002	3-W-420-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574003	PZ-1-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574004	1C-W-7-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574005	1C-W-1-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574006	1C-W-8-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375
252574007	1B-W-23-1109	EPA 3510	OEXT/1723	NWTPH-Dx	GCSV/1375

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: AECOM	Report To: Sarah Albano	Attention: 1306153
Address: 710 2nd Ave. Suite 1000	Copy To:	
Seattle WA, 98104		
Email To: sarah.albano@aecom.com	Purchase Order No.:	REGULATORY AGENCY
Phone: 206-624-9344 Fax:	Project Name: SKYKOMISH (BJSF)	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Requested Due Date/TAT:	Project Number: 601-36319-0540	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
		Site Location STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB							
1	3-W-42-1109	Drinking Water DW	W		11/24/09 1025		8.1						752574-001
2	3-W-420-1109	Waste Water WW	W		11/24/09 1100		8.2						-002
3	PZ-1-1109	Product P	W		11/24/09 1205		9.3						-003
4	1C-W-7-1109	Oil OL	W		11/24/09 1320		8.1						-004
5	1C-W-1-1109	Soil/Solid SL	W		11/24/09 1405		9.8						-005
6	1C-W-8-1109	Wipe WP	W		11/24/09 1445		8.8						-006
7	1B-W-23-1109	Air AR	W		11/24/09 1535		9.8						-007
8		Tissue TS											
9		Other OT											
10													
11													
12													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	Temp in °C	SAMPLE CONDITIONS
	Abdelhamid Albano (AECOM)	11/25/09	0935	Jenni Gross / Pace	11/25/09	0935	3.0	7	N
							1.5	7	N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Abdelhamid Albano DATE Signed _____

SIGNATURE of SAMPLER: Abdelhamid Albano (MM/DD/YYYY): 11/21/09

ORIGINAL



Environment

Submitted to:
BNSF

Submitted by:
AECOM
Fort Collins, CO
60136319.0530
January 29, 2010

Organic Limited Data Validation Report

BNSF - Skykomish
Groundwater and Water QC Samples
Pace Analytical Services, Inc. of Seattle, WA
Laboratory Data
November 2009 Sampling

Prepared By Ann Biegelsen
Environmental Quality Assurance Chemist

Overview

The samples analyzed for the BNSF - Skykomish Groundwater sampling event from November 2009 are listed in the Table of Samples Analyzed (page 2). Data validation was performed on seven groundwater samples.

The samples were analyzed by Pace Analytical Services, Inc. of Seattle, WA. Limited data validation was performed on the following analyses: Diesel Range, and Motor Oil Range by Method NWTPH-Dx or Method NWTPH-Dx with Silica Gel Clean-up.

The Analytical Limited Data Validation Checklist is presented as pages 3-6. Data were evaluated based on validation criteria set forth in the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-08-01, June 2008 with additional reference to USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008 of October 1999, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

The following data components were reviewed during the data validation procedure:

Submitted Deliverables
Case Narratives
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, method detection limits, dilution factors
Holding times
Method blank results
LCS/LCSD (blank spike) results
MS/MSD (matrix spike) results
Laboratory duplicate results
Organic surrogate recoveries
Blind field duplicate results
Electronic data deliverables (EDDs)

Data Validation Qualifiers Assigned During this Review

There were no data validation qualifiers assigned during this data review.

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data submitted. The data are suitable for their intended use.

**Table of Samples Analyzed
BNSF - Skykomish
Groundwater with Water QC Samples
Pace Analytical Services, Inc. of Seattle, WA Laboratory SDG 252574
November 2009 Sampling**

Matrix	Sample ID	Parent Sample ID	Sample Date and Time	Lab SDG	Lab Sample ID	COC Reference
Groundwater	1B-W-23-1109	3-W-42-1109	11/24/2009 15:35	252574	252574007	1306153
Groundwater	1C-W-1-1109		11/24/2009 14:05	252574	252574005	1306153
Groundwater	1C-W-7-1109		11/24/2009 13:20	252574	252574004	1306153
Groundwater	1C-W-8-1109		11/24/2009 14:45	252574	252574006	1306153
Groundwater	3-W-420-1109		11/24/2009 11:00	252574	252574002	1306153
Groundwater	3-W-42-1109		11/24/2009 10:25	252574	252574001	1306153
Groundwater	PZ-1-1109		11/24/2009 12:05	252574	252574003	1306153

Project Name: BNSF - Skykomish		Laboratory: Pace Analytical Services, Inc. of Seattle, WA				
Project Reference:		Sample Matrix: Groundwater				
AECOM Project No.: 01140-236-30		Sample Start Date: 11/24/2009				
Validated By/Date Validated: Ann Biegelsen / 01/29/2010		Sample End Date: 11/24/2009				
Samples Analyzed: Refer to the Table of Samples Analyzed (page 2).						
Parameters Validated: Diesel Range, and Motor Oil Range by Method NWTPH-Dx or Method NWTPH-Dx with Silica Gel Clean-up. Not all samples were analyzed for every parameter. Refer to individual Chain of Custody reports for the exact analyses requested.						
Laboratory Sample Delivery Group (SDG) IDs: 252574						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	AB	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of both field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD QC limits were set at 0-30% for water samples. Laboratory RPD limits referenced EPA published QC limits. No data require qualification based on field or laboratory duplicate precision measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17, 20, and 21.						
Accuracy:	X	Acceptable		Unacceptable	AB	Initials
Comments: Field accuracy, a measure of the sampling bias, could not be determined as there were no trip blank, field blank, or equipment rinse blank samples included in this data set. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample/laboratory control sample duplicate (LCS/LCSD), matrix spike/matrix spike duplicate (MS/MSD), and organic system monitoring compounds (surrogate) percent recoveries (%Rs). LCS/LCSD %Rs, which demonstrated the overall performance of the analysis, were compared to EPA published QC limits. MS/MSD %Rs, which provided information on sample matrix interferences, were compared to EPA published QC limits or laboratory control charted limits. System monitoring compound or surrogate recoveries, which measured system performance and efficiency during organic analysis, were compared to EPA published QC limits or laboratory control charted limits. No data require qualification based on laboratory accuracy measurements, and overall laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15 and 16.						
Method Compliance:	X	Acceptable		Unacceptable	AB	Initials
Comments: Method compliance was determined by evaluating sample integrity, holding time, and laboratory blanks against method specified requirements, while applying EPA data validation guidelines. No data require qualification based on method compliance issues, and overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20 and 22.						
Completeness:	X	Acceptable		Unacceptable	AB	Initials
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with validated analyses. Completeness goals are set at 90-100%. Determination of completeness included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results, QC summary reports, and electronic data deliverables (EDDs). All of the data received from the laboratory are useable without qualification. Completeness of the data is 100% and is acceptable.						

VALIDATION CRITERIA CHECK						
There were no data validation qualifiers assigned in this data review.						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	AB	Initials
Explanation: There were no case narratives associated with this data.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	AB	Initials
Comments: COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	AB	Initials
Comments: All requested analyses as documented on original COC records were completed by the laboratory.						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	AB	Initials
Comments: Samples were received on ice, intact, and in good condition with cooler temperatures both within and outside the 4°C ± 2°C acceptance range at 1.5°C to 3.8°C as noted on COCs and Sample Condition Upon Receipt forms. Cooler temperatures that were less than 2°C are judged acceptable as samples were not frozen and the sample containers were intact.						
5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	AB	Initials
Comments: Reported methods and target analyte lists were in compliance with COC records.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	AB	Initials
Comments: Reported detection limits are achievable by the quoted methods. There were no detected results reported below the laboratory reporting limits (RLs) but above the method detection limits (MDLs) (laboratory "J" flags). No action is required except to alert the data user that information regarding detections below the RLs has not been included in this laboratory deliverable.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	AB	Initials
Comments: Only the requested target analytes were reported.						
8. Were sample holding times met?	X	Yes		No	AB	Initials
Comments: Extraction and analytical holding times were met for all samples and analyses.						
9. Were correct concentration units reported?	X	Yes		No	AB	Initials
Comments: Correct concentration units were reported. All parameters are reported in units of mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	AB	Initials
Comments: Data validation qualifiers override assigned laboratory flags.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	AB	Initials
Comments: All laboratory blanks were free of target analyte contamination.						

12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	NA	Yes	NA	No	AB	Initials
Comments: There were no trip, field or equipment rinse blank samples included in this data set. Field accuracy was not evaluated in this data review.						
13. Were instrument calibrations within method control limits?	NA	Yes	NA	No	AB	Initials
<i>Comments: Not applicable for this level of data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
14. Were surrogate recoveries within control limits?	X	Yes		No	AB	Initials
Comments: Surrogate percent recoveries (%Rs) for organic analyses were within data validation QC criteria for all samples.						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	AB	Initials
Comments: LCS and LCSD (blank spike) recoveries were within data validation or laboratory control-charted QC limits for all target analytes.						
16. Were matrix spike recoveries within control limits?	NA	Yes	NA	No	AB	Initials
Comments: There were no MS and MSD sample results reported with this laboratory deliverable. This aspect of laboratory accuracy was not evaluated as part of this data review.						
17. Were RPDs within control limits?	X	Yes		No	AB	Initials
Comments: All laboratory duplicate samples met data validation RPD criteria. Laboratory duplicates for non-project samples were not considered since matrix similarity to project samples could not be guaranteed. <i>Serial Dilution %D data is not applicable for the reported methods.</i>						
18. Were organic system performance criteria met?	NA	Yes	NA	No	AB	Initials
<i>Comments: Not applicable for this level of data validation – Organic system performance data were not supplied in the analytical laboratory reports and were therefore not included in this data review.</i>						
19. Were internal standards within method criteria for GC/MS sample analyses?	NA	Yes	NA	No	AB	Initials
<i>Comments: Not applicable for the reported data – Internal standard addition is not required for the reported analytical method.</i>						
20. Were inorganic system performance criteria met?	NA	Yes	NA	No	AB	Initials
<i>Comments: Not applicable for this data set – There were no inorganic parameters requested for these samples.</i>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	AB	Initials
Duplicate Sample No.	3-W-420-1109	Primary Sample No.	3-W-42-1109			
Comments: The RPDs for the duplicates were not applicable due to results that were undetected in both samples.						
22. Were qualitative criteria for organic target analyte identification met?	NA	Yes	NA	No	AB	Initials
<i>Comments: Not applicable for this level of data validation – GC quantitation reports and chromatograms were not supplied in analytical laboratory report and were therefore not included in this data review.</i>						

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	AB	Initials
---	---	-----	--	----	----	----------

Comments: The EDD query entries were resolved with the hardcopy data results and corrected as necessary. According to validation protocol, the hardcopy data report was accepted as the correct reference. The data validator provided an edited EDD query with this validation report.

See the table below for chemical name discrepancies between the hard copy reports and the EDD files:

Chemical Name on Hard Copy Report	Chemical Name in EDD file
Diesel Range	PHC AS DIESEL FUEL
Motor Oil Range	PHC AS FUEL OILS, AKA Bunker C

It is recommended that the data base CAS numbers be changed to reflect the chemical names reported so that queried results return a complete and accurate electronic record of the reported data.

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008 with additional reference to *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, document number EPA 540/R-99-008 of October 1999, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

December 29, 2009

Sarah Albano
AECOM (BNSF)
710 2nd Avenue, Suite 1000
Seattle, WA 98104

RE: Project: BNSF-Skykomish
Pace Project No.: 252691

Dear Sarah Albano:

Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 18

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 252691

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish
Pace Project No.: 252691

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
252691001	3-W-41-1209	NWTPH-Dx	DMT	8	PASI-S
252691002	3-W-43-1209	NWTPH-Dx	DMT	8	PASI-S
252691003	3-W-42-1209	NWTPH-Dx	DMT	8	PASI-S
252691004	1C-W-1-1209	NWTPH-Dx	DMT	4	PASI-S
252691005	1C-W-7-1209	NWTPH-Dx	DMT	4	PASI-S
252691006	1C-W-8-1209	NWTPH-Dx	DMT	4	PASI-S
252691007	1B-W-23-1209	NWTPH-Dx	DMT	4	PASI-S
252691008	2A-W-40-1209	NWTPH-Dx	DMT	4	PASI-S
252691009	5-W-18-1209	NWTPH-Dx	DMT	8	PASI-S
252691010	5-W-180-1209	NWTPH-Dx	DMT	8	PASI-S
252691011	2B-W-46-1209	NWTPH-Dx	DMT	4	PASI-S
252691012	2B-W-45-1209	NWTPH-Dx	DMT	4	PASI-S
252691013	5-W-42-1209	NWTPH-Dx	DMT	8	PASI-S
252691014	MW-500-1209	NWTPH-Dx	DMT	8	PASI-S
252691015	5-W-20-1209	NWTPH-Dx	DMT	8	PASI-S
252691016	5-W-17-1209	NWTPH-Dx	DMT	8	PASI-S
252691017	5-W-14-1209	NWTPH-Dx	DMT	8	PASI-S
252691018	5-W-15-1209	NWTPH-Dx	DMT	8	PASI-S
252691019	5-W-16-1209	NWTPH-Dx	DMT	8	PASI-S
252691020	2A-W-41-1209	NWTPH-Dx	DMT	4	PASI-S
252691021	5-W-19-1209	NWTPH-Dx	DMT	8	PASI-S
252691022	EW-1-1209	NWTPH-Dx	DMT	4	PASI-S
252691023	GW-1-1209	NWTPH-Dx	DMT	4	PASI-S
252691024	GW-2-1209	NWTPH-Dx	DMT	4	PASI-S
252691025	GW-20-1209	NWTPH-Dx	DMT	4	PASI-S
252691026	GW-3-1209	NWTPH-Dx	DMT	4	PASI-S
252691027	2A-W-42-1209	NWTPH-Dx	DMT	4	PASI-S
252691028	2A-W-420-1209	NWTPH-Dx	DMT	4	PASI-S
252691029	GW-4-1209	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: 3-W-41-1209		Lab ID: 252691001	Collected: 12/15/09 10:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	12/21/09 11:10	12/22/09 14:45		
Diesel Range SG	ND	mg/L	0.076	1	12/21/09 11:10	12/23/09 20:25		
Motor Oil Range	ND	mg/L	0.38	1	12/21/09 11:10	12/22/09 14:45	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	12/21/09 11:10	12/23/09 20:25	64742-65-0	
n-Octacosane (S) SG	107	%	50-150	1	12/21/09 11:10	12/23/09 20:25	630-02-4	
o-Terphenyl (S) SG	102	%	50-150	1	12/21/09 11:10	12/23/09 20:25	84-15-1	
n-Octacosane (S)	108	%	50-150	1	12/21/09 11:10	12/22/09 14:45	630-02-4	
o-Terphenyl (S)	103	%	50-150	1	12/21/09 11:10	12/22/09 14:45	84-15-1	

Sample: 3-W-43-1209		Lab ID: 252691002	Collected: 12/15/09 11:40	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	12/21/09 11:10	12/22/09 15:04		
Diesel Range SG	ND	mg/L	0.076	1	12/21/09 11:10	12/23/09 20:44		
Motor Oil Range	ND	mg/L	0.38	1	12/21/09 11:10	12/22/09 15:04	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	12/21/09 11:10	12/23/09 20:44	64742-65-0	
n-Octacosane (S) SG	105	%	50-150	1	12/21/09 11:10	12/23/09 20:44	630-02-4	
o-Terphenyl (S) SG	101	%	50-150	1	12/21/09 11:10	12/23/09 20:44	84-15-1	
n-Octacosane (S)	105	%	50-150	1	12/21/09 11:10	12/22/09 15:04	630-02-4	
o-Terphenyl (S)	100	%	50-150	1	12/21/09 11:10	12/22/09 15:04	84-15-1	

Sample: 3-W-42-1209		Lab ID: 252691003	Collected: 12/15/09 12:30	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.076	1	12/21/09 11:10	12/22/09 15:23		
Diesel Range SG	ND	mg/L	0.076	1	12/21/09 11:10	12/23/09 21:03		
Motor Oil Range	ND	mg/L	0.38	1	12/21/09 11:10	12/22/09 15:23	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.38	1	12/21/09 11:10	12/23/09 21:03	64742-65-0	
n-Octacosane (S) SG	106	%	50-150	1	12/21/09 11:10	12/23/09 21:03	630-02-4	
o-Terphenyl (S) SG	98	%	50-150	1	12/21/09 11:10	12/23/09 21:03	84-15-1	
n-Octacosane (S)	108	%	50-150	1	12/21/09 11:10	12/22/09 15:23	630-02-4	
o-Terphenyl (S)	101	%	50-150	1	12/21/09 11:10	12/22/09 15:23	84-15-1	

Sample: 1C-W-1-1209		Lab ID: 252691004	Collected: 12/15/09 10:25	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.12	mg/L	0.075	1	12/21/09 11:10	12/22/09 15:42		

Date: 12/29/2009 10:18 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: 1C-W-1-1209		Lab ID: 252691004	Collected: 12/15/09 10:25	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 15:42	64742-65-0	
n-Octacosane (S)	101 %		50-150	1	12/21/09 11:10	12/22/09 15:42	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	12/21/09 11:10	12/22/09 15:42	84-15-1	

Sample: 1C-W-7-1209		Lab ID: 252691005	Collected: 12/15/09 12:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.10 mg/L		0.076	1	12/21/09 11:10	12/22/09 16:01		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 16:01	64742-65-0	
n-Octacosane (S)	101 %		50-150	1	12/21/09 11:10	12/22/09 16:01	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	12/21/09 11:10	12/22/09 16:01	84-15-1	

Sample: 1C-W-8-1209		Lab ID: 252691006	Collected: 12/15/09 11:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.54 mg/L		0.076	1	12/21/09 11:10	12/22/09 16:20		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 16:20	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	12/21/09 11:10	12/22/09 16:20	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 16:20	84-15-1	

Sample: 1B-W-23-1209		Lab ID: 252691007	Collected: 12/15/09 13:50	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 16:58		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 16:58	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	12/21/09 11:10	12/22/09 16:58	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	12/21/09 11:10	12/22/09 16:58	84-15-1	

Sample: 2A-W-40-1209		Lab ID: 252691008	Collected: 12/15/09 15:20	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 17:17		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 17:17	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	12/21/09 11:10	12/22/09 17:17	630-02-4	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: 2A-W-40-1209		Lab ID: 252691008	Collected: 12/15/09 15:20	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

o-Terphenyl (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 17:17	84-15-1	
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Sample: 5-W-18-1209		Lab ID: 252691009	Collected: 12/16/09 09:15	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.65 mg/L		0.075	1	12/21/09 11:10	12/22/09 17:36		
Diesel Range SG	ND mg/L		0.075	1	12/21/09 11:10	12/23/09 21:22		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 17:36	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 21:22	64742-65-0	
n-Octacosane (S) SG	99 %		50-150	1	12/21/09 11:10	12/23/09 21:22	630-02-4	
o-Terphenyl (S) SG	97 %		50-150	1	12/21/09 11:10	12/23/09 21:22	84-15-1	
n-Octacosane (S)	104 %		50-150	1	12/21/09 11:10	12/22/09 17:36	630-02-4	
o-Terphenyl (S)	100 %		50-150	1	12/21/09 11:10	12/22/09 17:36	84-15-1	

Sample: 5-W-180-1209		Lab ID: 252691010	Collected: 12/16/09 09:30	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.68 mg/L		0.076	1	12/21/09 11:10	12/22/09 17:55		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/23/09 21:41		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 17:55	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 21:41	64742-65-0	
n-Octacosane (S) SG	100 %		50-150	1	12/21/09 11:10	12/23/09 21:41	630-02-4	
o-Terphenyl (S) SG	98 %		50-150	1	12/21/09 11:10	12/23/09 21:41	84-15-1	
n-Octacosane (S)	103 %		50-150	1	12/21/09 11:10	12/22/09 17:55	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 17:55	84-15-1	

Sample: 2B-W-46-1209		Lab ID: 252691011	Collected: 12/16/09 10:20	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 18:14		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 18:14	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	12/21/09 11:10	12/22/09 18:14	630-02-4	
o-Terphenyl (S)	101 %		50-150	1	12/21/09 11:10	12/22/09 18:14	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: 2B-W-45-1209		Lab ID: 252691012	Collected: 12/16/09 11:00	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 18:33		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 18:33	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	12/21/09 11:10	12/22/09 18:33	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 18:33	84-15-1	

Sample: 5-W-42-1209		Lab ID: 252691013	Collected: 12/16/09 12:55	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.085 mg/L		0.076	1	12/21/09 11:10	12/22/09 18:52		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/23/09 22:00		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 18:52	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 22:00	64742-65-0	
n-Octacosane (S) SG	104 %		50-150	1	12/21/09 11:10	12/23/09 22:00	630-02-4	
o-Terphenyl (S) SG	102 %		50-150	1	12/21/09 11:10	12/23/09 22:00	84-15-1	
n-Octacosane (S)	102 %		50-150	1	12/21/09 11:10	12/22/09 18:52	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	12/21/09 11:10	12/22/09 18:52	84-15-1	

Sample: MW-500-1209		Lab ID: 252691014	Collected: 12/16/09 13:35	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 19:49		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/23/09 23:16		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 19:49	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 23:16	64742-65-0	
n-Octacosane (S) SG	102 %		50-150	1	12/21/09 11:10	12/23/09 23:16	630-02-4	
o-Terphenyl (S) SG	97 %		50-150	1	12/21/09 11:10	12/23/09 23:16	84-15-1	
n-Octacosane (S)	103 %		50-150	1	12/21/09 11:10	12/22/09 19:49	630-02-4	
o-Terphenyl (S)	96 %		50-150	1	12/21/09 11:10	12/22/09 19:49	84-15-1	

Sample: 5-W-20-1209		Lab ID: 252691015	Collected: 12/16/09 14:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.58 mg/L		0.076	1	12/21/09 11:10	12/22/09 20:27		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/23/09 23:35		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 20:27	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 23:35	64742-65-0	
n-Octacosane (S) SG	101 %		50-150	1	12/21/09 11:10	12/23/09 23:35	630-02-4	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: 5-W-20-1209		Lab ID: 252691015	Collected: 12/16/09 14:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

o-Terphenyl (S) SG	97 %		50-150	1	12/21/09 11:10	12/23/09 23:35	84-15-1	
n-Octacosane (S)	102 %		50-150	1	12/21/09 11:10	12/22/09 20:27	630-02-4	
o-Terphenyl (S)	96 %		50-150	1	12/21/09 11:10	12/22/09 20:27	84-15-1	

Sample: 5-W-17-1209		Lab ID: 252691016	Collected: 12/16/09 15:20	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 20:46		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/23/09 23:54		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 20:46	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/23/09 23:54	64742-65-0	
n-Octacosane (S) SG	102 %		50-150	1	12/21/09 11:10	12/23/09 23:54	630-02-4	
o-Terphenyl (S) SG	98 %		50-150	1	12/21/09 11:10	12/23/09 23:54	84-15-1	
n-Octacosane (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 20:46	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	12/21/09 11:10	12/22/09 20:46	84-15-1	

Sample: 5-W-14-1209		Lab ID: 252691017	Collected: 12/16/09 09:45	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.075	1	12/21/09 11:10	12/22/09 21:06		
Diesel Range SG	ND mg/L		0.075	1	12/21/09 11:10	12/24/09 00:13		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 21:06	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/24/09 00:13	64742-65-0	
n-Octacosane (S) SG	105 %		50-150	1	12/21/09 11:10	12/24/09 00:13	630-02-4	
o-Terphenyl (S) SG	103 %		50-150	1	12/21/09 11:10	12/24/09 00:13	84-15-1	
n-Octacosane (S)	103 %		50-150	1	12/21/09 11:10	12/22/09 21:06	630-02-4	
o-Terphenyl (S)	101 %		50-150	1	12/21/09 11:10	12/22/09 21:06	84-15-1	

Sample: 5-W-15-1209		Lab ID: 252691018	Collected: 12/16/09 12:15	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.30 mg/L		0.075	1	12/21/09 11:10	12/22/09 21:25		
Diesel Range SG	ND mg/L		0.075	1	12/21/09 11:10	12/24/09 00:32		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 21:25	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/24/09 00:32	64742-65-0	
n-Octacosane (S) SG	99 %		50-150	1	12/21/09 11:10	12/24/09 00:32	630-02-4	
o-Terphenyl (S) SG	97 %		50-150	1	12/21/09 11:10	12/24/09 00:32	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 252691

Sample: 5-W-15-1209	Lab ID: 252691018	Collected: 12/16/09 12:15	Received: 12/17/09 16:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	94 %		50-150	1	12/21/09 11:10	12/22/09 21:25	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	12/21/09 11:10	12/22/09 21:25	84-15-1	

Sample: 5-W-16-1209	Lab ID: 252691019	Collected: 12/16/09 10:40	Received: 12/17/09 16:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/21/09 11:10	12/22/09 21:44		
Diesel Range SG	ND mg/L		0.076	1	12/21/09 11:10	12/24/09 00:51		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 21:44	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/21/09 11:10	12/24/09 00:51	64742-65-0	
n-Octacosane (S) SG	103 %		50-150	1	12/21/09 11:10	12/24/09 00:51	630-02-4	
o-Terphenyl (S) SG	101 %		50-150	1	12/21/09 11:10	12/24/09 00:51	84-15-1	
n-Octacosane (S)	103 %		50-150	1	12/21/09 11:10	12/22/09 21:44	630-02-4	
o-Terphenyl (S)	100 %		50-150	1	12/21/09 11:10	12/22/09 21:44	84-15-1	

Sample: 2A-W-41-1209	Lab ID: 252691020	Collected: 12/16/09 14:25	Received: 12/17/09 16:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.075	1	12/21/09 11:10	12/22/09 22:03		
Motor Oil Range	ND mg/L		0.38	1	12/21/09 11:10	12/22/09 22:03	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	12/21/09 11:10	12/22/09 22:03	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	12/21/09 11:10	12/22/09 22:03	84-15-1	

Sample: 5-W-19-1209	Lab ID: 252691021	Collected: 12/16/09 15:40	Received: 12/17/09 16:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.075	1	12/22/09 10:50	12/28/09 19:37		
Diesel Range SG	ND mg/L		0.075	1	12/22/09 10:50	12/24/09 02:07		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 19:37	64742-65-0	
Motor Oil Range SG	ND mg/L		0.38	1	12/22/09 10:50	12/24/09 02:07	64742-65-0	
n-Octacosane (S) SG	104 %		50-150	1	12/22/09 10:50	12/24/09 02:07	630-02-4	
o-Terphenyl (S) SG	97 %		50-150	1	12/22/09 10:50	12/24/09 02:07	84-15-1	
n-Octacosane (S)	110 %		50-150	1	12/22/09 10:50	12/28/09 19:37	630-02-4	
o-Terphenyl (S)	106 %		50-150	1	12/22/09 10:50	12/28/09 19:37	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 252691

Sample: EW-1-1209		Lab ID: 252691022	Collected: 12/17/09 10:10	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.076	1	12/22/09 10:50	12/28/09 19:56		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 19:56	64742-65-0	
n-Octacosane (S)	109 %		50-150	1	12/22/09 10:50	12/28/09 19:56	630-02-4	
o-Terphenyl (S)	108 %		50-150	1	12/22/09 10:50	12/28/09 19:56	84-15-1	

Sample: GW-1-1209		Lab ID: 252691023	Collected: 12/17/09 10:40	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.076	1	12/22/09 10:50	12/28/09 20:15		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 20:15	64742-65-0	
n-Octacosane (S)	108 %		50-150	1	12/22/09 10:50	12/28/09 20:15	630-02-4	
o-Terphenyl (S)	107 %		50-150	1	12/22/09 10:50	12/28/09 20:15	84-15-1	

Sample: GW-2-1209		Lab ID: 252691024	Collected: 12/17/09 11:25	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.12 mg/L		0.075	1	12/22/09 10:50	12/28/09 20:34		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 20:34	64742-65-0	
n-Octacosane (S)	109 %		50-150	1	12/22/09 10:50	12/28/09 20:34	630-02-4	
o-Terphenyl (S)	107 %		50-150	1	12/22/09 10:50	12/28/09 20:34	84-15-1	

Sample: GW-20-1209		Lab ID: 252691025	Collected: 12/17/09 11:30	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.12 mg/L		0.075	1	12/22/09 10:50	12/28/09 20:53		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 20:53	64742-65-0	
n-Octacosane (S)	103 %		50-150	1	12/22/09 10:50	12/28/09 20:53	630-02-4	
o-Terphenyl (S)	101 %		50-150	1	12/22/09 10:50	12/28/09 20:53	84-15-1	

Sample: GW-3-1209		Lab ID: 252691026	Collected: 12/17/09 11:50	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.10 mg/L		0.075	1	12/22/09 10:50	12/28/09 21:12		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 21:12	64742-65-0	

Date: 12/29/2009 10:18 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 252691

Sample: GW-3-1209		Lab ID: 252691026	Collected: 12/17/09 11:50	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	108 %		50-150	1	12/22/09 10:50	12/28/09 21:12	630-02-4	
o-Terphenyl (S)	107 %		50-150	1	12/22/09 10:50	12/28/09 21:12	84-15-1	

Sample: 2A-W-42-1209		Lab ID: 252691027	Collected: 12/17/09 13:00	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.14 mg/L		0.075	1	12/22/09 10:50	12/28/09 21:31		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 21:31	64742-65-0	
n-Octacosane (S)	117 %		50-150	1	12/22/09 10:50	12/28/09 21:31	630-02-4	
o-Terphenyl (S)	114 %		50-150	1	12/22/09 10:50	12/28/09 21:31	84-15-1	

Sample: 2A-W-420-1209		Lab ID: 252691028	Collected: 12/17/09 13:20	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.14 mg/L		0.075	1	12/22/09 10:50	12/28/09 22:09		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 22:09	64742-65-0	
n-Octacosane (S)	108 %		50-150	1	12/22/09 10:50	12/28/09 22:09	630-02-4	
o-Terphenyl (S)	105 %		50-150	1	12/22/09 10:50	12/28/09 22:09	84-15-1	

Sample: GW-4-1209		Lab ID: 252691029	Collected: 12/17/09 13:50	Received: 12/17/09 16:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.076	1	12/22/09 10:50	12/28/09 22:28		
Motor Oil Range	ND mg/L		0.38	1	12/22/09 10:50	12/28/09 22:28	64742-65-0	
n-Octacosane (S)	110 %		50-150	1	12/22/09 10:50	12/28/09 22:28	630-02-4	
o-Terphenyl (S)	108 %		50-150	1	12/22/09 10:50	12/28/09 22:28	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 252691

QC Batch: OEXT/1749 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 252691001, 252691002, 252691003, 252691004, 252691005, 252691006, 252691007, 252691008, 252691009, 252691010, 252691011, 252691012, 252691013, 252691014, 252691015, 252691016, 252691017, 252691018, 252691019, 252691020

METHOD BLANK: 17734 Matrix: Water

Associated Lab Samples: 252691001, 252691002, 252691003, 252691004, 252691005, 252691006, 252691007, 252691008, 252691009, 252691010, 252691011, 252691012, 252691013, 252691014, 252691015, 252691016, 252691017, 252691018, 252691019, 252691020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	12/22/09 14:07	
Motor Oil Range	mg/L	ND	0.40	12/22/09 14:07	
n-Octacosane (S)	%	106	50-150	12/22/09 14:07	
o-Terphenyl (S)	%	100	50-150	12/22/09 14:07	

LABORATORY CONTROL SAMPLE: 17735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	5	4.0	79	51-147	
Motor Oil Range	mg/L	5	4.4	89	20-160	
n-Octacosane (S)	%			106	50-150	
o-Terphenyl (S)	%			97	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 17736 17737

Parameter	Units	252691013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	0.085	4.8	4.7	2.2	3.3	45	69	50-150	41	M0
Motor Oil Range	mg/L	ND	4.8	4.7	2.6	3.8	52	79	20-160	39	
n-Octacosane (S)	%						80	96	50-150		
o-Terphenyl (S)	%						71	85	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 252691

QC Batch: OEXT/1750 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 252691001, 252691002, 252691003, 252691009, 252691010, 252691013, 252691014, 252691015, 252691016, 252691017, 252691018, 252691019

METHOD BLANK: 17739 Matrix: Water
 Associated Lab Samples: 252691001, 252691002, 252691003, 252691009, 252691010, 252691013, 252691014, 252691015, 252691016, 252691017, 252691018, 252691019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.080	12/23/09 19:46	
Motor Oil Range SG	mg/L	ND	0.40	12/23/09 19:46	
n-Octacosane (S) SG	%	103	50-150	12/23/09 19:46	
o-Terphenyl (S) SG	%	98	50-150	12/23/09 19:46	

LABORATORY CONTROL SAMPLE: 17740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	5	3.9	78	51-147	
Motor Oil Range SG	mg/L	5	4.3	87	20-160	
n-Octacosane (S) SG	%			106	50-150	
o-Terphenyl (S) SG	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 17741 17742

Parameter	Units	252691013 Result	MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
			Spike Conc.	MS Result	MSD Result	% Rec	% Rec						
Diesel Range SG	mg/L	ND	4.8	4.7	2.1	3.1	45	64	50-150	35	M0		
Motor Oil Range SG	mg/L	ND	4.8	4.7	2.5	3.5	52	74	20-160	34			
n-Octacosane (S) SG	%						83	93	50-150				
o-Terphenyl (S) SG	%						74	87	50-150				

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 252691

QC Batch: OEXT/1751

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 252691021, 252691022, 252691023, 252691024, 252691025, 252691026, 252691027, 252691028, 252691029

METHOD BLANK: 17827

Matrix: Water

Associated Lab Samples: 252691021, 252691022, 252691023, 252691024, 252691025, 252691026, 252691027, 252691028, 252691029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	12/28/09 18:39	
Motor Oil Range	mg/L	ND	0.40	12/28/09 18:39	
n-Octacosane (S)	%	109	50-150	12/28/09 18:39	
o-Terphenyl (S)	%	111	50-150	12/28/09 18:39	

LABORATORY CONTROL SAMPLE & LCSD: 17828

17829

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	5	4.3	4.2	87	85	51-147	2	30	
Motor Oil Range	mg/L	5	4.8	4.8	96	96	20-160	.4	30	
n-Octacosane (S)	%				113	116	50-150			
o-Terphenyl (S)	%				103	102	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 252691

QC Batch: OEXT/1752

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 252691021

METHOD BLANK: 17830

Matrix: Water

Associated Lab Samples: 252691021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.080	12/24/09 01:10	
Motor Oil Range SG	mg/L	ND	0.40	12/24/09 01:10	
n-Octacosane (S) SG	%	108	50-150	12/24/09 01:10	
o-Terphenyl (S) SG	%	105	50-150	12/24/09 01:10	

LABORATORY CONTROL SAMPLE & LCSD: 17831

17832

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range SG	mg/L	5	4.0	3.9	80	77	51-147	4	30	
Motor Oil Range SG	mg/L	5	4.4	4.4	89	88	20-160	1	30	
n-Octacosane (S) SG	%				110	110	50-150			
o-Terphenyl (S) SG	%				100	100	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 252691

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 252691

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
252691004	1C-W-1-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691005	1C-W-7-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691006	1C-W-8-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691007	1B-W-23-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691008	2A-W-40-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691011	2B-W-46-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691012	2B-W-45-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691020	2A-W-41-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691022	EW-1-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691023	GW-1-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691024	GW-2-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691025	GW-20-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691026	GW-3-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691027	2A-W-42-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691028	2A-W-420-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691029	GW-4-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691001	3-W-41-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691001	3-W-41-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691002	3-W-43-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691002	3-W-43-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691003	3-W-42-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691003	3-W-42-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691009	5-W-18-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691009	5-W-18-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691010	5-W-180-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691010	5-W-180-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691013	5-W-42-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691013	5-W-42-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691014	MW-500-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691014	MW-500-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691015	5-W-20-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691015	5-W-20-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691016	5-W-17-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691016	5-W-17-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691017	5-W-14-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691017	5-W-14-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691018	5-W-15-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 252691

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
252691018	5-W-15-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691019	5-W-16-1209	EPA 3510	OEXT/1749	NWTPH-Dx	GCSV/1391
252691019	5-W-16-1209	EPA 3510	OEXT/1750	NWTPH-Dx	GCSV/1392
252691021	5-W-19-1209	EPA 3510	OEXT/1751	NWTPH-Dx	GCSV/1393
252691021	5-W-19-1209	EPA 3510	OEXT/1752	NWTPH-Dx	GCSV/1394



Sample Condition Upon Receipt

Client Name: AECOM/BNSE

Project # 252691

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____
Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Optional:
Proj. Due Date:
Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.6, 5.4, 5.3, 4.6, 4.3 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C 5.4, 3.8, 4.2, 5.1, 7.8

Date and Initials of person examining contents: <u>12/18/09 AR</u>
--

Comments:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A															
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A															
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A															
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
-Includes date/time/ID/Analysis Matrix: <u>Water</u>																
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A															
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No															
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A															
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A															
Trip Blank Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A															
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A															
Pace Trip Blank Lot # (if purchased):																

Field Data Required? Y / N

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] 12-18-09 Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody Record

NO 3326

THE RETEC GROUP, INC.
 300 BAKER AVENUE • CONCORD, MA 01742
 (978) 324-4422 Phone • (978) 371-4460 Fax
 www.retec.com



Project Name: BNSF - Skykomish
 Send Report to: AECOM
 Address: 710 2nd Ave
Ste 1000
Seattle, WA 98104
 Phone: (206) 624-9349
 Fax:

Project Number: 60136319-0540
 Sampler (Print Name): D. Kinney
 Sampler (Print Name): G. Sebbane
 Shipment Method: Hand Delivered
 Atrbill Number: 104
 Laboratory Receiving: Pace

Analysis Requested
NWTPH-DX W/SGCW
NWTPH-DX W/SGCW

SGCW - silica gel cleanup

Bill to: BNSF
 Purchase Order #: TT0100-539
(Bruce Sheppard)

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
3-W-41-1209	12/15/09	1010	W	4	X		
3-W-43-		1140		4	X		
3-W-42-		1230		4	X		
1C-W-1-		1025		2	X		
1C-W-7-		1210		2	X		
1C-W-8-		1110		2	X		
1A-W-23-		1350		2	X		
2A-W-40-		1520		2	X		
S-W-18-	12/16/09	0915		4	X		
S-W-180-		0930		4	X		
ZB-W-46-		1020		2	X		
ZB-W-45-		1100		2	X		
S-W-42-		1255		12	X		
MM-500-		1335		4	X		
S-W-20-		1410		4	X		
S-W-17-		1520		4	X		
S-W-14-		0945		4	X		

Retinquired by: (Signature) Arvid Blom Received by: (Signature) Arvid Blom Date: 12/17/09 Time: 1650

Retinquired by: (Signature) Arvid Blom Received by: (Signature) Arvid Blom Date: 12/17/09 Time: 1650

Retinquired by: (Signature) Arvid Blom Received by: (Signature) Arvid Blom Date: 12/17/09 Time: 1650

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level: I II III Other

Turnaround: Routine 24 Hour 1 Week Other

Sample Receipt

Total # Containers Received?	10
COC Seals Present?	N
COC Seals Intact?	N/A
Received Containers Intact?	Y
Temperature?	5.1, 7.8, 5.6, 5.4, 5.3, 4.6, 4.3, 5.4

Chain of Custody Record

No 3327

The RETEC Group, Inc.
 200 Baker Avenue - Everett, WA 98201
 (979) 571-1122 Phone • (979) 571-1123 Fax
 www.retec.com



AECOM AVE
 310 2nd Ave
 Seattle, WA 98104

Project Name: BNSF - Skykomish Project Number: 60136319-0540

Send Report To: AECOM Sampler (Print Name): D. Kinosh

Address: 310 2nd Ave Sampler (Print Name): G. Schaner

5th 1000 Shipment Method: Hand delivery

Seattle, WA 98104 Anbill Number: NA

Phone: (206) 624-9349 Laboratory Receiving: Paco

Fax:

Analysis Requested
NWTPH-Dx w/o SGCM
NWTPH-Dx w/SGCM

Comments, Special Instructions, etc. (to be completed by lab)
Bill to: BNSF
Order #: TTD100-539
(Bruce Sheppard)

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
<u>S-W-15-1209</u>	<u>12/16/09</u>	<u>1215</u>	<u>W</u>	<u>4</u>	<input checked="" type="checkbox"/>		
<u>S-W-16-</u>		<u>1040</u>		<u>4</u>	<input checked="" type="checkbox"/>		
<u>2A-W-41-</u>		<u>1425</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>S-W-19-</u>		<u>1540</u>		<u>4</u>	<input checked="" type="checkbox"/>		
<u>EW-1-</u>	<u>12/13/09</u>	<u>1010</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>GW-1-</u>		<u>1040</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>GW-2-</u>		<u>1125</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>GW-20-</u>		<u>1130</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>GW-3-</u>		<u>1150</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>2A-W-42-</u>		<u>1300</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>2A-W-420-</u>		<u>1320</u>		<u>2</u>	<input checked="" type="checkbox"/>		
<u>GW-4-</u>		<u>1350</u>		<u>2</u>	<input checked="" type="checkbox"/>		

Relinquished by: (Signature) Abdulkhami Sillam Received by: (Signature) Abdulkhami Sillam Date: 12/17/09 Time: 1650

Relinquished by: (Signature) _____ Received by: (Signature) _____ Date: _____ Time: _____

Relinquished by: (Signature) _____ Received by: (Signature) _____ Date: _____ Time: _____

QA/QC Level: I II III Other

Turnaround: Routine 24 Hour 1 Week Other _____

Sample Receipt: Total # Containers Received? 10

COC Seals Present? N

COC Seals Intact? N/A

Received Containers Intact? Y

Temperature? S.1, 7.8, 18.5, 16.5, 5.4, 5.3, 4.6, 4.3, 5.4

12/16/09
 ME

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy



Environment

Submitted to:
BNSF Skykomish

Submitted by:
AECOM
Fort Collins, CO
60136319
March 2010

March 7, 2010

Organic
Limited Data Validation Report

BNSF Skykomish
Air, Groundwater and Water QC Samples
Pace Analytical Services, Inc. data
Air Toxics, Ltd. data
December 2009

**Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager**

Overview

The samples analyzed for the BNSF Skykomish sampling effort from December 2009 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of twenty eight groundwater samples, four air samples, and one water QC sample.

The groundwater and water QC samples were analyzed by Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle). The reviewed analysis was Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (with and without Silica Gel cleanup).

The air samples were analyzed by Air Toxics, Ltd. of Folsom, CA. The reviewed analysis was Total Petroleum Hydrocarbons – Diesel Range (TPH-Diesel Range) by modified method TO-15.

The Analytical Limited Data Validation Checklist is presented as pages 3-8. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Method To-15 modified was reviewed as per Compendium Method TO-15, EPA/625/R-96/010b, January 1999. Groundwater field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) recoveries
Laboratory duplicate (or spiked duplicate) RPDs
Summarized Method TO-15 calibration data
Field duplicate data (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

J estimated concentration

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 9).

Overall Data Assessment

Precision, accuracy, and method compliance have been determined to be acceptable, based on the data submitted. No data were missing, and no data were rejected. All reported data are suitable for their intended use with the qualifications and clarifications noted.

Table of Samples Analyzed
BNSF Skykomish
Air, Groundwater, and Water QC Samples
Pace Analytical (Pace-Seattle) Laboratory Report 252692
Air Toxics, Ltd. Laboratory report 0912453
December 2009

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Pace-Seattle data:						
Groundwater	3-W-41-1209		12/15/2009	10:10	252691	252691001
Groundwater	3-W-43-1209		12/15/2009	11:40	252691	252691002
Groundwater	3-W-42-1209		12/15/2009	12:30	252691	252691003
Groundwater	1C-W-1-1209		12/15/2009	10:25	252691	252691004
Groundwater	1C-W-7-1209		12/15/2009	12:10	252691	252691005
Groundwater	1C-W-8-1209		12/15/2009	11:10	252691	252691006
Groundwater	1B-W-23-1209		12/15/2009	13:50	252691	252691007
Groundwater	2A-W-40-1209		12/15/2009	15:20	252691	252691008
Groundwater	5-W-18-1209		12/16/2009	09:15	252691	252691009
Groundwater	5-W-180-1209	5-W-18-1209 Dup	12/16/2009	09:30	252691	252691010
Groundwater	2B-W-46-1209		12/16/2009	10:20	252691	252691011
Groundwater	2B-W-45-1209		12/16/2009	11:00	252691	252691012
Groundwater	5-W-42-1209		12/16/2009	12:55	252691	252691013
Water QC	MW-500-1209	Equipment Rinse Blank	12/16/2009	13:35	252691	252691014
Groundwater	5-W-20-1209		12/16/2009	14:10	252691	252691015
Groundwater	5-W-17-1209		12/16/2009	15:20	252691	252691016
Groundwater	5-W-14-1209		12/16/2009	09:45	252691	252691017
Groundwater	5-W-15-1209		12/16/2009	12:15	252691	252691018
Groundwater	5-W-16-1209		12/16/2009	10:40	252691	252691019
Groundwater	2A-W-41-1209		12/16/2009	14:25	252691	252691020
Groundwater	5-W-19-1209		12/16/2009	15:40	252691	252691021
Groundwater	EW-1-1209		12/17/2009	10:10	252691	252691022
Groundwater	GW-1-1209		12/17/2009	10:40	252691	252691023
Groundwater	GW-2-1209		12/17/2009	11:25	252691	252691024
Groundwater	GW-20-1209	GW-2-1209 Dup	12/17/2009	11:30	252691	252691025
Groundwater	GW-3-1209		12/17/2009	11:50	252691	252691026
Groundwater	2A-W-42-1209		12/17/2009	13:00	252691	252691027
Groundwater	2A-W-420-1209	2A-W-42-1209 Dup	12/17/2009	13:20	252691	252691028
Groundwater	GW-4-1209		12/17/2009	13:50	252691	252691029
Air Toxics data:						
Air	VM1-121609		12/16/2009	10:07	0912453	0912453-01A
Air	VM2-121609		12/16/2009	09:55	0912453	0912453-02A
Air	VM3-121609		12/16/2009	09:31	0912453	0912453-03A
Air	VM4-121609		12/16/2009	09:42	0912453	0912453-04A

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish		Laboratory: Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle); Air Toxics, Ltd., of Folsom, CA				
Project Reference: Air and Groundwater Sampling		Sample Matrix: Air, Groundwater, and Water QC Samples				
AECOM Project: 60136319.0530/0545		Sample Start Date: 12/15/2009				
Validator/Date Validated: Sue Milcan 03/07/2010 (completed)		Sample End Date: 12/17/2009				
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish, Air, Groundwater, and Water QC Samples, December 2009 (page 2).						
Parameters Reviewed: Pace-Seattle: Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (with and without Silica Gel cleanup). Air Toxics: Total Petroleum Hydrocarbons – Diesel Range (TPH-Diesel Range) by modified method TO-15.						
Laboratory Project IDs (SDGs): 252691, 0912453						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. Although one method NWTPH-Dx data point requires qualification based on laboratory spiked duplicate data (see item 17), overall field and laboratory precision is acceptable, based on the data submitted, since the majority of data are unqualified and no data are rejected. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was determined for the groundwater samples by reviewing equipment blank data for indication of field/sampling contamination. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. Although one method TO-15 modified data point requires qualification based on surrogate %Rs (see item 14), overall field and laboratory precision is acceptable, based on the data submitted, since the majority of data are unqualified and no data are rejected. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. Laboratory case narrative comments were also reviewed. No data require qualification based on these measurements, and overall method compliance is acceptable. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD adjustments were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable, some with qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
Data validation qualifiers assigned during this review:						
J estimated concentration						
The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.						
Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
<p>Comments: No problems with sample analysis were noted. Any assigned laboratory flags were reviewed during the limited validation procedure.</p> <p>Data qualification, if any, related to the comments and/or assigned laboratory data flags are discussed in the following sections.</p>						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
Comments: All requested analyses as documented on the original COCs were completed.						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
Comments: All samples were received intact and in good condition as noted on COC forms. Groundwater samples were received at Pace-Seattle at temperatures of 3.8-7.8°C. Temperatures in excess of 6°C were deemed compliant since samples were delivered directly from the field, on ice, and no temperatures exceeded 10°C. Samples received at Air Toxics were received at 3.0°C.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
Comments: The reported methods met the COC requests and are in compliance with the parameters requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
Comments: The reporting limits (RLs) are achievable by the quoted methods. All data were reported at undiluted levels. Note that the laboratories did not report any trace analyte concentrations \geq method detection limit (MDL) but $<$ practical quantitation limit/reporting limit (PQL/RL) for any methods.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
Comments: Only analytes applicable to the requested methods were reported.						
8. Were sample holding times met?	X	Yes		No	SM	Initials
Comments: The method-required sample extraction and analytical holding times were met for all samples and analyses.						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
Comments: Groundwater results were reported as mg/L. Air data were reported as $\mu\text{g}/\text{m}^3$.						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
Comments: All assigned laboratory flags were reviewed and evaluated during the limited validation process. Data validation qualifiers override any assigned laboratory data flags.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: The supplied method blank samples were free of target analyte contamination.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: The equipment rinse blank sample, MW-500-1209, associated with the groundwater samples was free of target analyte contamination.						
13. Were instrument calibrations within method or data validation control limits?	X – limited review	Yes		No	SM	Initials
Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review, unless specified below. Method TO-15 modified – The summarized CCV data provided was compliant with method QC limits of 70-130% at 123%.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

14. Were surrogate recoveries within control limits?		Yes	X	No	SM	Initials
<p>Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples, or met the following requirement, except as noted. High surrogate %Rs associated with undetected results did not initiate data qualification since the indicated high bias was not realized.</p> <p><u>Method TO-15 modified –</u></p> <p>All surrogate %Rs were outside of the 50-150% or 70-130% laboratory QC limits at 0-133% in sample VM3-121609. Since the target analyte was detected in this sample, the result requires a J qualifier to indicate an estimated concentration due to indicated matrix interference.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).</p>						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
<p>Comments: Reported LCS and LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and were also within laboratory control charted QC limits.</p>						
16. Were matrix spike recoveries within control limits?	X	Yes		No	SM	Initials
<p>Comments: Reported MS and MSD recoveries for the groundwater samples were within laboratory QC limits for all target analytes, or met the following requirement. Organic MS/MSD %Rs must both be outside of QC limits in order for organic results to be qualified based on matrix. If organic matrix effect was not confirmed (either MS or MSD was compliant), data did not require qualification.</p>						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?		Yes	X	No	SM	Initials
<p>Comments: Laboratory RPDs for target analytes in LCS/LCSD and MS/MSD samples were within data validation QC limits or 0-20% for aqueous samples, or met the following requirement, except as noted. Note that since a duplicate (LCSD) was not reported for the air samples, precision of method TO-15 is not evaluated. High RPDs associated with undetected project sample results did not initiate data qualification since the precision of the reporting limit is not in question.</p> <p><i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i></p> <p><u>Method NWTPH-Dx –</u></p> <p>The RPD for DRO in the spiked analysis of source sample exceeded QC limits at 41% (first analysis) and 35% (second analysis). The detected DRO result in the source sample 5-W-42-1209 requires a J qualifier to indicate an estimated concentration due to the precision outlier.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).</p>						
18. Were organic system performance criteria met?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i></p>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials																																				
<i>Comments: Not applicable for this level of limited data validation or for the analytical methods reported.</i>																																										
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials																																				
<i>Comments: Not applicable for this level of limited data validation or for the analytical methods reported.</i>																																										
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	SM	Initials																																				
Duplicate Sample No.	5-W-180-1209		Primary Sample No.	5-W-18-1209																																						
Duplicate Sample No.	GW-20-1209		Primary Sample No.	GW-2-1209																																						
Duplicate Sample No.	2A-W-420-1209		Primary Sample No.	2A-W-42-1209																																						
<p>Comments: Field duplicates were submitted for the groundwater samples. Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs were not applicable due to results that were undetected in both samples. Field duplicate and native sample concentrations that were both undetected are not reflected in the following table since RPDs are not applicable.</p> <p>The following RPDs were calculated:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th>Method</th> <th>Units</th> <th>Analyte</th> <th>5-W-18-1209</th> <th>5-W-180-1209</th> <th>RPD</th> </tr> </thead> <tbody> <tr> <td>NWTPH-Dx</td> <td>mg/L</td> <td>Diesel Range</td> <td style="text-align: center;">0.65</td> <td style="text-align: center;">0.68</td> <td style="text-align: center;">4.5</td> </tr> <tr> <th>Method</th> <th>Units</th> <th>Analyte</th> <th>GW-2-1209</th> <th>GW-20-1209</th> <th>RPD</th> </tr> <tr> <td>NWTPH-Dx</td> <td>mg/L</td> <td>Diesel Range</td> <td style="text-align: center;">0.12</td> <td style="text-align: center;">0.12</td> <td style="text-align: center;">0.0</td> </tr> <tr> <th>Method</th> <th>Units</th> <th>Analyte</th> <th>2A-W-42-1209</th> <th>2A-W-420-1209</th> <th>RPD</th> </tr> <tr> <td>NWTPH-Dx</td> <td>mg/L</td> <td>Diesel Range</td> <td style="text-align: center;">0.14</td> <td style="text-align: center;">0.14</td> <td style="text-align: center;">0.0</td> </tr> </tbody> </table>							Method	Units	Analyte	5-W-18-1209	5-W-180-1209	RPD	NWTPH-Dx	mg/L	Diesel Range	0.65	0.68	4.5	Method	Units	Analyte	GW-2-1209	GW-20-1209	RPD	NWTPH-Dx	mg/L	Diesel Range	0.12	0.12	0.0	Method	Units	Analyte	2A-W-42-1209	2A-W-420-1209	RPD	NWTPH-Dx	mg/L	Diesel Range	0.14	0.14	0.0
Method	Units	Analyte	5-W-18-1209	5-W-180-1209	RPD																																					
NWTPH-Dx	mg/L	Diesel Range	0.65	0.68	4.5																																					
Method	Units	Analyte	GW-2-1209	GW-20-1209	RPD																																					
NWTPH-Dx	mg/L	Diesel Range	0.12	0.12	0.0																																					
Method	Units	Analyte	2A-W-42-1209	2A-W-420-1209	RPD																																					
NWTPH-Dx	mg/L	Diesel Range	0.14	0.14	0.0																																					
22. Were qualitative criteria for organic target analyte identification met?	X – limited review	Yes		No	SM	Initials																																				
<p><i>Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory, except as noted below.</i></p> <p><u>Method TO-15 Modified –</u></p> <p>The laboratory noted that the TPH-Diesel Range result for sample VM3-121609 did not resemble diesel fuel. Insufficient documentation is provided in this level of report deliverable to fully evaluate the laboratory statement. However, since the analysis reports not only Diesel, but all compounds within the specified hydrocarbon range, no action is required other than to note this laboratory observation.</p>																																										

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
<p>Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. No changes were made to EDD entries.</p> <p>Data validation qualifiers and reason codes were added to the EDDs as discussed in this Checklist. The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file was returned to the database manager in Seattle, WA on 03/07/2010.</p>						
<p>24. General Comments: Data were evaluated based on validation criteria set forth in the <i>USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review</i>, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were reviewed as per <i>WDOE Analytical Methods for Petroleum Hydrocarbons</i>, ECY 97-602 of June 1997. Method To-15 modified was reviewed as per Compendium Method TO-15, EPA/625/R-96/010b, January 1999. Groundwater field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).</p>						

**Table of Qualified Analytical Results
BNSF Skykomish
Air, Groundwater, and Water QC Samples
Pace Analytical (Pace-Seattle) Laboratory Report 252692
Air Toxics, Ltd. Laboratory report 0912453
December 2009**

Sample ID	Lab ID	Method	Dilution	Analyte	Concentration	Qualifier	Reason Code
Qualified Reportable Groundwater data:							
5-W-42-1209	252691013	NWTPH-Dx	1	Diesel Range Organics	0.085 mg/L	J	RPD
Qualified Reportable Air data:							
VM3-121609	0912453-03A	TO-15 Mod	1	TPH-Diesel Range	1700 µg/m3	J	SUR

Reason Codes:

RPD - relative percent difference between laboratory duplicates (or spiked duplicates) exceeds QC limits; laboratory precision outlier

SUR - surrogate spike recovery outlier; indicated or confirmed matrix interference

February 01, 2010

Sarah Albano
AECOM (BNSF)
710 2nd Avenue, Suite 1000
Seattle, WA 98104

RE: Project: Skykomish 60136319-0540
Pace Project No.: 252906

Dear Sarah Albano:

Enclosed are the analytical results for sample(s) received by the laboratory on January 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 7

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CERTIFICATIONS

Project: Skykomish 60136319-0540

Pace Project No.: 252906

Washington Certification IDs

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01-09

Alaska Drinking Water Micro Certification #: WA01230

940 South Harney Street Seattle, WA 98108

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: Skykomish 60136319-0540

Pace Project No.: 252906

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
252906001	IC-W-1-0110	NWTPH-Dx	DMT	4	PASI-S
252906002	IC-W-8-0110	NWTPH-Dx	DMT	4	PASI-S
252906003	IC-W-7-0110	NWTPH-Dx	DMT	4	PASI-S
252906004	IC-W-70-0110	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Skykomish 60136319-0540

Pace Project No.: 252906

Sample: IC-W-1-0110		Lab ID: 252906001	Collected: 01/26/10 10:20	Received: 01/27/10 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.096	mg/L	0.019	1	01/28/10 10:40	01/28/10 20:32		
Motor Oil Range	0.095	mg/L	0.095	1	01/28/10 10:40	01/28/10 20:32	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	01/28/10 10:40	01/28/10 20:32	630-02-4	
o-Terphenyl (S)	101 %		50-150	1	01/28/10 10:40	01/28/10 20:32	84-15-1	

Sample: IC-W-8-0110		Lab ID: 252906002	Collected: 01/26/10 11:10	Received: 01/27/10 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.51	mg/L	0.019	1	01/28/10 10:40	01/28/10 20:48		
Motor Oil Range	0.18	mg/L	0.095	1	01/28/10 10:40	01/28/10 20:48	64742-65-0	
n-Octacosane (S)	83 %		50-150	1	01/28/10 10:40	01/28/10 20:48	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	01/28/10 10:40	01/28/10 20:48	84-15-1	

Sample: IC-W-7-0110		Lab ID: 252906003	Collected: 01/26/10 14:50	Received: 01/27/10 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.12	mg/L	0.019	1	01/28/10 10:40	01/28/10 21:05		
Motor Oil Range	ND	mg/L	0.094	1	01/28/10 10:40	01/28/10 21:05	64742-65-0	
n-Octacosane (S)	81 %		50-150	1	01/28/10 10:40	01/28/10 21:05	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	01/28/10 10:40	01/28/10 21:05	84-15-1	

Sample: IC-W-70-0110		Lab ID: 252906004	Collected: 01/26/10 15:00	Received: 01/27/10 09:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.13	mg/L	0.019	1	01/28/10 10:40	01/28/10 21:21		
Motor Oil Range	ND	mg/L	0.095	1	01/28/10 10:40	01/28/10 21:21	64742-65-0	
n-Octacosane (S)	94 %		50-150	1	01/28/10 10:40	01/28/10 21:21	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	01/28/10 10:40	01/28/10 21:21	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish 60136319-0540

Pace Project No.: 252906

QC Batch: OEXT/1820 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 252906001, 252906002, 252906003, 252906004

METHOD BLANK: 19947 Matrix: Water

Associated Lab Samples: 252906001, 252906002, 252906003, 252906004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	01/28/10 19:25	
Motor Oil Range	mg/L	ND	0.10	01/28/10 19:25	
n-Octacosane (S)	%	97	50-150	01/28/10 19:25	
o-Terphenyl (S)	%	98	50-150	01/28/10 19:25	

LABORATORY CONTROL SAMPLE & LCSD: 19948

19949

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.91	0.90	73	72	51-147	1	30	
Motor Oil Range	mg/L	1.2	1.1	1.1	89	86	20-160	4	30	
n-Octacosane (S)	%				91	85	50-150			
o-Terphenyl (S)	%				83	77	50-150			

QUALIFIERS

Project: Skykomish 60136319-0540

Pace Project No.: 252906

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish 60136319-0540

Pace Project No.: 252906

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
252906001	IC-W-1-0110	EPA 3510	OEXT/1820	NWTPH-Dx	GCSV/1439
252906002	IC-W-8-0110	EPA 3510	OEXT/1820	NWTPH-Dx	GCSV/1439
252906003	IC-W-7-0110	EPA 3510	OEXT/1820	NWTPH-Dx	GCSV/1439
252906004	IC-W-70-0110	EPA 3510	OEXT/1820	NWTPH-Dx	GCSV/1439

Sample Condition Upon Receipt



Client Name: AECOM-BNISE Project # 252906

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.8
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Optional:
Proj: Due Date:
Proj: Name:
Date and Initials of person examining contents: 1/27/10 JHG

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JHG 1-27-10 Date: _____

Sample Container Count

252906

CLIENT: ACCOM - RNSF



COC PAGE# ___ of ___
COC ID# _____

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WG9U	WG9U	WG9U	Comments
1		2												
2		2												
3		2												
4		2												
5														
6														
7														
8														
9														
10														
11														
12														Trip Blank?

AG1H	1 liter HCL amber glass							BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass							BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass							BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass							BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass							BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass							BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass							BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic							DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic							DG9H	40mL HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic							DG9M	40mL MeOH clear vial	WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac							DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic							DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic							I	Wipe/Swab		



Environment

Submitted to:
BNSF Skykomish

Submitted by:
AECOM
Fort Collins, CO
60136319.0530
February 2010

February 19, 2010

Organic
Limited Data Validation Report

BNSF Skykomish
Sitewide Groundwater Monitoring
Groundwater Samples
Pace Analytical Services, Inc. data
January 2010

**Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager**

Overview

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from January 2010 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of twenty two groundwater samples.

Samples were analyzed by Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle). The reviewed analysis was Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 3-8. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) recoveries
Laboratory duplicate (or spiked duplicate) RPDs
Field duplicate data (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

- J estimated concentration
- U evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
(U validation qualifiers are not identical to U laboratory flags that identify undetected results)

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 9).

Overall Data Assessment

Precision, accuracy, and method compliance have been determined to be acceptable, based on the data submitted. No data were missing, and no data were rejected. All reported data are suitable for their intended use with the qualifications and clarifications noted.

Table of Samples Analyzed
BNSF Skykomish – Sitewide Groundwater Monitoring
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Report 252759
January 2010

Matrix	Sample ID	Sample Date and Time	Lab SDG	Lab Sample ID
Groundwater	S1 - AU_0110	1/5/2010 10:05	252759	252759001
Groundwater	S1 - AD_0110	1/5/2010 09:55	252759	252759002
Groundwater	S1 - BU_0110	1/5/2010 10:20	252759	252759003
Groundwater	S1 - BD_0110	1/5/2010 10:30	252759	252759004
Groundwater	S1 - BA_0110	S1 - BD_0110 Dup 1/5/2010 10:30	252759	252759005
Groundwater	S2 - AU_0110	1/5/2010 11:30	252759	252759006
Groundwater	S2 - AD_0110	1/5/2010 11:40	252759	252759007
Groundwater	S2 - BU_0110	1/5/2010 11:50	252759	252759008
Groundwater	S2 - BD_0110	1/5/2010 12:00	252759	252759009
Groundwater	S2 - BA_0110	S2 - BU_0110 Dup 1/5/2010 11:50	252759	252759010
Groundwater	S3 - AU_0110	1/5/2010 13:00	252759	252759011
Groundwater	S3 - AD_0110	1/5/2010 13:10	252759	252759012
Groundwater	S3 - BU_0110	1/5/2010 13:20	252759	252759013
Groundwater	S3 - BD_0110	1/5/2010 13:30	252759	252759014
Groundwater	S3 - CU_0110	1/5/2010 13:40	252759	252759015
Groundwater	S3 - CD_0110	1/5/2010 13:50	252759	252759016
Groundwater	S4 - AU_0110	1/5/2010 15:00	252759	252759017
Groundwater	S4 - AD_0110	1/5/2010 15:10	252759	252759018
Groundwater	S4 - BU_0110	1/5/2010 15:20	252759	252759019
Groundwater	S4 - BD_0110	1/5/2010 15:30	252759	252759020
Groundwater	S4 - CU_0110	1/5/2010 15:40	252759	252759021
Groundwater	S4 - CD_0110	1/5/2010 15:50	252759	252759022

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish	Laboratory: Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle)					
Project Reference: Sitewide Groundwater Monitoring	Sample Matrix: Groundwater samples					
AECOM Project: 60136319.0530	Sample Start Date: 01/05/2010					
Validator/Date Validated: Sue Milcan 02/19/2010 (completed)	Sample End Date: 01/05/2010					
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater Samples, January 2010 (page 2).						
Parameters Reviewed: Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (without Silica Gel cleanup).						
Laboratory Project ID (SDG): 252759						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was not determined for this data set since field, equipment, and/or trip blank samples were not submitted for analysis/not required. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. Although some data require qualification based on detection below the practical quantitation limit (see item 6), and/or evidence of laboratory contamination (see item 11), overall method compliance is acceptable, based on the data submitted, since no data points are rejected. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable, some with qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
Data validation qualifiers assigned during this review:						
J estimated concentration						
U evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination (U validation qualifiers are not identical to U laboratory flags that identify undetected results)						
The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.						
Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
<p>Comments: No problems with sample analysis were noted. Any assigned laboratory flags were reviewed during the limited validation procedure.</p> <p>Data qualification, if any, related to the comments and/or assigned laboratory data flags are discussed in the following sections.</p>						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
Comments: All requested analyses as documented on the original COCs were completed.						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
Comments: All samples were received intact and in good condition with cooler temperatures of 0.5°C to 2.2°C as noted on the Sample Condition Upon Receipt form provided. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. No action is required other than to note this observation.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
Comments: The reported method met the COC requests and is in compliance with the parameters requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
Comments: The reporting limits (RLs) are achievable by the quoted method. All samples were reported at undiluted levels. Sample results reported at concentrations greater than or equal to the MDL but less than the RL require J qualifiers to indicate estimated concentrations. The analyte cannot be accurately quantitated at this trace concentration level. Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
Comments: Only analytes applicable to the requested method were reported.						
8. Were sample holding times met?	X	Yes		No	SM	Initials
Comments: The method-required sample extraction and analytical holding times were met for all samples. The required holding time periods for <u>groundwater samples</u> were met as follows: 14 days from sample collection to extraction, and 40 days from extraction to analysis for NWT PH-Dx.						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
Comments: All results were reported as mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
Comments: All assigned laboratory flags were reviewed and evaluated during the limited validation process. Data validation qualifiers override any assigned laboratory data flags.						
11. Were laboratory blank samples free of target analyte contamination?		Yes	X	No	SM	Initials
Comments: The method blank samples were free of target analyte contamination, or were associated with sample results that exceeded the calculated blank concentration action limits and could therefore not be attributed to laboratory contamination, except as noted below. Action limits were either equal to the RL or calculated at 5 times the blank concentration (data validation semivolatile organics directive).						
Continued on next page						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Method NWTPH-Dx: Sample/Blank < RL - (trace results)

Current 2008 guidance for semivolatile organics states that if a blank result is \geq MDL but < RL (<5x RL for common contaminants), and is associated with a trace sample concentration (<5x RL for common contaminants), then the sample result should be evaluated as not detected at the RL. For these results, the detect_flag field was changed from Y to N, and the initial concentrations reported as positive hits by the laboratory were maintained in the result_comment field of the project database/EDD or informational purposes only. Applying this guidance, the following qualifiers were assigned:

Trace concentrations of Diesel Range were reported in the method blanks at 0.010 mg/L.

Associated sample results whose reported values for this analyte were \geq MDL but < RL have been corrected to read < RL U in both the EDD/database and in the table of Qualified Analytical Results to show that the analyte has been evaluated to be undetected at the RL due to evidence of laboratory contamination and false positive detection below the RL.

Method NWTPH-Dx: Blank \leq RL \leq Sample –

Current 2008 guidance for extractable organics states that if a blank concentration is \geq MDL but < RL (< 5x RL for common contaminants), and is associated with sample concentrations \geq RL (\geq 5x RL for common contaminants) and \geq the blank concentration, then professional judgment applies. These samples should be reported as undetected at the reported sample concentration if the concentration is no more than five times the blank value (AECOM policy). For these results, the initial concentrations reported as positive hits by the laboratory were re-evaluated to be non-detects (detect_flag field was changed from Y to N), the initial concentrations reported as positive hits by the laboratory were used to populate the reporting_detection_limit field, and the original RL was maintained in the quantitation_limit field of the EDD/database for informational purposes only. Applying this guidance, the following qualifiers were assigned:

Trace concentrations of Diesel Range were reported in the method blanks at 0.010 mg/L.

Associated sample results whose reported values for this analyte were \geq RL but less than the calculated action limit of 5 times the blank concentration (0.050 mg/L), require U qualifiers to indicate that the analyte has been evaluated to be undetected at the reported concentration (false positive) due to evidence of laboratory contamination. The evaluated nondetection becomes the analyte reporting limit for the U qualified result. (Note that for sample S1 - BU_0110 the RL and initial reported sample concentration of 0.019 mg/L were the same value).

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).

12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?		Yes		No	SM	Initials
--	--	-----	--	----	----	----------

Comments: Not applicable – Field, equipment, and/or trip blank samples were not submitted/not required for this data set.

13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
---	--	-----	--	----	----	----------

Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples.						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and were also within laboratory control charted QC limits.						
16. Were matrix spike recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Not applicable – MS/MSD data were not reported by either laboratory. Refer to LCS/LCSD analysis for laboratory precision and accuracy assessment (items 15 and 17).						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD samples were within data validation QC limits of 0-20%. <i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i>						
18. Were organic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	SM	Initials
Duplicate Sample No.	S1 - BD_0110		Primary Sample No.	S1 - BA_0110		
Duplicate Sample No.	S2 - BU_0110		Primary Sample No.	S2 - BA_0110		
Comments: Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs were not applicable due to results that were undetected in both samples. Field duplicate and native sample concentrations that were both undetected are not reflected in the table since RPDs are not applicable. Note that the concentrations used below for field duplicate RPD calculation were then adjusted based on method blank contamination (see item 11). These are the unadjusted values.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

The following RPDs were calculated:

Method	Units	Analyte	S1 - BD_0110	S1 - BA_0110	RPD
NWTPH-Dx	mg/L	Diesel Range	0.013	0.015	14.3
Method	Units	Analyte	S2 - BU_0110	S2 - BA_0110	RPD
NWTPH-Dx	mg/L	Diesel Range	0.019	0.018	5.4

22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials
--	--	-----	--	----	----	----------

Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory.

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
---	----------	-----	--	----	----	----------

Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:

The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.

Sample results affected by contamination that were also detected below the RL are identified and discussed in item 11. For these results, the detect_flag field of the EDD file was changed to N, and the initial concentrations reported by the laboratory were maintained in the result_comment field for informational purposes only.

Sample results affected by contamination that were detected above or equal to the RL are identified and discussed in item 11. For these results, the detect_flag field of the EDD file was changed to N, and the initial concentrations reported by the laboratory in the result_value EDD field were used to populate the reporting_detection_limit field. Note that the original RL is maintained in the quantitation_limit field of the EDD.

The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file was returned to the database manager in Seattle, WA on 02/19/2010.

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).

Table of Qualified Analytical Results
BNSF Skykomish – Sitewide Groundwater Monitoring
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Report 252759
January 2010

Sample ID	Lab ID	Method	Dilution	Analyte	Concentration	Qualifier	Reason Code
Qualified Reportable data:							
S1 - AU_0110	252759001	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.014 mg/L
S1 - AU_0110	252759001	NWTPH-Dx	1	Motor Oil Range	0.051 mg/L	J	< PQL
S1 - AD_0110	252759002	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.015 mg/L
S1 - BU_0110	252759003	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB - sample result/RL were same value
S1 - BU_0110	252759003	NWTPH-Dx	1	Motor Oil Range	0.047 mg/L	J	< PQL
S1 - BD_0110	252759004	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.013 mg/L
S1 - BA_0110	252759005	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.015 mg/L
S2 - AU_0110	252759006	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.014 mg/L
S2 - AD_0110	252759007	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.012 mg/L
S2 - BU_0110	252759008	NWTPH-Dx	1	Diesel Range	< 0.020 mg/L	U	MB - original RL was 0.019 mg/L
S2 - BD_0110	252759009	NWTPH-Dx	1	Diesel Range	< 0.023 mg/L	U	MB - original RL was 0.019 mg/L
S2 - BA_0110	252759010	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.018 mg/L
S3 - AU_0110	252759011	NWTPH-Dx	1	Motor Oil Range	0.045 mg/L	J	< PQL
S3 - AD_0110	252759012	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.014 mg/L
S3 - BU_0110	252759013	NWTPH-Dx	1	Diesel Range	< 0.039 mg/L	U	MB - original RL was 0.019 mg/L
S3 - BD_0110	252759014	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.014 mg/L
S3 - CU_0110	252759015	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.014 mg/L
S3 - CD_0110	252759016	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.013 mg/L
S4 - AU_0110	252759017	NWTPH-Dx	1	Diesel Range	< 0.038 mg/L	U	MB - original RL was 0.019 mg/L
S4 - AU_0110	252759017	NWTPH-Dx	1	Motor Oil Range	0.042 mg/L	J	< PQL
S4 - AD_0110	252759018	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	U	MB, < PQL - original result was 0.016 mg/L
S4 - BD_0110	252759020	NWTPH-Dx	1	Diesel Range	< 0.047 mg/L	U	MB - original RL was 0.019 mg/L
S4 - CU_0110	252759021	NWTPH-Dx	1	Diesel Range	< 0.030 mg/L	U	MB - original RL was 0.019 mg/L
S4 - CU_0110	252759021	NWTPH-Dx	1	Motor Oil Range	0.068 mg/L	J	< PQL
S4 - CD_0110	252759022	NWTPH-Dx	1	Diesel Range	< 0.025 mg/L	U	MB - original RL was 0.019 mg/L
S4 - CD_0110	252759022	NWTPH-Dx	1	Motor Oil Range	0.046 mg/L	J	< PQL

Reason Codes:

< PQL - concentration reported is \geq the method detection limit but is < the practical quantitation limit/reporting limit

MB - analyte was also detected in the associated method blank at a comparable concentration; evidence of laboratory contamination

March 10, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253125

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on February 24, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

03-10-2010 Revised Report: Sample ID for sample number four corrected to 1C-W-70.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 7

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253125

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 253125

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253125001	IC-W-1-0210	NWTPH-Dx	DMT	4	PASI-S
253125002	IC-W-8-0210	NWTPH-Dx	DMT	4	PASI-S
253125003	IC-W-7-0210	NWTPH-Dx	DMT	4	PASI-S
253125004	IC-W-70-0210	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 253125

Sample: IC-W-1-0210		Lab ID: 253125001	Collected: 02/23/10 10:45	Received: 02/24/10 08:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.049	mg/L	0.019	1	03/02/10 15:45	03/03/10 13:31		
Motor Oil Range	ND	mg/L	0.094	1	03/02/10 15:45	03/03/10 13:31	64742-65-0	
n-Octacosane (S)	107	%	50-150	1	03/02/10 15:45	03/03/10 13:31	630-02-4	
o-Terphenyl (S)	93	%	50-150	1	03/02/10 15:45	03/03/10 13:31	84-15-1	

Sample: IC-W-8-0210		Lab ID: 253125002	Collected: 02/23/10 11:35	Received: 02/24/10 08:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.50	mg/L	0.019	1	03/02/10 15:45	03/03/10 13:47		
Motor Oil Range	0.25	mg/L	0.094	1	03/02/10 15:45	03/03/10 13:47	64742-65-0	
n-Octacosane (S)	102	%	50-150	1	03/02/10 15:45	03/03/10 13:47	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	03/02/10 15:45	03/03/10 13:47	84-15-1	

Sample: IC-W-7-0210		Lab ID: 253125003	Collected: 02/23/10 12:50	Received: 02/24/10 08:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.12	mg/L	0.019	1	03/02/10 15:45	03/03/10 14:04		
Motor Oil Range	ND	mg/L	0.094	1	03/02/10 15:45	03/03/10 14:04	64742-65-0	
n-Octacosane (S)	99	%	50-150	1	03/02/10 15:45	03/03/10 14:04	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	03/02/10 15:45	03/03/10 14:04	84-15-1	

Sample: IC-W-70-0210		Lab ID: 253125004	Collected: 02/23/10 13:10	Received: 02/24/10 08:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.11	mg/L	0.019	1	03/02/10 15:45	03/03/10 14:20		
Motor Oil Range	ND	mg/L	0.094	1	03/02/10 15:45	03/03/10 14:20	64742-65-0	
n-Octacosane (S)	101	%	50-150	1	03/02/10 15:45	03/03/10 14:20	630-02-4	
o-Terphenyl (S)	91	%	50-150	1	03/02/10 15:45	03/03/10 14:20	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253125

QC Batch: OEXT/1939 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253125001, 253125002, 253125003, 253125004

METHOD BLANK: 22589 Matrix: Water

Associated Lab Samples: 253125001, 253125002, 253125003, 253125004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/03/10 10:13	
Motor Oil Range	mg/L	ND	0.10	03/03/10 10:13	
n-Octacosane (S)	%	111	50-150	03/03/10 10:13	
o-Terphenyl (S)	%	103	50-150	03/03/10 10:13	

LABORATORY CONTROL SAMPLE & LCSD: 22590 22591

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.0	1.0	83	83	51-147	.7	30	
Motor Oil Range	mg/L	1.2	1.3	1.3	100	102	20-160	2	30	
n-Octacosane (S)	%				107	109	50-150			
o-Terphenyl (S)	%				89	79	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253125

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: GCSV/1496

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253125

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253125001	IC-W-1-0210	EPA 3510	OEXT/1939	NWTPH-Dx	GCSV/1496
253125002	IC-W-8-0210	EPA 3510	OEXT/1939	NWTPH-Dx	GCSV/1496
253125003	IC-W-7-0210	EPA 3510	OEXT/1939	NWTPH-Dx	GCSV/1496
253125004	IC-W-70-0210	EPA 3510	OEXT/1939	NWTPH-Dx	GCSV/1496

Sample Condition Upon Receipt



Client Name: AECOM

Project # 253125

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Optional
Proj Due Date
Proj Name

Tracking #: _____
 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.6 Biological Tissue is Frozen: Yes No
 Temp should be above freezing to 6°C

Date and Initials of person examining contents: <u>2/24/10 MR</u>

Comments:	
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Filtered volume received for Dissolved tests: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>	
All containers needing preservation have been checked: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
	Lot # of added preservative
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Field Data Required? Y / N

Client Notification/ Resolution:
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

Project Manager Review: [Signature] 2-24-10 Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR
 _____ (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 F-ALLC003rev.3, 11 September 2006

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1309810

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: AECOM	Report To: Sarah Albano	Attention: Bruce Sheppard	Company Name: BNSF	Address:	REGULATORY AGENCY
Address: 110 2nd Ave, Suite 1000	Copy To:	Address:	Reference: BNSF	Site Location: SKYKOMISH	<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Email To: Sarah.albano@acom.com	Purchase Order No.:	Pace Quote Reference:	Pace Project Manager: Heidi Geri	STATE: WA	
Phone: 206.644.9344 Fax:	Project Name: BNSF SKYKOMISH	Pace Profile #:	Requested Date/Time:	Requested Analysis Filtered (Y/N)	
	Project Number: 60136319-0546				

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH				Na ₂ S ₂ O ₃	Methanol
1	1C-W-1-0210	DW WT WW	W	W	02/03/10	1035	-	1045	2											
2	1C-W-8-0210	P SL WP AR TS OT	W	W	02/03/10	1125	-	1135	2	X										
3	1C-W-7-0210		W	W	02/03/10	1240	-	1250	2	X										
4	1C-W-70-0210		W	W	02/03/10	1300	-	1310	2	X										
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
		<i>Sarah Albano</i>	02/24/10	0840	<i>Heidi Geri</i>	2-24-10	0840	Temp in °C	36
ORIGINAL		SAMPLER NAME AND SIGNATURE		PRINT Name of SAMPLER:		SIGNATURE of SAMPLER:		Received on Ice (Y/N)	Y
		<i>Sarah Albano</i>		<i>Sarah Albano</i>		<i>Sarah Albano</i>		Custody Sealed Cooler (Y/N)	Y
								Samples Intact (Y/N)	Y

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
F-ALL-Q-020rev.07, 15-May-2007

April 02, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253333

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 24, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 12

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253333

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

Page 2 of 12

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 253333

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253333001	S1-AU-0310	NWTPH-Dx	DMT	4	PASI-S
253333002	S1-AD-0310	NWTPH-Dx	DMT	4	PASI-S
253333003	S1-BU-0310	NWTPH-Dx	DMT	4	PASI-S
253333004	S1-BB-0310	NWTPH-Dx	DMT	4	PASI-S
253333005	S1-BD-0310	NWTPH-Dx	DMT	4	PASI-S
253333006	S2-AU-0310	NWTPH-Dx	DMT	4	PASI-S
253333007	S2-AD-0310	NWTPH-Dx	DMT	4	PASI-S
253333008	S2-BU-0310	NWTPH-Dx	DMT	4	PASI-S
253333009	S2-BD-0310	NWTPH-Dx	DMT	4	PASI-S
253333010	S3-AU-0310	NWTPH-Dx	DMT	4	PASI-S
253333011	S3-AD-0310	NWTPH-Dx	DMT	4	PASI-S
253333012	S3-BU-0310	NWTPH-Dx	DMT	4	PASI-S
253333013	S3-BD-0310	NWTPH-Dx	DMT	4	PASI-S
253333014	S3-CU-0310	NWTPH-Dx	DMT	4	PASI-S
253333015	S3-CD-0310	NWTPH-Dx	DMT	4	PASI-S
253333016	S4-AU-0310	NWTPH-Dx	DMT	4	PASI-S
253333017	S4-AC-0310	NWTPH-Dx	DMT	4	PASI-S
253333018	S4-AD-0310	NWTPH-Dx	DMT	4	PASI-S
253333019	S4-BU-0310	NWTPH-Dx	DMT	4	PASI-S
253333020	S4-BD-0310	NWTPH-Dx	ERB	4	PASI-S
253333021	S4-CU-0310	NWTPH-Dx	ERB	4	PASI-S
253333022	S4-CD-0310	NWTPH-Dx	ERB	4	PASI-S

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253333

Sample: S1-AU-0310		Lab ID: 253333001	Collected: 03/23/10 09:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 04:07		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 04:07	64742-65-0	
n-Octacosane (S)	90 %		50-150	1	03/26/10 11:35	03/27/10 04:07	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	03/26/10 11:35	03/27/10 04:07	84-15-1	

Sample: S1-AD-0310		Lab ID: 253333002	Collected: 03/23/10 09:10	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 04:23		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 04:23	64742-65-0	
n-Octacosane (S)	101 %		50-150	1	03/26/10 11:35	03/27/10 04:23	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	03/26/10 11:35	03/27/10 04:23	84-15-1	

Sample: S1-BU-0310		Lab ID: 253333003	Collected: 03/23/10 09:20	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 05:11		
Motor Oil Range	ND mg/L		0.094	1	03/26/10 11:35	03/27/10 05:11	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	03/26/10 11:35	03/27/10 05:11	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	03/26/10 11:35	03/27/10 05:11	84-15-1	

Sample: S1-BB-0310		Lab ID: 253333004	Collected: 03/23/10 09:25	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 05:27		
Motor Oil Range	ND mg/L		0.094	1	03/26/10 11:35	03/27/10 05:27	64742-65-0	
n-Octacosane (S)	91 %		50-150	1	03/26/10 11:35	03/27/10 05:27	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	03/26/10 11:35	03/27/10 05:27	84-15-1	

Sample: S1-BD-0310		Lab ID: 253333005	Collected: 03/23/10 09:30	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 05:43		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 05:43	64742-65-0	

Date: 04/02/2010 08:04 AM

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253333

Sample: S1-BD-0310		Lab ID: 253333005	Collected: 03/23/10 09:30	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	104 %		50-150	1	03/26/10 11:35	03/27/10 05:43	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	03/26/10 11:35	03/27/10 05:43	84-15-1	

Sample: S2-AU-0310		Lab ID: 253333006	Collected: 03/23/10 10:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.031 mg/L		0.019	1	03/26/10 11:35	03/27/10 06:31		
Motor Oil Range	ND	mg/L	0.095	1	03/26/10 11:35	03/27/10 06:31	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/26/10 11:35	03/27/10 06:31	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	03/26/10 11:35	03/27/10 06:31	84-15-1	

Sample: S2-AD-0310		Lab ID: 253333007	Collected: 03/23/10 10:10	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND	mg/L	0.019	1	03/26/10 11:35	03/27/10 06:47		
Motor Oil Range	ND	mg/L	0.095	1	03/26/10 11:35	03/27/10 06:47	64742-65-0	
n-Octacosane (S)	72 %		50-150	1	03/26/10 11:35	03/27/10 06:47	630-02-4	
o-Terphenyl (S)	60 %		50-150	1	03/26/10 11:35	03/27/10 06:47	84-15-1	

Sample: S2-BU-0310		Lab ID: 253333008	Collected: 03/23/10 10:20	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.087 mg/L		0.019	1	03/26/10 11:35	03/27/10 07:03		
Motor Oil Range	ND	mg/L	0.094	1	03/26/10 11:35	03/27/10 07:03	64742-65-0	
n-Octacosane (S)	80 %		50-150	1	03/26/10 11:35	03/27/10 07:03	630-02-4	
o-Terphenyl (S)	63 %		50-150	1	03/26/10 11:35	03/27/10 07:03	84-15-1	

Sample: S2-BD-0310		Lab ID: 253333009	Collected: 03/23/10 10:30	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND	mg/L	0.019	1	03/26/10 11:35	03/27/10 07:19		
Motor Oil Range	ND	mg/L	0.095	1	03/26/10 11:35	03/27/10 07:19	64742-65-0	
n-Octacosane (S)	83 %		50-150	1	03/26/10 11:35	03/27/10 07:19	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	03/26/10 11:35	03/27/10 07:19	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253333

Sample: S3-AU-0310		Lab ID: 253333010	Collected: 03/23/10 11:20	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.031 mg/L		0.019	1	03/26/10 11:35	03/27/10 08:08		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 08:08	64742-65-0	
n-Octacosane (S)	84 %		50-150	1	03/26/10 11:35	03/27/10 08:08	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	03/26/10 11:35	03/27/10 08:08	84-15-1	

Sample: S3-AD-0310		Lab ID: 253333011	Collected: 03/23/10 11:30	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.024 mg/L		0.019	1	03/26/10 11:35	03/27/10 08:24		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 08:24	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	03/26/10 11:35	03/27/10 08:24	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	03/26/10 11:35	03/27/10 08:24	84-15-1	

Sample: S3-BU-0310		Lab ID: 253333012	Collected: 03/23/10 11:55	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.029 mg/L		0.019	1	03/26/10 11:35	03/27/10 08:40		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 08:40	64742-65-0	
n-Octacosane (S)	82 %		50-150	1	03/26/10 11:35	03/27/10 08:40	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	03/26/10 11:35	03/27/10 08:40	84-15-1	

Sample: S3-BD-0310		Lab ID: 253333013	Collected: 03/23/10 12:05	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 08:56		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 08:56	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	03/26/10 11:35	03/27/10 08:56	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	03/26/10 11:35	03/27/10 08:56	84-15-1	

Sample: S3-CU-0310		Lab ID: 253333014	Collected: 03/23/10 12:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 09:12		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 09:12	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Lab Project No.: 253333

Sample: S3-CU-0310		Lab ID: 253333014	Collected: 03/23/10 12:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	112 %		50-150	1	03/26/10 11:35	03/27/10 09:12	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	03/26/10 11:35	03/27/10 09:12	84-15-1	

Sample: S3-CD-0310		Lab ID: 253333015	Collected: 03/23/10 12:25	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 09:28		
Motor Oil Range	ND mg/L		0.094	1	03/26/10 11:35	03/27/10 09:28	64742-65-0	
n-Octacosane (S)	114 %		50-150	1	03/26/10 11:35	03/27/10 09:28	630-02-4	
o-Terphenyl (S)	96 %		50-150	1	03/26/10 11:35	03/27/10 09:28	84-15-1	

Sample: S4-AU-0310		Lab ID: 253333016	Collected: 03/23/10 13:30	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 09:44		
Motor Oil Range	ND mg/L		0.094	1	03/26/10 11:35	03/27/10 09:44	64742-65-0	
n-Octacosane (S)	118 %		50-150	1	03/26/10 11:35	03/27/10 09:44	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	03/26/10 11:35	03/27/10 09:44	84-15-1	

Sample: S4-AC-0310		Lab ID: 253333017	Collected: 03/23/10 13:35	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 10:01		
Motor Oil Range	ND mg/L		0.094	1	03/26/10 11:35	03/27/10 10:01	64742-65-0	
n-Octacosane (S)	113 %		50-150	1	03/26/10 11:35	03/27/10 10:01	630-02-4	
o-Terphenyl (S)	96 %		50-150	1	03/26/10 11:35	03/27/10 10:01	84-15-1	

Sample: S4-AD-0310		Lab ID: 253333018	Collected: 03/23/10 13:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/26/10 11:35	03/27/10 10:17		
Motor Oil Range	ND mg/L		0.095	1	03/26/10 11:35	03/27/10 10:17	64742-65-0	
n-Octacosane (S)	113 %		50-150	1	03/26/10 11:35	03/27/10 10:17	630-02-4	
o-Terphenyl (S)	99 %		50-150	1	03/26/10 11:35	03/27/10 10:17	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253333

Sample: S4-BU-0310		Lab ID: 253333019	Collected: 03/23/10 13:55	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.38 mg/L		0.019	1	03/26/10 11:35	03/27/10 11:05		
Motor Oil Range	1.1 mg/L		0.095	1	03/26/10 11:35	03/27/10 11:05	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	03/26/10 11:35	03/27/10 11:05	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	03/26/10 11:35	03/27/10 11:05	84-15-1	

Sample: S4-BD-0310		Lab ID: 253333020	Collected: 03/23/10 14:05	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/29/10 00:00	03/30/10 16:28		
Motor Oil Range	ND mg/L		0.095	1	03/29/10 00:00	03/30/10 16:28	64742-65-0	
n-Octacosane (S)	80 %		50-150	1	03/29/10 00:00	03/30/10 16:28	630-02-4	
o-Terphenyl (S)	60 %		50-150	1	03/29/10 00:00	03/30/10 16:28	84-15-1	

Sample: S4-CU-0310		Lab ID: 253333021	Collected: 03/23/10 14:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.037 mg/L		0.019	1	03/29/10 00:00	03/30/10 16:45		
Motor Oil Range	ND mg/L		0.094	1	03/29/10 00:00	03/30/10 16:45	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	03/29/10 00:00	03/30/10 16:45	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	03/29/10 00:00	03/30/10 16:45	84-15-1	

Sample: S4-CD-0310		Lab ID: 253333022	Collected: 03/23/10 14:25	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.047 mg/L		0.019	1	03/29/10 00:00	03/30/10 17:01		
Motor Oil Range	ND mg/L		0.095	1	03/29/10 00:00	03/30/10 17:01	64742-65-0	
n-Octacosane (S)	89 %		50-150	1	03/29/10 00:00	03/30/10 17:01	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	03/29/10 00:00	03/30/10 17:01	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253333

QC Batch: OEXT/2041 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253333001, 253333002, 253333003, 253333004, 253333005, 253333006, 253333007, 253333008, 253333009, 253333010, 253333011, 253333012, 253333013, 253333014, 253333015, 253333016, 253333017, 253333018, 253333019

METHOD BLANK: 24675 Matrix: Water

Associated Lab Samples: 253333001, 253333002, 253333003, 253333004, 253333005, 253333006, 253333007, 253333008, 253333009, 253333010, 253333011, 253333012, 253333013, 253333014, 253333015, 253333016, 253333017, 253333018, 253333019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/27/10 03:35	
Motor Oil Range	mg/L	ND	0.10	03/27/10 03:35	
n-Octacosane (S)	%	118	50-150	03/27/10 03:35	
o-Terphenyl (S)	%	100	50-150	03/27/10 03:35	

LABORATORY CONTROL SAMPLE: 24676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	0.74	59	51-147	
Motor Oil Range	mg/L	1.2	0.89	71	20-160	
n-Octacosane (S)	%			104	50-150	
o-Terphenyl (S)	%			89	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 24677 24678

Parameter	Units	253333005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	ND	1.2	1.2	0.53	0.80	45	67	50-150	39	M0
Motor Oil Range	mg/L	ND	1.2	1.2	0.62	1.0	52	88	20-160	51	R1
n-Octacosane (S)	%						71	110	50-150		
o-Terphenyl (S)	%						66	93	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253333

QC Batch: OEXT/2044

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 253333020, 253333021, 253333022

METHOD BLANK: 24728

Matrix: Water

Associated Lab Samples: 253333020, 253333021, 253333022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/31/10 12:43	
Motor Oil Range	mg/L	ND	0.10	03/31/10 12:43	
n-Octacosane (S)	%	98	50-150	03/31/10 12:43	
o-Terphenyl (S)	%	83	50-150	03/31/10 12:43	

LABORATORY CONTROL SAMPLE & LCSD: 24729

24730

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.90	0.95	72	76	51-147	5	30	
Motor Oil Range	mg/L	1.2	1.0	1.1	83	91	20-160	10	30	
n-Octacosane (S)	%				99	97	50-150			
o-Terphenyl (S)	%				92	99	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253333

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

R1 RPD value was outside control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253333

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253333001	S1-AU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333002	S1-AD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333003	S1-BU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333004	S1-BB-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333005	S1-BD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333006	S2-AU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333007	S2-AD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333008	S2-BU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333009	S2-BD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333010	S3-AU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333011	S3-AD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333012	S3-BU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333013	S3-BD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333014	S3-CU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333015	S3-CD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333016	S4-AU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333017	S4-AC-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333018	S4-AD-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333019	S4-BU-0310	EPA 3510	OEXT/2041	NWTPH-Dx	GCSV/1541
253333020	S4-BD-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253333021	S4-CU-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253333022	S4-CD-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544

Sample Condition Upon Receipt



Client Name: BNSF Project # 253333

Optional:
 Proj. Due Date:
 Proj. Name:

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____
 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____
 Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 4.2, 5.8, 5.7, 7.1, 5.8, 5.4 Biological Tissue is Frozen: Yes No
 Temp should be above freezing to 5°C
 Date and Initials of person examining contents: 3/28/10 AP

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
-Includes date/time/ID/Analysis Matrix: <u>Water</u>			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased): _____			

Client Notification/ Resolution: _____ Date/Time: _____
 Person Contacted: _____
 Comments/ Resolution: _____

Project Manager Review: AP 3-24-10 Date: _____

Heidi Geri - MSMSD for Skykomish

25 3333

From: "Albano, Sarah" <Sarah.Albano@aecom.com>
To: "Heidi Geri" <Heidi.Geri@pacelabs.com>
Date: 3/24/2010 10:39 AM
Subject: MSMSD for Skykomish
CC: "Kinney, Dean" <Dean.Kinney@aecom.com>, "Havighorst, Mark" <Mark.Havigho...>

Heidi,

I confirmed with Dean that S1-BD-0310 is an MSMSD. The other sample that will have extra containers for MSMSD is 5W-19-0310.

I will be in the field tomorrow so if you have additional questions about samples that come in for Skykomish, please call Mark Havighorst at 503-227-1042 or Dean Kinney at 206-849-8229.

Sarah Albano, P.E.
Geological Engineer
Environment
D 801.316.6813 M 206.321.0075
sarah.albano@aecom.com

AECOM
45 West 10000 South, Suite 101, Sandy, UT 84070
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www.aecom.com

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Section A Required Client Information: **Section B** Required Project Information: **Section C** Invoice Information:

Company: BNSF	Report To: Sarah Albano (AEZOM)	Attention: Bruce Shoppard
Address:	Copy To: Renee Knacht	Company Name: BNSF
Email To:	Purchase Order No.: TT 0100-339	Address:
Phone:	Project Name: BNSF-Skykomish	Page Quote Reference:
Fax:	Project Number: 60130319-0547	Page Project Manager: Heldi Geri
Requested Due Date/TAT: Std		Page Profile #:
		Requested Analysis Filtered (Y/N)
		REGULATORY AGENCY
		NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
		UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/>
		Site Location STATE: WA

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↓	Requested Analysis Filtered (Y/N)		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.							
					COMPOSITE START	COMPOSITE END/GRAB					DATE	TIME			DATE	TIME	Y	N			
1	S1 - AN - 0310					3/23/09	0900														
2	AD					0910															
3	BU					0920															
4	BB					0925															
5	BD					0930															
6	S2 - AN -					1000															
7	AD					1010															
8	BU					1020															
9	BD					1030															
10	S3 - AN -					1120															
11	AD					1130															
12	BU					1155															
ADDITIONAL COMMENTS					RELINQUISHED BY / AFFILIATION					DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
										3/24		0835				3-24-09		8:30			

ORIGINAL

SAMPLER NAME AND SIGNATURE		PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY):		Temp in °C	Received on Ice (Y/N)
DATE Signed (MM/DD/YY):		Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

253333

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Samh Albing (AECOM)** Attention: **Bruce Sheppard**
 Address: **Range Knott** Copy To: **Range Knott** Company Name: **BNSF**
 Email To: **TT0100-539** Purchase Order No.: **BNSF-Skykomish** Page Quote Reference: **Heldi Gerl**
 Phone: **60136319-0540** Project Name: **60136319-0540** Pace Project Manager: **Heldi Gerl**
 Requested Due Date/TAT: **STD** Project Number: **60136319-0540** Pace Profile #:

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER
 UST RCRA
 Site Location STATE: **WA**

Page: **2** of **2**
1309896

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Waste Water WW Waste Water P Product Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			DATE	TIME							
1	S3-BD-0310		3/23/10	12:05		Unpreserved		↓ Analysis Test ↓			
2				12:15		H ₂ SO ₄	X				
3				12:25		HNO ₃	X				
4				13:30		HCl	X				
5				13:35		NaOH	X				
6				13:40		Na ₂ S ₂ O ₃	X				
7				13:55		Methanol	X				
8				14:05		Other	X				
9				14:15							
10				14:25							
11											
12											

ADDITIONAL COMMENTS: **CS**

RELINQUISHED BY / AFFILIATION: **[Signature]** DATE: **3/24** TIME: **08:25**

ACCEPTED BY / AFFILIATION: **[Signature]** DATE: **3-24-10** TIME: **8:30**

Temp in °C: _____ Received on Ice (Y/N): _____ Custody Sealed Cooler (Y/N): _____ Samples Intact (Y/N): _____

ORIGINAL

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YY): _____

*Important Note: By signing this form, you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020rev.07, 15-May-2007

April 02, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253334

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 24, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

The cooler containing the following samples was received at 7.1 C degrees: EW-1, 2A-W-10, 1C-W-4, 5-W-52, 5-W-520, and 5-W-56. The samples were received on ice. Samples were placed in 4.0 C degree storage upon receipt.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253334

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish
Pace Project No.: 253334

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253334001	2B-W-4-0310	NWTPH-Dx	ERB	4	PASI-S
253334002	GW-2-0310	NWTPH-Dx	ERB	4	PASI-S
253334003	GW-20-0310	NWTPH-Dx	ERB	4	PASI-S
253334004	GW-1-0310	NWTPH-Dx	ERB	4	PASI-S
253334005	GW-3-0310	NWTPH-Dx	ERB	4	PASI-S
253334006	MW-38R-0310	NWTPH-Dx	ERB	4	PASI-S
253334007	MW-39-0310	NWTPH-Dx	ERB	4	PASI-S
253334008	2A-W-11-0310	NWTPH-Dx	ERB	4	PASI-S
253334009	5-W-51-0310	NWTPH-Dx	ERB	4	PASI-S
253334010	GW-4-0310	NWTPH-Dx	ERB	4	PASI-S
253334011	2A-W-42-0310	NWTPH-Dx	ERB	4	PASI-S
253334012	1B-W-23-0310	NWTPH-Dx	ERB	4	PASI-S
253334013	1B-W-230-0310	NWTPH-Dx	ERB	4	PASI-S
253334014	5-W-43-0310	NWTPH-Dx	ERB	4	PASI-S
253334015	EW-1-0310	NWTPH-Dx	ERB	4	PASI-S
253334016	EW-10-0310	NWTPH-Dx	ERB	4	PASI-S
253334017	2A-W-41-0310	NWTPH-Dx	ERB	4	PASI-S
253334018	2A-W-40-0310	NWTPH-Dx	ERB	4	PASI-S
253334019	MW-16-0310	NWTPH-Dx	ERB	4	PASI-S
253334020	1A-W-4-0310	NWTPH-Dx	ERB	4	PASI-S
253334021	1A-W-5-0310	NWTPH-Dx	ERB	4	PASI-S
253334022	5-W-4-0310	NWTPH-Dx	ERB	4	PASI-S
253334023	5-W-50-0310	NWTPH-Dx	ERB	4	PASI-S
253334024	2A-W-10-0310	NWTPH-Dx	ERB	4	PASI-S
253334025	1C-W-3-0310	NWTPH-Dx	ERB	4	PASI-S
253334026	1C-W-4-0310	NWTPH-Dx	ERB	4	PASI-S
253334027	5-W-52-0310	NWTPH-Dx	ERB	4	PASI-S
253334028	5-W-520-0310	NWTPH-Dx	ERB	4	PASI-S
253334029	5-W-56-0310	NWTPH-Dx	ERB	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: 2B-W-4-0310		Lab ID: 253334001	Collected: 03/22/10 15:10	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	03/29/10 00:00	03/30/10 17:17		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/30/10 17:17	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/29/10 00:00	03/30/10 17:17	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	03/29/10 00:00	03/30/10 17:17	84-15-1	

Sample: GW-2-0310		Lab ID: 253334002	Collected: 03/22/10 16:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.22	mg/L	0.019	1	03/29/10 00:00	03/30/10 17:33		
Motor Oil Range	0.14	mg/L	0.095	1	03/29/10 00:00	03/30/10 17:33	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/29/10 00:00	03/30/10 17:33	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	03/29/10 00:00	03/30/10 17:33	84-15-1	

Sample: GW-20-0310		Lab ID: 253334003	Collected: 03/22/10 15:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.23	mg/L	0.019	1	03/29/10 00:00	03/30/10 17:49		
Motor Oil Range	0.16	mg/L	0.095	1	03/29/10 00:00	03/30/10 17:49	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	03/29/10 00:00	03/30/10 17:49	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	03/29/10 00:00	03/30/10 17:49	84-15-1	

Sample: GW-1-0310		Lab ID: 253334004	Collected: 03/22/10 16:50	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.032	mg/L	0.019	1	03/29/10 00:00	03/30/10 18:38		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/30/10 18:38	64742-65-0	
n-Octacosane (S)	98 %		50-150	1	03/29/10 00:00	03/30/10 18:38	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	03/29/10 00:00	03/30/10 18:38	84-15-1	

Sample: GW-3-0310		Lab ID: 253334005	Collected: 03/22/10 17:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.068	mg/L	0.019	1	03/29/10 00:00	03/30/10 18:54		
Motor Oil Range	ND	mg/L	0.094	1	03/29/10 00:00	03/30/10 18:54	64742-65-0	

Date: 04/02/2010 08:13 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: GW-3-0310		Lab ID: 253334005	Collected: 03/22/10 17:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	102 %		50-150	1	03/29/10 00:00	03/30/10 18:54	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	03/29/10 00:00	03/30/10 18:54	84-15-1	

Sample: MW-38R-0310		Lab ID: 253334006	Collected: 03/22/10 16:25	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.057 mg/L		0.019	1	03/29/10 00:00	03/30/10 19:10		
Motor Oil Range	ND	mg/L	0.094	1	03/29/10 00:00	03/30/10 19:10	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	03/29/10 00:00	03/30/10 19:10	630-02-4	
o-Terphenyl (S)	86 %		50-150	1	03/29/10 00:00	03/30/10 19:10	84-15-1	

Sample: MW-39-0310		Lab ID: 253334007	Collected: 03/23/10 15:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.21 mg/L		0.019	1	03/29/10 00:00	03/30/10 19:26		
Motor Oil Range	0.18 mg/L		0.095	1	03/29/10 00:00	03/30/10 19:26	64742-65-0	
n-Octacosane (S)	98 %		50-150	1	03/29/10 00:00	03/30/10 19:26	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	03/29/10 00:00	03/30/10 19:26	84-15-1	

Sample: 2A-W-11-0310		Lab ID: 253334008	Collected: 03/23/10 16:50	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.38 mg/L		0.019	1	03/29/10 00:00	03/30/10 19:42		
Motor Oil Range	0.45 mg/L		0.095	1	03/29/10 00:00	03/30/10 19:42	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	03/29/10 00:00	03/30/10 19:42	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	03/29/10 00:00	03/30/10 19:42	84-15-1	

Sample: 5-W-51-0310		Lab ID: 253334009	Collected: 03/23/10 17:20	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	3.7 mg/L		0.019	1	03/29/10 00:00	03/30/10 19:58		
Motor Oil Range	3.3 mg/L		0.095	1	03/29/10 00:00	03/30/10 19:58	64742-65-0	
n-Octacosane (S)	94 %		50-150	1	03/29/10 00:00	03/30/10 19:58	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	03/29/10 00:00	03/30/10 19:58	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: GW-4-0310		Lab ID: 253334010	Collected: 03/23/10 09:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.059	mg/L	0.019	1	03/29/10 00:00	03/31/10 11:21		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/31/10 11:21	64742-65-0	
n-Octacosane (S)	96 %		50-150	1	03/29/10 00:00	03/31/10 11:21	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	03/29/10 00:00	03/31/10 11:21	84-15-1	

Sample: 2A-W-42-0310		Lab ID: 253334011	Collected: 03/23/10 10:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.17	mg/L	0.019	1	03/29/10 00:00	03/30/10 20:30		
Motor Oil Range	0.15	mg/L	0.095	1	03/29/10 00:00	03/30/10 20:30	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	03/29/10 00:00	03/30/10 20:30	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	03/29/10 00:00	03/30/10 20:30	84-15-1	

Sample: 1B-W-23-0310		Lab ID: 253334012	Collected: 03/23/10 11:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.034	mg/L	0.019	1	03/29/10 00:00	03/30/10 20:46		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/30/10 20:46	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/29/10 00:00	03/30/10 20:46	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	03/29/10 00:00	03/30/10 20:46	84-15-1	

Sample: 1B-W-230-0310		Lab ID: 253334013	Collected: 03/23/10 12:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.023	mg/L	0.019	1	03/29/10 00:00	03/30/10 21:34		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/30/10 21:34	64742-65-0	
n-Octacosane (S)	93 %		50-150	1	03/29/10 00:00	03/30/10 21:34	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	03/29/10 00:00	03/30/10 21:34	84-15-1	

Sample: 5-W-43-0310		Lab ID: 253334014	Collected: 03/23/10 13:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.031	mg/L	0.019	1	03/29/10 00:00	03/30/10 21:50		
Motor Oil Range	ND	mg/L	0.095	1	03/29/10 00:00	03/30/10 21:50	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: 5-W-43-0310		Lab ID: 253334014	Collected: 03/23/10 13:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
n-Octacosane (S)	99 %		50-150	1	03/29/10 00:00	03/30/10 21:50	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	03/29/10 00:00	03/30/10 21:50	84-15-1	

Sample: EW-1-0310		Lab ID: 253334015	Collected: 03/23/10 13:55	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.029 mg/L		0.019	1	03/29/10 00:00	03/30/10 22:06		
Motor Oil Range	ND mg/L		0.095	1	03/29/10 00:00	03/30/10 22:06	64742-65-0	
n-Octacosane (S)	108 %		50-150	1	03/29/10 00:00	03/30/10 22:06	630-02-4	
o-Terphenyl (S)	98 %		50-150	1	03/29/10 00:00	03/30/10 22:06	84-15-1	

Sample: EW-10-0310		Lab ID: 253334016	Collected: 03/23/10 14:10	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	03/29/10 00:00	03/30/10 22:22		
Motor Oil Range	ND mg/L		0.095	1	03/29/10 00:00	03/30/10 22:22	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/29/10 00:00	03/30/10 22:22	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	03/29/10 00:00	03/30/10 22:22	84-15-1	

Sample: 2A-W-41-0310		Lab ID: 253334017	Collected: 03/23/10 15:45	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.040 mg/L		0.019	1	03/29/10 00:00	03/30/10 22:38		
Motor Oil Range	ND mg/L		0.094	1	03/29/10 00:00	03/30/10 22:38	64742-65-0	
n-Octacosane (S)	108 %		50-150	1	03/29/10 00:00	03/30/10 22:38	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	03/29/10 00:00	03/30/10 22:38	84-15-1	

Sample: 2A-W-40-0310		Lab ID: 253334018	Collected: 03/23/10 17:00	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.021 mg/L		0.019	1	03/30/10 11:00	03/30/10 23:42		
Motor Oil Range	ND mg/L		0.094	1	03/30/10 11:00	03/30/10 23:42	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	03/30/10 11:00	03/30/10 23:42	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	03/30/10 11:00	03/30/10 23:42	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: MW-16-0310		Lab ID: 253334019	Collected: 03/23/10 08:35	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 00:30		
Motor Oil Range	ND mg/L		0.095	1	03/30/10 11:00	03/31/10 00:30	64742-65-0	
n-Octacosane (S)	99 %		50-150	1	03/30/10 11:00	03/31/10 00:30	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	03/30/10 11:00	03/31/10 00:30	84-15-1	

Sample: 1A-W-4-0310		Lab ID: 253334020	Collected: 03/23/10 09:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 00:46		
Motor Oil Range	ND mg/L		0.094	1	03/30/10 11:00	03/31/10 00:46	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	03/30/10 11:00	03/31/10 00:46	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	03/30/10 11:00	03/31/10 00:46	84-15-1	

Sample: 1A-W-5-0310		Lab ID: 253334021	Collected: 03/23/10 09:50	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 01:01		
Motor Oil Range	ND mg/L		0.095	1	03/30/10 11:00	03/31/10 01:01	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	03/30/10 11:00	03/31/10 01:01	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	03/30/10 11:00	03/31/10 01:01	84-15-1	

Sample: 5-W-4-0310		Lab ID: 253334022	Collected: 03/23/10 11:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.29 mg/L		0.019	1	03/30/10 11:00	03/31/10 01:17		
Motor Oil Range	0.37 mg/L		0.095	1	03/30/10 11:00	03/31/10 01:17	64742-65-0	
n-Octacosane (S)	82 %		50-150	1	03/30/10 11:00	03/31/10 01:17	630-02-4	
o-Terphenyl (S)	59 %		50-150	1	03/30/10 11:00	03/31/10 01:17	84-15-1	

Sample: 5-W-50-0310		Lab ID: 253334023	Collected: 03/23/10 12:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	3.9 mg/L		0.019	1	03/30/10 11:00	03/31/10 01:33		
Motor Oil Range	1.7 mg/L		0.095	1	03/30/10 11:00	03/31/10 01:33	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Project No.: 253334

Sample: 5-W-50-0310		Lab ID: 253334023	Collected: 03/23/10 12:15	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	79 %		50-150	1	03/30/10 11:00	03/31/10 01:33	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	03/30/10 11:00	03/31/10 01:33	84-15-1	

Sample: 2A-W-10-0310		Lab ID: 253334024	Collected: 03/23/10 13:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.11 mg/L		0.019	1	03/30/10 11:00	03/31/10 01:49		
Motor Oil Range	0.43 mg/L		0.095	1	03/30/10 11:00	03/31/10 01:49	64742-65-0	
n-Octacosane (S)	81 %		50-150	1	03/30/10 11:00	03/31/10 01:49	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	03/30/10 11:00	03/31/10 01:49	84-15-1	

Sample: 1C-W-3-0310		Lab ID: 253334025	Collected: 03/23/10 14:45	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 02:05		
Motor Oil Range	ND mg/L		0.094	1	03/30/10 11:00	03/31/10 02:05	64742-65-0	
n-Octacosane (S)	101 %		50-150	1	03/30/10 11:00	03/31/10 02:05	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	03/30/10 11:00	03/31/10 02:05	84-15-1	

Sample: 1C-W-4-0310		Lab ID: 253334026	Collected: 03/23/10 15:35	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.28 mg/L		0.019	1	03/30/10 11:00	03/31/10 02:21		
Motor Oil Range	0.26 mg/L		0.095	1	03/30/10 11:00	03/31/10 02:21	64742-65-0	
n-Octacosane (S)	94 %		50-150	1	03/30/10 11:00	03/31/10 02:21	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	03/30/10 11:00	03/31/10 02:21	84-15-1	

Sample: 5-W-52-0310		Lab ID: 253334027	Collected: 03/23/10 16:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	1.5 mg/L		0.019	1	03/30/10 11:00	03/31/10 02:37		
Motor Oil Range	0.91 mg/L		0.095	1	03/30/10 11:00	03/31/10 02:37	64742-65-0	
n-Octacosane (S)	90 %		50-150	1	03/30/10 11:00	03/31/10 02:37	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	03/30/10 11:00	03/31/10 02:37	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253334

Sample: 5-W-520-0310		Lab ID: 253334028	Collected: 03/23/10 15:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.4	mg/L	0.019	1	03/30/10 11:00	03/31/10 03:24		
Motor Oil Range	0.91	mg/L	0.095	1	03/30/10 11:00	03/31/10 03:24	64742-65-0	
n-Octacosane (S)	89	%	50-150	1	03/30/10 11:00	03/31/10 03:24	630-02-4	
o-Terphenyl (S)	60	%	50-150	1	03/30/10 11:00	03/31/10 03:24	84-15-1	

Sample: 5-W-56-0310		Lab ID: 253334029	Collected: 03/23/10 17:40	Received: 03/24/10 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.33	mg/L	0.019	1	03/30/10 11:00	03/31/10 11:54		
Motor Oil Range	0.54	mg/L	0.095	1	03/30/10 11:00	03/31/10 11:54	64742-65-0	
n-Octacosane (S)	82	%	50-150	1	03/30/10 11:00	03/31/10 11:54	630-02-4	
o-Terphenyl (S)	59	%	50-150	1	03/30/10 11:00	03/31/10 11:54	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253334

QC Batch: OEXT/2052 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253334018, 253334019, 253334020, 253334021, 253334022, 253334023, 253334024, 253334025, 253334026, 253334027, 253334028, 253334029

METHOD BLANK: 24827 Matrix: Water
 Associated Lab Samples: 253334018, 253334019, 253334020, 253334021, 253334022, 253334023, 253334024, 253334025, 253334026, 253334027, 253334028, 253334029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/30/10 22:54	
Motor Oil Range	mg/L	ND	0.10	03/30/10 22:54	
n-Octacosane (S)	%	100	50-150	03/30/10 22:54	
o-Terphenyl (S)	%	83	50-150	03/30/10 22:54	

Parameter	Units	24828		24829		LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec						
Diesel Range	mg/L	1.2	0.84	0.85	67	68	51-147	1	30		
Motor Oil Range	mg/L	1.2	1.0	1.1	82	85	20-160	4	30		
n-Octacosane (S)	%				87	89	50-150				
o-Terphenyl (S)	%				78	79	50-150				

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253334

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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LABORATORIES

PASI-S Pace Analytical Services - Seattle

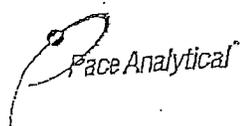
QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253334

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253334001	2B-W-4-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334002	GW-2-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334003	GW-20-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334004	GW-1-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334005	GW-3-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334006	MW-38R-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334007	MW-39-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334008	2A-W-11-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334009	5-W-51-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334010	GW-4-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334011	2A-W-42-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334012	1B-W-23-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334013	1B-W-230-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334014	5-W-43-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334015	EW-1-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334016	EW-10-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334017	2A-W-41-0310	EPA 3510	OEXT/2044	NWTPH-Dx	GCSV/1544
253334018	2A-W-40-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334019	MW-16-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334020	1A-W-4-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334021	1A-W-5-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334022	5-W-4-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334023	5-W-50-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334024	2A-W-10-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334025	1C-W-3-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334026	1C-W-4-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334027	5-W-52-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334028	5-W-520-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253334029	5-W-56-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545

Sample Condition Upon Receipt



Project # 253334

Client Name: BNSF

Optional:
Proj. Due Date:
Proj. Name:

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____
 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____
 Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 4.2, 5.8, 5.7, 7.1, 5.8, 5.9 Biological Tissue is Frozen: Yes No
4.8, 5.0, 5.0, 5.2, 5.8 Temp should be above freezing to 5°C

Date and Initials of person examining contents: 3/24/10 AR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. 1 cooler received out of temp (7-11) with samples: EW-1, 2A-W-10, 1C-W-4, SW-52, 5-W-520 and 5-W-56
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____
 Person Contacted: Renee Knecht Date/Time: 3-24-10 3:26
 Comments/ Resolution: Out of temp cooler (see attached email), Go ahead and run w/ cooler letter comment.

Project Manager Review: 3-24-10 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

253334

Page: 1 of 2

1309899

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (AELAM)	Attention: Bruce Sheppard	Company Name: BNSF	REGULATORY AGENCY	NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> OTHER <input type="checkbox"/>
Address:	Copy To: Ronae Knoddt	Address:		Site Location	UST <input type="checkbox"/> RORA <input type="checkbox"/>
Email To:	Purchase Order No.: TT0100-339	Pace Quote Reference:		STATE: WA	
Phone:	Project Name: BNSF-Skykomish	Pace Project Manager:	Heldi Goh		
Requested Due Date/TAT: Std	Project Number: 60136319	Pace Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃				
1	2E-W-4 - 0310		ES	3/22/10 SID	DATE	TIME	DATE	TIME	2									
2	GW-2 -			1600					2									
3	20 -			1500					2									
4	1 -			1650					2									
5	3 -			1740					2									
6	NW-38E -			1625					2									
7	MW-39 -			1540					2									
8	2A-W-11 -			1650					2									
9	S-W-51 -			1722					2									
10	GW-4 -			0915					2									
11	2A-W-42 -			1040					2									
12	13-W-23 -			1240					2									
ADDITIONAL COMMENTS																		
RELINQUISHED BY / AFFILIATION																		
DATE																		
TIME																		
ACCEPTED BY / AFFILIATION																		
DATE																		
TIME																		
SAMPLE CONDITIONS																		
Temp in °C																		
Received on Ice (Y/N)																		
Custody Sealed Cooler (Y/N)																		
Samples Intact (Y/N)																		

ORIGINAL

SAMPLER NAME AND SIGNATURE: _____

PRINT Name of SAMPLER: _____

SIGNATURE of SAMPLER: _____

DATE Signed (MM/DD/YY): _____

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2533334

1338202

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (AEZOM)	Attention: Bruce Skappard	Company Name: BNSF	REGULATORY AGENCY	
Address:	Copy To: Renee Knecht	Address:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Email To:	Purchase Order No.: TR01DB-039	Pace Quote Reference:		<input type="checkbox"/> UST <input type="checkbox"/> RORA	
Phone:	Project Name: BNSF - Sky Kombi	Pace Project Manager:	Holdi Sari	Site Location STATE: WA	
Fax:	Project Number: 60136319	Pace Profile #:		Requested Analysis Filtered (Y/N)	
Requested Due Date/TAT: Std					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.										
					COMPOSITE START	COMPOSITE END/GRAB			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other					Y	N								
1	IB-W-230-031D	DW WT WW	IB	G	DATE	TIME	DATE	TIME																					
2	5-W-43-	P SL OL WP AR TS OT			3/23/12	1200																							
3	EW-1-				1200																								
4	EW-1D-				1200																								
5	ZA-W-41-				1545																								
6	ZA-W-4B-				1700																								
7	mw-16-				0935																								
8	1A-W-4-				0915																								
9	1A-W-5-				0950																								
10	5-W-4-				1115																								
11	5-W-5D-				1215																								
12	2A-W-1D-				1210																								
ADDITIONAL COMMENTS					REINQUISHED BY / AFFILIATION					ACCEPTED BY / AFFILIATION					DATE					TIME									
* 4.2, 5.8, 5.7, 7.1, 5.8					[Signature]					[Signature]					3/24/12					8:30					* Y N Y				
5.9, 4.8, 5.0, 5.2, 5.8																													

ORIGINAL

SAMPLER NAME AND SIGNATURE		DATE	TIME
PRINT Name of SAMPLER:		3/24/12	08:25
SIGNATURE of SAMPLER:		[Signature]	[Signature]
DATE Signed (MM/DD/YY):		3/24/12	8:30

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albans (AECOM)** Attention: **Bruce Shappard**
 Address: **Range Knolls** Copy To: **Range Knolls** Company Name: **BNSF**
 Email To: **TTD100-539** Purchase Order No.: **BNSF - Sky konstl** Address: **Mardi Gon**
 Phone: **601-36319-0540** Project Name: **BNSF - Sky konstl** Page Quote Reference: **Mardi Gon**
 Requested Due Date/TAT: **Std** Project Number: **601-36319-0540** Page Profile #:

Page: **3** of **3**
1309898

REGULATORY AGENCY: **WVA**
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location STATE: **WVA**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9, /, -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WW Waste Water P Product SL Soil/Solid OL Oil WP Wipe AR Air TS Other OT	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				
1	LC-W-3-0310		3/29	1445	2											
2	LC-W-4-		3/29	1535	2											
3	S-W-S2-		3/29	1640	2											
4	S-W-S20-		3/29	1540	2											
5	S-W-S6-		3/29	1940	2											
6																
7																
8																
9																
10																
11																
12																

ADDITIONAL COMMENTS: **4.2, 5.8, 5.7, 7.1, 5.8**
5.9, 4.8, 5.0, 5.2, 5.8

RELINQUISHED BY / AFFILIATION: **[Signature]** DATE: **3/29** TIME: **6:25** ACCEPTED BY / AFFILIATION: **[Signature]** DATE: **3/29** TIME: **8:30**

Temp in °C: ***** Received on Ice (Y/N): **Y** Custody Sealed Cooler (Y/N): **N** Samples Intact (Y/N): **Y**

ORIGINAL

SAMPLER NAME AND SIGNATURE: **[Signature]**
 PRINT Name of SAMPLER: **[Signature]**
 SIGNATURE of SAMPLER: **[Signature]**
 DATE Signed (MM/DD/YY): **[Signature]**

Sample Container Count



2533334

CLIENT: BNSF 2533334

COC PAGE 1 of 3
COC ID# 1309849

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1		2 (22)										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												Trip Blank?
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500ml unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	HeadSPACE septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFY	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

Sample Container Count



2533334

CLIENT: BNSF 2533334

COC PAGE 2 of 3
COC ID# 1338202

Comments

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1		2 (L22)										
2												out of temp
3												
4												
5												
6												
7												
8												
9												
10												
11												TRIP Blank? out of temp
12												

AG1H	1 liter HCL amber glass	BP2S	500ml H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass	BP2U	500ml unpreserved plastic	R	terra core kit
AG2S	500ml H2SO4 amber glass	BP2Z	500ml NaOH, Zn Ac	U	Summa Can
AG2U	500ml unpreserved amber glass	BP3C	250ml NaOH plastic	VG9H	40ml HCL clear vial
AG3S	250ml H2SO4 amber glass	BP3N	250ml HNO3 plastic	VG9T	40ml Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250ml H2SO4 plastic	VG9U	40ml unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250ml unpreserved plastic	VG9W	40ml glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40ml Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40ml HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40ml MeOH clear vial	WGFY	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40ml Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500ml HNO3 plastic	DG9U	40ml unpreserved amber vial		
BP2O	500ml NaOH plastic		1 Wipe/Swab		

Sample Container Count



2533334

CLIENT: BNSF 2533334

COC PAGE 8 of 3
COC ID# 1309848

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WG9U	WG9U	Comments
1		2 (22)											out of temp
2													out of temp
3													out of temp
4													out of temp
5													
6													
7													
8													
9													
10													
11													Trip Blank?
12													

AG1H	1 liter HCL amber glass								BP2S	500ml H2SO4 plastic	JGFU	4oz unreserved amber wide
AG1U	1liter unreserved amber glass								BP2U	500ml unreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass								BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unreserved amber glass								BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass								BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass								BP3S	250mL H2SO4 plastic	VG9U	40mL unreserved clear vial
BG1U	1 liter unreserved glass								BP3U	250mL unreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic								DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic								DG9H	40mL HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unreserved plastic								DG9M	40mL MeOH clear vial	WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac								DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic								DG9U	40mL unreserved amber vial		
BP2O	500mL NaOH plastic								I	Wipe/Swab		

April 06, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253355

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 25, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 17

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253355

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

Page 2 of 17

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 253355

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253355001	MW-4-0310	NWTPH-Dx	ERB	4	PASI-S
253355002	3-W-41-0310	NWTPH-Dx	ERB	8	PASI-S
253355003	3-W-42-0310	NWTPH-Dx	ERB	8	PASI-S
253355004	3-W-43-0310	NWTPH-Dx	ERB	8	PASI-S
253355005	5-W-14-0310	NWTPH-Dx	ERB	8	PASI-S
253355006	5-W-19-0310	NWTPH-Dx	ERB	8	PASI-S
253355007	MW-500-0310	NWTPH-Dx	ERB	8	PASI-S
253355008	5-W-20-0310	NWTPH-Dx	ERB	8	PASI-S
253355009	5-W-15-0310	NWTPH-Dx	ERB	8	PASI-S
253355010	5-W-150-0310	NWTPH-Dx	ERB	8	PASI-S
253355011	5-W-17-0310	NWTPH-Dx	ERB	8	PASI-S
253355012	5-W-16-0310	NWTPH-Dx	ERB	8	PASI-S
253355013	5-W-54-0310	NWTPH-Dx	ERB	4	PASI-S
253355014	5-W-53-0310	NWTPH-Dx	ERB	4	PASI-S
253355015	1B-W-3-0310	NWTPH-Dx	ERB	4	PASI-S
253355016	1B-W-2-0310	NWTPH-Dx	ERB	4	PASI-S
253355017	2A-W-9-0310	NWTPH-Dx	ERB	4	PASI-S
253355018	2B-W-46-0310	NWTPH-Dx	ERB	4	PASI-S
253355019	2B-W-45-0310	NWTPH-Dx	ERB	4	PASI-S
253355020	5-W-42-0310	NWTPH-Dx	ERB	8	PASI-S
253355021	5-W-18-0310	NWTPH-Dx	ERB	8	PASI-S
253355022	MW-3-0310	NWTPH-Dx	ERB	4	PASI-S
253355023	5-W-55-0310	NWTPH-Dx	ERB	4	PASI-S
253355024	1C-W-1-0310	NWTPH-Dx	ERB	4	PASI-S
253355025	1C-W-7-0310	NWTPH-Dx	ERB	4	PASI-S
253355026	1C-W-8-0310	NWTPH-Dx	ERB	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: MW-4-0310	Lab ID: 253355001	Collected: 03/24/10 09:20	Received: 03/25/10 15:17	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.037 mg/L		0.019	1	03/30/10 11:00	03/31/10 03:56		
Motor Oil Range	0.17 mg/L		0.095	1	03/30/10 11:00	03/31/10 03:56	64742-65-0	
n-Octacosane (S)	85 %		50-150	1	03/30/10 11:00	03/31/10 03:56	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	03/30/10 11:00	03/31/10 03:56	84-15-1	

Sample: 3-W-41-0310	Lab ID: 253355002	Collected: 03/24/10 10:30	Received: 03/25/10 15:17	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 16:45		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 15:25		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 16:45	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 15:25	64742-65-0	
n-Octacosane (S) SG	99 %		50-150	1	04/01/10 11:30	04/02/10 15:25	630-02-4	
o-Terphenyl (S) SG	89 %		50-150	1	04/01/10 11:30	04/02/10 15:25	84-15-1	
n-Octacosane (S)	92 %		50-150	1	04/01/10 11:30	04/01/10 16:45	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	04/01/10 11:30	04/01/10 16:45	84-15-1	

Sample: 3-W-42-0310	Lab ID: 253355003	Collected: 03/24/10 11:40	Received: 03/25/10 15:17	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 17:01		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 15:41		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 17:01	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 15:41	64742-65-0	
n-Octacosane (S) SG	88 %		50-150	1	04/01/10 11:30	04/02/10 15:41	630-02-4	
o-Terphenyl (S) SG	79 %		50-150	1	04/01/10 11:30	04/02/10 15:41	84-15-1	
n-Octacosane (S)	83 %		50-150	1	04/01/10 11:30	04/01/10 17:01	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	04/01/10 11:30	04/01/10 17:01	84-15-1	

Sample: 3-W-43-0310	Lab ID: 253355004	Collected: 03/24/10 13:25	Received: 03/25/10 15:17	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 17:17		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 16:29		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 17:17	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 16:29	64742-65-0	
n-Octacosane (S) SG	99 %		50-150	1	04/01/10 11:30	04/02/10 16:29	630-02-4	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: 3-W-43-0310		Lab ID: 253355004	Collected: 03/24/10 13:25	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

o-Terphenyl (S) SG	89 %		50-150	1	04/01/10 11:30	04/02/10 16:29	84-15-1	
n-Octacosane (S)	93 %		50-150	1	04/01/10 11:30	04/01/10 17:17	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	04/01/10 11:30	04/01/10 17:17	84-15-1	

Sample: 5-W-14-0310		Lab ID: 253355005	Collected: 03/24/10 14:20	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 17:33		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 16:45		
Motor Oil Range	ND mg/L		0.095	1	04/01/10 11:30	04/01/10 17:33	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	04/01/10 11:30	04/02/10 16:45	64742-65-0	
n-Octacosane (S) SG	80 %		50-150	1	04/01/10 11:30	04/02/10 16:45	630-02-4	
o-Terphenyl (S) SG	71 %		50-150	1	04/01/10 11:30	04/02/10 16:45	84-15-1	
n-Octacosane (S)	76 %		50-150	1	04/01/10 11:30	04/01/10 17:33	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	04/01/10 11:30	04/01/10 17:33	84-15-1	

Sample: 5-W-19-0310		Lab ID: 253355006	Collected: 03/24/10 15:30	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 17:49		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 17:02		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 17:49	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 17:02	64742-65-0	
n-Octacosane (S) SG	104 %		50-150	1	04/01/10 11:30	04/02/10 17:02	630-02-4	
o-Terphenyl (S) SG	94 %		50-150	1	04/01/10 11:30	04/02/10 17:02	84-15-1	
n-Octacosane (S)	94 %		50-150	1	04/01/10 11:30	04/01/10 17:49	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	04/01/10 11:30	04/01/10 17:49	84-15-1	

Sample: MW-500-0310		Lab ID: 253355007	Collected: 03/24/10 15:55	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 19:09		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 17:50		
Motor Oil Range	ND mg/L		0.095	1	04/01/10 11:30	04/01/10 19:09	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	04/01/10 11:30	04/02/10 17:50	64742-65-0	
n-Octacosane (S) SG	93 %		50-150	1	04/01/10 11:30	04/02/10 17:50	630-02-4	
o-Terphenyl (S) SG	82 %		50-150	1	04/01/10 11:30	04/02/10 17:50	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: MW-500-0310		Lab ID: 253355007	Collected: 03/24/10 15:55	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	89 %		50-150	1	04/01/10 11:30	04/01/10 19:09	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	04/01/10 11:30	04/01/10 19:09	84-15-1	

Sample: 5-W-20-0310		Lab ID: 253355008	Collected: 03/24/10 16:00	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.43 mg/L		0.019	1	04/01/10 11:30	04/01/10 19:25		
Diesel Range SG	0.14 mg/L		0.019	1	04/01/10 11:30	04/02/10 18:06		
Motor Oil Range	0.20 mg/L		0.095	1	04/01/10 11:30	04/01/10 19:25	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	04/01/10 11:30	04/02/10 18:06	64742-65-0	
n-Octacosane (S) SG	84 %		50-150	1	04/01/10 11:30	04/02/10 18:06	630-02-4	
o-Terphenyl (S) SG	73 %		50-150	1	04/01/10 11:30	04/02/10 18:06	84-15-1	
n-Octacosane (S)	74 %		50-150	1	04/01/10 11:30	04/01/10 19:25	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	04/01/10 11:30	04/01/10 19:25	84-15-1	

Sample: 5-W-15-0310		Lab ID: 253355009	Collected: 03/24/10 14:35	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.28 mg/L		0.019	1	04/01/10 11:30	04/01/10 19:41		
Diesel Range SG	0.11 mg/L		0.019	1	04/01/10 11:30	04/02/10 18:22		
Motor Oil Range	0.13 mg/L		0.094	1	04/01/10 11:30	04/01/10 19:41	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 18:22	64742-65-0	
n-Octacosane (S) SG	89 %		50-150	1	04/01/10 11:30	04/02/10 18:22	630-02-4	
o-Terphenyl (S) SG	79 %		50-150	1	04/01/10 11:30	04/02/10 18:22	84-15-1	
n-Octacosane (S)	77 %		50-150	1	04/01/10 11:30	04/01/10 19:41	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	04/01/10 11:30	04/01/10 19:41	84-15-1	

Sample: 5-W-150-0310		Lab ID: 253355010	Collected: 03/24/10 13:35	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.32 mg/L		0.019	1	04/01/10 11:30	04/01/10 19:57		
Diesel Range SG	0.11 mg/L		0.019	1	04/01/10 11:30	04/02/10 18:38		
Motor Oil Range	0.17 mg/L		0.095	1	04/01/10 11:30	04/01/10 19:57	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	04/01/10 11:30	04/02/10 18:38	64742-65-0	
n-Octacosane (S) SG	93 %		50-150	1	04/01/10 11:30	04/02/10 18:38	630-02-4	
o-Terphenyl (S) SG	84 %		50-150	1	04/01/10 11:30	04/02/10 18:38	84-15-1	
n-Octacosane (S)	83 %		50-150	1	04/01/10 11:30	04/01/10 19:57	630-02-4	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: 5-W-150-0310		Lab ID: 253355010	Collected: 03/24/10 13:35	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

o-Terphenyl (S)	78 %		50-150	1	04/01/10 11:30	04/01/10 19:57	84-15-1	
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Sample: 5-W-17-0310		Lab ID: 253355011	Collected: 03/24/10 13:45	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 20:14		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 03:54		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 20:14	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 03:54	64742-65-0	
n-Octacosane (S) SG	95 %		50-150	1	04/01/10 11:30	04/02/10 03:54	630-02-4	
o-Terphenyl (S) SG	86 %		50-150	1	04/01/10 11:30	04/02/10 03:54	84-15-1	
n-Octacosane (S)	92 %		50-150	1	04/01/10 11:30	04/01/10 20:14	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	04/01/10 11:30	04/01/10 20:14	84-15-1	

Sample: 5-W-16-0310		Lab ID: 253355012	Collected: 03/24/10 13:05	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	04/01/10 11:30	04/01/10 20:29		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 04:10		
Motor Oil Range	ND mg/L		0.094	1	04/01/10 11:30	04/01/10 20:29	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 04:10	64742-65-0	
n-Octacosane (S) SG	95 %		50-150	1	04/01/10 11:30	04/02/10 04:10	630-02-4	
o-Terphenyl (S) SG	87 %		50-150	1	04/01/10 11:30	04/02/10 04:10	84-15-1	
n-Octacosane (S)	90 %		50-150	1	04/01/10 11:30	04/01/10 20:29	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	04/01/10 11:30	04/01/10 20:29	84-15-1	

Sample: 5-W-54-0310		Lab ID: 253355013	Collected: 03/24/10 12:35	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 04:12		
Motor Oil Range	ND mg/L		0.095	1	03/30/10 11:00	03/31/10 04:12	64742-65-0	
n-Octacosane (S)	89 %		50-150	1	03/30/10 11:00	03/31/10 04:12	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	03/30/10 11:00	03/31/10 04:12	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: 5-W-53-0310		Lab ID: 253355014	Collected: 03/24/10 11:45	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.13 mg/L		0.019	1	03/30/10 11:00	03/31/10 04:28		
Motor Oil Range	0.23 mg/L		0.094	1	03/30/10 11:00	03/31/10 04:28	64742-65-0	
n-Octacosane (S)	84 %		50-150	1	03/30/10 11:00	03/31/10 04:28	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	03/30/10 11:00	03/31/10 04:28	84-15-1	

Sample: 1B-W-3-0310		Lab ID: 253355015	Collected: 03/24/10 09:30	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.034 mg/L		0.019	1	03/30/10 11:00	03/31/10 04:44		
Motor Oil Range	ND mg/L		0.094	1	03/30/10 11:00	03/31/10 04:44	64742-65-0	
n-Octacosane (S)	96 %		50-150	1	03/30/10 11:00	03/31/10 04:44	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	03/30/10 11:00	03/31/10 04:44	84-15-1	

Sample: 1B-W-2-0310		Lab ID: 253355016	Collected: 03/24/10 10:55	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.068 mg/L		0.019	1	03/30/10 11:00	03/31/10 05:00		
Motor Oil Range	0.14 mg/L		0.094	1	03/30/10 11:00	03/31/10 05:00	64742-65-0	
n-Octacosane (S)	81 %		50-150	1	03/30/10 11:00	03/31/10 05:00	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	03/30/10 11:00	03/31/10 05:00	84-15-1	

Sample: 2A-W-9-0310		Lab ID: 253355017	Collected: 03/24/10 12:25	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.27 mg/L		0.019	1	03/30/10 11:00	03/31/10 05:16		
Motor Oil Range	0.32 mg/L		0.094	1	03/30/10 11:00	03/31/10 05:16	64742-65-0	
n-Octacosane (S)	69 %		50-150	1	03/30/10 11:00	03/31/10 05:16	630-02-4	
o-Terphenyl (S)	55 %		50-150	1	03/30/10 11:00	03/31/10 05:16	84-15-1	

Sample: 2B-W-46-0310		Lab ID: 253355018	Collected: 03/24/10 14:05	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 05:32		
Motor Oil Range	ND mg/L		0.095	1	03/30/10 11:00	03/31/10 05:32	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: 2B-W-46-0310		Lab ID: 253355018	Collected: 03/24/10 14:05	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	67 %		50-150	1	03/30/10 11:00	03/31/10 05:32	630-02-4	
o-Terphenyl (S)	56 %		50-150	1	03/30/10 11:00	03/31/10 05:32	84-15-1	

Sample: 2B-W-45-0310		Lab ID: 253355019	Collected: 03/24/10 15:00	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	03/30/10 11:00	03/31/10 06:20		
Motor Oil Range	ND mg/L		0.095	1	03/30/10 11:00	03/31/10 06:20	64742-65-0	
n-Octacosane (S)	91 %		50-150	1	03/30/10 11:00	03/31/10 06:20	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	03/30/10 11:00	03/31/10 06:20	84-15-1	

Sample: 5-W-42-0310		Lab ID: 253355020	Collected: 03/24/10 16:45	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.032 mg/L		0.019	1	04/01/10 11:30	04/01/10 20:45		
Diesel Range SG	ND mg/L		0.019	1	04/01/10 11:30	04/02/10 04:26		
Motor Oil Range	ND mg/L		0.095	1	04/01/10 11:30	04/01/10 20:45	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	04/01/10 11:30	04/02/10 04:26	64742-65-0	
n-Octacosane (S) SG	93 %		50-150	1	04/01/10 11:30	04/02/10 04:26	630-02-4	
o-Terphenyl (S) SG	84 %		50-150	1	04/01/10 11:30	04/02/10 04:26	84-15-1	
n-Octacosane (S)	89 %		50-150	1	04/01/10 11:30	04/01/10 20:45	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	04/01/10 11:30	04/01/10 20:45	84-15-1	

Sample: 5-W-18-0310		Lab ID: 253355021	Collected: 03/24/10 16:45	Received: 03/25/10 15:17	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.43 mg/L		0.019	1	04/01/10 11:30	04/01/10 21:01		
Diesel Range SG	0.16 mg/L		0.019	1	04/01/10 11:30	04/02/10 04:42		
Motor Oil Range	0.26 mg/L		0.094	1	04/01/10 11:30	04/01/10 21:01	64742-65-0	
Motor Oil Range SG	ND mg/L		0.094	1	04/01/10 11:30	04/02/10 04:42	64742-65-0	
n-Octacosane (S) SG	91 %		50-150	1	04/01/10 11:30	04/02/10 04:42	630-02-4	
o-Terphenyl (S) SG	84 %		50-150	1	04/01/10 11:30	04/02/10 04:42	84-15-1	
n-Octacosane (S)	85 %		50-150	1	04/01/10 11:30	04/01/10 21:01	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	04/01/10 11:30	04/01/10 21:01	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: MW-3-0310								
		Lab ID: 253355022	Collected: 03/24/10 18:05		Received: 03/25/10 15:17		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.082	mg/L	0.019	1	04/01/10 11:30	04/01/10 21:17		
Motor Oil Range	0.095	mg/L	0.094	1	04/01/10 11:30	04/01/10 21:17	64742-65-0	
n-Octacosane (S)	88	%	50-150	1	04/01/10 11:30	04/01/10 21:17	630-02-4	
o-Terphenyl (S)	80	%	50-150	1	04/01/10 11:30	04/01/10 21:17	84-15-1	

Sample: 5-W-55-0310								
		Lab ID: 253355023	Collected: 03/24/10 17:25		Received: 03/25/10 15:17		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND	mg/L	0.019	1	04/01/10 11:30	04/02/10 13:31		
Motor Oil Range	ND	mg/L	0.095	1	04/01/10 11:30	04/02/10 13:31	64742-65-0	
n-Octacosane (S)	87	%	50-150	1	04/01/10 11:30	04/02/10 13:31	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	04/01/10 11:30	04/02/10 13:31	84-15-1	

Sample: 1C-W-1-0310								
		Lab ID: 253355024	Collected: 03/25/10 09:25		Received: 03/25/10 15:17		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.062	mg/L	0.019	1	04/01/10 11:30	04/02/10 13:47		
Motor Oil Range	ND	mg/L	0.094	1	04/01/10 11:30	04/02/10 13:47	64742-65-0	
n-Octacosane (S)	89	%	50-150	1	04/01/10 11:30	04/02/10 13:47	630-02-4	
o-Terphenyl (S)	83	%	50-150	1	04/01/10 11:30	04/02/10 13:47	84-15-1	

Sample: 1C-W-7-0310								
		Lab ID: 253355025	Collected: 03/25/10 11:25		Received: 03/25/10 15:17		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.11	mg/L	0.019	1	04/01/10 11:30	04/02/10 14:04		
Motor Oil Range	ND	mg/L	0.094	1	04/01/10 11:30	04/02/10 14:04	64742-65-0	
n-Octacosane (S)	80	%	50-150	1	04/01/10 11:30	04/02/10 14:04	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	04/01/10 11:30	04/02/10 14:04	84-15-1	

Sample: 1C-W-8-0310								
		Lab ID: 253355026	Collected: 03/25/10 11:25		Received: 03/25/10 15:17		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.69	mg/L	0.019	1	04/01/10 11:30	04/02/10 14:20		
Motor Oil Range	0.20	mg/L	0.094	1	04/01/10 11:30	04/02/10 14:20	64742-65-0	

Date: 04/06/2010 02:36 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253355

Sample: 1C-W-8-0310	Lab ID: 253355026	Collected: 03/25/10 11:25	Received: 03/25/10 15:17	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	66 %		50-150	1	04/01/10 11:30	04/02/10 14:20	630-02-4	
o-Terphenyl (S)	60 %		50-150	1	04/01/10 11:30	04/02/10 14:20	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253355

QC Batch: OEXT/2052

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 253355001, 253355013, 253355014, 253355015, 253355016, 253355017, 253355018, 253355019

METHOD BLANK: 24827

Matrix: Water

Associated Lab Samples: 253355001, 253355013, 253355014, 253355015, 253355016, 253355017, 253355018, 253355019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/30/10 22:54	
Motor Oil Range	mg/L	ND	0.10	03/30/10 22:54	
n-Octacosane (S)	%	100	50-150	03/30/10 22:54	
o-Terphenyl (S)	%	83	50-150	03/30/10 22:54	

LABORATORY CONTROL SAMPLE & LCSD: 24828

24829

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.84	0.85	67	68	51-147	1	30	
Motor Oil Range	mg/L	1.2	1.0	1.1	82	85	20-160	4	30	
n-Octacosane (S)	%				87	89	50-150			
o-Terphenyl (S)	%				78	79	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253355

QC Batch: OEXT/2055 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253355002, 253355003, 253355004, 253355005, 253355006, 253355007, 253355008, 253355009, 253355010, 253355011, 253355012, 253355020, 253355021, 253355022, 253355023, 253355024, 253355025, 253355026

METHOD BLANK: 24940 Matrix: Water
 Associated Lab Samples: 253355002, 253355003, 253355004, 253355005, 253355006, 253355007, 253355008, 253355009, 253355010, 253355011, 253355012, 253355020, 253355021, 253355022, 253355023, 253355024, 253355025, 253355026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/01/10 16:13	
Motor Oil Range	mg/L	ND	0.10	04/01/10 16:13	
n-Octacosane (S)	%	91	50-150	04/01/10 16:13	
o-Terphenyl (S)	%	81	50-150	04/01/10 16:13	

LABORATORY CONTROL SAMPLE: 24941

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	0.92	73	51-147	
Motor Oil Range	mg/L	1.2	1.0	81	20-160	
n-Octacosane (S)	%			88	50-150	
o-Terphenyl (S)	%			84	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 24942 24943

Parameter	Units	253355006 Result	MS		MSD		% Rec		% Rec Limits	RPD	Qual
			Spike Conc.	MS Result	MSD Result	% Rec	% Rec				
Diesel Range	mg/L	ND	1.2	1.2	0.80	0.62	67	53	50-150	25	
Motor Oil Range	mg/L	ND	1.2	1.2	0.93	0.72	78	61	20-160	25	
n-Octacosane (S)	%						84	67	50-150		
o-Terphenyl (S)	%						79	64	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253355

QC Batch: OEXT/2056 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253355002, 253355003, 253355004, 253355005, 253355006, 253355007, 253355008, 253355009, 253355010, 253355011, 253355012, 253355020, 253355021

METHOD BLANK: 24944 Matrix: Water
 Associated Lab Samples: 253355002, 253355003, 253355004, 253355005, 253355006, 253355007, 253355008, 253355009, 253355010, 253355011, 253355012, 253355020, 253355021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	04/02/10 14:52	
Motor Oil Range SG	mg/L	ND	0.10	04/02/10 14:52	
n-Octacosane (S) SG	%	98	50-150	04/02/10 14:52	
o-Terphenyl (S) SG	%	87	50-150	04/02/10 14:52	

LABORATORY CONTROL SAMPLE: 24945

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1.2	0.98	79	51-147	
Motor Oil Range SG	mg/L	1.2	1.1	88	20-160	
n-Octacosane (S) SG	%			94	50-150	
o-Terphenyl (S) SG	%			89	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 24946 24947

Parameter	Units	253355006 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result					
Diesel Range SG	mg/L	ND	1.2	1.2	0.85	0.66	72	56	50-150	25	
Motor Oil Range SG	mg/L	ND	1.2	1.2	1.0	0.77	84	66	20-160	26	
n-Octacosane (S) SG	%						81	63	50-150		
o-Terphenyl (S) SG	%						77	62	50-150		

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253355

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish
Pace Project No.: 253355

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253355001	MW-4-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355013	5-W-54-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355014	5-W-53-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355015	1B-W-3-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355016	1B-W-2-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355017	2A-W-9-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355018	2B-W-46-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355019	2B-W-45-0310	EPA 3510	OEXT/2052	NWTPH-Dx	GCSV/1545
253355022	MW-3-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355023	5-W-55-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355024	1C-W-1-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355025	1C-W-7-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355026	1C-W-8-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355002	3-W-41-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355002	3-W-41-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355003	3-W-42-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355003	3-W-42-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355004	3-W-43-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355004	3-W-43-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355005	5-W-14-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355005	5-W-14-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355006	5-W-19-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355006	5-W-19-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355007	MW-500-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355007	MW-500-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355008	5-W-20-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355008	5-W-20-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355009	5-W-15-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355009	5-W-15-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355010	5-W-150-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355010	5-W-150-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355011	5-W-17-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355011	5-W-17-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355012	5-W-16-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355012	5-W-16-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554
253355020	5-W-42-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355020	5-W-42-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554

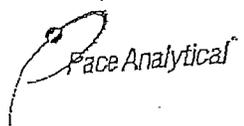
QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253355

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253355021	5-W-18-0310	EPA 3510	OEXT/2055	NWTPH-Dx	GCSV/1553
253355021	5-W-18-0310	EPA 3510	OEXT/2056	NWTPH-Dx	GCSV/1554

Sample Condition Upon Receipt



Client Name: BNSF

Project # 253355

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Optional:
Proj. Due Date:
Proj. Name:

Tracking #: _____
 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____
 Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 1.0, 1.4, 3.8, 2.3, 2.5, 4.3 Biological Tissue is Frozen: Yes No
3.7, 2.8, 3.8 Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3/26/10 AR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Pace Trip Blank Lot # (if purchased): _____		

Field Data Required? Y / N

Client Notification/ Resolution: _____ Date/Time: _____
 Person Contacted: _____
 Comments/ Resolution: _____

Project Manager Review: AR 3-26-10 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

253355

Page: 2 of 3

1338201

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (Accom)	Attention: Bruce Shepard	REGULATORY AGENCY	NPDES <input type="checkbox"/>	GROUND WATER <input type="checkbox"/>
Address:	Copy To: Randa Knecht	Company Name: BNSF	UST <input type="checkbox"/>	RCRA <input type="checkbox"/>	DRINKING WATER <input type="checkbox"/>
Email To:	Purchase Order No.: TI 0100-739	Address:	OTHER <input type="checkbox"/>	Site Location	STATE: WA
Phone:	Project Name: BNSF - Skykomish	Pace Quote Reference:	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)
Fax:	Project Number: 60136319-0540	Pace Project Manager:		Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Requested Due Date/TAT: Std		Pace Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix / Code	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
						COMPOSITE START	COMPOSITE END/GRAB			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Y			N
1	S-W-54-031D	DV	Drinking Water	MT		DATE	TIME	DATE	TIME											
2	S-W-53-	WT	Waste Water			1235	145			X	X	X	X	X	X	X	X			
3	1B-W-3-	WT	Waste Water			0930	145			X	X	X	X	X	X	X	X			
4	1B-W-2-	WT	Waste Water			1055	145			X	X	X	X	X	X	X	X			
5	2A-W-9-	WT	Waste Water			1225	145			X	X	X	X	X	X	X	X			
6	2B-W-46-	WT	Waste Water			1405	145			X	X	X	X	X	X	X	X			
7	2B-W-45-	WT	Waste Water			1500	145			X	X	X	X	X	X	X	X			
8	S-W-A2-	WT	Waste Water			1645	145			X	X	X	X	X	X	X	X			
9	S-W-18-	WT	Waste Water			1645	145			X	X	X	X	X	X	X	X			
10	MW-3-	WT	Waste Water			1805	145			X	X	X	X	X	X	X	X			
11	S-W-55-	WT	Waste Water			1325	145			X	X	X	X	X	X	X	X			
12																				

ADDITIONAL COMMENTS: **Abdelghani, Sibaaru**

REINQUISHED BY / AFFILIATION: **Abdelghani, Sibaaru**

DATE: **03/25/10** TIME: **1517**

ACCEPTED BY / AFFILIATION: **Abdelghani, Sibaaru**

DATE: **03-25-10** TIME: **15:17**

ORIGINAL

SAMPLER NAME AND SIGNATURE: **Abdelghani, Sibaaru**

PRINT Name of SAMPLER: **Abdelghani, Sibaaru**

SIGNATURE of SAMPLER: **Abdelghani, Sibaaru**

DATE Signed (MM/DD/YY): **03/25/10**

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

253355

Page: 3 of 3

1309900

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (AEZOM)	Attention: Bruce Sheppard	REGULATORY AGENCY:	NPDES <input type="checkbox"/>	GROUND WATER <input type="checkbox"/>
Address:	Copy To: Ronnie Knosh	Company Name: BNSF	DRINKING WATER <input type="checkbox"/>	UST <input type="checkbox"/>	OTHER <input type="checkbox"/>
Email To:	Purchase Order No.: TPD100-539	Address:	Site Location STATE: WA		
Phone:	Project Name: BNSF - Skyknosh	Pace Quote Reference: Heldi Goni			
Requested Due Date/TAT: Std	Project Number: 60136319-0546	Pace Project Manager: Heldi Goni			
		Page Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test	Requested Analysis Filtered (Y/N)	
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃			Methanol
1	1C-W-1-0310	DW WT WW P SL OL WP AR TS OT	DATE	TIME	DATE	TIME									
2	↓-↓-7-↓		3/5/10	1125		2							XXX	NWTPH-Dx	N
3	↓-↓-8-↓		1010			2							XXX	NWTPH-Dx w/SG	N
4															
5															
6															
7															
8															
9															
10															
11															
12															

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLER NAME AND SIGNATURE	
		<i>Heldi Goni, Solbena</i>	03/25/10	15:17	<i>Heldi Goni</i>	03/25/10	15:17	<i>Heldi Goni, Solbena</i>	
								PRINT Name of SAMPLER: <i>Heldi Goni, Solbena</i>	
								SIGNATURE of SAMPLER: <i>Heldi Goni, Solbena</i>	
								DATE Signed (MM/DD/YY): <i>03/25/10</i>	
								Temp in °C	
								Received on Ice (Y/N)	
								Custody Sealed Cooler (Y/N)	
								Samples Intact (Y/N)	

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Container Count

CLIENT: BNSF

253355

COC PAGE 1 of 3
COC ID# 1338723



253355
1ef3

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WG1U	Comments
1		2										All samples pH < 2 Trip Blank? ↗
2		4										
3												
4												
5												
6			10									
7			4									
8												
9												
10												
11												
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1 liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighed (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFJ	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

Sample Container Count



253355
2 of 3

CLIENT: BNSF 253355

COC PAGE 2 of 3
COC ID# 1338221

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WG1U	Comments
1		2										All Samples pH < 2
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

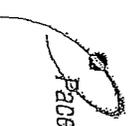
AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFY	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		1 Wipe/Swab		

Sample Container Count

253355

CLIENT: BNSF 253355

COC PAGE 3 of 3
COC ID# 1309900

 Pace Analytical
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3 of 3

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WG9U	Comments
1		2										All the samples # 2
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												Trip Blank?
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JG9U	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vov vial	WG9U	4oz clear soll jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

May 07, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253588

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 7

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253588

Washington Certification IDs

940 South Harney Street Seattle, WA 98108

Washington Certification #: C1229

Oregon Certification #: WA200007

Alaska CS Certification #: UST-025

California Certification #: 01153CA

Alaska Drinking Water Micro Certification #: WA01230

Alaska Drinking Water VOC Certification #: WA01-09

Florida/NELAP Certification #: E87617

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 253588

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253588001	IC-W-1-0410	NWTPH-Dx	DMT	4	PASI-S
253588002	IC-W-8-0410	NWTPH-Dx	DMT	4	PASI-S
253588003	IC-W-80-0410	NWTPH-Dx	DMT	4	PASI-S
253588004	IC-W-7-0410	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253588

Sample: IC-W-1-0410		Lab ID: 253588001	Collected: 04/27/10 12:55	Received: 04/27/10 17:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.11 mg/L		0.019	1	05/06/10 11:55	05/06/10 22:04		
Motor Oil Range	0.16 mg/L		0.094	1	05/06/10 11:55	05/06/10 22:04	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	05/06/10 11:55	05/06/10 22:04	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	05/06/10 11:55	05/06/10 22:04	84-15-1	

Sample: IC-W-8-0410		Lab ID: 253588002	Collected: 04/27/10 13:40	Received: 04/27/10 17:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.93 mg/L		0.019	1	05/06/10 11:55	05/06/10 22:20		
Motor Oil Range	0.33 mg/L		0.094	1	05/06/10 11:55	05/06/10 22:20	64742-65-0	
n-Octacosane (S)	91 %		50-150	1	05/06/10 11:55	05/06/10 22:20	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	05/06/10 11:55	05/06/10 22:20	84-15-1	

Sample: IC-W-80-0410		Lab ID: 253588003	Collected: 04/27/10 14:00	Received: 04/27/10 17:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.0 mg/L		0.019	1	05/06/10 11:55	05/06/10 22:36		
Motor Oil Range	0.35 mg/L		0.094	1	05/06/10 11:55	05/06/10 22:36	64742-65-0	
n-Octacosane (S)	96 %		50-150	1	05/06/10 11:55	05/06/10 22:36	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	05/06/10 11:55	05/06/10 22:36	84-15-1	

Sample: IC-W-7-0410		Lab ID: 253588004	Collected: 04/27/10 15:35	Received: 04/27/10 17:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.14 mg/L		0.019	1	05/06/10 11:55	05/06/10 23:24		
Motor Oil Range	0.10 mg/L		0.094	1	05/06/10 11:55	05/06/10 23:24	64742-65-0	
n-Octacosane (S)	102 %		50-150	1	05/06/10 11:55	05/06/10 23:24	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	05/06/10 11:55	05/06/10 23:24	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253588

QC Batch: OEXT/2165

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 253588001, 253588002, 253588003, 253588004

METHOD BLANK: 27200

Matrix: Water

Associated Lab Samples: 253588001, 253588002, 253588003, 253588004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	05/06/10 21:16	
Motor Oil Range	mg/L	ND	0.10	05/06/10 21:16	
n-Octacosane (S)	%	95	50-150	05/06/10 21:16	
o-Terphenyl (S)	%	84	50-150	05/06/10 21:16	

LABORATORY CONTROL SAMPLE & LCSD: 27201

27202

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.1	1.1	88	85	51-147	4	30	
Motor Oil Range	mg/L	1.2	1.2	1.2	92	94	20-160	2	30	
n-Octacosane (S)	%				98	101	50-150			
o-Terphenyl (S)	%				102	97	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253588

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: GCSV/1600

[1] A sample duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253588

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253588001	IC-W-1-0410	EPA 3510	OEXT/2165	NWTPH-Dx	GCSV/1600
253588002	IC-W-8-0410	EPA 3510	OEXT/2165	NWTPH-Dx	GCSV/1600
253588003	IC-W-80-0410	EPA 3510	OEXT/2165	NWTPH-Dx	GCSV/1600
253588004	IC-W-7-0410	EPA 3510	OEXT/2165	NWTPH-Dx	GCSV/1600

Sample Condition Upon Receipt



Client Name: AECOM Project # 253588

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.2

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Optional
Proj Due Date
Proj Name

Date and Initials of person examining contents: <u>4/28/10 AR</u>

Comments:	
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>	
All containers needing preservation have been checked. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
	Lot # of added preservative
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] 5-3-10 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **AECOM** Report To: **Sarah Alban** Attention: **Bruce Skppard**
 Address: **710 2nd Ave.** Copy To: **Renee Knecft** Company Name: **BUSF**
 Email To: **Seattle WA 98104** Purchase Order No.: **TT0100-139** Address: **BUSF Skppard**
 Phone: **206-624-9349** Fax: Project Name: **BUSF Skykomish** Reference: **Heidi Ger.**
 Requested Due Date/AT: Project Number: **60136319-0540** Pace Project Manager: **Heidi Ger.** Site Location STATE: **WA**

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives		Analysis Test	Requested Analysis Filtered (Y/N)		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			DATE	TIME			DATE	TIME		H ₂ SO ₄	HNO ₃		
1	1C-W-1-0410	Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	DW WT WW P SL OL WP AR TS OT										
2	1C-W-8-0410			4/27/10 1255		2							
3	1C-W-80-0410			4/27/10 1340		2							
4	1C-W-7-0410			4/27/10 1400		2							
5				4/27/10 1535		2							
6													
7													
8													
9													
10													
11													
12													

ADDITIONAL COMMENTS: **Abdulkhan's labware**

RELINQUISHED BY / AFFILIATION: **Abdulkhan's labware** DATE: **4/27/10** TIME: **1750**

ACCEPTED BY / AFFILIATION: **[Signature]** DATE: **4/27/10** TIME: **1750**

Temp in °C: _____ Received on Ice (Y/N): **Y** Custody Sealed Cooler (Y/N): **Y** Samples Intact (Y/N): **Y**

ORIGINAL

SAMPLER NAME AND SIGNATURE: **Abdulkhan's labware**

PRINT Name of SAMPLER: **Abdulkhan's labware**

SIGNATURE OF SAMPLER: **[Signature]**

DATE Signed (MM/DD/YY): **4/27/10**

Sample Container Count



CLIENT: NECOM 253588

COC PAGE 1 of 1
COC ID# 1309843

Sample Line Item VG9H AG1H AG1U BG1H BP1U BP2U BP3U BP2N BP2S WGFU WGPU

Comments

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGPU	Comments
1		2/12										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												Trip Blank? <u>N/A</u>
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unreserved amber wide
AG1U	1 liter unreserved amber glass	BP2U	500mL unreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unreserved clear vial
BG1U	1 liter unreserved glass	BP3U	250mL unreserved plastic	VG9V	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	WGFU	4oz clear soil jar
BP1U	1 liter unreserved plastic	DG9M	40mL MeOH clear vial	WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

June 07, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 253791

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on May 26, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 253791

Washington Certification IDs

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01-09

Alaska Drinking Water Micro Certification #: WA01230

940 South Harney Street Seattle, WA 98108

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 253791

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253791001	IC-W-1-0510	NWTPH-Dx	ERB	4	PASI-S
253791002	IC-W-8-0510	NWTPH-Dx	ERB	4	PASI-S
253791003	IC-W-80-0510	NWTPH-Dx	ERB	4	PASI-S
253791004	IC-W-7-0510	NWTPH-Dx	ERB	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 253791

Sample: IC-W-1-0510		Lab ID: 253791001	Collected: 05/26/10 09:40	Received: 05/26/10 14:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.15 mg/L		0.019	1	06/02/10 15:10	06/03/10 16:54		
Motor Oil Range	0.14 mg/L		0.095	1	06/02/10 15:10	06/03/10 16:54	64742-65-0	
n-Octacosane (S)	91 %		50-150	1	06/02/10 15:10	06/03/10 16:54	630-02-4	
o-Terphenyl (S)	94 %		50-150	1	06/02/10 15:10	06/03/10 16:54	84-15-1	

Sample: IC-W-8-0510		Lab ID: 253791002	Collected: 05/26/10 10:20	Received: 05/26/10 14:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.64 mg/L		0.019	1	06/02/10 15:10	06/03/10 17:11		
Motor Oil Range	0.26 mg/L		0.095	1	06/02/10 15:10	06/03/10 17:11	64742-65-0	
n-Octacosane (S)	87 %		50-150	1	06/02/10 15:10	06/03/10 17:11	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	06/02/10 15:10	06/03/10 17:11	84-15-1	

Sample: IC-W-80-0510		Lab ID: 253791003	Collected: 05/26/10 10:30	Received: 05/26/10 14:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.63 mg/L		0.019	1	06/02/10 15:10	06/03/10 17:27		
Motor Oil Range	0.26 mg/L		0.095	1	06/02/10 15:10	06/03/10 17:27	64742-65-0	
n-Octacosane (S)	84 %		50-150	1	06/02/10 15:10	06/03/10 17:27	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	06/02/10 15:10	06/03/10 17:27	84-15-1	

Sample: IC-W-7-0510		Lab ID: 253791004	Collected: 05/26/10 11:25	Received: 05/26/10 14:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.36 mg/L		0.019	1	06/02/10 15:10	06/03/10 17:43		
Motor Oil Range	0.22 mg/L		0.095	1	06/02/10 15:10	06/03/10 17:43	64742-65-0	
n-Octacosane (S)	91 %		50-150	1	06/02/10 15:10	06/03/10 17:43	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	06/02/10 15:10	06/03/10 17:43	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 253791

QC Batch: OEXT/2229 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 253791001, 253791002, 253791003, 253791004

METHOD BLANK: 29068 Matrix: Water

Associated Lab Samples: 253791001, 253791002, 253791003, 253791004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	06/03/10 16:05	
Motor Oil Range	mg/L	ND	0.10	06/03/10 16:05	
n-Octacosane (S)	%	85	50-150	06/03/10 16:05	
o-Terphenyl (S)	%	88	50-150	06/03/10 16:05	

LABORATORY CONTROL SAMPLE & LCSD: 29069

29070

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.0	1.1	82	86	51-147	4	30	
Motor Oil Range	mg/L	1.2	1.1	1.1	88	91	20-160	3	30	
n-Octacosane (S)	%				90	85	50-150			
o-Terphenyl (S)	%				101	98	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 253791

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: GCSV/1639

[1] A sample duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 253791

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253791001	IC-W-1-0510	EPA 3510	OEXT/2229	NWTPH-Dx	GCSV/1639
253791002	IC-W-8-0510	EPA 3510	OEXT/2229	NWTPH-Dx	GCSV/1639
253791003	IC-W-80-0510	EPA 3510	OEXT/2229	NWTPH-Dx	GCSV/1639
253791004	IC-W-7-0510	EPA 3510	OEXT/2229	NWTPH-Dx	GCSV/1639

Sample Condition Upon Receipt



Client Name: BNSF

Project # 253791

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 9.9
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 5/26/10 AR

		Comments:	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix: <u>Water</u>			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AR 5-26-10 Date: _____

Sample Container Count

253791



CLIENT: BNSF 253791

COC PAGE 1 of 1
COC ID# 1309839

Sample Line Item VG9H AG1H AG1U BG1H BP1U BP2U BP3U BP2N BP2S WG9U WGKU

Comments

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1		2/2										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												Trip Blank? N/A
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFL	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighed (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	WGFL	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFY	4oz wide jar whexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

July 20, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 254104

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on July 01, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Revised Report: 7-20-2010 Sample IDs were changed, per client request, for the first three samples.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 254104

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 254104

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
254104001	1C-W-1-0610	NWTPH-Dx	DMT	4	PASI-S
254104002	1C-W-8-0610	NWTPH-Dx	DMT	4	PASI-S
254104003	1C-W-7-0610	NWTPH-Dx	DMT	4	PASI-S
254104004	GW-4-0610	NWTPH-Dx	DMT	4	PASI-S
254104005	5-W-43-0610	NWTPH-Dx	DMT	4	PASI-S
254104006	GW-2-0610	NWTPH-Dx	DMT	4	PASI-S
254104007	1B-W-23-0610	NWTPH-Dx	DMT	4	PASI-S
254104008	2A-W-42-0610	NWTPH-Dx	DMT	4	PASI-S
254104009	2B-W-46-0610	NWTPH-Dx	DMT	4	PASI-S
254104010	2B-W-45-0610	NWTPH-Dx	DMT	4	PASI-S
254104011	2A-W-10-0610	NWTPH-Dx	DMT	4	PASI-S
254104012	2A-W-41-0610	NWTPH-Dx	DMT	4	PASI-S
254104013	5-W-14-0610	NWTPH-Dx	DMT	8	PASI-S
254104014	5-W-15-0610	NWTPH-Dx	DMT	8	PASI-S
254104015	5-W-16-0610	NWTPH-Dx	DMT	8	PASI-S
254104016	5-W-18-0610	NWTPH-Dx	DMT	8	PASI-S
254104017	5-W-180-0610	NWTPH-Dx	DMT	8	PASI-S
254104018	5-W-20-0610	NWTPH-Dx	DMT	8	PASI-S
254104019	5-W-42-0610	NWTPH-Dx	DMT	8	PASI-S
254104020	5-W-17-0610	NWTPH-Dx	DMT	8	PASI-S
254104021	5-W-19-0610	NWTPH-Dx	DMT	8	PASI-S
254104022	EW-1-0610	NWTPH-Dx	DMT	4	PASI-S
254104023	GW-3-0610	NWTPH-Dx	DMT	4	PASI-S
254104024	GW-30-0610	NWTPH-Dx	DMT	4	PASI-S
254104025	2A-W-40-0610	NWTPH-Dx	DMT	4	PASI-S
254104026	2A-W-400-0610	NWTPH-Dx	DMT	4	PASI-S
254104027	GW-1-0610	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 1C-W-1-0610		Lab ID: 254104001	Collected: 06/29/10 11:10	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND	mg/L	0.019	1	07/08/10 14:20	07/11/10 02:13		
Motor Oil Range	ND	mg/L	0.095	1	07/08/10 14:20	07/11/10 02:13	64742-65-0	
n-Octacosane (S)	82	%	50-150	1	07/08/10 14:20	07/11/10 02:13	630-02-4	
o-Terphenyl (S)	54	%	50-150	1	07/08/10 14:20	07/11/10 02:13	84-15-1	

Sample: 1C-W-8-0610		Lab ID: 254104002	Collected: 06/29/10 11:50	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.39	mg/L	0.019	1	07/08/10 14:20	07/11/10 02:30		
Motor Oil Range	0.16	mg/L	0.095	1	07/08/10 14:20	07/11/10 02:30	64742-65-0	
n-Octacosane (S)	87	%	50-150	1	07/08/10 14:20	07/11/10 02:30	630-02-4	
o-Terphenyl (S)	62	%	50-150	1	07/08/10 14:20	07/11/10 02:30	84-15-1	

Sample: 1C-W-7-0610		Lab ID: 254104003	Collected: 06/29/10 14:15	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.12	mg/L	0.019	1	07/08/10 14:20	07/11/10 02:46		
Motor Oil Range	ND	mg/L	0.095	1	07/08/10 14:20	07/11/10 02:46	64742-65-0	
n-Octacosane (S)	95	%	50-150	1	07/08/10 14:20	07/11/10 02:46	630-02-4	
o-Terphenyl (S)	64	%	50-150	1	07/08/10 14:20	07/11/10 02:46	84-15-1	

Sample: GW-4-0610		Lab ID: 254104004	Collected: 06/29/10 15:45	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.026	mg/L	0.019	1	07/12/10 16:50	07/14/10 02:58		
Motor Oil Range	ND	mg/L	0.095	1	07/12/10 16:50	07/14/10 02:58	64742-65-0	
n-Octacosane (S)	90	%	50-150	1	07/12/10 16:50	07/14/10 02:58	630-02-4	
o-Terphenyl (S)	69	%	50-150	1	07/12/10 16:50	07/14/10 02:58	84-15-1	

Sample: 5-W-43-0610		Lab ID: 254104005	Collected: 06/29/10 15:45	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	ND	mg/L	0.019	1	07/12/10 16:50	07/14/10 03:14		
Motor Oil Range	ND	mg/L	0.097	1	07/12/10 16:50	07/14/10 03:14	64742-65-0	

Date: 07/20/2010 03:20 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 5-W-43-0610		Lab ID: 254104005	Collected: 06/29/10 15:45	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	89 %		50-150	1	07/12/10 16:50	07/14/10 03:14	630-02-4	
o-Terphenyl (S)	62 %		50-150	1	07/12/10 16:50	07/14/10 03:14	84-15-1	

Sample: GW-2-0610		Lab ID: 254104006	Collected: 06/29/10 16:50	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.065 mg/L		0.019	1	07/12/10 16:50	07/14/10 03:30		
Motor Oil Range	ND mg/L		0.097	1	07/12/10 16:50	07/14/10 03:30	64742-65-0	
n-Octacosane (S)	67 %		50-150	1	07/12/10 16:50	07/14/10 03:30	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	07/12/10 16:50	07/14/10 03:30	84-15-1	

Sample: 1B-W-23-0610		Lab ID: 254104007	Collected: 06/29/10 17:05	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.35 mg/L		0.019	1	07/12/10 16:50	07/14/10 03:47		
Motor Oil Range	0.20 mg/L		0.095	1	07/12/10 16:50	07/14/10 03:47	64742-65-0	
n-Octacosane (S)	94 %		50-150	1	07/12/10 16:50	07/14/10 03:47	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	07/12/10 16:50	07/14/10 03:47	84-15-1	

Sample: 2A-W-42-0610		Lab ID: 254104008	Collected: 06/29/10 17:40	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.11 mg/L		0.019	1	07/12/10 16:50	07/14/10 04:03		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 04:03	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	07/12/10 16:50	07/14/10 04:03	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	07/12/10 16:50	07/14/10 04:03	84-15-1	

Sample: 2B-W-46-0610		Lab ID: 254104009	Collected: 06/30/10 09:30	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	07/12/10 16:50	07/14/10 04:19		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 04:19	64742-65-0	
n-Octacosane (S)	87 %		50-150	1	07/12/10 16:50	07/14/10 04:19	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	07/12/10 16:50	07/14/10 04:19	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 2B-W-45-0610		Lab ID: 254104010	Collected: 06/30/10 10:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	07/12/10 16:50	07/14/10 05:07		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 05:07	64742-65-0	
n-Octacosane (S)	78 %		50-150	1	07/12/10 16:50	07/14/10 05:07	630-02-4	
o-Terphenyl (S)	58 %		50-150	1	07/12/10 16:50	07/14/10 05:07	84-15-1	

Sample: 2A-W-10-0610		Lab ID: 254104011	Collected: 06/30/10 10:50	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.14 mg/L		0.019	1	07/12/10 16:50	07/14/10 16:01		
Motor Oil Range	0.35 mg/L		0.095	1	07/12/10 16:50	07/14/10 16:01	64742-65-0	
n-Octacosane (S)	49 %		50-150	1	07/12/10 16:50	07/14/10 16:01	630-02-4	1n,S0
o-Terphenyl (S)	49 %		50-150	1	07/12/10 16:50	07/14/10 16:01	84-15-1	S0

Sample: 2A-W-41-0610		Lab ID: 254104012	Collected: 06/30/10 10:20	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	07/12/10 16:50	07/14/10 05:39		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 05:39	64742-65-0	
n-Octacosane (S)	89 %		50-150	1	07/12/10 16:50	07/14/10 05:39	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	07/12/10 16:50	07/14/10 05:39	84-15-1	

Sample: 5-W-14-0610		Lab ID: 254104013	Collected: 06/30/10 12:50	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	07/12/10 16:50	07/14/10 05:55		
Diesel Range SG	ND mg/L		0.019	1	07/13/10 12:45	07/14/10 11:45		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 05:55	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	07/13/10 12:45	07/14/10 11:45	64742-65-0	
n-Octacosane (S) SG	87 %		50-150	1	07/13/10 12:45	07/14/10 11:45	630-02-4	
o-Terphenyl (S) SG	71 %		50-150	1	07/13/10 12:45	07/14/10 11:45	84-15-1	
n-Octacosane (S)	92 %		50-150	1	07/12/10 16:50	07/14/10 05:55	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	07/12/10 16:50	07/14/10 05:55	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 5-W-15-0610		Lab ID: 254104014	Collected: 06/30/10 13:50	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.76	mg/L	0.019	1	07/12/10 16:50	07/14/10 06:12		
Diesel Range SG	0.30	mg/L	0.019	1	07/13/10 12:45	07/14/10 12:02		
Motor Oil Range	0.43	mg/L	0.095	1	07/12/10 16:50	07/14/10 06:12	64742-65-0	
Motor Oil Range SG	0.15	mg/L	0.095	1	07/13/10 12:45	07/14/10 12:02	64742-65-0	
n-Octacosane (S) SG	82	%	50-150	1	07/13/10 12:45	07/14/10 12:02	630-02-4	
o-Terphenyl (S) SG	86	%	50-150	1	07/13/10 12:45	07/14/10 12:02	84-15-1	
n-Octacosane (S)	93	%	50-150	1	07/12/10 16:50	07/14/10 06:12	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	07/12/10 16:50	07/14/10 06:12	84-15-1	

Sample: 5-W-16-0610		Lab ID: 254104015	Collected: 06/30/10 15:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.20	mg/L	0.019	1	07/12/10 16:50	07/14/10 06:28		
Diesel Range SG	0.058	mg/L	0.019	1	07/13/10 12:45	07/14/10 12:18		
Motor Oil Range	0.13	mg/L	0.095	1	07/12/10 16:50	07/14/10 06:28	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	07/13/10 12:45	07/14/10 12:18	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	07/13/10 12:45	07/14/10 12:18	630-02-4	
o-Terphenyl (S) SG	95	%	50-150	1	07/13/10 12:45	07/14/10 12:18	84-15-1	
n-Octacosane (S)	63	%	50-150	1	07/12/10 16:50	07/14/10 06:28	630-02-4	
o-Terphenyl (S)	63	%	50-150	1	07/12/10 16:50	07/14/10 06:28	84-15-1	

Sample: 5-W-18-0610		Lab ID: 254104016	Collected: 06/30/10 11:45	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.40	mg/L	0.019	1	07/12/10 16:50	07/14/10 06:44		
Diesel Range SG	0.094	mg/L	0.019	1	07/13/10 12:45	07/14/10 12:35		
Motor Oil Range	0.29	mg/L	0.095	1	07/12/10 16:50	07/14/10 06:44	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	07/13/10 12:45	07/14/10 12:35	64742-65-0	
n-Octacosane (S) SG	85	%	50-150	1	07/13/10 12:45	07/14/10 12:35	630-02-4	
o-Terphenyl (S) SG	80	%	50-150	1	07/13/10 12:45	07/14/10 12:35	84-15-1	
n-Octacosane (S)	93	%	50-150	1	07/12/10 16:50	07/14/10 06:44	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	07/12/10 16:50	07/14/10 06:44	84-15-1	

Sample: 5-W-180-0610		Lab ID: 254104017	Collected: 06/30/10 12:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.41	mg/L	0.019	1	07/12/10 16:50	07/14/10 07:00		

Date: 07/20/2010 03:20 PM

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 5-W-180-0610		Lab ID: 254104017	Collected: 06/30/10 12:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	0.12	mg/L	0.019	1	07/13/10 12:45	07/14/10 12:51		
Motor Oil Range	0.31	mg/L	0.095	1	07/12/10 16:50	07/14/10 07:00	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	07/13/10 12:45	07/14/10 12:51	64742-65-0	
n-Octacosane (S) SG	93	%	50-150	1	07/13/10 12:45	07/14/10 12:51	630-02-4	
o-Terphenyl (S) SG	92	%	50-150	1	07/13/10 12:45	07/14/10 12:51	84-15-1	
n-Octacosane (S)	97	%	50-150	1	07/12/10 16:50	07/14/10 07:00	630-02-4	
o-Terphenyl (S)	89	%	50-150	1	07/12/10 16:50	07/14/10 07:00	84-15-1	

Sample: 5-W-20-0610		Lab ID: 254104018	Collected: 06/30/10 13:10	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.42	mg/L	0.019	1	07/12/10 16:50	07/14/10 07:16		
Diesel Range SG	0.11	mg/L	0.019	1	07/13/10 12:45	07/14/10 13:08		
Motor Oil Range	0.37	mg/L	0.096	1	07/12/10 16:50	07/14/10 07:16	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.096	1	07/13/10 12:45	07/14/10 13:08	64742-65-0	
n-Octacosane (S) SG	77	%	50-150	1	07/13/10 12:45	07/14/10 13:08	630-02-4	
o-Terphenyl (S) SG	75	%	50-150	1	07/13/10 12:45	07/14/10 13:08	84-15-1	
n-Octacosane (S)	93	%	50-150	1	07/12/10 16:50	07/14/10 07:16	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	07/12/10 16:50	07/14/10 07:16	84-15-1	

Sample: 5-W-42-0610		Lab ID: 254104019	Collected: 06/30/10 11:20	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.36	mg/L	0.020	1	07/12/10 16:50	07/14/10 08:37		
Diesel Range SG	0.13	mg/L	0.019	1	07/13/10 12:45	07/14/10 13:57		
Motor Oil Range	0.33	mg/L	0.098	1	07/12/10 16:50	07/14/10 08:37	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.097	1	07/13/10 12:45	07/14/10 13:57	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	07/13/10 12:45	07/14/10 13:57	630-02-4	
o-Terphenyl (S) SG	95	%	50-150	1	07/13/10 12:45	07/14/10 13:57	84-15-1	
n-Octacosane (S)	95	%	50-150	1	07/12/10 16:50	07/14/10 08:37	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	07/12/10 16:50	07/14/10 08:37	84-15-1	

Sample: 5-W-17-0610		Lab ID: 254104020	Collected: 06/30/10 09:40	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	07/12/10 16:50	07/14/10 08:53		
Diesel Range SG	ND	mg/L	0.019	1	07/13/10 12:45	07/14/10 14:45		

Date: 07/20/2010 03:20 PM

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: 5-W-17-0610		Lab ID: 254104020	Collected: 06/30/10 09:40	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Motor Oil Range	ND mg/L		0.096	1	07/12/10 16:50	07/14/10 08:53	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	07/13/10 12:45	07/14/10 14:45	64742-65-0	
n-Octacosane (S) SG	100 %		50-150	1	07/13/10 12:45	07/14/10 14:45	630-02-4	
o-Terphenyl (S) SG	74 %		50-150	1	07/13/10 12:45	07/14/10 14:45	84-15-1	
n-Octacosane (S)	95 %		50-150	1	07/12/10 16:50	07/14/10 08:53	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	07/12/10 16:50	07/14/10 08:53	84-15-1	

Sample: 5-W-19-0610		Lab ID: 254104021	Collected: 06/30/10 16:05	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND mg/L		0.019	1	07/12/10 16:50	07/14/10 09:09		
Diesel Range SG	ND mg/L		0.019	1	07/13/10 12:45	07/14/10 15:02		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 09:09	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	07/13/10 12:45	07/14/10 15:02	64742-65-0	
n-Octacosane (S) SG	109 %		50-150	1	07/13/10 12:45	07/14/10 15:02	630-02-4	
o-Terphenyl (S) SG	86 %		50-150	1	07/13/10 12:45	07/14/10 15:02	84-15-1	
n-Octacosane (S)	93 %		50-150	1	07/12/10 16:50	07/14/10 09:09	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	07/12/10 16:50	07/14/10 09:09	84-15-1	

Sample: EW-1-0610		Lab ID: 254104022	Collected: 06/30/10 09:10	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.024 mg/L		0.019	1	07/12/10 16:50	07/14/10 09:26		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 09:26	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	07/12/10 16:50	07/14/10 09:26	630-02-4	
o-Terphenyl (S)	62 %		50-150	1	07/12/10 16:50	07/14/10 09:26	84-15-1	

Sample: GW-3-0610		Lab ID: 254104023	Collected: 06/30/10 15:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.079 mg/L		0.019	1	07/12/10 16:50	07/14/10 09:42		
Motor Oil Range	ND mg/L		0.095	1	07/12/10 16:50	07/14/10 09:42	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	07/12/10 16:50	07/14/10 09:42	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	07/12/10 16:50	07/14/10 09:42	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254104

Sample: GW-30-0610		Lab ID: 254104024	Collected: 06/30/10 15:30	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.064	mg/L	0.019	1	07/13/10 12:45	07/13/10 23:41		
Motor Oil Range	ND	mg/L	0.095	1	07/13/10 12:45	07/13/10 23:41	64742-65-0	
n-Octacosane (S)	65 %		50-150	1	07/13/10 12:45	07/13/10 23:41	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	07/13/10 12:45	07/13/10 23:41	84-15-1	

Sample: 2A-W-40-0610		Lab ID: 254104025	Collected: 06/30/10 15:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.020	1	07/13/10 12:45	07/13/10 23:58		
Motor Oil Range	ND	mg/L	0.099	1	07/13/10 12:45	07/13/10 23:58	64742-65-0	
n-Octacosane (S)	93 %		50-150	1	07/13/10 12:45	07/13/10 23:58	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	07/13/10 12:45	07/13/10 23:58	84-15-1	

Sample: 2A-W-400-0610		Lab ID: 254104026	Collected: 06/30/10 14:00	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	07/13/10 12:45	07/14/10 00:14		
Motor Oil Range	ND	mg/L	0.095	1	07/13/10 12:45	07/14/10 00:14	64742-65-0	
n-Octacosane (S)	75 %		50-150	1	07/13/10 12:45	07/14/10 00:14	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	07/13/10 12:45	07/14/10 00:14	84-15-1	

Sample: GW-1-0610		Lab ID: 254104027	Collected: 06/30/10 08:55	Received: 07/01/10 09:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	07/13/10 12:45	07/14/10 00:31		
Motor Oil Range	ND	mg/L	0.096	1	07/13/10 12:45	07/14/10 00:31	64742-65-0	
n-Octacosane (S)	81 %		50-150	1	07/13/10 12:45	07/14/10 00:31	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	07/13/10 12:45	07/14/10 00:31	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254104

QC Batch: OEXT/2359

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 254104001, 254104002, 254104003

METHOD BLANK: 32848

Matrix: Water

Associated Lab Samples: 254104001, 254104002, 254104003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	07/11/10 01:25	
Motor Oil Range	mg/L	ND	0.10	07/11/10 01:25	
n-Octacosane (S)	%	95	50-150	07/11/10 01:25	
o-Terphenyl (S)	%	82	50-150	07/11/10 01:25	

LABORATORY CONTROL SAMPLE & LCSD: 32849

32850

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.93	0.95	75	76	51-147	2	30	
Motor Oil Range	mg/L	1.2	1.0	1.1	83	86	20-160	4	30	
n-Octacosane (S)	%				92	95	50-150			
o-Terphenyl (S)	%				95	96	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254104

QC Batch: OEXT/2370 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 254104004, 254104005, 254104006, 254104007, 254104008, 254104009, 254104010, 254104011, 254104012, 254104013, 254104014, 254104015, 254104016, 254104017, 254104018, 254104019, 254104020, 254104021, 254104022, 254104023

METHOD BLANK: 33058 Matrix: Water
 Associated Lab Samples: 254104004, 254104005, 254104006, 254104007, 254104008, 254104009, 254104010, 254104011, 254104012, 254104013, 254104014, 254104015, 254104016, 254104017, 254104018, 254104019, 254104020, 254104021, 254104022, 254104023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	07/14/10 02:25	
Motor Oil Range	mg/L	ND	0.10	07/14/10 02:25	
n-Octacosane (S)	%	85	50-150	07/14/10 02:25	
o-Terphenyl (S)	%	86	50-150	07/14/10 02:25	

LABORATORY CONTROL SAMPLE: 33059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.0	83	51-147	
Motor Oil Range	mg/L	1.2	1.1	88	20-160	
n-Octacosane (S)	%			100	50-150	
o-Terphenyl (S)	%			106	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 33061 33062

Parameter	Units	254104018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	0.42	1.2	1.2	1.4	1.3	85	77	50-150	7	
Motor Oil Range	mg/L	0.37	1.2	1.2	1.5	1.4	93	89	20-160	3	
n-Octacosane (S)	%						96	91	50-150		
o-Terphenyl (S)	%						104	101	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254104

QC Batch: OEXT/2375

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 254104013, 254104014, 254104015, 254104016, 254104017, 254104018, 254104019, 254104020, 254104021

METHOD BLANK: 33124

Matrix: Water

Associated Lab Samples: 254104013, 254104014, 254104015, 254104016, 254104017, 254104018, 254104019, 254104020, 254104021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	07/14/10 10:40	
Motor Oil Range SG	mg/L	ND	0.10	07/14/10 10:40	
n-Octacosane (S) SG	%	89	50-150	07/14/10 10:40	
o-Terphenyl (S) SG	%	83	50-150	07/14/10 10:40	

LABORATORY CONTROL SAMPLE: 33125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1.2	1.1	85	51-147	
Motor Oil Range SG	mg/L	1.2	1.2	97	20-160	
n-Octacosane (S) SG	%			101	50-150	
o-Terphenyl (S) SG	%			109	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 33126 33127

Parameter	Units	254104018 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result					
Diesel Range SG	mg/L	0.11	1.2	1.2	0.97	0.90	73	67	50-150	7	
Motor Oil Range SG	mg/L	ND	1.2	1.2	1.1	1.1	83	89	20-160	7	
n-Octacosane (S) SG	%						91	90	50-150		
o-Terphenyl (S) SG	%						98	91	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254104

QC Batch: OEXT/2377 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 254104024, 254104025, 254104026, 254104027

METHOD BLANK: 33233 Matrix: Water

Associated Lab Samples: 254104024, 254104025, 254104026, 254104027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	07/13/10 22:51	
Motor Oil Range	mg/L	ND	0.10	07/13/10 22:51	
n-Octacosane (S)	%	95	50-150	07/13/10 22:51	
o-Terphenyl (S)	%	83	50-150	07/13/10 22:51	

LABORATORY CONTROL SAMPLE & LCSD: 33234 33235

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.94	0.96	75	77	51-147	2	30	
Motor Oil Range	mg/L	1.2	1.2	1.1	93	86	20-160	8	30	
n-Octacosane (S)	%				95	91	50-150			
o-Terphenyl (S)	%				99	96	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 254104

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: GCSV/1713

[1] A sample duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/1721

[1] A sample duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1n Reported results were confirmed by the analysis of an out-of-hold re-extract sample that had acceptable surrogate recoveries.

S0 Surrogate recovery outside laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish
Pace Project No.: 254104

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
254104001	1C-W-1-0610	EPA 3510	OEXT/2359	NWTPH-Dx	GCSV/1713
254104002	1C-W-8-0610	EPA 3510	OEXT/2359	NWTPH-Dx	GCSV/1713
254104003	1C-W-7-0610	EPA 3510	OEXT/2359	NWTPH-Dx	GCSV/1713
254104004	GW-4-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104005	5-W-43-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104006	GW-2-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104007	1B-W-23-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104008	2A-W-42-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104009	2B-W-46-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104010	2B-W-45-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104011	2A-W-10-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104012	2A-W-41-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104022	EW-1-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104023	GW-3-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104024	GW-30-0610	EPA 3510	OEXT/2377	NWTPH-Dx	GCSV/1721
254104025	2A-W-40-0610	EPA 3510	OEXT/2377	NWTPH-Dx	GCSV/1721
254104026	2A-W-400-0610	EPA 3510	OEXT/2377	NWTPH-Dx	GCSV/1721
254104027	GW-1-0610	EPA 3510	OEXT/2377	NWTPH-Dx	GCSV/1721
254104013	5-W-14-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104013	5-W-14-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104014	5-W-15-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104014	5-W-15-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104015	5-W-16-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104015	5-W-16-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104016	5-W-18-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104016	5-W-18-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104017	5-W-180-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104017	5-W-180-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104018	5-W-20-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104018	5-W-20-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104019	5-W-42-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104019	5-W-42-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104020	5-W-17-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104020	5-W-17-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723
254104021	5-W-19-0610	EPA 3510	OEXT/2370	NWTPH-Dx	GCSV/1722
254104021	5-W-19-0610	EPA 3510	OEXT/2375	NWTPH-Dx	GCSV/1723



Sample Condition Upon Receipt

Client Name: BNSF Project # 254104

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.1, 1.2, 6.0, 4.2, 5.1, 4.3 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C 5.9, 2.2, 1.9, 5.7

Date and Initials of person examining contents: 7/1/10 AR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] 7-1-10 12:24 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

254104

1338458

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albane (AECOM)	Attention: Bruce Sheppard	REGULATORY AGENCY	NPDES	GROUND WATER
Address:	Copy To: Ronae Knodt	Company Name: BNSF	UST	RORA	DRINKING WATER
Email To:	Purchase Order No.: 770100-0339	Address:	Site Location	STATE: WA	OTHER
Phone:	Project Name: BNSF - Skykomish	Pace Quote Reference:	Requested Analysis Filtered (Y/N)		
Fax:	Project Number: 60154595-0540	Pace Project Manager:			
Requested Due Date/TAT: Std		Pace Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix / CODE	Matrix Codes DW WT WW P SL OL WP AR TS OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Y/N ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./Lab I.D.					
							COMPOSITE START	COMPOSITE END/GRAB			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other										
1	1C-W-1	0610	WT				4/29/10	1110	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
2	1C-W-8							1150	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
3	1C-W-7							1415	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
4	5W-4							1595	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
5	5-W-43							1545	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
6	5W-2							1650	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
7	1B-W-23							1305	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
8	2A-W-42							1340	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
9	2B-W-46							6/30/09	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
10	2B-W-45							1000	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
11	2A-W-10							1050	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
12	2A-W-41							1020	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
		<i>Phillip and Sheeran</i>		07/01/10		0925		<i>[Signature]</i>		7-1-10		0925			
ORIGINAL															
SAMPLER NAME AND SIGNATURE															
PRINT Name of SAMPLER:															
SIGNATURE of SAMPLER:															
DATE Signed (MM/DD/YY):															
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)												

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
F-ALL-Q-020rev.07, 15-May-2007

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (Accon)	Attention: Bruce Sheppard	REGULATORY AGENCY	NPDES <input type="checkbox"/>	GROUND WATER <input type="checkbox"/>
Address:	Copy To: Roger Knack	Company Name: BNSF	UST <input type="checkbox"/>	DRINKING WATER <input type="checkbox"/>	OTHER <input type="checkbox"/>
Email To:	Purchase Order No.: TI0100-539	Address:	Site Location STATE: WA		
Phone: Fax:	Project Name: BNSF - Sleykomish	Pace Quote Reference: Weld1 Gori			
Requested Due Date/TAT: std	Project Number: 60154595-0540	Pace Project Manager: Weld1 Gori			
		Pace Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					DATE	TIME						
1	S-W-14-0610	DW WT WW P SL OL WIP AK TS OT			COMPOSITE STRICT	COMPOSITE ENDGRAB		4	Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	NWTPH-DX ^{W/D} _{SGCU}	N	
2	S-W-15-						1750	4		NWTPH-DX ^{W/D} _{SGCU}	N	
3	S-W-16-						1500	4		NWTPH-DX ^{W/D} _{SGCU}	N	
4	S-W-18-						1145	4		NWTPH-DX ^{W/D} _{SGCU}	N	
5	S-W-180-						1250	4		NWTPH-DX ^{W/D} _{SGCU}	N	
6	S-W-20-						1312	4		NWTPH-DX ^{W/D} _{SGCU}	N	
7	S-W-42-						1120	4		NWTPH-DX ^{W/D} _{SGCU}	N	
8	S-W-17-						0940	4		NWTPH-DX ^{W/D} _{SGCU}	N	
9	S-W-19-						1605	4		NWTPH-DX ^{W/D} _{SGCU}	N	
10												
11												
12												

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
S-20-0610- Extra sample		Add'l sample		07/10/15	0925		7-1-10	0925	Temp in °C	Received on Ice (Y/N)
Volume provided to									Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
MS/m/sd										

ORIGINAL

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

254104

1338460

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: BNSF	Report To: Sarah Albano (AECON)	Attention: Bryce Shepherd	REGULATORY AGENCY	Temp in °C	
Address:	Copy To: Ranee Knack	Company Name: BNSF	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)
Email To:	Purchase Order No.: TT01DD-739	Address:	<input type="checkbox"/> UST <input type="checkbox"/> RORA <input type="checkbox"/> OTHER		Samples Intact (Y/N)
Phone:	Project Name: BNSF-Skykomish	Pace Quote Reference:	Site Location STATE: WA		
Fax:	Project Number:	Pace Project Manager:	Requested Analysis Filtered (Y/N)		
Requested Due Date/TAT: std		Pace Profile #:			

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Residual Chlorine (Y/N)	Pace Project No./Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol			
1	EW - 1 - 061D	WT				2										
2	GM - 3 -					2										
3	GM - 3D -					2										
4	2A-W-4D -					2										
5	2A-W-4DD -					2										
6	GM-1 -					2										
7																
8																
9																
10																
11																
12																

ADDITIONAL COMMENTS		REINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
		Addyghani, Sghavan		07/01/10		0825		[Signature]		7-11-00925					

ORIGINAL

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	DATE Signed (MM/DD/YY):
SIGNATURE OF SAMPLER:	

Temp in °C: _____
 Received on Ice (Y/N): _____
 Custody Sealed Cooler (Y/N): _____
 Samples Intact (Y/N): _____

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020/rev 07, 15-May-2007

Sample Container Count

254104



CLIENT: BNSF 254104

COC PAGE 1 of 3
COC ID# _____

Sample Line	Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1			2/12										
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													Trip Blank? <u>NIY</u>

AG1H	1 liter HCL amber glass												JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass												R	terra core kit
AG2S	500mL H2SO4 amber glass												U	Summa Can
AG2U	500mL unpreserved amber glass												VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass												VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass												VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass												VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic												VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic												WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic												WGFU	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac												DG9T	40mL Na Thio amber vial
BP2N	500mL HNO3 plastic												DG9U	40mL Na Thio amber vial
BP2O	500mL NaOH plastic												DG9U	40mL unpreserved amber vial
													I	Wipe/Swab

Sample Container Count

CLIENT: BNSF

COC PAGE 3 of 3
 COC ID# _____



Sample Line	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
Item												
1		2 1/2										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												Trip Blank? <u>N/A</u>

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	WG9U	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic				

August 04, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 254385

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on July 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 8

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 254385

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 254385

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
254385001	IC-W-1-0710	NWTPH-Dx	ERB	4	PASI-S
254385002	IC-W-8-0710	NWTPH-Dx	ERB	4	PASI-S
254385003	IC-W-7-0710	NWTPH-Dx	ERB	4	PASI-S
254385004	1B-W-23-0710	NWTPH-Dx	ERB	4	PASI-S
254385005	1B-W-230-0710	NWTPH-Dx	ERB	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254385

Sample: IC-W-1-0710		Lab ID: 254385001	Collected: 07/27/10 10:30	Received: 07/27/10 17:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	08/03/10 11:25	08/04/10 00:19		
Motor Oil Range	ND	mg/L	0.095	1	08/03/10 11:25	08/04/10 00:19	64742-65-0	
n-Octacosane (S)	85 %		50-150	1	08/03/10 11:25	08/04/10 00:19	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	08/03/10 11:25	08/04/10 00:19	84-15-1	

Sample: IC-W-8-0710		Lab ID: 254385002	Collected: 07/27/10 11:15	Received: 07/27/10 17:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.32	mg/L	0.019	1	08/03/10 11:25	08/04/10 00:35		
Motor Oil Range	ND	mg/L	0.095	1	08/03/10 11:25	08/04/10 00:35	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	08/03/10 11:25	08/04/10 00:35	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	08/03/10 11:25	08/04/10 00:35	84-15-1	

Sample: IC-W-7-0710		Lab ID: 254385003	Collected: 07/27/10 12:20	Received: 07/27/10 17:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.10	mg/L	0.019	1	08/03/10 11:25	08/04/10 00:51		
Motor Oil Range	ND	mg/L	0.095	1	08/03/10 11:25	08/04/10 00:51	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	08/03/10 11:25	08/04/10 00:51	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	08/03/10 11:25	08/04/10 00:51	84-15-1	

Sample: 1B-W-23-0710		Lab ID: 254385004	Collected: 07/27/10 13:35	Received: 07/27/10 17:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.49	mg/L	0.021	1	08/03/10 11:25	08/04/10 01:08		
Motor Oil Range	0.16	mg/L	0.10	1	08/03/10 11:25	08/04/10 01:08	64742-65-0	
n-Octacosane (S)	89 %		50-150	1	08/03/10 11:25	08/04/10 01:08	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	08/03/10 11:25	08/04/10 01:08	84-15-1	

Sample: 1B-W-230-0710		Lab ID: 254385005	Collected: 07/27/10 14:00	Received: 07/27/10 17:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.48	mg/L	0.019	1	08/03/10 11:25	08/04/10 01:24		
Motor Oil Range	0.18	mg/L	0.095	1	08/03/10 11:25	08/04/10 01:24	64742-65-0	

Date: 08/04/2010 01:21 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254385

Sample: 1B-W-230-0710	Lab ID: 254385005	Collected: 07/27/10 14:00	Received: 07/27/10 17:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	90 %		50-150	1	08/03/10 11:25	08/04/10 01:24	630-02-4	
o-Terphenyl (S)	98 %		50-150	1	08/03/10 11:25	08/04/10 01:24	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254385

QC Batch: OEXT/2439 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 254385001, 254385002, 254385003, 254385004, 254385005

METHOD BLANK: 35176 Matrix: Water
 Associated Lab Samples: 254385001, 254385002, 254385003, 254385004, 254385005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	08/03/10 23:30	
Motor Oil Range	mg/L	ND	0.10	08/03/10 23:30	
n-Octacosane (S)	%	80	50-150	08/03/10 23:30	
o-Terphenyl (S)	%	86	50-150	08/03/10 23:30	

LABORATORY CONTROL SAMPLE & LCSD: 35177 35178

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.2	1.2	94	95	51-147	.3	30	
Motor Oil Range	mg/L	1.2	1.2	1.2	96	98	20-160	2	30	
n-Octacosane (S)	%				93	95	50-150			
o-Terphenyl (S)	%				111	110	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 254385

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 254385

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
254385001	IC-W-1-0710	EPA 3510	OEXT/2439	NWTPH-Dx	GCSV/1765
254385002	IC-W-8-0710	EPA 3510	OEXT/2439	NWTPH-Dx	GCSV/1765
254385003	IC-W-7-0710	EPA 3510	OEXT/2439	NWTPH-Dx	GCSV/1765
254385004	1B-W-23-0710	EPA 3510	OEXT/2439	NWTPH-Dx	GCSV/1765
254385005	1B-W-230-0710	EPA 3510	OEXT/2439	NWTPH-Dx	GCSV/1765

Sample Condition Upon Receipt



Client Name: AECOM - BNSF Project # 254385

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 10.6, 9.4
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 7/28/10 AR

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AR 7-28-10 @ 11:30 Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

254385

Page: 1 of 1

1318894

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: AECOM	Report To: Sarah Albano	Attention: Bruce Sheppard	Company Name: BAUSP	Address:	
Address: 710 2nd Ave. Suite 100	Copy To: Denea Kueckl	Address:	Address:		
Email To: Sarah.albano@aecom.com	Purchase Order No.:	Pace Quote Reference:	Pace Project Manager:	Pace Profile #:	
Phone: 206-624-9304 Fax:	Project Name: BAUSP - Skykomish				
Requested Due Date/TAT: 5 weeks or d,	Project Number: 65136319-0540				
		REGULATORY AGENCY		Requested Analysis Filtered (Y/N)	
		<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER		Site Location STATE: WA	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	DIV	WWT	Waste Water	Product	Soil/Solid	Oil	Wipe	Air	Tissue	Other	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Y/N ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
															COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃						HCl	NaOH	Na ₂ S ₂ O ₃	Methanol
1	1C-W-1-0710		X													07/27	1030		2															
2	1C-W-8-0710		X													07/27	1115		2	X	X	X	X	X	X	X	X	X	X	X	X	X		
3	1C-W-7-0710		X													07/27	1220		2	X	X	X	X	X	X	X	X	X	X	X	X	X		
4	1B-W-23-0710		X													07/27	1335		2	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	1B-W-230-0710		X													07/27	1400		2	X	X	X	X	X	X	X	X	X	X	X	X	X		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
		Abdullah / AECOM		07/27/10		1735		Abdullah / Pace		7/27/10		1730		Temp in °C 6.6 Received on Ice (Y/N) Y Custody Sealed Cooler (Y/N) N Samples Intact (Y/N) Y	

ORIGINAL

SAMPLER NAME AND SIGNATURE		PRINT Name of SAMPLER:		DATE Signed (MM/DD/YY):	
Abdullah / AECOM		Abdullah / Pace		07/27/10	
SIGNATURE of SAMPLER:		SIGNATURE of SAMPLER:		DATE Signed (MM/DD/YY):	
Abdullah / AECOM		Abdullah / Pace		07/27/10	

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

September 16, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 254778

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on September 01, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Amended report, REV-1 on 9/16/10 for sample ID change from I to 1 per client request.

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

Sincerely,



Mary Jane Walls_L25

maryjane.walls@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 254778

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 254778

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
254778001	1C-W-1-0810	NWTPH-Dx	ERB	4	PASI-S
254778002	1C-W-8-0810	NWTPH-Dx	ERB	4	PASI-S
254778003	1C-W-7-0810	NWTPH-Dx	ERB	4	PASI-S
254778004	1B-W-23-0810	NWTPH-Dx	ERB	4	PASI-S
254778005	1B-W-230-0810	NWTPH-Dx	ERB	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254778

Sample: 1C-W-1-0810		Lab ID: 254778001	Collected: 08/31/10 12:40	Received: 09/01/10 08:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.036	mg/L	0.019	1	09/13/10 17:00	09/14/10 00:13		
Motor Oil Range	ND	mg/L	0.094	1	09/13/10 17:00	09/14/10 00:13	64742-65-0	
n-Octacosane (S)	105	%	50-150	1	09/13/10 17:00	09/14/10 00:13	630-02-4	
o-Terphenyl (S)	95	%	50-150	1	09/13/10 17:00	09/14/10 00:13	84-15-1	

Sample: 1C-W-8-0810		Lab ID: 254778002	Collected: 08/31/10 13:50	Received: 09/01/10 08:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.20	mg/L	0.019	1	09/13/10 17:00	09/14/10 00:29		
Motor Oil Range	ND	mg/L	0.094	1	09/13/10 17:00	09/14/10 00:29	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	09/13/10 17:00	09/14/10 00:29	630-02-4	
o-Terphenyl (S)	104	%	50-150	1	09/13/10 17:00	09/14/10 00:29	84-15-1	

Sample: 1C-W-7-0810		Lab ID: 254778003	Collected: 08/31/10 14:50	Received: 09/01/10 08:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.11	mg/L	0.019	1	09/13/10 17:00	09/14/10 00:46		
Motor Oil Range	ND	mg/L	0.095	1	09/13/10 17:00	09/14/10 00:46	64742-65-0	
n-Octacosane (S)	104	%	50-150	1	09/13/10 17:00	09/14/10 00:46	630-02-4	
o-Terphenyl (S)	106	%	50-150	1	09/13/10 17:00	09/14/10 00:46	84-15-1	

Sample: 1B-W-23-0810		Lab ID: 254778004	Collected: 08/31/10 16:35	Received: 09/01/10 08:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.37	mg/L	0.019	1	09/13/10 17:00	09/14/10 01:02		
Motor Oil Range	0.28	mg/L	0.094	1	09/13/10 17:00	09/14/10 01:02	64742-65-0	
n-Octacosane (S)	84	%	50-150	1	09/13/10 17:00	09/14/10 01:02	630-02-4	
o-Terphenyl (S)	101	%	50-150	1	09/13/10 17:00	09/14/10 01:02	84-15-1	

Sample: 1B-W-230-0810		Lab ID: 254778005	Collected: 08/31/10 17:00	Received: 09/01/10 08:07	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.25	mg/L	0.019	1	09/13/10 17:00	09/14/10 01:19		
Motor Oil Range	0.22	mg/L	0.095	1	09/13/10 17:00	09/14/10 01:19	64742-65-0	

Date: 09/16/2010 07:05 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 254778

Sample: 1B-W-230-0810	Lab ID: 254778005	Collected: 08/31/10 17:00	Received: 09/01/10 08:07	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	60 %		50-150	1	09/13/10 17:00	09/14/10 01:19	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	09/13/10 17:00	09/14/10 01:19	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 254778

QC Batch: OEXT/2652

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 254778001, 254778002, 254778003, 254778004, 254778005

METHOD BLANK: 40246

Matrix: Water

Associated Lab Samples: 254778001, 254778002, 254778003, 254778004, 254778005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	09/13/10 23:23	
Motor Oil Range	mg/L	ND	0.10	09/13/10 23:23	
n-Octacosane (S)	%	97	50-150	09/13/10 23:23	
o-Terphenyl (S)	%	90	50-150	09/13/10 23:23	

LABORATORY CONTROL SAMPLE & LCSD: 40247

40248

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.1	1.2	90	94	51-147	4	30	
Motor Oil Range	mg/L	1.2	1.3	1.3	101	105	20-160	4	30	
n-Octacosane (S)	%				107	110	50-150			
o-Terphenyl (S)	%				94	98	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 254778

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: GCSV/1883

[1] A sample duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 254778

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
254778001	1C-W-1-0810	EPA 3510	OEXT/2652	NWTPH-Dx	GCSV/1883
254778002	1C-W-8-0810	EPA 3510	OEXT/2652	NWTPH-Dx	GCSV/1883
254778003	1C-W-7-0810	EPA 3510	OEXT/2652	NWTPH-Dx	GCSV/1883
254778004	1B-W-23-0810	EPA 3510	OEXT/2652	NWTPH-Dx	GCSV/1883
254778005	1B-W-230-0810	EPA 3510	OEXT/2652	NWTPH-Dx	GCSV/1883



Sample Condition Upon Receipt

Client Name: AECOM Project # 254778

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other _____ Temp. Blank Yes No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.4, 2.4 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: NS 9/1/10

Temp should be above freezing $\leq 6^{\circ}\text{C}$ Comments: _____

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 9/1/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **AECOM** Report To: **Sarah Albano** Attention: **Bruce Sheppard**
 Address: **710 2nd Ave. Suite 1000** Copy To: **Renee Knecht** Company Name: **BNSF**
 Email To: **Sarah.albano@aecocom** Purchase Order No.: _____ Address: _____
 Phone: **206-624-9349** Fax: _____ Project Name: **SKYKOMISH BNSF** Pace Quote: _____
 Requested Due Date/TAT: **Standard** Project Number: **60154595-0540** Pace Project Manager: **Heidi Gurr**
 Requested Analysis Filtered (Y/N) _____

Page: **1** of **1**
1338989

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location
 STATE: **WA**
WO#254778

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/RAB			DATE	TIME	DATE	TIME	DATE	TIME	DATE				
1	1C-W-1-0810					2											254778 001
2	1C-W-8-0810					2											002
3	1C-W-7-0810					2											003
4	1B-W-23-0810					2											004
5	1B-W-230-0810					2											005
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
	<i>Abdelkhan Sellam / AECOM</i>	08/31	12:40	<i>Rosina</i>	09/10	08:07	Temp in °C	24
							Received on Ice (Y/N)	Y
							Custody Sealed Cooler (Y/N)	N
							Samples Intact (Y/N)	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: *Abdelkhan Sellam*
 SIGNATURE of SAMPLER: *Abdelkhan Sellam* DATE Signed (MM/DD/YY): *09/10/10*

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020rev.07, 15-May-2007

Sample Container Count

CLIENT: AECOM

NO# 254778



COC PAGE# 1 of 1
 COC ID# 1338989

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1		2	2									
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												Trip Blank? No
12												

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber vials
AG1U	1 liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3G	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial prewashed (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vov vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFY	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic	I	Wipe/Swab		

October 11, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

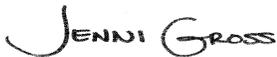
RE: Project: BNSF-Skykomish
Pace Project No.: 255054

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 255054

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054001	2B-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054002	MW-16-0910	NWTPH-Dx	DMT	4	PASI-S
255054003	5-W-51-0910	NWTPH-Dx	DMT	4	PASI-S
255054004	MW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054005	MW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054006	ZA-W-10-0910	NWTPH-Dx	DMT	4	PASI-S
255054007	ZA-W-100-0910	NWTPH-Dx	DMT	4	PASI-S
255054008	ZA-W-9-0910	NWTPH-Dx	DMT	4	PASI-S
255054009	IC-W-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054010	IC-W-8-0910	NWTPH-Dx	DMT	4	PASI-S
255054011	IC-W-7-0910	NWTPH-Dx	DMT	4	PASI-S
255054012	IC-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054013	IC-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054014	GW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054015	GW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054016	IB-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054017	IB-W-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054018	IA-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054019	MW-38R-0910	NWTPH-Dx	DMT	4	PASI-S
255054020	5-W-50-0910	NWTPH-Dx	DMT	4	PASI-S
255054021	5-W-500-0910	NWTPH-Dx	DMT	4	PASI-S
255054022	5-W-54-0910	NWTPH-Dx	DMT	4	PASI-S
255054023	5-W-56-0910	NWTPH-Dx	DMT	4	PASI-S
255054024	5-W-18-0910	NWTPH-Dx	DMT	8	PASI-S
255054025	IB-W-23-0910	NWTPH-Dx	DMT	4	PASI-S
255054026	5-W-14-0910	NWTPH-Dx	DMT	8	PASI-S
255054027	5-W-17-0910	NWTPH-Dx	DMT	8	PASI-S
255054028	5-W-170-0910	NWTPH-Dx	DMT	8	PASI-S
255054029	5-W-15-0910	NWTPH-Dx	DMT	8	PASI-S
255054030	5-W-16-0910	NWTPH-Dx	DMT	8	PASI-S
255054031	5-W-42-0910	NWTPH-Dx	DMT	8	PASI-S
255054032	EW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054033	5-W-43-0910	NWTPH-Dx	DMT	4	PASI-S
255054034	5-W-19-0910	NWTPH-Dx	DMT	8	PASI-S
255054035	5-W-20-0910	NWTPH-Dx	DMT	8	PASI-S
255054036	5-W-55-0910	NWTPH-Dx	DMT	4	PASI-S
255054037	2A-W-40-0910	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054038	2A-W-41-0910	NWTPH-Dx	DMT	4	PASI-S
255054039	2A-W-42-0910	NWTPH-Dx	DMT	4	PASI-S
255054040	GW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054041	GW-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054042	GW-20-0910	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2B-W-4-0910		Lab ID: 255054001	Collected: 09/20/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 11:40		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 11:40	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 11:40	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/01/10 11:20	10/04/10 11:40	84-15-1	

Sample: MW-16-0910		Lab ID: 255054002	Collected: 09/20/10 16:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:01		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:01	64742-65-0	
n-Octacosane (S)	113	%	50-150	1	10/01/10 11:20	10/04/10 12:01	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	10/01/10 11:20	10/04/10 12:01	84-15-1	

Sample: 5-W-51-0910		Lab ID: 255054003	Collected: 09/20/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	3.4	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:23		
Motor Oil Range	1.4	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:23	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/01/10 11:20	10/04/10 12:23	630-02-4	
o-Terphenyl (S)	97	%	50-150	1	10/01/10 11:20	10/04/10 12:23	84-15-1	

Sample: MW-3-0910		Lab ID: 255054004	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.43	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:44		
Motor Oil Range	0.50	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:44	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	10/01/10 11:20	10/04/10 12:44	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	10/01/10 11:20	10/04/10 12:44	84-15-1	

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/01/10 11:20	10/04/10 13:06		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 13:06	64742-65-0	

Date: 10/11/2010 02:24 PM

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	101 %		50-150	1	10/01/10 11:20	10/04/10 13:06	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/01/10 11:20	10/04/10 13:06	84-15-1	

Sample: ZA-W-10-0910		Lab ID: 255054006	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:27		
Motor Oil Range	0.29 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:27	64742-65-0	
n-Octacosane (S)	59 %		50-150	1	10/01/10 11:20	10/04/10 13:27	630-02-4	
o-Terphenyl (S)	52 %		50-150	1	10/01/10 11:20	10/04/10 13:27	84-15-1	

Sample: ZA-W-100-0910		Lab ID: 255054007	Collected: 09/21/10 17:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:49		
Motor Oil Range	0.36 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:49	64742-65-0	
n-Octacosane (S)	63 %		50-150	1	10/01/10 11:20	10/04/10 13:49	630-02-4	
o-Terphenyl (S)	58 %		50-150	1	10/01/10 11:20	10/04/10 13:49	84-15-1	

Sample: ZA-W-9-0910		Lab ID: 255054008	Collected: 09/21/10 17:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	1.0 mg/L		0.019	1	10/01/10 11:20	10/04/10 14:54		
Motor Oil Range	0.71 mg/L		0.095	1	10/01/10 11:20	10/04/10 14:54	64742-65-0	
n-Octacosane (S)	103 %		50-150	1	10/01/10 11:20	10/04/10 14:54	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/01/10 11:20	10/04/10 14:54	84-15-1	

Sample: IC-W-1-0910		Lab ID: 255054009	Collected: 09/21/10 10:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.050 mg/L		0.019	1	10/01/10 11:20	10/04/10 15:59		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/04/10 15:59	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 15:59	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	10/01/10 11:20	10/04/10 15:59	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: IC-W-8-0910		Lab ID: 255054010	Collected: 09/21/10 10:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.8 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:20		
Motor Oil Range	0.59 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:20	64742-65-0	
n-Octacosane (S)	109 %		50-150	1	10/01/10 11:20	10/04/10 16:20	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	10/01/10 11:20	10/04/10 16:20	84-15-1	

Sample: IC-W-7-0910		Lab ID: 255054011	Collected: 09/21/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.19 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:41		
Motor Oil Range	0.17 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:41	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 16:41	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	10/01/10 11:20	10/04/10 16:41	84-15-1	

Sample: IC-W-3-0910		Lab ID: 255054012	Collected: 09/21/10 11:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.021 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:03		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 17:03	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 17:03	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/04/10 17:03	84-15-1	

Sample: IC-W-4-0910		Lab ID: 255054013	Collected: 09/21/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.38 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:24		
Motor Oil Range	0.24 mg/L		0.095	1	10/01/10 11:20	10/04/10 17:24	64742-65-0	
n-Octacosane (S)	116 %		50-150	1	10/01/10 11:20	10/04/10 17:24	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	10/01/10 11:20	10/04/10 17:24	84-15-1	

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.035 mg/L		0.019	1	10/01/10 11:20	10/04/10 18:49		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 18:49	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Project No.: 255054

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 18:49	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/01/10 11:20	10/04/10 18:49	84-15-1	

Sample: GW-3-0910		Lab ID: 255054015	Collected: 09/21/10 16:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.074 mg/L		0.019	1	10/01/10 11:20	10/06/10 01:34		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/06/10 01:34	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	10/01/10 11:20	10/06/10 01:34	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	10/01/10 11:20	10/06/10 01:34	84-15-1	

Sample: IB-W-3-0910		Lab ID: 255054016	Collected: 09/21/10 09:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.033 mg/L		0.020	1	10/01/10 11:20	10/04/10 19:32		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 19:32	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 19:32	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	10/01/10 11:20	10/04/10 19:32	84-15-1	

Sample: IB-W-2-0910		Lab ID: 255054017	Collected: 09/21/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.080 mg/L		0.020	1	10/01/10 11:20	10/06/10 01:55		
Motor Oil Range	0.17 mg/L		0.10	1	10/01/10 11:20	10/06/10 01:55	64742-65-0	
n-Octacosane (S)	115 %		50-150	1	10/01/10 11:20	10/06/10 01:55	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/06/10 01:55	84-15-1	

Sample: IA-W-4-0910		Lab ID: 255054018	Collected: 09/21/10 11:55	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.020	1	10/01/10 11:20	10/04/10 20:15		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 20:15	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 20:15	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	10/01/10 11:20	10/04/10 20:15	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: MW-38R-0910		Lab ID: 255054019	Collected: 09/21/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.043	mg/L	0.021	1	10/01/10 11:20	10/04/10 20:36		
Motor Oil Range	ND	mg/L	0.10	1	10/01/10 11:20	10/04/10 20:36	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 20:36	630-02-4	
o-Terphenyl (S)	94	%	50-150	1	10/01/10 11:20	10/04/10 20:36	84-15-1	

Sample: 5-W-50-0910		Lab ID: 255054020	Collected: 09/21/10 16:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	12.3	mg/L	0.19	10	10/01/10 11:20	10/06/10 00:29		
Motor Oil Range	8.0	mg/L	0.96	10	10/01/10 11:20	10/06/10 00:29	64742-65-0	
n-Octacosane (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	630-02-4	S4
o-Terphenyl (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	84-15-1	S4

Sample: 5-W-500-0910		Lab ID: 255054021	Collected: 09/21/10 15:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	10.4	mg/L	0.099	5	10/04/10 11:40	10/06/10 03:00		
Motor Oil Range	6.0	mg/L	0.50	5	10/04/10 11:40	10/06/10 03:00	64742-65-0	
n-Octacosane (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	630-02-4	
o-Terphenyl (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	84-15-1	

Sample: 5-W-54-0910		Lab ID: 255054022	Collected: 09/21/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.040	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:22		
Motor Oil Range	0.12	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:22	64742-65-0	
n-Octacosane (S)	105	%	50-150	1	10/04/10 11:40	10/06/10 03:22	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	10/04/10 11:40	10/06/10 03:22	84-15-1	

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.46	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:43		
Motor Oil Range	0.80	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:43	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	94 %		50-150	1	10/04/10 11:40	10/06/10 03:43	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 03:43	84-15-1	

Sample: 5-W-18-0910

Lab ID: 255054024

Collected: 09/22/10 09:05

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.24 mg/L		0.019	1	10/04/10 11:40	10/06/10 04:05		
Diesel Range SG	0.11 mg/L		0.019	1	10/04/10 11:40	10/06/10 16:28		
Motor Oil Range	0.30 mg/L		0.095	1	10/04/10 11:40	10/06/10 04:05	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:28	64742-65-0	
n-Octacosane (S) SG	103 %		50-150	1	10/04/10 11:40	10/06/10 16:28	630-02-4	
o-Terphenyl (S) SG	78 %		50-150	1	10/04/10 11:40	10/06/10 16:28	84-15-1	
n-Octacosane (S)	101 %		50-150	1	10/04/10 11:40	10/06/10 04:05	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 04:05	84-15-1	

Sample: IB-W-23-0910

Lab ID: 255054025

Collected: 09/22/10 09:10

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.067 mg/L		0.020	1	10/04/10 11:40	10/06/10 04:26		
Motor Oil Range	0.21 mg/L		0.10	1	10/04/10 11:40	10/06/10 04:26	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	10/04/10 11:40	10/06/10 04:26	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 04:26	84-15-1	

Sample: 5-W-14-0910

Lab ID: 255054026

Collected: 09/22/10 09:45

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 05:31		
Diesel Range SG	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 16:50		
Motor Oil Range	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 05:31	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:50	64742-65-0	
n-Octacosane (S) SG	101 %		50-150	1	10/04/10 11:40	10/06/10 16:50	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 16:50	84-15-1	
n-Octacosane (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 05:31	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/04/10 11:40	10/06/10 05:31	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-17-0910		Lab ID: 255054027	Collected: 09/22/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 05:52		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 17:55		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 05:52	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 17:55	64742-65-0	
n-Octacosane (S) SG	95 %		50-150	1	10/04/10 11:40	10/06/10 17:55	630-02-4	
o-Terphenyl (S) SG	69 %		50-150	1	10/04/10 11:40	10/06/10 17:55	84-15-1	
n-Octacosane (S)	87 %		50-150	1	10/04/10 11:40	10/06/10 05:52	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/04/10 11:40	10/06/10 05:52	84-15-1	

Sample: 5-W-170-0910		Lab ID: 255054028	Collected: 09/22/10 11:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:14		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:17		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:14	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:17	64742-65-0	
n-Octacosane (S) SG	102 %		50-150	1	10/04/10 11:40	10/06/10 18:17	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 18:17	84-15-1	
n-Octacosane (S)	98 %		50-150	1	10/04/10 11:40	10/06/10 06:14	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/04/10 11:40	10/06/10 06:14	84-15-1	

Sample: 5-W-15-0910		Lab ID: 255054029	Collected: 09/22/10 12:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.28	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:35		
Diesel Range SG	0.053	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:39		
Motor Oil Range	0.32	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:35	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:39	64742-65-0	
n-Octacosane (S) SG	97 %		50-150	1	10/04/10 11:40	10/06/10 18:39	630-02-4	
o-Terphenyl (S) SG	83 %		50-150	1	10/04/10 11:40	10/06/10 18:39	84-15-1	
n-Octacosane (S)	96 %		50-150	1	10/04/10 11:40	10/06/10 06:35	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/04/10 11:40	10/06/10 06:35	84-15-1	

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.036	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:57		

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 19:00		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:57	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 19:00	64742-65-0	
n-Octacosane (S) SG	109	%	50-150	1	10/04/10 11:40	10/06/10 19:00	630-02-4	
o-Terphenyl (S) SG	79	%	50-150	1	10/04/10 11:40	10/06/10 19:00	84-15-1	
n-Octacosane (S)	103	%	50-150	1	10/04/10 11:40	10/06/10 06:57	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 06:57	84-15-1	

Sample: 5-W-42-0910		Lab ID: 255054031	Collected: 09/22/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.082	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:01		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:06		
Motor Oil Range	0.14	mg/L	0.095	1	10/04/10 11:40	10/06/10 08:01	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:06	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	10/04/10 11:40	10/06/10 20:06	630-02-4	
o-Terphenyl (S) SG	81	%	50-150	1	10/04/10 11:40	10/06/10 20:06	84-15-1	
n-Octacosane (S)	89	%	50-150	1	10/04/10 11:40	10/06/10 08:01	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 08:01	84-15-1	

Sample: EW-1-0910		Lab ID: 255054032	Collected: 09/22/10 10:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:23		
Motor Oil Range	ND	mg/L	0.097	1	10/04/10 11:40	10/06/10 08:23	64742-65-0	
n-Octacosane (S)	90	%	50-150	1	10/04/10 11:40	10/06/10 08:23	630-02-4	
o-Terphenyl (S)	73	%	50-150	1	10/04/10 11:40	10/06/10 08:23	84-15-1	

Sample: 5-W-43-0910		Lab ID: 255054033	Collected: 09/22/10 11:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.022	1	10/06/10 16:50	10/09/10 01:07		
Motor Oil Range	ND	mg/L	0.11	1	10/06/10 16:50	10/09/10 01:07	64742-65-0	
n-Octacosane (S)	111	%	50-150	1	10/06/10 16:50	10/09/10 01:07	630-02-4	
o-Terphenyl (S)	82	%	50-150	1	10/06/10 16:50	10/09/10 01:07	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-19-0910		Lab ID: 255054034	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 09:49		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:27		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 09:49	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:27	64742-65-0	
n-Octacosane (S) SG	100 %		50-150	1	10/04/10 11:40	10/06/10 20:27	630-02-4	
o-Terphenyl (S) SG	77 %		50-150	1	10/04/10 11:40	10/06/10 20:27	84-15-1	
n-Octacosane (S)	102 %		50-150	1	10/04/10 11:40	10/06/10 09:49	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	10/04/10 11:40	10/06/10 09:49	84-15-1	

Sample: 5-W-20-0910		Lab ID: 255054035	Collected: 09/22/10 15:20	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.17	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:11		
Diesel Range SG	0.021	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:49		
Motor Oil Range	0.20	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:11	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:49	64742-65-0	
n-Octacosane (S) SG	88 %		50-150	1	10/04/10 11:40	10/06/10 20:49	630-02-4	
o-Terphenyl (S) SG	74 %		50-150	1	10/04/10 11:40	10/06/10 20:49	84-15-1	
n-Octacosane (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 10:11	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	10/04/10 11:40	10/06/10 10:11	84-15-1	

Sample: 5-W-55-0910		Lab ID: 255054036	Collected: 09/22/10 14:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.023	mg/L	0.020	1	10/04/10 11:40	10/06/10 10:32		
Motor Oil Range	ND	mg/L	0.10	1	10/04/10 11:40	10/06/10 10:32	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	10/04/10 11:40	10/06/10 10:32	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/04/10 11:40	10/06/10 10:32	84-15-1	

Sample: 2A-W-40-0910		Lab ID: 255054037	Collected: 09/22/10 09:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:54		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:54	64742-65-0	
n-Octacosane (S)	86 %		50-150	1	10/04/10 11:40	10/06/10 10:54	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	10/04/10 11:40	10/06/10 10:54	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2A-W-41-0910		Lab ID: 255054038	Collected: 09/22/10 10:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.022	mg/L	0.019	1	10/04/10 11:40	10/06/10 11:16		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 11:16	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	10/04/10 11:40	10/06/10 11:16	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/04/10 11:40	10/06/10 11:16	84-15-1	

Sample: 2A-W-42-0910		Lab ID: 255054039	Collected: 09/22/10 11:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.16	mg/L	0.019	1	10/04/10 11:40	10/06/10 14:40		
Motor Oil Range	0.16	mg/L	0.095	1	10/04/10 11:40	10/06/10 14:40	64742-65-0	
n-Octacosane (S)	92	%	50-150	1	10/04/10 11:40	10/06/10 14:40	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	10/04/10 11:40	10/06/10 14:40	84-15-1	

Sample: GW-1-0910		Lab ID: 255054040	Collected: 09/22/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.096	mg/L	0.019	1	10/04/10 11:40	10/06/10 15:02		
Motor Oil Range	0.15	mg/L	0.095	1	10/04/10 11:40	10/06/10 15:02	64742-65-0	
n-Octacosane (S)	94	%	50-150	1	10/04/10 11:40	10/06/10 15:02	630-02-4	
o-Terphenyl (S)	76	%	50-150	1	10/04/10 11:40	10/06/10 15:02	84-15-1	

Sample: GW-2-0910		Lab ID: 255054041	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/05/10 15:10	10/07/10 05:43		
Motor Oil Range	ND	mg/L	0.095	1	10/05/10 15:10	10/07/10 05:43	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/05/10 15:10	10/07/10 05:43	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	10/05/10 15:10	10/07/10 05:43	84-15-1	

Sample: GW-20-0910		Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.038	mg/L	0.019	1	10/05/10 15:10	10/07/10 06:05		
Motor Oil Range	ND	mg/L	0.094	1	10/05/10 15:10	10/07/10 06:05	64742-65-0	

Date: 10/11/2010 02:24 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: GW-20-0910	Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	96 %		50-150	1	10/05/10 15:10	10/07/10 06:05	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	10/05/10 15:10	10/07/10 06:05	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2753 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

METHOD BLANK: 42965 Matrix: Water

Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/04/10 10:56	
Motor Oil Range	mg/L	ND	0.10	10/04/10 10:56	
n-Octacosane (S)	%	111	50-150	10/04/10 10:56	
o-Terphenyl (S)	%	85	50-150	10/04/10 10:56	

LABORATORY CONTROL SAMPLE: 42966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.1	87	51-147	
Motor Oil Range	mg/L	1.2	1.3	100	20-160	
n-Octacosane (S)	%			115	50-150	
o-Terphenyl (S)	%			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 42967 42968

Parameter	Units	255054008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	1.0	1.2	1.2	1.8	1.8	69	72	50-150	1	
Motor Oil Range	mg/L	0.71	1.2	1.2	1.8	1.9	93	103	20-160	6	
n-Octacosane (S)	%						101	102	50-150		
o-Terphenyl (S)	%						88	99	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2759 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

METHOD BLANK: 43170 Matrix: Water
 Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/06/10 02:17	
Motor Oil Range	mg/L	ND	0.10	10/06/10 02:17	
n-Octacosane (S)	%	94	50-150	10/06/10 02:17	
o-Terphenyl (S)	%	79	50-150	10/06/10 02:17	

LABORATORY CONTROL SAMPLE: 43171

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.0	80	51-147	
Motor Oil Range	mg/L	1.2	1.2	95	20-160	
n-Octacosane (S)	%			101	50-150	
o-Terphenyl (S)	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 43172 43173

Parameter	Units	255054030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	0.036	1.2	1.2	0.87	0.92	70	75	50-150	6	
Motor Oil Range	mg/L	ND	1.2	1.2	1.1	1.2	87	92	20-160	5	
n-Octacosane (S)	%						96	98	50-150		
o-Terphenyl (S)	%						89	92	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2766

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054041, 255054042

METHOD BLANK: 43425

Matrix: Water

Associated Lab Samples: 255054041, 255054042

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/07/10 04:40	
Motor Oil Range	mg/L	ND	0.10	10/07/10 04:40	
n-Octacosane (S)	%	85	50-150	10/07/10 04:40	
o-Terphenyl (S)	%	71	50-150	10/07/10 04:40	

LABORATORY CONTROL SAMPLE & LCSD: 43426

43427

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.1	0.99	85	79	51-147	6	30	
Motor Oil Range	mg/L	1.2	1.2	1.2	99	95	20-160	4	30	
n-Octacosane (S)	%				111	101	50-150			
o-Terphenyl (S)	%				128	120	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2788

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054033

METHOD BLANK: 44672

Matrix: Water

Associated Lab Samples: 255054033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/09/10 00:18	
Motor Oil Range	mg/L	ND	0.10	10/09/10 00:18	
n-Octacosane (S)	%	107	50-150	10/09/10 00:18	
o-Terphenyl (S)	%	102	50-150	10/09/10 00:18	

LABORATORY CONTROL SAMPLE & LCSD: 44673

44674

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.92	0.82	73	66	51-147	11	30	
Motor Oil Range	mg/L	1.2	1.0	0.92	82	74	20-160	10	30	
n-Octacosane (S)	%				105	105	50-150			
o-Terphenyl (S)	%				120	118	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 255054

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054001	2B-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054002	MW-16-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054003	5-W-51-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054004	MW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054005	MW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054006	ZA-W-10-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054007	ZA-W-100-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054008	ZA-W-9-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054009	IC-W-1-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054010	IC-W-8-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054011	IC-W-7-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054012	IC-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054013	IC-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054014	GW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054015	GW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054016	IB-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054017	IB-W-2-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054018	IA-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054019	MW-38R-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054020	5-W-50-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054021	5-W-500-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054022	5-W-54-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054023	5-W-56-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054025	IB-W-23-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054032	EW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054033	5-W-43-0910	EPA 3510	OEXT/2788	NWTPH-Dx	GCSV/1970
255054036	5-W-55-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054037	2A-W-40-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054038	2A-W-41-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054039	2A-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054040	GW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054041	GW-2-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054042	GW-20-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054024	5-W-18-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054024	5-W-18-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054026	5-W-14-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054026	5-W-14-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054027	5-W-17-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054027	5-W-17-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054028	5-W-170-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054028	5-W-170-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054029	5-W-15-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054029	5-W-15-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054030	5-W-16-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054030	5-W-16-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054031	5-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054031	5-W-42-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054034	5-W-19-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054034	5-W-19-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054035	5-W-20-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054035	5-W-20-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954



Sample Condition Upon Receipt

Client Name: BNSF/AECOM Project # 255054

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other _____ Temp. Blank Yes No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.5, 5.4, 7.7, 9.1 Biological Tissue is Frozen: Yes No
Temp should be above freezing $\leq 6^{\circ}\text{C}$ 4.9, 1.4, 7.2, 5.9, 8.5, 9.9 Comments: 4.5, 4.6, 6.9, 8.2
Date and Initials of person examining contents: NJS 9/22/10

Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 9/27/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: BNSF	Report To: Sarah Albano (Acctg)	Attention: Bruce Shappard
Address:	Copy To: Ranee Knecht	Company Name: BNSF
Email To:	Purchase Order No.: TD100-539	Address:
Phone:	Project Name: BNSF - Skykomish	Page Quote Reference:
Fax:	Project Number: 60154595-094D	Pace Project Manager:
Requested Due Date/TAT: std		Pace Profile #:

Page: **1** of **4**
1309837

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location STATE: **WA**

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				
1	ZB-W-4 -091D	WT	9/29/10	1505		2	X										
2	MW-16-			1605		2	X										
3	S-W-51-		9/29/10	1715		2	X										
4	MW-3-		9/29/10	1600		2	X										
5	MW-4-			1635		2	X										
6	ZA-W-10-			1715		2	X										
7	ZA-W-100-			1725		2	X										
8	ZA-W-9-			1745		2	X										
9	1C-W-1-			1000		2	X										
10	1C-W-8-			1035		2	X										
11	1C-W-7-			1505		2	X										
12	1C-W-3-			1125		2	X										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Extra sample volume provided: ZA-W-9-091D	<i>[Signature]</i>	9/22/10	1752	Syokhm Somy	9/29/10	1752	55 4.7 4.1 4.9 1.4
for Lab QC							

ORIGINAL

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YY): _____

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020rev.07, 15-May-2007

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

W0#255054

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albano (Pecom)** Attention: **Erin Shoppard**
 Address: **Renee Knecht** Copy To: **BNSF** Company Name: **BNSF**
 Email To: **TT0100-539** Purchase Order No.: **BNSF-Skykomish** Page Quote Reference: **60154595-0540**
 Phone: **60154595-0540** Project Name: **60154595-0540** Project Number: **60154595-0540** Page Profile #:
 Requested Due Date/TAT: **std** Project Number: **60154595-0540** Pace Profile #:

Page: **2** of **4**
1390941

REGULATORY AGENCY: **NPDES** **GROUND WATER** **DRINKING WATER**
 UST **RCRA** **OTHER**
 Site Location STATE: **WA**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				NaOH
1	1C-W-4-0910		WT		9/21/10	1230			2	X	X	X	X	X	X	X	X	
2	GW-4-					1600			2	X	X	X	X	X	X	X	X	
3	GW-3-					1650			2	X	X	X	X	X	X	X	X	
4	1B-W-3-					0950			2	X	X	X	X	X	X	X	X	
5	1B-W-2-					1050			2	X	X	X	X	X	X	X	X	
6	1A-W-4-					1155			2	X	X	X	X	X	X	X	X	
7	MW-38R-					1250			2	X	X	X	X	X	X	X	X	
8	S-W-5D-					1610			2	X	X	X	X	X	X	X	X	
9	S-W-5D0-					1510			2	X	X	X	X	X	X	X	X	
10	S-W-5D-					1500			2	X	X	X	X	X	X	X	X	
11	S-W-5D-					1500			2	X	X	X	X	X	X	X	X	
12	S-W-18-					1215			2	X	X	X	X	X	X	X	X	
ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS									
		9/22/10 0905		9/22/10	1752	Jyoti Sany	9/22/10	1952	Temp in °C	72.1	Received on Ice (Y/N)	Y	Custody Sealed Cooler (Y/N)	N	Samples Intact (Y/N)	Y		
		9/22/10 0905		9/22/10	1752	Jyoti Sany	9/22/10	1952	Temp in °C	85.1	Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)			
		9/22/10 0905		9/22/10	1752	Jyoti Sany	9/22/10	1952	Temp in °C	49	Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)			
		9/22/10 0905		9/22/10	1752	Jyoti Sany	9/22/10	1952	Temp in °C	45	Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)			

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Container Count

CLIENT: BNSF

WO # 255054



COC PAGE 3 of 4
 COC ID# 1390943

Sample Line	Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1			2	2									
2			4	4									
3			4	4									
4			4	4									
5			4	4									
6			10	10									
7			4	4									
8			2	2									
9			2	2									
10			4	4									
11			4	4									
12			2	2									Trip Blank? <u>NO</u>

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vov vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		Wipe/Swab		

October 11, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

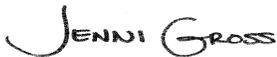
RE: Project: BNSF-Skykomish
Pace Project No.: 255054

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 255054

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish
Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054001	2B-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054002	MW-16-0910	NWTPH-Dx	DMT	4	PASI-S
255054003	5-W-51-0910	NWTPH-Dx	DMT	4	PASI-S
255054004	MW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054005	MW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054006	2A-W-10-0910	NWTPH-Dx	DMT	4	PASI-S
255054007	2A-W-100-0910	NWTPH-Dx	DMT	4	PASI-S
255054008	2A-W-9-0910	NWTPH-Dx	DMT	4	PASI-S
255054009	1C-W-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054010	1C-W-8-0910	NWTPH-Dx	DMT	4	PASI-S
255054011	1C-W-7-0910	NWTPH-Dx	DMT	4	PASI-S
255054012	1C-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054013	1C-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054014	GW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054015	GW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054016	1B-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054017	1B-W-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054018	1A-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054019	MW-38R-0910	NWTPH-Dx	DMT	4	PASI-S
255054020	5-W-50-0910	NWTPH-Dx	DMT	4	PASI-S
255054021	5-W-500-0910	NWTPH-Dx	DMT	4	PASI-S
255054022	5-W-54-0910	NWTPH-Dx	DMT	4	PASI-S
255054023	5-W-56-0910	NWTPH-Dx	DMT	4	PASI-S
255054024	5-W-18-0910	NWTPH-Dx	DMT	8	PASI-S
255054025	1B-W-23-0910	NWTPH-Dx	DMT	4	PASI-S
255054026	5-W-14-0910	NWTPH-Dx	DMT	8	PASI-S
255054027	5-W-17-0910	NWTPH-Dx	DMT	8	PASI-S
255054028	5-W-170-0910	NWTPH-Dx	DMT	8	PASI-S
255054029	5-W-15-0910	NWTPH-Dx	DMT	8	PASI-S
255054030	5-W-16-0910	NWTPH-Dx	DMT	8	PASI-S
255054031	5-W-42-0910	NWTPH-Dx	DMT	8	PASI-S
255054032	EW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054033	5-W-43-0910	NWTPH-Dx	DMT	4	PASI-S
255054034	5-W-19-0910	NWTPH-Dx	DMT	8	PASI-S
255054035	5-W-20-0910	NWTPH-Dx	DMT	8	PASI-S
255054036	5-W-55-0910	NWTPH-Dx	DMT	4	PASI-S
255054037	2A-W-40-0910	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054038	2A-W-41-0910	NWTPH-Dx	DMT	4	PASI-S
255054039	2A-W-42-0910	NWTPH-Dx	DMT	4	PASI-S
255054040	GW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054041	GW-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054042	GW-20-0910	NWTPH-Dx	DMT	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2B-W-4-0910		Lab ID: 255054001	Collected: 09/20/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 11:40		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 11:40	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 11:40	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/01/10 11:20	10/04/10 11:40	84-15-1	

Sample: MW-16-0910		Lab ID: 255054002	Collected: 09/20/10 16:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:01		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:01	64742-65-0	
n-Octacosane (S)	113	%	50-150	1	10/01/10 11:20	10/04/10 12:01	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	10/01/10 11:20	10/04/10 12:01	84-15-1	

Sample: 5-W-51-0910		Lab ID: 255054003	Collected: 09/20/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	3.4	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:23		
Motor Oil Range	1.4	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:23	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/01/10 11:20	10/04/10 12:23	630-02-4	
o-Terphenyl (S)	97	%	50-150	1	10/01/10 11:20	10/04/10 12:23	84-15-1	

Sample: MW-3-0910		Lab ID: 255054004	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.43	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:44		
Motor Oil Range	0.50	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:44	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	10/01/10 11:20	10/04/10 12:44	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	10/01/10 11:20	10/04/10 12:44	84-15-1	

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/01/10 11:20	10/04/10 13:06		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 13:06	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 255054

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	101 %		50-150	1	10/01/10 11:20	10/04/10 13:06	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/01/10 11:20	10/04/10 13:06	84-15-1	

Sample: 2A-W-10-0910		Lab ID: 255054006	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:27		
Motor Oil Range	0.29 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:27	64742-65-0	
n-Octacosane (S)	59 %		50-150	1	10/01/10 11:20	10/04/10 13:27	630-02-4	
o-Terphenyl (S)	52 %		50-150	1	10/01/10 11:20	10/04/10 13:27	84-15-1	

Sample: 2A-W-100-0910		Lab ID: 255054007	Collected: 09/21/10 17:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:49		
Motor Oil Range	0.36 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:49	64742-65-0	
n-Octacosane (S)	63 %		50-150	1	10/01/10 11:20	10/04/10 13:49	630-02-4	
o-Terphenyl (S)	58 %		50-150	1	10/01/10 11:20	10/04/10 13:49	84-15-1	

Sample: 2A-W-9-0910		Lab ID: 255054008	Collected: 09/21/10 17:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	1.0 mg/L		0.019	1	10/01/10 11:20	10/04/10 14:54		
Motor Oil Range	0.71 mg/L		0.095	1	10/01/10 11:20	10/04/10 14:54	64742-65-0	
n-Octacosane (S)	103 %		50-150	1	10/01/10 11:20	10/04/10 14:54	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/01/10 11:20	10/04/10 14:54	84-15-1	

Sample: 1C-W-1-0910		Lab ID: 255054009	Collected: 09/21/10 10:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.050 mg/L		0.019	1	10/01/10 11:20	10/04/10 15:59		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/04/10 15:59	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 15:59	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	10/01/10 11:20	10/04/10 15:59	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 1C-W-8-0910		Lab ID: 255054010	Collected: 09/21/10 10:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	1.8 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:20		
Motor Oil Range	0.59 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:20	64742-65-0	
n-Octacosane (S)	109 %		50-150	1	10/01/10 11:20	10/04/10 16:20	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	10/01/10 11:20	10/04/10 16:20	84-15-1	

Sample: 1C-W-7-0910		Lab ID: 255054011	Collected: 09/21/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.19 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:41		
Motor Oil Range	0.17 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:41	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 16:41	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	10/01/10 11:20	10/04/10 16:41	84-15-1	

Sample: 1C-W-3-0910		Lab ID: 255054012	Collected: 09/21/10 11:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.021 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:03		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 17:03	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 17:03	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/04/10 17:03	84-15-1	

Sample: 1C-W-4-0910		Lab ID: 255054013	Collected: 09/21/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.38 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:24		
Motor Oil Range	0.24 mg/L		0.095	1	10/01/10 11:20	10/04/10 17:24	64742-65-0	
n-Octacosane (S)	116 %		50-150	1	10/01/10 11:20	10/04/10 17:24	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	10/01/10 11:20	10/04/10 17:24	84-15-1	

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.035 mg/L		0.019	1	10/01/10 11:20	10/04/10 18:49		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 18:49	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 18:49	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/01/10 11:20	10/04/10 18:49	84-15-1	

Sample: GW-3-0910		Lab ID: 255054015	Collected: 09/21/10 16:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.074 mg/L		0.019	1	10/01/10 11:20	10/06/10 01:34		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/06/10 01:34	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	10/01/10 11:20	10/06/10 01:34	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	10/01/10 11:20	10/06/10 01:34	84-15-1	

Sample: 1B-W-3-0910		Lab ID: 255054016	Collected: 09/21/10 09:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.033 mg/L		0.020	1	10/01/10 11:20	10/04/10 19:32		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 19:32	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 19:32	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	10/01/10 11:20	10/04/10 19:32	84-15-1	

Sample: 1B-W-2-0910		Lab ID: 255054017	Collected: 09/21/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.080 mg/L		0.020	1	10/01/10 11:20	10/06/10 01:55		
Motor Oil Range	0.17 mg/L		0.10	1	10/01/10 11:20	10/06/10 01:55	64742-65-0	
n-Octacosane (S)	115 %		50-150	1	10/01/10 11:20	10/06/10 01:55	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/06/10 01:55	84-15-1	

Sample: 1A-W-4-0910		Lab ID: 255054018	Collected: 09/21/10 11:55	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.020	1	10/01/10 11:20	10/04/10 20:15		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 20:15	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 20:15	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	10/01/10 11:20	10/04/10 20:15	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: MW-38R-0910		Lab ID: 255054019	Collected: 09/21/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.043	mg/L	0.021	1	10/01/10 11:20	10/04/10 20:36		
Motor Oil Range	ND	mg/L	0.10	1	10/01/10 11:20	10/04/10 20:36	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 20:36	630-02-4	
o-Terphenyl (S)	94	%	50-150	1	10/01/10 11:20	10/04/10 20:36	84-15-1	

Sample: 5-W-50-0910		Lab ID: 255054020	Collected: 09/21/10 16:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	12.3	mg/L	0.19	10	10/01/10 11:20	10/06/10 00:29		
Motor Oil Range	8.0	mg/L	0.96	10	10/01/10 11:20	10/06/10 00:29	64742-65-0	
n-Octacosane (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	630-02-4	S4
o-Terphenyl (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	84-15-1	S4

Sample: 5-W-500-0910		Lab ID: 255054021	Collected: 09/21/10 15:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	10.4	mg/L	0.099	5	10/04/10 11:40	10/06/10 03:00		
Motor Oil Range	6.0	mg/L	0.50	5	10/04/10 11:40	10/06/10 03:00	64742-65-0	
n-Octacosane (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	630-02-4	
o-Terphenyl (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	84-15-1	

Sample: 5-W-54-0910		Lab ID: 255054022	Collected: 09/21/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.040	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:22		
Motor Oil Range	0.12	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:22	64742-65-0	
n-Octacosane (S)	105	%	50-150	1	10/04/10 11:40	10/06/10 03:22	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	10/04/10 11:40	10/06/10 03:22	84-15-1	

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.46	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:43		
Motor Oil Range	0.80	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:43	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	94 %		50-150	1	10/04/10 11:40	10/06/10 03:43	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 03:43	84-15-1	

Sample: 5-W-18-0910

Lab ID: 255054024

Collected: 09/22/10 09:05

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.24 mg/L		0.019	1	10/04/10 11:40	10/06/10 04:05		
Diesel Range SG	0.11 mg/L		0.019	1	10/04/10 11:40	10/06/10 16:28		
Motor Oil Range	0.30 mg/L		0.095	1	10/04/10 11:40	10/06/10 04:05	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:28	64742-65-0	
n-Octacosane (S) SG	103 %		50-150	1	10/04/10 11:40	10/06/10 16:28	630-02-4	
o-Terphenyl (S) SG	78 %		50-150	1	10/04/10 11:40	10/06/10 16:28	84-15-1	
n-Octacosane (S)	101 %		50-150	1	10/04/10 11:40	10/06/10 04:05	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 04:05	84-15-1	

Sample: 1B-W-23-0910

Lab ID: 255054025

Collected: 09/22/10 09:10

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.067 mg/L		0.020	1	10/04/10 11:40	10/06/10 04:26		
Motor Oil Range	0.21 mg/L		0.10	1	10/04/10 11:40	10/06/10 04:26	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	10/04/10 11:40	10/06/10 04:26	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 04:26	84-15-1	

Sample: 5-W-14-0910

Lab ID: 255054026

Collected: 09/22/10 09:45

Received: 09/22/10 17:52

Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 05:31		
Diesel Range SG	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 16:50		
Motor Oil Range	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 05:31	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:50	64742-65-0	
n-Octacosane (S) SG	101 %		50-150	1	10/04/10 11:40	10/06/10 16:50	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 16:50	84-15-1	
n-Octacosane (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 05:31	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/04/10 11:40	10/06/10 05:31	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-17-0910		Lab ID: 255054027	Collected: 09/22/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 05:52		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 17:55		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 05:52	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 17:55	64742-65-0	
n-Octacosane (S) SG	95 %		50-150	1	10/04/10 11:40	10/06/10 17:55	630-02-4	
o-Terphenyl (S) SG	69 %		50-150	1	10/04/10 11:40	10/06/10 17:55	84-15-1	
n-Octacosane (S)	87 %		50-150	1	10/04/10 11:40	10/06/10 05:52	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/04/10 11:40	10/06/10 05:52	84-15-1	

Sample: 5-W-170-0910		Lab ID: 255054028	Collected: 09/22/10 11:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:14		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:17		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:14	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:17	64742-65-0	
n-Octacosane (S) SG	102 %		50-150	1	10/04/10 11:40	10/06/10 18:17	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 18:17	84-15-1	
n-Octacosane (S)	98 %		50-150	1	10/04/10 11:40	10/06/10 06:14	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/04/10 11:40	10/06/10 06:14	84-15-1	

Sample: 5-W-15-0910		Lab ID: 255054029	Collected: 09/22/10 12:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.28	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:35		
Diesel Range SG	0.053	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:39		
Motor Oil Range	0.32	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:35	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:39	64742-65-0	
n-Octacosane (S) SG	97 %		50-150	1	10/04/10 11:40	10/06/10 18:39	630-02-4	
o-Terphenyl (S) SG	83 %		50-150	1	10/04/10 11:40	10/06/10 18:39	84-15-1	
n-Octacosane (S)	96 %		50-150	1	10/04/10 11:40	10/06/10 06:35	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/04/10 11:40	10/06/10 06:35	84-15-1	

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.036	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:57		

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 19:00		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:57	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 19:00	64742-65-0	
n-Octacosane (S) SG	109	%	50-150	1	10/04/10 11:40	10/06/10 19:00	630-02-4	
o-Terphenyl (S) SG	79	%	50-150	1	10/04/10 11:40	10/06/10 19:00	84-15-1	
n-Octacosane (S)	103	%	50-150	1	10/04/10 11:40	10/06/10 06:57	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 06:57	84-15-1	

Sample: 5-W-42-0910		Lab ID: 255054031	Collected: 09/22/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.082	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:01		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:06		
Motor Oil Range	0.14	mg/L	0.095	1	10/04/10 11:40	10/06/10 08:01	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:06	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	10/04/10 11:40	10/06/10 20:06	630-02-4	
o-Terphenyl (S) SG	81	%	50-150	1	10/04/10 11:40	10/06/10 20:06	84-15-1	
n-Octacosane (S)	89	%	50-150	1	10/04/10 11:40	10/06/10 08:01	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 08:01	84-15-1	

Sample: EW-1-0910		Lab ID: 255054032	Collected: 09/22/10 10:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:23		
Motor Oil Range	ND	mg/L	0.097	1	10/04/10 11:40	10/06/10 08:23	64742-65-0	
n-Octacosane (S)	90	%	50-150	1	10/04/10 11:40	10/06/10 08:23	630-02-4	
o-Terphenyl (S)	73	%	50-150	1	10/04/10 11:40	10/06/10 08:23	84-15-1	

Sample: 5-W-43-0910		Lab ID: 255054033	Collected: 09/22/10 11:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.022	1	10/06/10 16:50	10/09/10 01:07		
Motor Oil Range	ND	mg/L	0.11	1	10/06/10 16:50	10/09/10 01:07	64742-65-0	
n-Octacosane (S)	111	%	50-150	1	10/06/10 16:50	10/09/10 01:07	630-02-4	
o-Terphenyl (S)	82	%	50-150	1	10/06/10 16:50	10/09/10 01:07	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-19-0910		Lab ID: 255054034	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 09:49		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:27		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 09:49	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:27	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	10/04/10 11:40	10/06/10 20:27	630-02-4	
o-Terphenyl (S) SG	77	%	50-150	1	10/04/10 11:40	10/06/10 20:27	84-15-1	
n-Octacosane (S)	102	%	50-150	1	10/04/10 11:40	10/06/10 09:49	630-02-4	
o-Terphenyl (S)	80	%	50-150	1	10/04/10 11:40	10/06/10 09:49	84-15-1	

Sample: 5-W-20-0910		Lab ID: 255054035	Collected: 09/22/10 15:20	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.17	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:11		
Diesel Range SG	0.021	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:49		
Motor Oil Range	0.20	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:11	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:49	64742-65-0	
n-Octacosane (S) SG	88	%	50-150	1	10/04/10 11:40	10/06/10 20:49	630-02-4	
o-Terphenyl (S) SG	74	%	50-150	1	10/04/10 11:40	10/06/10 20:49	84-15-1	
n-Octacosane (S)	84	%	50-150	1	10/04/10 11:40	10/06/10 10:11	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	10/04/10 11:40	10/06/10 10:11	84-15-1	

Sample: 5-W-55-0910		Lab ID: 255054036	Collected: 09/22/10 14:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.023	mg/L	0.020	1	10/04/10 11:40	10/06/10 10:32		
Motor Oil Range	ND	mg/L	0.10	1	10/04/10 11:40	10/06/10 10:32	64742-65-0	
n-Octacosane (S)	92	%	50-150	1	10/04/10 11:40	10/06/10 10:32	630-02-4	
o-Terphenyl (S)	75	%	50-150	1	10/04/10 11:40	10/06/10 10:32	84-15-1	

Sample: 2A-W-40-0910		Lab ID: 255054037	Collected: 09/22/10 09:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:54		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:54	64742-65-0	
n-Octacosane (S)	86	%	50-150	1	10/04/10 11:40	10/06/10 10:54	630-02-4	
o-Terphenyl (S)	64	%	50-150	1	10/04/10 11:40	10/06/10 10:54	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2A-W-41-0910		Lab ID: 255054038	Collected: 09/22/10 10:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.022	mg/L	0.019	1	10/04/10 11:40	10/06/10 11:16		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 11:16	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	10/04/10 11:40	10/06/10 11:16	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/04/10 11:40	10/06/10 11:16	84-15-1	

Sample: 2A-W-42-0910		Lab ID: 255054039	Collected: 09/22/10 11:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.16	mg/L	0.019	1	10/04/10 11:40	10/06/10 14:40		
Motor Oil Range	0.16	mg/L	0.095	1	10/04/10 11:40	10/06/10 14:40	64742-65-0	
n-Octacosane (S)	92	%	50-150	1	10/04/10 11:40	10/06/10 14:40	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	10/04/10 11:40	10/06/10 14:40	84-15-1	

Sample: GW-1-0910		Lab ID: 255054040	Collected: 09/22/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.096	mg/L	0.019	1	10/04/10 11:40	10/06/10 15:02		
Motor Oil Range	0.15	mg/L	0.095	1	10/04/10 11:40	10/06/10 15:02	64742-65-0	
n-Octacosane (S)	94	%	50-150	1	10/04/10 11:40	10/06/10 15:02	630-02-4	
o-Terphenyl (S)	76	%	50-150	1	10/04/10 11:40	10/06/10 15:02	84-15-1	

Sample: GW-2-0910		Lab ID: 255054041	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/05/10 15:10	10/07/10 05:43		
Motor Oil Range	ND	mg/L	0.095	1	10/05/10 15:10	10/07/10 05:43	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/05/10 15:10	10/07/10 05:43	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	10/05/10 15:10	10/07/10 05:43	84-15-1	

Sample: GW-20-0910		Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.038	mg/L	0.019	1	10/05/10 15:10	10/07/10 06:05		
Motor Oil Range	ND	mg/L	0.094	1	10/05/10 15:10	10/07/10 06:05	64742-65-0	

Date: 10/11/2010 04:47 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: GW-20-0910		Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	96 %		50-150	1	10/05/10 15:10	10/07/10 06:05	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	10/05/10 15:10	10/07/10 06:05	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish
Pace Project No.: 255054

QC Batch: OEXT/2753 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

METHOD BLANK: 42965 Matrix: Water

Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/04/10 10:56	
Motor Oil Range	mg/L	ND	0.10	10/04/10 10:56	
n-Octacosane (S)	%	111	50-150	10/04/10 10:56	
o-Terphenyl (S)	%	85	50-150	10/04/10 10:56	

LABORATORY CONTROL SAMPLE: 42966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.1	87	51-147	
Motor Oil Range	mg/L	1.2	1.3	100	20-160	
n-Octacosane (S)	%			115	50-150	
o-Terphenyl (S)	%			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 42967 42968

Parameter	Units	255054008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	1.0	1.2	1.2	1.8	1.8	69	72	50-150	1	
Motor Oil Range	mg/L	0.71	1.2	1.2	1.8	1.9	93	103	20-160	6	
n-Octacosane (S)	%						101	102	50-150		
o-Terphenyl (S)	%						88	99	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2759 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

METHOD BLANK: 43170 Matrix: Water

Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/06/10 02:17	
Motor Oil Range	mg/L	ND	0.10	10/06/10 02:17	
n-Octacosane (S)	%	94	50-150	10/06/10 02:17	
o-Terphenyl (S)	%	79	50-150	10/06/10 02:17	

LABORATORY CONTROL SAMPLE: 43171

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.0	80	51-147	
Motor Oil Range	mg/L	1.2	1.2	95	20-160	
n-Octacosane (S)	%			101	50-150	
o-Terphenyl (S)	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 43172 43173

Parameter	Units	255054030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	0.036	1.2	1.2	0.87	0.92	70	75	50-150	6	
Motor Oil Range	mg/L	ND	1.2	1.2	1.1	1.2	87	92	20-160	5	
n-Octacosane (S)	%						96	98	50-150		
o-Terphenyl (S)	%						89	92	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2766

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054041, 255054042

METHOD BLANK: 43425

Matrix: Water

Associated Lab Samples: 255054041, 255054042

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/07/10 04:40	
Motor Oil Range	mg/L	ND	0.10	10/07/10 04:40	
n-Octacosane (S)	%	85	50-150	10/07/10 04:40	
o-Terphenyl (S)	%	71	50-150	10/07/10 04:40	

LABORATORY CONTROL SAMPLE & LCSD: 43426

43427

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.1	0.99	85	79	51-147	6	30	
Motor Oil Range	mg/L	1.2	1.2	1.2	99	95	20-160	4	30	
n-Octacosane (S)	%				111	101	50-150			
o-Terphenyl (S)	%				128	120	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2788

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054033

METHOD BLANK: 44672

Matrix: Water

Associated Lab Samples: 255054033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/09/10 00:18	
Motor Oil Range	mg/L	ND	0.10	10/09/10 00:18	
n-Octacosane (S)	%	107	50-150	10/09/10 00:18	
o-Terphenyl (S)	%	102	50-150	10/09/10 00:18	

LABORATORY CONTROL SAMPLE & LCSD: 44673

44674

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.92	0.82	73	66	51-147	11	30	
Motor Oil Range	mg/L	1.2	1.0	0.92	82	74	20-160	10	30	
n-Octacosane (S)	%				105	105	50-150			
o-Terphenyl (S)	%				120	118	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 255054

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish
Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054001	2B-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054002	MW-16-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054003	5-W-51-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054004	MW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054005	MW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054006	2A-W-10-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054007	2A-W-100-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054008	2A-W-9-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054009	1C-W-1-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054010	1C-W-8-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054011	1C-W-7-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054012	1C-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054013	1C-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054014	GW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054015	GW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054016	1B-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054017	1B-W-2-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054018	1A-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054019	MW-38R-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054020	5-W-50-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054021	5-W-500-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054022	5-W-54-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054023	5-W-56-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054025	1B-W-23-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054032	EW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054033	5-W-43-0910	EPA 3510	OEXT/2788	NWTPH-Dx	GCSV/1970
255054036	5-W-55-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054037	2A-W-40-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054038	2A-W-41-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054039	2A-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054040	GW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054041	GW-2-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054042	GW-20-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054024	5-W-18-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054024	5-W-18-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054026	5-W-14-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054026	5-W-14-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054027	5-W-17-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054027	5-W-17-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054028	5-W-170-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054028	5-W-170-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054029	5-W-15-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054029	5-W-15-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054030	5-W-16-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054030	5-W-16-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054031	5-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054031	5-W-42-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054034	5-W-19-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054034	5-W-19-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054035	5-W-20-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054035	5-W-20-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954



Sample Condition Upon Receipt

Client Name: BNSF/AECOM Project # 255054

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other _____ Temp. Blank Yes No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.5, 5.4, 7.7, 9.1 Biological Tissue is Frozen: Yes No
Temp should be above freezing $\leq 6^{\circ}\text{C}$ 4.9, 1.4, 7.2, 5.9, 8.5, 9.9 Comments: 4.5, 4.6, 6.9, 8.2
Date and Initials of person examining contents: NJS 9/22/10

Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 9/27/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: BNSF	Report To: Sarah Albano (Acctg)	Attention: Bruce Shappard
Address:	Copy To: Ranee Knecht	Company Name: BNSF
Email To:	Purchase Order No.: TD100-539	Address:
Phone:	Project Name: BNSF - Skykomish	Page Quote Reference:
Requested Due Date/TAT: std	Project Number: 60154595-094D	Page Project Manager:
		Pace Profile #:
		Requested Analysis Filtered (Y/N)
		REGULATORY AGENCY
		<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
		Site Location STATE: WA

Page: 1 of 4

1309837

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				
1	ZB-W-4 -091D	WT	9/29/10	1505		2	X										
2	MW-16 -	WT		1605		2	X										
3	S-W-51 -	WT	9/29/10	1715		2	X										
4	MW-3 -	WT	9/29/10	1600		2	X										
5	MW-4 -	WT		1635		2	X										
6	ZA-W-10 -	WT		1715		2	X										
7	ZA-W-100 -	WT		1725		2	X										
8	ZA-W-9 -	WT		1745		2	X										
9	1C-W-1 -	WT		1000		2	X										
10	1C-W-8 -	WT		1035		2	X										
11	1C-W-7 -	WT		1505		2	X										
12	1C-W-3 -	WT		1125		2	X										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Extra sample volume provided: ZA-W-9-091D	<i>[Signature]</i>	9/22/10	1752	Syokhm Somy	9/29/10	1752	55 54 4.7 4.1 4.9 1.4
for Lab QC							Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

W0#255054

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albano (Pecom)** Attention: **Erin Shoppard**
 Address: **Renae Knecht** Copy To: **Renae Knecht** Company Name: **BNSF**
 Email To: **TT0100-539** Purchase Order No.: **BNSF-Skykomish** Page Quote Reference: **60154595-0540**
 Phone: **60154595-0540** Project Name: **BNSF-Skykomish** Page Project Manager: **WJ**
 Requested Due Date/TAT: **std** Project Number: **60154595-0540** Pace Profile #:

Page: **2** of **4**
1390941

REGULATORY AGENCY: **NPDES** **GROUND WATER** **DRINKING WATER**
 UST **RCRA** **OTHER**
 Site Location STATE: **WA**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				NaOH	Na ₂ S ₂ O ₃
1	1C-W-4-0910		WT		9/21/10	1230			2	X	X	X	X	X	X	X	X		
2	GW-4-					1600			2	X	X	X	X	X	X	X	X		
3	GW-3-					1650			2	X	X	X	X	X	X	X	X		
4	1B-W-3-					0950			2	X	X	X	X	X	X	X	X		
5	1B-W-2-					1050			2	X	X	X	X	X	X	X	X		
6	1A-W-4-					1155			2	X	X	X	X	X	X	X	X		
7	MW-38R-					1250			2	X	X	X	X	X	X	X	X		
8	S-W-5D-					1610			2	X	X	X	X	X	X	X	X		
9	S-W-5D0-					1510			2	X	X	X	X	X	X	X	X		
10	S-W-5D-					1500			2	X	X	X	X	X	X	X	X		
11	S-W-5D-					1515			2	X	X	X	X	X	X	X	X		
12	S-W-18-					0905			2	X	X	X	X	X	X	X	X		

ADDITIONAL COMMENTS: **RELINQUISHED BY / AFFILIATION** **DATE** **TIME** **ACCEPTED BY / AFFILIATION** **DATE** **TIME** **SAMPLE CONDITIONS**

Temp in °C: **72.1** **85.1** **49** **45**
 Received on Ice (Y/N): **Y** **N** **Y**
 Custody Sealed Cooler (Y/N): **N**
 Samples Intact (Y/N): **Y**

ORIGINAL

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER:
 SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):



CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

WO# 255054

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albano (Action)** Attention: **Bruce Sheppard** Page: **4** of **4**
 Address: **Renee Knecht** Copy To: **Renee Knecht** Company Name: **BNSF** Reference: **BNSF** 1390942
 Email To: **770105-339** Purchase Order No.: **770105-339** Address: _____
 Phone: _____ Fax: _____ Project Name: **BNSF - Skydome St** Pace Quote Reference: _____
 Requested Due Date/TAT: **STL** Project Number: **60154595-0520** Pace Project Manager: _____ Pace Profile #: _____
 REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER
 UST RORA OTHER _____
 Site Location: **WA** STATE: _____
 Requested Analysis Filtered (Y/N): _____

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / - / .) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃				
1	2A-W-40-0910				9/22/10	0915													
2	2A-W-41-				1010														
3	2A-W-42-				1147														
4	6W-1-				1250														
5	6W-2-				1440														
6	6W-20-				1500														
7																			
8																			
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS: _____

RELINQUISHED BY / AFFILIATION: **STL** DATE: **9/22/10** TIME: **1752** ACCEPTED BY / AFFILIATION: **John Sany** DATE: **9/22/10** TIME: **1752** SAMPLE CONDITIONS: **ST Y N Y**

TEMPERATURE AND SIGNATURE SECTION:

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YY): _____

Temp in °C: _____
 Received on Ice (Y/N): _____
 Custody Sealed Cooler (Y/N): _____
 Samples Intact (Y/N): _____

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020(rev.07, 15-May-2007)

ORIGINAL

Sample Container Count

CLIENT: BNSF

WO # 255054



COC PAGE 3 of 4
 COC ID# 1390943

Sample Line	Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1			2	2									
2			4	4									
3			4	4									
4			4	4									
5			4	4									
6			10	10									
7			4	4									
8			2	2									
9			2	2									
10			4	4									
11			4	4									
12			2	2									Trip Blank? <u>NO</u>

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vov vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		Wipe/Swab		

October 11, 2010

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

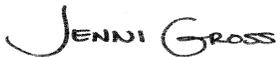
RE: Project: BNSF-Skykomish
Pace Project No.: 255054

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Paul Bianco, AECOM (BNSF)
Renee Knecht, AECOM (BNSF)
Denell Warren, AECOM (BNSF)

REPORT OF LABORATORY ANALYSIS

Page 1 of 23

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 255054

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Alaska Drinking Water VOC Certification #: WA01230

Alaska Drinking Water Micro Certification #: WA01230

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C1229

REPORT OF LABORATORY ANALYSIS

Page 2 of 23

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054001	2B-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054002	MW-16-0910	NWTPH-Dx	DMT	4	PASI-S
255054003	5-W-51-0910	NWTPH-Dx	DMT	4	PASI-S
255054004	MW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054005	MW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054006	ZA-W-10-0910	NWTPH-Dx	DMT	4	PASI-S
255054007	ZA-W-100-0910	NWTPH-Dx	DMT	4	PASI-S
255054008	ZA-W-9-0910	NWTPH-Dx	DMT	4	PASI-S
255054009	IC-W-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054010	IC-W-8-0910	NWTPH-Dx	DMT	4	PASI-S
255054011	IC-W-7-0910	NWTPH-Dx	DMT	4	PASI-S
255054012	IC-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054013	IC-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054014	GW-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054015	GW-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054016	IB-W-3-0910	NWTPH-Dx	DMT	4	PASI-S
255054017	IB-W-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054018	IA-W-4-0910	NWTPH-Dx	DMT	4	PASI-S
255054019	MW-38R-0910	NWTPH-Dx	DMT	4	PASI-S
255054020	5-W-50-0910	NWTPH-Dx	DMT	4	PASI-S
255054021	5-W-500-0910	NWTPH-Dx	DMT	4	PASI-S
255054022	5-W-54-0910	NWTPH-Dx	DMT	4	PASI-S
255054023	5-W-56-0910	NWTPH-Dx	DMT	4	PASI-S
255054024	5-W-18-0910	NWTPH-Dx	DMT	8	PASI-S
255054025	IB-W-23-0910	NWTPH-Dx	DMT	4	PASI-S
255054026	5-W-14-0910	NWTPH-Dx	DMT	8	PASI-S
255054027	5-W-17-0910	NWTPH-Dx	DMT	8	PASI-S
255054028	5-W-170-0910	NWTPH-Dx	DMT	8	PASI-S
255054029	5-W-15-0910	NWTPH-Dx	DMT	8	PASI-S
255054030	5-W-16-0910	NWTPH-Dx	DMT	8	PASI-S
255054031	5-W-42-0910	NWTPH-Dx	DMT	8	PASI-S
255054032	EW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054033	5-W-43-0910	NWTPH-Dx	DMT	4	PASI-S
255054034	5-W-19-0910	NWTPH-Dx	DMT	8	PASI-S
255054035	5-W-20-0910	NWTPH-Dx	DMT	8	PASI-S
255054036	5-W-55-0910	NWTPH-Dx	DMT	4	PASI-S
255054037	2A-W-40-0910	NWTPH-Dx	DMT	4	PASI-S

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255054038	2A-W-41-0910	NWTPH-Dx	DMT	4	PASI-S
255054039	2A-W-42-0910	NWTPH-Dx	DMT	4	PASI-S
255054040	GW-1-0910	NWTPH-Dx	DMT	4	PASI-S
255054041	GW-2-0910	NWTPH-Dx	DMT	4	PASI-S
255054042	GW-20-0910	NWTPH-Dx	DMT	4	PASI-S

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2B-W-4-0910		Lab ID: 255054001	Collected: 09/20/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 11:40		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 11:40	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 11:40	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/01/10 11:20	10/04/10 11:40	84-15-1	

Sample: MW-16-0910		Lab ID: 255054002	Collected: 09/20/10 16:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:01		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:01	64742-65-0	
n-Octacosane (S)	113	%	50-150	1	10/01/10 11:20	10/04/10 12:01	630-02-4	
o-Terphenyl (S)	72	%	50-150	1	10/01/10 11:20	10/04/10 12:01	84-15-1	

Sample: 5-W-51-0910		Lab ID: 255054003	Collected: 09/20/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	3.4	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:23		
Motor Oil Range	1.4	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:23	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/01/10 11:20	10/04/10 12:23	630-02-4	
o-Terphenyl (S)	97	%	50-150	1	10/01/10 11:20	10/04/10 12:23	84-15-1	

Sample: MW-3-0910		Lab ID: 255054004	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.43	mg/L	0.019	1	10/01/10 11:20	10/04/10 12:44		
Motor Oil Range	0.50	mg/L	0.095	1	10/01/10 11:20	10/04/10 12:44	64742-65-0	
n-Octacosane (S)	100	%	50-150	1	10/01/10 11:20	10/04/10 12:44	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	10/01/10 11:20	10/04/10 12:44	84-15-1	

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/01/10 11:20	10/04/10 13:06		
Motor Oil Range	ND	mg/L	0.095	1	10/01/10 11:20	10/04/10 13:06	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: MW-4-0910		Lab ID: 255054005	Collected: 09/21/10 16:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	101 %		50-150	1	10/01/10 11:20	10/04/10 13:06	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/01/10 11:20	10/04/10 13:06	84-15-1	

Sample: ZA-W-10-0910		Lab ID: 255054006	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:27		
Motor Oil Range	0.29 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:27	64742-65-0	
n-Octacosane (S)	59 %		50-150	1	10/01/10 11:20	10/04/10 13:27	630-02-4	
o-Terphenyl (S)	52 %		50-150	1	10/01/10 11:20	10/04/10 13:27	84-15-1	

Sample: ZA-W-100-0910		Lab ID: 255054007	Collected: 09/21/10 17:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.15 mg/L		0.019	1	10/01/10 11:20	10/04/10 13:49		
Motor Oil Range	0.36 mg/L		0.095	1	10/01/10 11:20	10/04/10 13:49	64742-65-0	
n-Octacosane (S)	63 %		50-150	1	10/01/10 11:20	10/04/10 13:49	630-02-4	
o-Terphenyl (S)	58 %		50-150	1	10/01/10 11:20	10/04/10 13:49	84-15-1	

Sample: ZA-W-9-0910		Lab ID: 255054008	Collected: 09/21/10 17:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	1.0 mg/L		0.019	1	10/01/10 11:20	10/04/10 14:54		
Motor Oil Range	0.71 mg/L		0.095	1	10/01/10 11:20	10/04/10 14:54	64742-65-0	
n-Octacosane (S)	103 %		50-150	1	10/01/10 11:20	10/04/10 14:54	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/01/10 11:20	10/04/10 14:54	84-15-1	

Sample: IC-W-1-0910		Lab ID: 255054009	Collected: 09/21/10 10:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.050 mg/L		0.019	1	10/01/10 11:20	10/04/10 15:59		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/04/10 15:59	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 15:59	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	10/01/10 11:20	10/04/10 15:59	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: IC-W-8-0910		Lab ID: 255054010	Collected: 09/21/10 10:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	1.8 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:20		
Motor Oil Range	0.59 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:20	64742-65-0	
n-Octacosane (S)	109 %		50-150	1	10/01/10 11:20	10/04/10 16:20	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	10/01/10 11:20	10/04/10 16:20	84-15-1	

Sample: IC-W-7-0910		Lab ID: 255054011	Collected: 09/21/10 15:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.19 mg/L		0.019	1	10/01/10 11:20	10/04/10 16:41		
Motor Oil Range	0.17 mg/L		0.095	1	10/01/10 11:20	10/04/10 16:41	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 16:41	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	10/01/10 11:20	10/04/10 16:41	84-15-1	

Sample: IC-W-3-0910		Lab ID: 255054012	Collected: 09/21/10 11:25	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.021 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:03		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 17:03	64742-65-0	
n-Octacosane (S)	97 %		50-150	1	10/01/10 11:20	10/04/10 17:03	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/04/10 17:03	84-15-1	

Sample: IC-W-4-0910		Lab ID: 255054013	Collected: 09/21/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.38 mg/L		0.019	1	10/01/10 11:20	10/04/10 17:24		
Motor Oil Range	0.24 mg/L		0.095	1	10/01/10 11:20	10/04/10 17:24	64742-65-0	
n-Octacosane (S)	116 %		50-150	1	10/01/10 11:20	10/04/10 17:24	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	10/01/10 11:20	10/04/10 17:24	84-15-1	

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.035 mg/L		0.019	1	10/01/10 11:20	10/04/10 18:49		
Motor Oil Range	ND mg/L		0.095	1	10/01/10 11:20	10/04/10 18:49	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Project No.: 255054

Sample: GW-4-0910		Lab ID: 255054014	Collected: 09/21/10 16:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 18:49	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/01/10 11:20	10/04/10 18:49	84-15-1	

Sample: GW-3-0910		Lab ID: 255054015	Collected: 09/21/10 16:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.074 mg/L		0.019	1	10/01/10 11:20	10/06/10 01:34		
Motor Oil Range	0.11 mg/L		0.095	1	10/01/10 11:20	10/06/10 01:34	64742-65-0	
n-Octacosane (S)	106 %		50-150	1	10/01/10 11:20	10/06/10 01:34	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	10/01/10 11:20	10/06/10 01:34	84-15-1	

Sample: IB-W-3-0910		Lab ID: 255054016	Collected: 09/21/10 09:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.033 mg/L		0.020	1	10/01/10 11:20	10/04/10 19:32		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 19:32	64742-65-0	
n-Octacosane (S)	104 %		50-150	1	10/01/10 11:20	10/04/10 19:32	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	10/01/10 11:20	10/04/10 19:32	84-15-1	

Sample: IB-W-2-0910		Lab ID: 255054017	Collected: 09/21/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.080 mg/L		0.020	1	10/01/10 11:20	10/06/10 01:55		
Motor Oil Range	0.17 mg/L		0.10	1	10/01/10 11:20	10/06/10 01:55	64742-65-0	
n-Octacosane (S)	115 %		50-150	1	10/01/10 11:20	10/06/10 01:55	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	10/01/10 11:20	10/06/10 01:55	84-15-1	

Sample: IA-W-4-0910		Lab ID: 255054018	Collected: 09/21/10 11:55	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.020	1	10/01/10 11:20	10/04/10 20:15		
Motor Oil Range	ND mg/L		0.10	1	10/01/10 11:20	10/04/10 20:15	64742-65-0	
n-Octacosane (S)	100 %		50-150	1	10/01/10 11:20	10/04/10 20:15	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	10/01/10 11:20	10/04/10 20:15	84-15-1	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: MW-38R-0910		Lab ID: 255054019	Collected: 09/21/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.043	mg/L	0.021	1	10/01/10 11:20	10/04/10 20:36		
Motor Oil Range	ND	mg/L	0.10	1	10/01/10 11:20	10/04/10 20:36	64742-65-0	
n-Octacosane (S)	108	%	50-150	1	10/01/10 11:20	10/04/10 20:36	630-02-4	
o-Terphenyl (S)	94	%	50-150	1	10/01/10 11:20	10/04/10 20:36	84-15-1	

Sample: 5-W-50-0910		Lab ID: 255054020	Collected: 09/21/10 16:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	12.3	mg/L	0.19	10	10/01/10 11:20	10/06/10 00:29		
Motor Oil Range	8.0	mg/L	0.96	10	10/01/10 11:20	10/06/10 00:29	64742-65-0	
n-Octacosane (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	630-02-4	S4
o-Terphenyl (S)	0	%	50-150	10	10/01/10 11:20	10/06/10 00:29	84-15-1	S4

Sample: 5-W-500-0910		Lab ID: 255054021	Collected: 09/21/10 15:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	10.4	mg/L	0.099	5	10/04/10 11:40	10/06/10 03:00		
Motor Oil Range	6.0	mg/L	0.50	5	10/04/10 11:40	10/06/10 03:00	64742-65-0	
n-Octacosane (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	630-02-4	
o-Terphenyl (S)	98	%	50-150	5	10/04/10 11:40	10/06/10 03:00	84-15-1	

Sample: 5-W-54-0910		Lab ID: 255054022	Collected: 09/21/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.040	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:22		
Motor Oil Range	0.12	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:22	64742-65-0	
n-Octacosane (S)	105	%	50-150	1	10/04/10 11:40	10/06/10 03:22	630-02-4	
o-Terphenyl (S)	88	%	50-150	1	10/04/10 11:40	10/06/10 03:22	84-15-1	

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range	0.46	mg/L	0.020	1	10/04/10 11:40	10/06/10 03:43		
Motor Oil Range	0.80	mg/L	0.099	1	10/04/10 11:40	10/06/10 03:43	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-56-0910		Lab ID: 255054023	Collected: 09/21/10 17:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

n-Octacosane (S)	94 %		50-150	1	10/04/10 11:40	10/06/10 03:43	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 03:43	84-15-1	

Sample: 5-W-18-0910		Lab ID: 255054024	Collected: 09/22/10 09:05	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.24 mg/L		0.019	1	10/04/10 11:40	10/06/10 04:05		
Diesel Range SG	0.11 mg/L		0.019	1	10/04/10 11:40	10/06/10 16:28		
Motor Oil Range	0.30 mg/L		0.095	1	10/04/10 11:40	10/06/10 04:05	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:28	64742-65-0	
n-Octacosane (S) SG	103 %		50-150	1	10/04/10 11:40	10/06/10 16:28	630-02-4	
o-Terphenyl (S) SG	78 %		50-150	1	10/04/10 11:40	10/06/10 16:28	84-15-1	
n-Octacosane (S)	101 %		50-150	1	10/04/10 11:40	10/06/10 04:05	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/04/10 11:40	10/06/10 04:05	84-15-1	

Sample: IB-W-23-0910		Lab ID: 255054025	Collected: 09/22/10 09:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	0.067 mg/L		0.020	1	10/04/10 11:40	10/06/10 04:26		
Motor Oil Range	0.21 mg/L		0.10	1	10/04/10 11:40	10/06/10 04:26	64742-65-0	
n-Octacosane (S)	95 %		50-150	1	10/04/10 11:40	10/06/10 04:26	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 04:26	84-15-1	

Sample: 5-W-14-0910		Lab ID: 255054026	Collected: 09/22/10 09:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS SG

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 05:31		
Diesel Range SG	ND mg/L		0.019	1	10/04/10 11:40	10/06/10 16:50		
Motor Oil Range	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 05:31	64742-65-0	
Motor Oil Range SG	ND mg/L		0.095	1	10/04/10 11:40	10/06/10 16:50	64742-65-0	
n-Octacosane (S) SG	101 %		50-150	1	10/04/10 11:40	10/06/10 16:50	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 16:50	84-15-1	
n-Octacosane (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 05:31	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	10/04/10 11:40	10/06/10 05:31	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-17-0910		Lab ID: 255054027	Collected: 09/22/10 10:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 05:52		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 17:55		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 05:52	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 17:55	64742-65-0	
n-Octacosane (S) SG	95 %		50-150	1	10/04/10 11:40	10/06/10 17:55	630-02-4	
o-Terphenyl (S) SG	69 %		50-150	1	10/04/10 11:40	10/06/10 17:55	84-15-1	
n-Octacosane (S)	87 %		50-150	1	10/04/10 11:40	10/06/10 05:52	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/04/10 11:40	10/06/10 05:52	84-15-1	

Sample: 5-W-170-0910		Lab ID: 255054028	Collected: 09/22/10 11:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:14		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:17		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:14	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:17	64742-65-0	
n-Octacosane (S) SG	102 %		50-150	1	10/04/10 11:40	10/06/10 18:17	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	10/04/10 11:40	10/06/10 18:17	84-15-1	
n-Octacosane (S)	98 %		50-150	1	10/04/10 11:40	10/06/10 06:14	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/04/10 11:40	10/06/10 06:14	84-15-1	

Sample: 5-W-15-0910		Lab ID: 255054029	Collected: 09/22/10 12:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.28	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:35		
Diesel Range SG	0.053	mg/L	0.019	1	10/04/10 11:40	10/06/10 18:39		
Motor Oil Range	0.32	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:35	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 18:39	64742-65-0	
n-Octacosane (S) SG	97 %		50-150	1	10/04/10 11:40	10/06/10 18:39	630-02-4	
o-Terphenyl (S) SG	83 %		50-150	1	10/04/10 11:40	10/06/10 18:39	84-15-1	
n-Octacosane (S)	96 %		50-150	1	10/04/10 11:40	10/06/10 06:35	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/04/10 11:40	10/06/10 06:35	84-15-1	

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.036	mg/L	0.019	1	10/04/10 11:40	10/06/10 06:57		

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-16-0910		Lab ID: 255054030	Collected: 09/22/10 13:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 19:00		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 06:57	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 19:00	64742-65-0	
n-Octacosane (S) SG	109	%	50-150	1	10/04/10 11:40	10/06/10 19:00	630-02-4	
o-Terphenyl (S) SG	79	%	50-150	1	10/04/10 11:40	10/06/10 19:00	84-15-1	
n-Octacosane (S)	103	%	50-150	1	10/04/10 11:40	10/06/10 06:57	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 06:57	84-15-1	

Sample: 5-W-42-0910		Lab ID: 255054031	Collected: 09/22/10 12:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.082	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:01		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:06		
Motor Oil Range	0.14	mg/L	0.095	1	10/04/10 11:40	10/06/10 08:01	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:06	64742-65-0	
n-Octacosane (S) SG	100	%	50-150	1	10/04/10 11:40	10/06/10 20:06	630-02-4	
o-Terphenyl (S) SG	81	%	50-150	1	10/04/10 11:40	10/06/10 20:06	84-15-1	
n-Octacosane (S)	89	%	50-150	1	10/04/10 11:40	10/06/10 08:01	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	10/04/10 11:40	10/06/10 08:01	84-15-1	

Sample: EW-1-0910		Lab ID: 255054032	Collected: 09/22/10 10:45	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 08:23		
Motor Oil Range	ND	mg/L	0.097	1	10/04/10 11:40	10/06/10 08:23	64742-65-0	
n-Octacosane (S)	90	%	50-150	1	10/04/10 11:40	10/06/10 08:23	630-02-4	
o-Terphenyl (S)	73	%	50-150	1	10/04/10 11:40	10/06/10 08:23	84-15-1	

Sample: 5-W-43-0910		Lab ID: 255054033	Collected: 09/22/10 11:30	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.022	1	10/06/10 16:50	10/09/10 01:07		
Motor Oil Range	ND	mg/L	0.11	1	10/06/10 16:50	10/09/10 01:07	64742-65-0	
n-Octacosane (S)	111	%	50-150	1	10/06/10 16:50	10/09/10 01:07	630-02-4	
o-Terphenyl (S)	82	%	50-150	1	10/06/10 16:50	10/09/10 01:07	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 5-W-19-0910		Lab ID: 255054034	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 09:49		
Diesel Range SG	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:27		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 09:49	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:27	64742-65-0	
n-Octacosane (S) SG	100 %		50-150	1	10/04/10 11:40	10/06/10 20:27	630-02-4	
o-Terphenyl (S) SG	77 %		50-150	1	10/04/10 11:40	10/06/10 20:27	84-15-1	
n-Octacosane (S)	102 %		50-150	1	10/04/10 11:40	10/06/10 09:49	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	10/04/10 11:40	10/06/10 09:49	84-15-1	

Sample: 5-W-20-0910		Lab ID: 255054035	Collected: 09/22/10 15:20	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS SG		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.17	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:11		
Diesel Range SG	0.021	mg/L	0.019	1	10/04/10 11:40	10/06/10 20:49		
Motor Oil Range	0.20	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:11	64742-65-0	
Motor Oil Range SG	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 20:49	64742-65-0	
n-Octacosane (S) SG	88 %		50-150	1	10/04/10 11:40	10/06/10 20:49	630-02-4	
o-Terphenyl (S) SG	74 %		50-150	1	10/04/10 11:40	10/06/10 20:49	84-15-1	
n-Octacosane (S)	84 %		50-150	1	10/04/10 11:40	10/06/10 10:11	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	10/04/10 11:40	10/06/10 10:11	84-15-1	

Sample: 5-W-55-0910		Lab ID: 255054036	Collected: 09/22/10 14:35	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.023	mg/L	0.020	1	10/04/10 11:40	10/06/10 10:32		
Motor Oil Range	ND	mg/L	0.10	1	10/04/10 11:40	10/06/10 10:32	64742-65-0	
n-Octacosane (S)	92 %		50-150	1	10/04/10 11:40	10/06/10 10:32	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/04/10 11:40	10/06/10 10:32	84-15-1	

Sample: 2A-W-40-0910		Lab ID: 255054037	Collected: 09/22/10 09:15	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	ND	mg/L	0.019	1	10/04/10 11:40	10/06/10 10:54		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 10:54	64742-65-0	
n-Octacosane (S)	86 %		50-150	1	10/04/10 11:40	10/06/10 10:54	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	10/04/10 11:40	10/06/10 10:54	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: 2A-W-41-0910		Lab ID: 255054038	Collected: 09/22/10 10:10	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.022	mg/L	0.019	1	10/04/10 11:40	10/06/10 11:16		
Motor Oil Range	ND	mg/L	0.095	1	10/04/10 11:40	10/06/10 11:16	64742-65-0	
n-Octacosane (S)	98	%	50-150	1	10/04/10 11:40	10/06/10 11:16	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	10/04/10 11:40	10/06/10 11:16	84-15-1	

Sample: 2A-W-42-0910		Lab ID: 255054039	Collected: 09/22/10 11:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.16	mg/L	0.019	1	10/04/10 11:40	10/06/10 14:40		
Motor Oil Range	0.16	mg/L	0.095	1	10/04/10 11:40	10/06/10 14:40	64742-65-0	
n-Octacosane (S)	92	%	50-150	1	10/04/10 11:40	10/06/10 14:40	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	10/04/10 11:40	10/06/10 14:40	84-15-1	

Sample: GW-1-0910		Lab ID: 255054040	Collected: 09/22/10 12:50	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.096	mg/L	0.019	1	10/04/10 11:40	10/06/10 15:02		
Motor Oil Range	0.15	mg/L	0.095	1	10/04/10 11:40	10/06/10 15:02	64742-65-0	
n-Octacosane (S)	94	%	50-150	1	10/04/10 11:40	10/06/10 15:02	630-02-4	
o-Terphenyl (S)	76	%	50-150	1	10/04/10 11:40	10/06/10 15:02	84-15-1	

Sample: GW-2-0910		Lab ID: 255054041	Collected: 09/22/10 14:40	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.039	mg/L	0.019	1	10/05/10 15:10	10/07/10 05:43		
Motor Oil Range	ND	mg/L	0.095	1	10/05/10 15:10	10/07/10 05:43	64742-65-0	
n-Octacosane (S)	103	%	50-150	1	10/05/10 15:10	10/07/10 05:43	630-02-4	
o-Terphenyl (S)	85	%	50-150	1	10/05/10 15:10	10/07/10 05:43	84-15-1	

Sample: GW-20-0910		Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.038	mg/L	0.019	1	10/05/10 15:10	10/07/10 06:05		
Motor Oil Range	ND	mg/L	0.094	1	10/05/10 15:10	10/07/10 06:05	64742-65-0	

Date: 10/11/2010 02:24 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 255054

Sample: GW-20-0910	Lab ID: 255054042	Collected: 09/22/10 15:00	Received: 09/22/10 17:52	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
n-Octacosane (S)	96 %		50-150	1	10/05/10 15:10	10/07/10 06:05	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	10/05/10 15:10	10/07/10 06:05	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2753 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

METHOD BLANK: 42965 Matrix: Water

Associated Lab Samples: 255054001, 255054002, 255054003, 255054004, 255054005, 255054006, 255054007, 255054008, 255054009, 255054010, 255054011, 255054012, 255054013, 255054014, 255054015, 255054016, 255054017, 255054018, 255054019, 255054020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/04/10 10:56	
Motor Oil Range	mg/L	ND	0.10	10/04/10 10:56	
n-Octacosane (S)	%	111	50-150	10/04/10 10:56	
o-Terphenyl (S)	%	85	50-150	10/04/10 10:56	

LABORATORY CONTROL SAMPLE: 42966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.1	87	51-147	
Motor Oil Range	mg/L	1.2	1.3	100	20-160	
n-Octacosane (S)	%			115	50-150	
o-Terphenyl (S)	%			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 42967 42968

Parameter	Units	255054008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	1.0	1.2	1.2	1.8	1.8	69	72	50-150	1	
Motor Oil Range	mg/L	0.71	1.2	1.2	1.8	1.9	93	103	20-160	6	
n-Octacosane (S)	%						101	102	50-150		
o-Terphenyl (S)	%						88	99	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2759 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

METHOD BLANK: 43170 Matrix: Water
 Associated Lab Samples: 255054021, 255054022, 255054023, 255054024, 255054025, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054032, 255054034, 255054035, 255054036, 255054037, 255054038, 255054039, 255054040

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/06/10 02:17	
Motor Oil Range	mg/L	ND	0.10	10/06/10 02:17	
n-Octacosane (S)	%	94	50-150	10/06/10 02:17	
o-Terphenyl (S)	%	79	50-150	10/06/10 02:17	

LABORATORY CONTROL SAMPLE: 43171

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1.2	1.0	80	51-147	
Motor Oil Range	mg/L	1.2	1.2	95	20-160	
n-Octacosane (S)	%			101	50-150	
o-Terphenyl (S)	%			96	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 43172 43173

Parameter	Units	255054030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range	mg/L	0.036	1.2	1.2	0.87	0.92	70	75	50-150	6	
Motor Oil Range	mg/L	ND	1.2	1.2	1.1	1.2	87	92	20-160	5	
n-Octacosane (S)	%						96	98	50-150		
o-Terphenyl (S)	%						89	92	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish
Pace Project No.: 255054

QC Batch: OEXT/2760 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 255054024, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054034, 255054035

METHOD BLANK: 43174 Matrix: Water
Associated Lab Samples: 255054024, 255054026, 255054027, 255054028, 255054029, 255054030, 255054031, 255054034, 255054035

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	10/06/10 15:45	
Motor Oil Range SG	mg/L	ND	0.10	10/06/10 15:45	
n-Octacosane (S) SG	%	102	50-150	10/06/10 15:45	
o-Terphenyl (S) SG	%	78	50-150	10/06/10 15:45	

LABORATORY CONTROL SAMPLE: 43175

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1.2	1.0	81	51-147	
Motor Oil Range SG	mg/L	1.2	1.2	98	20-160	
n-Octacosane (S) SG	%			112	50-150	
o-Terphenyl (S) SG	%			125	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 43176 43177

Parameter	Units	255054030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Range SG	mg/L	ND	1.2	1.2	0.79	0.84	66	70	50-150	6	
Motor Oil Range SG	mg/L	ND	1.2	1.2	1.0	1.1	87	94	20-160	7	
n-Octacosane (S) SG	%						101	102	50-150		
o-Terphenyl (S) SG	%						108	116	50-150		

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2766

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054041, 255054042

METHOD BLANK: 43425

Matrix: Water

Associated Lab Samples: 255054041, 255054042

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/07/10 04:40	
Motor Oil Range	mg/L	ND	0.10	10/07/10 04:40	
n-Octacosane (S)	%	85	50-150	10/07/10 04:40	
o-Terphenyl (S)	%	71	50-150	10/07/10 04:40	

LABORATORY CONTROL SAMPLE & LCSD: 43426

43427

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	1.1	0.99	85	79	51-147	6	30	
Motor Oil Range	mg/L	1.2	1.2	1.2	99	95	20-160	4	30	
n-Octacosane (S)	%				111	101	50-150			
o-Terphenyl (S)	%				128	120	50-150			

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 255054

QC Batch: OEXT/2788

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 255054033

METHOD BLANK: 44672

Matrix: Water

Associated Lab Samples: 255054033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	10/09/10 00:18	
Motor Oil Range	mg/L	ND	0.10	10/09/10 00:18	
n-Octacosane (S)	%	107	50-150	10/09/10 00:18	
o-Terphenyl (S)	%	102	50-150	10/09/10 00:18	

LABORATORY CONTROL SAMPLE & LCSD: 44673

44674

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range	mg/L	1.2	0.92	0.82	73	66	51-147	11	30	
Motor Oil Range	mg/L	1.2	1.0	0.92	82	74	20-160	10	30	
n-Octacosane (S)	%				105	105	50-150			
o-Terphenyl (S)	%				120	118	50-150			

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 255054

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish
Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054001	2B-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054002	MW-16-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054003	5-W-51-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054004	MW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054005	MW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054006	ZA-W-10-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054007	ZA-W-100-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054008	ZA-W-9-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054009	IC-W-1-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054010	IC-W-8-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054011	IC-W-7-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054012	IC-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054013	IC-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054014	GW-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054015	GW-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054016	IB-W-3-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054017	IB-W-2-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054018	IA-W-4-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054019	MW-38R-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054020	5-W-50-0910	EPA 3510	OEXT/2753	NWTPH-Dx	GCSV/1951
255054021	5-W-500-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054022	5-W-54-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054023	5-W-56-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054025	IB-W-23-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054032	EW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054033	5-W-43-0910	EPA 3510	OEXT/2788	NWTPH-Dx	GCSV/1970
255054036	5-W-55-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054037	2A-W-40-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054038	2A-W-41-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054039	2A-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054040	GW-1-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054041	GW-2-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054042	GW-20-0910	EPA 3510	OEXT/2766	NWTPH-Dx	GCSV/1962
255054024	5-W-18-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054024	5-W-18-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054026	5-W-14-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054026	5-W-14-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054027	5-W-17-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054027	5-W-17-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054028	5-W-170-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054028	5-W-170-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054029	5-W-15-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 255054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
255054029	5-W-15-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054030	5-W-16-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054030	5-W-16-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054031	5-W-42-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054031	5-W-42-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054034	5-W-19-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054034	5-W-19-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954
255054035	5-W-20-0910	EPA 3510	OEXT/2759	NWTPH-Dx	GCSV/1953
255054035	5-W-20-0910	EPA 3510	OEXT/2760	NWTPH-Dx	GCSV/1954



Sample Condition Upon Receipt

Client Name: BNSF/AECOM Project # 255054

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other _____ Temp. Blank Yes No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.5, 5.4, 7.7, 9.1 Biological Tissue is Frozen: Yes No
Temp should be above freezing $\leq 6^{\circ}\text{C}$ 4.9, 1.4, 7.2, 5.9, 8.5, 9.9 Comments: 4.5, 4.6, 6.9, 8.2
Date and Initials of person examining contents: NJS 9/22/10

Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 9/27/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albano (Acctg)** Attention: **Bruce Shappard**
 Address: **Copy To: Ravee Knecht** Company Name: **BNSF**
 Email To: **Purchase Order No.: TD100-539** Reference: **BNSF - Skykomish**
 Phone: **Project Name: BNSF - Skykomish** Project Number: **60154595-094D**
 Requested Due Date/TAT: **std** Project Number: **60154595-094D** Pace Profile #:

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location STATE: **WA**

Requested Analysis Filtered (Y/N)

Page: **1** of **4**

1309837

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH				
1	ZB-W-4 -091D	WT	WT	G	9/29/10	1505		2	X										
2	MW-16 -	WT	WT	G		1605		2	X										
3	S-W-51 -	WT	WT	G		1715		2	X										
4	MW-3 -	WT	WT	G	9/29/10	1600		2	X										
5	MW-4 -	WT	WT	G		1635		2	X										
6	ZA-W-10 -	WT	WT	G		1715		2	X										
7	ZA-W-100 -	WT	WT	G		1725		2	X										
8	ZA-W-9 -	WT	WT	G		1745		2	X										
9	1C-W-1 -	WT	WT	G		1000		2	X										
10	1C-W-8 -	WT	WT	G		1035		2	X										
11	1C-W-7 -	WT	WT	G		1505		2	X										
12	1C-W-3 -	WT	WT	G		1125		2	X										

ADDITIONAL COMMENTS: Extra sample volume provided: ZA-W-9-091D for Lab QC

RELINQUISHED BY / AFFILIATION: **[Signature]** DATE: **9/22/10** TIME: **1752**

ACCEPTED BY / AFFILIATION: **[Signature]** DATE: **9/29/10** TIME: **1752**

SAMPLER NAME AND SIGNATURE: **[Signature]**

PRINT Name of SAMPLER: **[Signature]**

SIGNATURE of SAMPLER: **[Signature]** DATE Signed (MM/DD/YY):

Temp in °C: **55** Received on Ice (Y/N): **Y** Custody Sealed Cooler (Y/N): **N** Samples Intact (Y/N): **Y**

ORIGINAL

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

W0#255054

Section A Required Client Information: Section B Required Project Information: Section C Invoice Information:

Company: **BNSF** Report To: **Sarah Albano (Pecom)** Attention: **Erin Shoppard**
 Address: **Renee Knecht** Copy To: **BNSF** Company Name: **BNSF**
 Email To: **TT0100-539** Purchase Order No.: **BNSF-Skykomish** Page Quote Reference: **60154595-0540**
 Phone: **60154595-0540** Project Name: **BNSF-Skykomish** Page Project Manager: **WA**
 Requested Due Date/TAT: **std** Project Number: **60154595-0540** Pace Profile #:

Page: **2** of **4**
1390941

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location STATE: **WA**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				NaOH	Na ₂ S ₂ O ₃
1	1C-W-4-0910		WT		9/21/10	1230			2	X	X	X	X	X	X	X	X		
2	GW-4-					1600			2	X	X	X	X	X	X	X	X		
3	GW-3-					1650			2	X	X	X	X	X	X	X	X		
4	1B-W-3-					0950			2	X	X	X	X	X	X	X	X		
5	1B-W-2-					1050			2	X	X	X	X	X	X	X	X		
6	1A-W-4-					1155			2	X	X	X	X	X	X	X	X		
7	MW-38R-					1250			2	X	X	X	X	X	X	X	X		
8	S-W-5D-					1610			2	X	X	X	X	X	X	X	X		
9	S-W-5D0-					1510			2	X	X	X	X	X	X	X	X		
10	S-W-5D-					1500			2	X	X	X	X	X	X	X	X		
11	S-W-5D-					1515			2	X	X	X	X	X	X	X	X		
12	S-W-18-					0905			2	X	X	X	X	X	X	X	X		

ADDITIONAL COMMENTS: **RELINQUISHED BY / AFFILIATION** **DATE** **TIME** **ACCEPTED BY / AFFILIATION** **DATE** **TIME** **SAMPLE CONDITIONS**

Temp in °C: **72.1** **85.1** **49** **45**
 Received on Ice (Y/N): **Y**
 Custody Sealed Cooler (Y/N): **N**
 Samples Intact (Y/N): **Y**

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020rev.07, 15-May-2007

Sample Container Count

CLIENT: BNSF

WO # 255054



COC PAGE 3 of 4
 COC ID# 1390943

Sample Line	Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WG9U	WGKU	Comments
1			2	2									
2			4	4									
3			4	4									
4			4	4									
5			4	4									
6			10	10									
7			4	4									
8			2	2									
9			2	2									
10			4	4									
11			4	4									
12			2	2									Trip Blank? <u>NO</u>

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass	BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass	BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vov vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic	DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac	DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		Wipe/Swab		



Environment

Submitted to:
BNSF Skykomish

Submitted by:
AECOM
Fort Collins, CO
60154595-0545
October 2010

October 22, 2010

Organic
Limited Data Validation Report

BNSF Skykomish
Groundwater Samples
Pace Analytical Services, Inc. data
January – September 2010

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

Overview

The samples analyzed for the BNSF Skykomish groundwater sampling effort from January through September 2010 are listed in the Table of Samples Analyzed (pages 2-5). Limited data validation was performed on a total of one hundred forty nine groundwater samples and one equipment rinse blank water QC sample.

Samples were analyzed by Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle). The reviewed analysis was Diesel Range and Motor Oil Range Organics by WDOE method NWT PH-Dx (with and/or without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 6-12. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Equipment Rinse blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) recoveries
MS, MSD (matrix spike/matrix spike duplicate) recoveries
Laboratory duplicate (or spiked duplicate) RPDs
Field duplicate data (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

J estimated concentration

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 13).

Overall Data Assessment

Precision, accuracy, and method compliance have been determined to be acceptable, based on the data submitted. No data were missing, and no data were rejected. All reported data are suitable for their intended use with the qualifications and clarifications noted.

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
January – September 2010**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	IC-W-1-0110		1/26/2010	10:20	252906	252906001
Groundwater	IC-W-8-0110		1/26/2010	11:10	252906	252906002
Groundwater	IC-W-7-0110		1/26/2010	14:50	252906	252906003
Groundwater	IC-W-70-0110	IC-W-7-0110 Dup	1/26/2010	14:50	252906	252906004
Groundwater	IC-W-1-0210		2/23/2010	10:45	253125	253125001
Groundwater	IC-W-8-0210		2/23/2010	11:35	253125	253125002
Groundwater	IC-W-7-0210		2/23/2010	12:50	253125	253125003
Groundwater	IC-W-70-0210	IC-W-1-0210 Dup	2/23/2010	10:45	253125	253125004
Groundwater	2B-W-4-0310		3/22/2010	15:10	253334	253334001
Groundwater	GW-2-0310		3/22/2010	16:00	253334	253334002
Groundwater	GW-20-0310	GW-2-0310 Dup	3/22/2010	16:00	253334	253334003
Groundwater	GW-1-0310		3/22/2010	16:50	253334	253334004
Groundwater	GW-3-0310		3/22/2010	17:40	253334	253334005
Groundwater	MW-38R-0310		3/22/2010	16:25	253334	253334006
Groundwater	MW-39-0310		3/23/2010	15:40	253334	253334007
Groundwater	2A-W-11-0310		3/23/2010	16:50	253334	253334008
Groundwater	5-W-51-0310		3/23/2010	17:20	253334	253334009
Groundwater	GW-4-0310		3/23/2010	09:15	253334	253334010
Groundwater	2A-W-42-0310		3/23/2010	10:40	253334	253334011
Groundwater	1B-W-23-0310		3/23/2010	11:40	253334	253334012
Groundwater	1B-W-230-0310	1B-W-23-0310 Dup	3/23/2010	11:40	253334	253334013
Groundwater	5-W-43-0310		3/23/2010	13:00	253334	253334014
Groundwater	EW-1-0310		3/23/2010	13:55	253334	253334015
Groundwater	EW-10-0310	EW-1-0310 Dup	3/23/2010	13:55	253334	253334016
Groundwater	2A-W-41-0310		3/23/2010	15:45	253334	253334017
Groundwater	2A-W-40-0310		3/23/2010	17:00	253334	253334018
Groundwater	MW-16-0310		3/23/2010	08:35	253334	253334019
Groundwater	1A-W-4-0310		3/23/2010	09:15	253334	253334020
Groundwater	1A-W-5-0310		3/23/2010	09:50	253334	253334021
Groundwater	5-W-4-0310		3/23/2010	11:15	253334	253334022
Groundwater	5-W-50-0310		3/23/2010	12:15	253334	253334023
Groundwater	2A-W-10-0310		3/23/2010	13:40	253334	253334024
Groundwater	1C-W-3-0310		3/23/2010	14:45	253334	253334025
Groundwater	1C-W-4-0310		3/23/2010	15:35	253334	253334026
Groundwater	5-W-52-0310		3/23/2010	16:40	253334	253334027
Groundwater	5-W-520-0310	5-W-52-0310 Dup	3/23/2010	16:40	253334	253334028
Groundwater	5-W-56-0310		3/23/2010	17:40	253334	253334029
Groundwater	MW-4-0310		3/24/2010	09:20	253355	253355001
Groundwater	3-W-41-0310		3/24/2010	10:30	253355	253355002
Groundwater	3-W-42-0310		3/24/2010	11:40	253355	253355003

Continued on next page

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
January – September 2010**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	3-W-43-0310		3/24/2010	13:25	253355	253355004
Groundwater	5-W-14-0310		3/24/2010	14:20	253355	253355005
Groundwater	5-W-19-0310		3/24/2010	15:30	253355	253355006
Water QC	MW-500-0310		3/24/2010	15:55	253355	253355007
Groundwater	5-W-20-0310		3/24/2010	16:00	253355	253355008
Groundwater	5-W-15-0310		3/24/2010	14:35	253355	253355009
Groundwater	5-W-150-0310	5-W-15-0310 Dup	3/24/2010	14:35	253355	253355010
Groundwater	5-W-17-0310		3/24/2010	13:45	253355	253355011
Groundwater	5-W-16-0310		3/24/2010	13:05	253355	253355012
Groundwater	5-W-54-0310		3/24/2010	12:35	253355	253355013
Groundwater	5-W-53-0310		3/24/2010	11:45	253355	253355014
Groundwater	1B-W-3-0310		3/24/2010	09:30	253355	253355015
Groundwater	1B-W-2-0310		3/24/2010	10:55	253355	253355016
Groundwater	2A-W-9-0310		3/24/2010	12:25	253355	253355017
Groundwater	2B-W-46-0310		3/24/2010	14:05	253355	253355018
Groundwater	2B-W-45-0310		3/24/2010	15:00	253355	253355019
Groundwater	5-W-42-0310		3/24/2010	16:45	253355	253355020
Groundwater	5-W-18-0310		3/24/2010	16:45	253355	253355021
Groundwater	MW-3-0310		3/24/2010	18:05	253355	253355022
Groundwater	5-W-55-0310		3/24/2010	17:25	253355	253355023
Groundwater	1C-W-1-0310		3/25/2010	09:20	253355	253355024
Groundwater	1C-W-7-0310		3/25/2010	11:25	253355	253355025
Groundwater	1C-W-8-0310		3/25/2010	10:10	253355	253355026
Groundwater	1C-W-1-0410		4/27/2010	12:55	253588	253588001
Groundwater	1C-W-8-0410		4/27/2010	13:40	253588	253588002
Groundwater	1C-W-80-0410	1C-W-8-0410 Dup	4/27/2010	13:40	253588	253588003
Groundwater	1C-W-7-0410		4/27/2010	15:35	253588	253588004
Groundwater	1C-W-1-0510		5/26/2010	09:40	253791	253791001
Groundwater	1C-W-8-0510		5/26/2010	10:20	253791	253791002
Groundwater	1C-W-80-0510	1C-W-8-0510 Dup	5/26/2010	10:20	253791	253791003
Groundwater	1C-W-7-0510		5/26/2010	11:25	253791	253791004
Groundwater	1C-W-1-0610		6/29/2010	11:10	254104	254104001
Groundwater	1C-W-8-0610		6/29/2010	11:50	254104	254104002
Groundwater	1C-W-7-0610		6/29/2010	14:15	254104	254104003
Groundwater	GW-4-0610		6/29/2010	15:45	254104	254104004
Groundwater	5-W-43-0610		6/29/2010	15:45	254104	254104005
Groundwater	GW-2-0610		6/29/2010	16:50	254104	254104006
Groundwater	1B-W-23-0610		6/29/2010	17:05	254104	254104007
Groundwater	2A-W-42-0610		6/29/2010	17:40	254104	254104008
Groundwater	2B-W-46-0610		6/30/2010	09:30	254104	254104009
Groundwater	2B-W-45-0610		6/30/2010	10:00	254104	254104010
Groundwater	2A-W-10-0610		6/30/2010	10:50	254104	254104011
Groundwater	2A-W-41-0610		6/30/2010	10:20	254104	254104012

Continued on next page

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
January – September 2010**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	5-W-14-0610		6/30/2010	12:50	254104	254104013
Groundwater	5-W-15-0610		6/30/2010	13:50	254104	254104014
Groundwater	5-W-16-0610		6/30/2010	15:00	254104	254104015
Groundwater	5-W-18-0610		6/30/2010	11:45	254104	254104016
Groundwater	5-W-180-0610	5-W-18-0610 Dup	6/30/2010	11:45	254104	254104017
Groundwater	5-W-20-0610		6/30/2010	13:10	254104	254104018
Groundwater	5-W-42-0610		6/30/2010	11:20	254104	254104019
Groundwater	5-W-17-0610		6/30/2010	09:40	254104	254104020
Groundwater	5-W-19-0610		6/30/2010	16:05	254104	254104021
Groundwater	EW-1-0610		6/30/2010	09:10	254104	254104022
Groundwater	GW-3-0610		6/30/2010	15:00	254104	254104023
Groundwater	GW-30-0610	GW-3-0610 Dup	6/30/2010	15:00	254104	254104024
Groundwater	2A-W-40-0610		6/30/2010	15:00	254104	254104025
Groundwater	2A-W-400-0610	2A-W-40-0610 Dup	6/30/2010	15:00	254104	254104026
Groundwater	GW-1-0610		6/30/2010	08:55	254104	254104027
Groundwater	1C-W-1-0710		7/27/2010	10:30	254385	254385001
Groundwater	1C-W-8-0710		7/27/2010	11:15	254385	254385002
Groundwater	1C-W-7-0710		7/27/2010	12:20	254385	254385003
Groundwater	1B-W-23-0710		7/27/2010	13:35	254385	254385004
Groundwater	1B-W-230-0710	1B-W-23-0710 Dup	7/27/2010	13:35	254385	254385005
Groundwater	1C-W-1-0810		8/31/2010	12:40	254778	254778001
Groundwater	1C-W-8-0810		8/31/2010	13:50	254778	254778002
Groundwater	1C-W-7-0810		8/31/2010	14:50	254778	254778003
Groundwater	1B-W-23-0810		8/31/2010	16:35	254778	254778004
Groundwater	1B-W-230-0810	1B-W-23-0810 Dup	8/31/2010	16:35	254778	254778005
Groundwater	2B-W-4-0910		9/20/2010	15:05	255054	255054001
Groundwater	MW-16-0910		9/20/2010	16:05	255054	255054002
Groundwater	5-W-51-0910		9/20/2010	17:15	255054	255054003
Groundwater	MW-3-0910		9/21/2010	16:00	255054	255054004
Groundwater	MW-4-0910		9/21/2010	16:35	255054	255054005
Groundwater	2A-W-10-0910		9/21/2010	17:15	255054	255054006
Groundwater	2A-W-100-0910	2A-W-10-0910 Dup	9/21/2010	17:25	255054	255054007
Groundwater	2A-W-9-0910		9/21/2010	17:45	255054	255054008
Groundwater	1C-W-1-0910		9/21/2010	10:00	255054	255054009
Groundwater	1C-W-8-0910		9/21/2010	10:35	255054	255054010
Groundwater	1C-W-7-0910		9/21/2010	15:05	255054	255054011
Groundwater	1C-W-3-0910		9/21/2010	11:25	255054	255054012
Groundwater	1C-W-4-0910		9/21/2010	12:30	255054	255054013
Groundwater	GW-4-0910		9/21/2010	16:00	255054	255054014
Groundwater	GW-3-0910		9/21/2010	16:50	255054	255054015
Groundwater	1B-W-3-0910		9/21/2010	09:50	255054	255054016

Continued on next page

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
January – September 2010**

Matrix	Sample ID	Sample Date and Time	Lab SDG	Lab Sample ID
Groundwater	1B-W-2-0910	9/21/2010 10:50	255054	255054017
Groundwater	1A-W-4-0910	9/21/2010 11:55	255054	255054018
Groundwater	MW-38R-0910	9/21/2010 12:50	255054	255054019
Groundwater	5-W-50-0910	9/21/2010 16:10	255054	255054020
Groundwater	5-W-500-0910	9/21/2010 15:10	255054	255054021
Groundwater	5-W-54-0910	9/21/2010 15:00	255054	255054022
Groundwater	5-W-56-0910	9/21/2010 17:15	255054	255054023
Groundwater	5-W-18-0910	9/22/2010 09:05	255054	255054024
Groundwater	1B-W-23-0910	9/22/2010 09:10	255054	255054025
Groundwater	5-W-14-0910	9/22/2010 09:45	255054	255054026
Groundwater	5-W-17-0910	9/22/2010 10:50	255054	255054027
Groundwater	5-W-170-0910	9/22/2010 11:00	255054	255054028
Groundwater	5-W-15-0910	9/22/2010 12:00	255054	255054029
Groundwater	5-W-16-0910	9/22/2010 13:40	255054	255054030
Groundwater	5-W-42-0910	9/22/2010 12:30	255054	255054031
Groundwater	EW-1-0910	9/22/2010 10:45	255054	255054032
Groundwater	5-W-43-0910	9/22/2010 11:30	255054	255054033
Groundwater	5-W-19-0910	9/22/2010 14:40	255054	255054034
Groundwater	5-W-20-0910	9/22/2010 15:20	255054	255054035
Groundwater	5-W-55-0910	9/22/2010 14:35	255054	255054036
Groundwater	2A-W-40-0910	9/22/2010 09:15	255054	255054037
Groundwater	2A-W-41-0910	9/22/2010 10:10	255054	255054038
Groundwater	2A-W-42-0910	9/22/2010 11:40	255054	255054039
Groundwater	GW-1-0910	9/22/2010 12:50	255054	255054040
Groundwater	GW-2-0910	9/22/2010 14:40	255054	255054041
Groundwater	GW-20-0910	9/22/2010 15:00	255054	255054042

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish		Laboratory: Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle)				
Project Reference: Groundwater Samples		Sample Matrix: Groundwater samples				
AECOM Project: 60154595-0545		Sample Start Date: 01/26/2010				
Validator/Date Validated: Sue Milcan 10/22/2010 (completed)		Sample End Date: 09/22/2010				
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish, Groundwater Samples, January – September 2010 (pages 2-5).						
Parameters Reviewed: Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (with and/or without Silica Gel cleanup).						
Laboratory Project IDs (SDGs): 252906, 253125, 253334, 253355, 253588, 253791, 254104, 254385, 254778, 255054						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. Although some data require qualification based on calculated field duplicate RPDs (see item 21), overall field and laboratory precision is acceptable since a majority of the data are unqualified and no data are rejected. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing limited equipment rinse blank results for evidence of sample contamination stemming from sampling activities. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), matrix spike, matrix spike duplicate (MS, MSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS, MSD %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. The %Rs were compared to EPA published and/or laboratory control charted QC limits. Although some data require qualification based on surrogate recovery (see item 14), overall field and laboratory accuracy is acceptable since a majority of the data are unqualified and no data are rejected. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data require qualification based on these measurements, and overall method compliance is acceptable based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable, some with qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
<p>Data validation qualifiers assigned during this review:</p> <p>J estimated concentration</p> <p>The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 13).</p>						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
<p>Comments: Spike recoveries outside of QC limits were noted. Any assigned laboratory flags were reviewed during the limited validation procedure.</p> <p>Data qualification, if any, related to the comments and/or assigned laboratory data flags are discussed in the following sections.</p>						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
<p>Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.</p>						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
<p>Comments: All requested analyses as documented on the original COCs were completed.</p>						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
<p>Comments: All samples were received intact and in good condition with cooler temperatures of 1.2°C to 10.6°C as noted on the Sample Condition Upon Receipt forms provided. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. Samples received at greater than 6°C were determined to be in acceptable condition since samples were hand-delivered from the field, ice was noted as present in the coolers and cooling process had begun, not other preservation issues were noted, and samples were kept in cold storage <math>\leq 4^{\circ}\text{C}</math> upon receipt at the laboratory. No action is required other than to note these observations.</p>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
Comments: The reported method and clean up (as applicable) met the COC requests and is in compliance with the parameters requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
Comments: The reporting limits (RLs) are achievable by the quoted method. Some data were reported at diluted levels due to high target analyte concentration. The RLs for diluted results were appropriately raised to reflect the dilution factor. Note that the laboratory did not report any trace analyte concentrations \geq method detection limit (MDL) but $<$ practical quantitation limit/reporting limit (PQL/RL) for any data sets.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
Comments: Only analytes applicable to the requested method were reported.						
8. Were sample holding times met?	X	Yes		No	SM	Initials
Comments: The method-required sample extraction and analytical holding times were met for all samples. The required holding time periods for <u>groundwater samples</u> were met as follows: 14 days from sample collection to extraction, and 40 days from extraction to analysis for NWTPH-Dx.						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
Comments: All results were reported as mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
Comments: All assigned laboratory flags were reviewed and evaluated during the limited validation process. Data validation qualifiers override any assigned laboratory data flags.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: The reported method blank samples were free of target analyte contamination.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: The equipment rinse blank sample, MW-500-0310, reported with data set 253355, was free of target analyte contamination. No other field, equipment, or trip blank samples were submitted/required for this data set.						
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

14. Were surrogate recoveries within control limits?		Yes	X	No	SM	Initials
<p>Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples, or met the following requirement, except as noted. Non-volatile surrogate recoveries affected by required sample dilution did not require qualification, since extraction/analytical efficiency was demonstrated in associated blank and LCS, LCSD surrogate %Rs.</p> <p>SDG 254104: The %Rs for surrogates n-octacosane and o-terphenyl were low (49%) outside the 50-150% method/laboratory QC limits in the analysis of sample 2A-W-10-0610. The Diesel Range and Motor Oil Range Organic data results reported for this sample require J qualifiers to indicate estimated concentrations, possibly biased low, due to suspected matrix interference.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 13).</p>						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
<p>Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and/or were also within laboratory control charted QC limits as allowed for organic methods.</p>						
16. Were matrix spike recoveries within control limits?	X	Yes		No	SM	Initials
<p>Comments: Project specific MS, MSD %Rs for target analytes were within laboratory control charted QC limits for organics.</p>						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials
<p>Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within laboratory QC limits.</p> <p><i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i></p>						
18. Were organic system performance criteria met?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i></p>						
19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i></p>						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i></p>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	SM	Initials	
Duplicate Sample No.	IC-W-70-0110	Primary Sample No.	IC-W-7-0110				
Duplicate Sample No.	IC-W-70-0210	Primary Sample No.	IC-W-1-0210				
Duplicate Sample No.	1B-W-230-0310	Primary Sample No.	1B-W-23-0310				
Duplicate Sample No.	5-W-520-0310	Primary Sample No.	5-W-52-0310				
Duplicate Sample No.	EW-10-0310	Primary Sample No.	EW-1-0310				
Duplicate Sample No.	GW-20-0310	Primary Sample No.	GW-2-0310				
Duplicate Sample No.	5-W-150-0310	Primary Sample No.	5-W-15-0310				
Duplicate Sample No.	IC-W-80-0410	Primary Sample No.	IC-W-8-0410				
Duplicate Sample No.	IC-W-80-0510	Primary Sample No.	IC-W-8-0510				
Duplicate Sample No.	2A-W-400-0610	Primary Sample No.	2A-W-40-0610				
Duplicate Sample No.	5-W-180-0610	Primary Sample No.	5-W-18-0610				
Duplicate Sample No.	GW-30-0610	Primary Sample No.	GW-3-0610				
Duplicate Sample No.	1B-W-230-0710	Primary Sample No.	1B-W-23-0710				
Duplicate Sample No.	1B-W-230-0810	Primary Sample No.	1B-W-23-0810				
Duplicate Sample No.	2A-W-100-0910	Primary Sample No.	2A-W-10-0910				
Duplicate Sample No.	5-W-170-0910	Primary Sample No.	5-W-17-0910				
Duplicate Sample No.	5-W-500-0910	Primary Sample No.	5-W-50-0910				
Duplicate Sample No.	GW-20-0910	Primary Sample No.	GW-2-0910				
<p>Comments: Field duplicate RPDs were within data validation QC limits of 0-30% for water matrices, or RPDs were not applicable due to results that were \pm the detection limit or were undetected in both samples, except as noted below. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.</p> <p>The following RPDs were calculated:</p>							
SDG	Method	Units	Analyte	IC-W-7-0110	IC-W-70-0110	RPD	Qualifiers
252906	NWTPH-Dx	mg/L	Diesel Range	0.12	0.13	8.0	
SDG	Method	Units	Analyte	IC-W-1-0210	IC-W-70-0210	RPD	Qualifiers
253125	NWTPH-Dx	mg/L	Diesel Range	0.049	0.11	76.7	J/J

Continued on next page

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

SDG	Method	Units	Analyte	1B-W-23-0310	1B-W-230-0310	RPD	Qualifiers
253334	NWTPH-Dx	mg/L	Diesel Range	0.034	0.023	+/- RL	
SDG	Method	Units	Analyte	5-W-52-0310	5-W-520-0310	RPD	Qualifiers
253334	NWTPH-Dx	mg/L	Diesel Range	1.5	1.4	6.9	
253334	NWTPH-Dx	mg/L	Motor Oil Range	0.91	0.91	0.0	
SDG	Method	Units	Analyte	EW-1-0310	EW-10-0310	RPD	Qualifiers
253334	NWTPH-Dx	mg/L	Diesel Range	0.029	< 0.019	+/- RL	
SDG	Method	Units	Analyte	GW-2-0310	GW-20-0310	RPD	Qualifiers
253334	NWTPH-Dx	mg/L	Diesel Range	0.22	0.23	4.4	
253334	NWTPH-Dx	mg/L	Motor Oil Range	0.14	0.16	13.3	
SDG	Method	Units	Analyte	5-W-15-0310	5-W-150-0310	RPD	Qualifiers
253355	NWTPH-Dx SG	mg/L	Diesel Range SG	0.11	0.11	0.0	
253355	NWTPH-Dx	mg/L	Diesel Range	0.28	0.32	13.3	
253355	NWTPH-Dx	mg/L	Motor Oil Range	0.13	0.17	26.7	
SDG	Method	Units	Analyte	IC-W-8-0410	IC-W-80-0410	RPD	Qualifiers
253588	NWTPH-Dx	mg/L	Diesel Range	0.93	1.0	7.3	
253588	NWTPH-Dx	mg/L	Motor Oil Range	0.33	0.35	5.9	
SDG	Method	Units	Analyte	IC-W-8-0510	IC-W-80-0510	RPD	Qualifiers
253791	NWTPH-Dx	mg/L	Diesel Range	0.64	0.63	1.6	
253791	NWTPH-Dx	mg/L	Motor Oil Range	0.26	0.26	0.0	
SDG	Method	Units	Analyte	5-W-18-0610	5-W-180-0610	RPD	Qualifiers
254104	NWTPH-Dx	mg/L	Diesel Range	0.4	0.41	2.5	
254104	NWTPH-Dx	mg/L	Motor Oil Range	0.29	0.31	6.7	
254104	NWTPH-Dx SG	mg/L	Diesel Range SG	0.094	0.12	24.3	
SDG	Method	Units	Analyte	GW-3-0610	GW-30-0610	RPD	Qualifiers
254104	NWTPH-Dx	mg/L	Diesel Range	0.079	0.064	21.0	
SDG	Method	Units	Analyte	1B-W-23-0710	1B-W-230-0710	RPD	Qualifiers
254385	NWTPH-Dx	mg/L	Diesel Range	0.49	0.48	2.1	
254385	NWTPH-Dx	mg/L	Motor Oil Range	0.16	0.18	11.8	
SDG	Method	Units	Analyte	1B-W-23-0810	1B-W-230-0810	RPD	Qualifiers
254778	NWTPH-Dx	mg/L	Diesel Range	0.37	0.25	38.7	J/J
254778	NWTPH-Dx	mg/L	Motor Oil Range	0.28	0.22	24.0	

Continued on next page

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

SDG	Method	Units	Analyte	2A-W-10-0910	2A-W-100-0910	RPD	Qualifiers
255054	NWTPH-Dx	mg/L	Diesel Range	0.15	0.15	0.0	
255054	NWTPH-Dx	mg/L	Motor Oil Range	0.29	0.36	21.5	
SDG	Method	Units	Analyte	5-W-50-0910	5-W-500-0910	RPD	Qualifiers
255054	NWTPH-Dx	mg/L	Diesel Range	12.3	10.4	16.7	
255054	NWTPH-Dx	mg/L	Motor Oil Range	8.0	6.0	28.6	
SDG	Method	Units	Analyte	GW-2-0910	GW-20-0910	RPD	Qualifiers
255054	NWTPH-Dx	mg/L	Diesel Range	0.039	0.038	2.6	

The highlighted target results require J qualifiers in the native sample and in the field duplicate sample to indicate estimated concentrations due to variability between field duplicate results (RPD exceeded QC limit).

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 13).

22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials
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Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory.

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
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Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:

The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.

The data validator changed the sample matrix code to WQ (water QC) from WG (groundwater) for the equipment rinse blank sample to more accurately reflect the sample matrix.

The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file, with corrections made and data validation qualifiers and reason codes added, was returned to the database manager in Seattle, WA on 10/22/2010.

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 13).

**Table of Qualified Analytical Results
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
January – September 2010**

Sample ID	Lab ID	Method	Dilution	Analyte	Concentration		Qualifier	Reason Code
Qualified Reportable data:								
IC-W-1-0210	253125001	NWTPH-Dx	1	Diesel Range	0.049	mg/L	J	FD
IC-W-70-0210	253125004	NWTPH-Dx	1	Diesel Range	0.11	mg/L	J	FD
2A-W-10-0610	254104011	NWTPH-Dx	1	Diesel Range	0.14	mg/L	J	SUR
2A-W-10-0610	254104011	NWTPH-Dx	1	Motor Oil Range	0.35	mg/L	J	SUR
1B-W-23-0810	254778004	NWTPH-Dx	1	Diesel Range	0.37	mg/L	J	FD
1B-W-230-0810	254778005	NWTPH-Dx	1	Diesel Range	0.25	mg/L	J	FD

Reason Codes:

FD – relative percent difference between field duplicates exceeds QC limits; field precision outlier

SUR - surrogate spike recovery outlier; indicated or confirmed matrix interference



Environment

Submitted to:
BNSF Skykomish

Submitted by:
AECOM
Fort Collins, CO
60154595-0545
October 2010

October 22, 2010

Organic
Limited Data Validation Report

BNSF Skykomish
Groundwater S Samples
Pace Analytical Services, Inc. data
March – September 2010

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

Overview

The samples analyzed for the BNSF Skykomish Groundwater S sampling effort from March through September 2010 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of forty four groundwater samples.

Samples were analyzed by Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle). The reviewed analysis was Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 3-7. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

Submitted Deliverables
Case Narratives (including laboratory flags)
Chain-of-Custody form(s) and sample integrity
Sample results, reporting detection limits, dilution factors
Holding times
Method blank results
Organic surrogate recoveries
LCS, LCSD (blank spike, blank spike duplicate) recoveries
MS, MSD (matrix spike/matrix spike duplicate) recoveries
Laboratory duplicate (or spiked duplicate) RPDs
Field duplicate data (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

None required

Overall Data Assessment

Precision, accuracy, and method compliance have been determined to be acceptable, based on the data submitted. No data were missing, and no data were rejected. All reported data are suitable for their intended use without qualification.

**Table of Samples Analyzed
BNSF Skykomish
Groundwater S Samples
Pace Analytical (Pace-Seattle) Laboratory Reports 253333 and 255055
March – September 2010**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	S1-AU-0310		3/23/2010	09:00	253333	253333001
Groundwater	S1-AD-0310		3/23/2010	09:10	253333	253333002
Groundwater	S1-BU-0310		3/23/2010	09:20	253333	253333003
Groundwater	S1-BB-0310	S1-BU-0310 Dup	3/23/2010	09:25	253333	253333004
Groundwater	S1-BD-0310		3/23/2010	09:30	253333	253333005
Groundwater	S2-AU-0310		3/23/2010	10:00	253333	253333006
Groundwater	S2-AD-0310		3/23/2010	10:10	253333	253333007
Groundwater	S2-BU-0310		3/23/2010	10:20	253333	253333008
Groundwater	S2-BD-0310		3/23/2010	10:30	253333	253333009
Groundwater	S3-AU-0310		3/23/2010	11:20	253333	253333010
Groundwater	S3-AD-0310		3/23/2010	11:30	253333	253333011
Groundwater	S3-BU-0310		3/23/2010	11:55	253333	253333012
Groundwater	S3-BD-0310		3/23/2010	12:05	253333	253333013
Groundwater	S3-CU-0310		3/23/2010	12:15	253333	253333014
Groundwater	S3-CD-0310		3/23/2010	12:25	253333	253333015
Groundwater	S4-AU-0310		3/23/2010	13:30	253333	253333016
Groundwater	S4-AC-0310	S4-AU-0310 Dup	3/23/2010	13:35	253333	253333017
Groundwater	S4-AD-0310		3/23/2010	13:40	253333	253333018
Groundwater	S4-BU-0310		3/23/2010	13:55	253333	253333019
Groundwater	S4-BD-0310		3/23/2010	14:05	253333	253333020
Groundwater	S4-CU-0310		3/23/2010	14:15	253333	253333021
Groundwater	S4-CD-0310		3/23/2010	14:25	253333	253333022
Groundwater	S1-AU-0910		9/21/2010	09:00	255055	255055001
Groundwater	S1-AD-0910		9/21/2010	09:25	255055	255055002
Groundwater	S1-BU-0910		9/21/2010	09:40	255055	255055003
Groundwater	S1-BD-0910		9/21/2010	09:50	255055	255055004
Groundwater	S2-AU-0910		9/21/2010	10:15	255055	255055005
Groundwater	S2-AD-0910		9/21/2010	10:25	255055	255055006
Groundwater	S2-BU-0910		9/21/2010	10:40	255055	255055007
Groundwater	S20-BU-0910	S2-BU-0910 Dup	9/21/2010	10:50	255055	255055008
Groundwater	S2-BD-0910		9/21/2010	10:55	255055	255055009
Groundwater	S3-AU-0910		9/21/2010	12:15	255055	255055010
Groundwater	S3-AD-0910		9/21/2010	12:25	255055	255055011
Groundwater	S3-BU-0910		9/21/2010	12:35	255055	255055012
Groundwater	S3-BD-0910		9/21/2010	12:45	255055	255055013
Groundwater	S3-CU-0910		9/21/2010	13:10	255055	255055014
Groundwater	S30-CU-0910	S3-CU-0910 Dup	9/21/2010	13:20	255055	255055015
Groundwater	S3-CD-0910		9/21/2010	13:30	255055	255055016
Groundwater	S4-AU-0910		9/21/2010	13:45	255055	255055017
Groundwater	S4-AD-0910		9/21/2010	13:55	255055	255055018
Groundwater	S4-BU-0910		9/21/2010	14:05	255055	255055019
Groundwater	S4-BD-0910		9/21/2010	14:15	255055	255055020
Groundwater	S4-CU-0910		9/21/2010	14:30	255055	255055021
Groundwater	S4-CD-0910		9/21/2010	14:40	255055	255055022

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Project Name: BNSF Skykomish		Laboratory: Pace Analytical Services, Inc. of Seattle, WA (Pace-Seattle)				
Project Reference: Groundwater S Samples		Sample Matrix: Groundwater samples				
AECOM Project: 60154595-0545		Sample Start Date: 03/23/2010				
Validator/Date Validated: Sue Milcan 10/22/2010 (completed)		Sample End Date: 09/21/2010				
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish, Groundwater S Samples, March – September 2010 (page 2).						
Parameters Reviewed: Diesel Range and Motor Oil Range Organics by WDOE method NWTPH-Dx (without Silica Gel cleanup).						
Laboratory Project IDs (SDGs): 253333, 255055						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	SM	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	SM	Initials
Comments: Field accuracy, a measure of the sampling bias, was not determined for this data set since field, equipment, and/or trip blank samples were not submitted for analysis. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), matrix spike, matrix spike duplicate (MS, MSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS, MSD %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. The %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	SM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data require qualification based on these measurements, and overall method compliance is acceptable based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	SM	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.</p> <p>All of the data received were useable without qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.</p>						
VALIDATION CRITERIA CHECK						
Data validation qualifiers assigned during this review:						
None required						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	SM	Initials
<p>Comments: No analytical problems were identified in the report cover letters. Any assigned laboratory flags were reviewed during the limited validation procedure.</p> <p>Data qualification, if any, related to the assigned laboratory data flags are discussed in the following sections.</p>						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	SM	Initials
<p>Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.</p>						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials
<p>Comments: All requested analyses as documented on the original COCs were completed.</p>						
4. Were samples received in good condition and at the appropriate temperature?	X	Yes		No	SM	Initials
<p>Comments: All samples were received intact and in good condition with cooler temperatures of 1.4°C to 10.2°C as noted on the Sample Condition Upon Receipt forms provided. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. Samples received at greater than 6°C were determined to be in acceptable condition since samples were hand-delivered from the field, ice was noted as present in the coolers and cooling process had begun, not other preservation issues were noted, and samples were kept in cold storage $\leq 4^{\circ}\text{C}$ upon receipt at the laboratory. No action is required other than to note these observations.</p>						
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	SM	Initials
<p>Comments: The reported method met the COC requests and is in compliance with the parameters requested and the sample matrix.</p>						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials
<p>Comments: The reporting limits (RLs) are achievable by the quoted method. All data were reported at undiluted levels.</p> <p>Note that the laboratory did not report any trace analyte concentrations \geq method detection limit (MDL) but < practical quantitation limit/reporting limit (PQL/RL) for any data sets.</p>						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	SM	Initials
<p>Comments: Only analytes applicable to the requested method were reported.</p>						
8. Were sample holding times met?	X	Yes		No	SM	Initials
<p>Comments: The method-required sample extraction and analytical holding times were met for all samples. The required holding time periods for <u>groundwater samples</u> were met as follows: 14 days from sample collection to extraction, and 40 days from extraction to analysis for NWTPH-Dx.</p>						
9. Were correct concentration units reported?	X	Yes		No	SM	Initials
<p>Comments: All results were reported as mg/L (ppm).</p>						
10. Were the reporting requirements for flagged data met?	X	Yes		No	SM	Initials
<p>Comments: All assigned laboratory flags were reviewed and evaluated during the limited validation process. Data validation qualifiers override any assigned laboratory data flags.</p>						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
<p>Comments: The reported method blank samples were free of target analyte contamination.</p>						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?		Yes		No	SM	Initials
<p>Comments: Not applicable - Field, equipment, and/or trip blank samples were not submitted/required for this data set. Field accuracy was not evaluated.</p>						
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
<p><i>Comments: Not applicable for this level of limited data validation – Instrument calibration data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i></p>						
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials
<p>Comments: Reported surrogate %Rs for organic analyses were within laboratory control-charted QC limits for all project samples and associated QC samples.</p>						

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15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and/or were also within laboratory control charted QC limits as allowed for organic methods.						
16. Were matrix spike recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Project specific MS, MSD %Rs for target analytes were within laboratory control charted QC limits for organics, or data met the following requirement. Organic MS/MSD %Rs must both be outside of QC limits in order for organic results to be qualified based on matrix. If organic matrix effect was not confirmed (either MS or MSD was compliant), data did not require qualification and are not outlined in this report.						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within laboratory QC limits, or data met the following requirement. High RPDs associated with undetected project sample results did not initiate data qualification and are not detailed in this report since the precision of the reporting limit is not in question. <i>Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.</i>						
18. Were organic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation – Organic system performance data were not supplied in analytical laboratory reports and were therefore not included in this data review.</i>						
19. Were internal standards within method criteria for GC/MS sample analyses?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
<i>Comments: Not applicable for this level of limited data validation or for the analytical method reported.</i>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	SM	Initials
Duplicate Sample No.	S1-BU-0310		Primary Sample No.	S1-BB-0310		
Duplicate Sample No.	S4-AU-0310		Primary Sample No.	S4-AC-0310		
Duplicate Sample No.	S2-BU-0910		Primary Sample No.	S20-BU-0910		
Duplicate Sample No.	S3-CU-0910		Primary Sample No.	S30-CU-0910		
Continued on next page						

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Comments: Field duplicate RPDs were within data validation QC limits of 0-30% for water matrices, or RPDs were not applicable due to results that were \pm the detection limit or were undetected in both samples. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.

The following RPDs were calculated:

SDG	Method	Units	Analyte	S2-BU-0910	S20-BU-0910	RPD	Qualifiers
255055	NWTPH-Dx	mg/L	Diesel Range	0.051	0.049	4	
SDG	Method	Units	Analyte	S3-CU-0910	S30-CU-0910	RPD	Qualifiers
255055	NWTPH-Dx	mg/L	Diesel Range	0.021	< 0.019	+/- RL	

22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials
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Comments: Not applicable for this level of limited data validation – Chromatograms, library searches, and quantitation reports were not supplied in analytical laboratory reports and were therefore not included in this data review. No identification or quantitation outliers were noted by the laboratory.

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	SM	Initials
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Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:

The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.

The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file, with corrections made, was returned to the database manager in Seattle, WA on 10/22/2010.

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.