

**2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT**

**BNSF FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON
CONSENT DECREE NO. 07-2-33672-9 SEA**

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July 29, 2013

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1.0 INTRODUCTION

This 2011/2012 Groundwater Monitoring Report was prepared on behalf of BNSF Railway Company (BNSF) and describes the fourth quarter 2011 and calendar year 2012 groundwater monitoring activities performed at the BNSF Former Maintenance and Fueling Facility in Skykomish, Washington (herein referred to as the Site). Groundwater monitoring is being conducted as part of the Site remediation activities being completed in accordance with the *Cleanup Action Plan for BNSF Former Maintenance and Fueling Facility, Skykomish, Washington* dated October 2007, prepared by the Washington State Department of Ecology (Ecology) (2007a) (CAP). The groundwater monitoring activities completed at the Site during the fourth quarter of 2011 and in 2012 were conducted by BNSF pursuant to Consent Decree No. 07-2-33672-9 SEA between BNSF and Ecology (2007b) (Consent Decree) and are part of an integrated and comprehensive remedial action being performed at the Site. Groundwater monitoring activities were performed in accordance with the 2010 Groundwater Monitoring Plan, Appendix E of the 2010 Compliance Monitoring Plan Update (AECOM Environment [AECOM] 2010a) (2010 GWMP).

BNSF retained Farallon Consulting, L.L.C. (Farallon) in July 2012 to manage cleanup at the Site. AECOM performed groundwater monitoring from October 2011 through June 2012, and Farallon performed groundwater monitoring from July through December 2012.

This document summarizes groundwater monitoring at the Site from October 2011 through December 2012 (Reporting Period) and includes:

- Semiannual Site-wide monitoring events completed in March and September 2012;
- Quarterly monitoring events conducted in December 2011 and June and December 2012; and
- Monthly monitoring of the air sparging system wells and hydraulic control and containment system (HCC System) monitoring network wells from October 2011 through December 2012.

1.1 GROUNDWATER MONITORING OBJECTIVES

The objectives for the groundwater monitoring program described in the 2010 GWMP are to:

- 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 cleanup actions on groundwater quality;
- Provide monitoring data to evaluate 2008 through 2012 remediation impacts on groundwater quality; and
- Provide fluid level gauging data to assess groundwater and surface water gradients and the extent of free product.



1.2 SITE DESCRIPTION

The Site includes BNSF property and public and private properties within the Town of Skykomish, King County, Washington, and encompasses an area of about 40 acres. The Site is approximately bounded by the South Fork Skykomish River to the north, Town of 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 of Skykomish.

Additional Site history and background information was presented in the Consent Decree, CAP, and in Supplemental Remedial Investigation Volume 1: Text, Tables, Figures, and Appendices A through D (The RETEC Group, Inc. [RETEC] 2002b).

1.3 REPORT ORGANIZATION

The remainder of this report is organized into the following sections:

- **Section 2 – Groundwater Monitoring Network.** This section describes the monitoring well network and changes made to the network during the Reporting Period.
- **Section 3 – Sampling, Analysis, and Reporting.** This section describes the procedures and protocols used to perform the monitoring activities, laboratory analyses and reporting, and subsequent data management and validation activities.
- **Section 4 – Results and Discussion.** This section describes the results of the monitoring activities; specifically the fluid level gauging and analytical results from the groundwater sampling.
- **Section 5 – Summary and Recommendations.** This section provides an overview of the groundwater monitoring activities conducted at the Site during the fourth quarter of 2011 and through 2012, and includes a summary of the data, and recommendations for future sampling events.
- **Section 6 – Bibliography.** This section includes a listing of the documents cited in this report and other relevant documents providing additional background information.



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 sampling during the Reporting Period. The wells, piezometers, and vaults sampled and the frequency of the sampling were defined in the 2010 GWMP. Groundwater monitoring locations are shown on Figure 1.

2.1 MODIFICATIONS TO THE MONITORING NETWORK

This section describes monitoring network changes implemented during the Reporting Period, including new well installation and well abandonment. Modifications to the groundwater monitoring network and the rationale for the abandoned wells are summarized in Table 1. Modification plans and construction and/or abandonment details prior to the Reporting Period were presented in previous Site documents. Monitoring wells MW-47 through MW-49 were added to the monitoring network as groundwater elevation gauging locations as part of the ongoing HCC System optimization efforts at the Site in accordance with the technical memorandum regarding HCC System Optimization Work Plan dated December 11, 2012 (Farallon 2012). A summary of well installation procedures, including well installation and lithology details, is presented in Appendix A.

Monitoring well 2A-W-4 at the Site was inadvertently covered during grading activities associated with the soil remediation excavation effort and is no longer serviceable or accessible. Although AECOM and Farallon made multiple attempts to locate the monitoring well during 2012, it could not be located and it is considered abandoned but not in accordance with Chapter 173-160 of the Washington Administrative Code.

2.2 SUMMARY OF GROUNDWATER MONITORING NETWORK

The current network of wells and piezometers at the Site is shown on Figure 1. Figure 1 includes each well and piezometer location at the Site, including those not used for gauging or monitoring during the Reporting Period.

Table 2 summarizes monitoring activities during the Reporting Period and corresponding event dates. Tables 3 and 4 present additional details regarding the sampling and gauging frequencies of wells and vaults used in the groundwater monitoring network. Well abandonment and installation dates, where applicable, also are included in Tables 3 and 4 to define the basis for monitoring end dates at these locations.

The conditional points of compliance (CPOCs) for groundwater are generally described in Section 3.4 and on Figure 6 of the CAP. The monitoring network described above was partially established before the CAP was issued by Ecology in October 2007. However, all wells in the network are within the area bounded by the CPOC well locations, and the locations and designations of compliance wells were approved by Ecology in the 2010 Compliance Monitoring Plan Update (AECOM 2010a). Point of compliance wells will be defined in a Long-Term



Confirmational Monitoring Plan to be developed at the conclusion of active remediation pursuant to Exhibit C of the Consent Decree.



3.0 SAMPLING, ANALYSIS, AND REPORTING

This section summarizes the groundwater monitoring network sampling methods, laboratory analysis and reporting procedures, and data management and validation protocols. Groundwater samples collected during the Reporting Period were analyzed by Pace Analytical Laboratories in Seattle, Washington (Pace). Pace is a Washington State-accredited laboratory.

3.1 SAMPLING METHODS

The sampling methodology used to gauge fluid levels and collect groundwater samples was described in the 2010 GWMP. The procedures were established for gauging and sampling monitoring wells, although these procedures apply also to piezometer and vault locations.

3.2 ANALYTICAL METHODS

The groundwater samples were analyzed for total petroleum hydrocarbons as diesel-range organics (DRO) and as oil-range organics (ORO) by Northwest Method NWTPH-Dx. The quarterly and semiannual groundwater samples collected from monitoring wells 5-W-14 through 5-W-19 within the Levee Zone were analyzed also for DRO and ORO after the samples had been prepared using a silica gel cleanup procedure to remove biogenic organic interferences.

The analytical laboratory reported detected sample concentrations using the method detection limit (MDL) rather than the method reporting limit (MRL), which usually is higher. Because analyte concentrations detected above the MDL and below the MRL have a degree of uncertainty, these results were considered to be estimated values, and were qualified with a J-flag. Using the MDL to report results was intended to minimize the occurrence of non-detected results with an MRL greater than the cleanup level.

3.3 DATA MANAGEMENT AND VALIDATION

The analytical laboratory provided both text data reports (Appendix B) and electronic data deliverables that were directly imported into the project environmental data management system. A quality control check was performed on the imported data to ensure that it was accurately uploaded and that transfer errors did not occur.

Each laboratory analytical report included copies of the Chain of Custody forms and a case narrative containing the following information: a description of the case, comments on sample condition upon receipt, and a 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 quality assurance/quality control procedures that were performed on the samples.

Upon receipt of October 2011 through June 2012 analytical data from Pace, the electronic data deliverables and case narratives were checked for completeness, and data were then validated by AECOM Staff Chemists. Analytical data generated from the July 2012 through December 2012



groundwater sampling events were checked for completeness by a Farallon Project Scientist, and data were then validated by Saylor Data Solutions of Bothell, Washington.

AECOM Chemists and Saylor Data Solutions evaluated the groundwater data to assess whether the analytical results met the quality control/validation standards described in the 2010 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.

Data validation procedures, criteria, and findings are provided in Appendix C. Procedures used in the data validation are based on U.S. Environmental Protection Agency (EPA) (2008) guidelines for organic methods data review.



4.0 RESULTS AND DISCUSSION

This section presents a summary and evaluation of results from groundwater monitoring during the Reporting Period.

4.1 FLUID LEVELS

Table 4 summarizes the frequency of gauging at Site locations, including monitoring wells and surface water gauging locations in the Skykomish River. With the exception of the HCC System, locations are gauged on a quarterly schedule, with additional locations during the semiannual monitoring and sampling events in March and September. Table 5 presents the groundwater elevation, surface water elevation, and product thickness measurements obtained during the Reporting Period. Groundwater flow direction, variations in groundwater elevations and product thickness, and changes in groundwater gradients in relation to seasonal variations and remediation activities are discussed below.

Quarterly and semiannual groundwater surface elevation maps for the Reporting Period are shown on Figures 2 through 6. As shown on these figures, the groundwater flow direction is generally consistent, with minimal seasonal variation. Groundwater elevations did fluctuate seasonally by approximately 4 feet adjacent to and south of the HCC barrier wall, and by approximately 2 feet adjacent to and north of the HCC barrier wall, with some influence imparted by HCC System pumping rates. The difference in groundwater elevations across the central part of the HCC barrier wall varied between approximately 4 feet in March 2012 and approximately 2 feet in September 2012. Flow in this area is influenced by seasonal variations and pumping rates in the HCC System. South of the HCC barrier wall, groundwater flow is predominantly toward the northwest or west. North of the HCC barrier wall, groundwater typically flows to the northwest in the direction of the Skykomish River. The HCC wall acts as a barrier to groundwater flow and accentuates a westerly component to flow in the area of the HCC barrier wall. Localized groundwater depressions are present near the HCC gates due to pumping of recovery wells on the south side of the HCC barrier wall.

Groundwater surface elevation maps continue to show that groundwater elevations are lower in the Levee Zone due to the presence of an impermeable liner along the south (up-gradient) boundary of the prior Levee Zone excavation. The extent of the liner is described in the *Levee Zone Interim Action for Cleanup - 2007 As-Built Completion Report* (ENSR 2007).

4.2 FIELD PARAMETERS

Table 6 presents the stabilized field parameter measurements collected during the monthly, quarterly, and semiannual groundwater sampling events from each of the wells that did not contain free product. Each field parameter is discussed separately below.

4.2.1 pH

The average pH of groundwater across the Site during the Reporting Period was 5.73. The minimum pH was 4.20 at monitoring well 1C-W-1 on May 30, 2012, and the maximum pH was



7.62 at monitoring well GW-2 on September 20, 2012. The average, minimum, and maximum pH measurements were consistent with past measurements at the Site.

4.2.2 Temperature

The average temperature of groundwater during the Reporting Period was 8.40 degrees Centigrade (°C). The minimum temperature was 3.40°C at monitoring well MW-4 on March 28, 2012, and the maximum temperature was 14.8°C at monitoring well 5-W-56 on September 18, 2012. The temperature varied seasonally.

4.2.3 Dissolved Oxygen

The average dissolved oxygen (DO) concentration in groundwater across the Site during the Reporting Period was 3.58 milligrams per liter (mg/l). DO levels ranged from a minimum of 0.13 mg/l at monitoring wells 2A-W-9 and 2A-W-10 on June 27, 2012 to a maximum of 10.14 mg/l measured at monitoring well 1C-W-1 on July 26, 2012. In general, monitoring wells with no detected petroleum hydrocarbon compounds had higher concentrations of DO than monitoring wells with detected petroleum hydrocarbon compounds. These measurements are consistent with historical values.

4.2.4 Oxidation-Reduction Potential

The average oxidation-reduction potential (ORP) in groundwater across the Site during the Reporting Period was 41.8 millivolts (mV). The minimum ORP value was -309.6 mV at monitoring well GW-1 on June 27, 2012; the maximum was 360.1 mV at monitoring well 1C-W-1 on February 28, 2012. ORP in groundwater at the Site is most-commonly positive. A positive ORP and DO in excess of approximately 1 mg/l indicates that conditions are conducive to aerobic degradation of petroleum hydrocarbons. These measurements were consistent with historical values.

4.2.5 Turbidity

The mean turbidity value in groundwater across the Site during the Reporting Period was 13.7 nephelometric turbidity units (NTU). Turbidity values ranged from 0 NTU at monitoring well 2A-W-42 on September 19, 2012, to a maximum of 615 NTU measured at monitoring well 1C-W-3 on September 20, 2012. There were two anomalous measurements during the monitoring period. These anomalies were not used in factoring the average due to instrumentation errors. Approximately 90 percent of the turbidity measurements during this reporting period were below approximately 25 NTU, and somewhat higher than presented in the previous groundwater monitoring report, when about 90 percent of the turbidity measurements were below approximately 10 NTU.

4.3 NWTPH-Dx

4.3.1 Applicable Groundwater Cleanup and Remediation Levels

The groundwater cleanup level (CUL) for NWTPH-Dx is 208 micrograms per liter (µg/l) and the remediation level (RL) is 477 µg/l as specified in Section 3.4 and Table 1 of the CAP. The CAP anticipates that cleanup levels will be attained at the CPOC following implementation of all



cleanup actions specified in the CAP. The approximate CPOC boundary is shown on Figure 6 of the CAP. As described in the CAP, the CUL for petroleum hydrocarbons 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 petroleum hydrocarbons in groundwater is intended to protect drinking water.

4.3.2 Analytical Results

NWTPH-Dx in groundwater was analyzed using Northwest Method NWTPH-Dx without silica gel cleanup (all samples), and with silica gel cleanup at selected sample locations, primarily in the Levee Zone. Analyses using samples prepared using the silica gel cleanup protocol were not performed during the December 2012 quarterly monitoring event.

DRO and ORO hydrocarbon fractions were added together to calculate an NWTPH-Dx concentration. If either the DRO or ORO fractions were not detected at or above the MDL, half of the MDL value was used to represent the non-detected component in the calculation. If both components were not detected, half of the MDL value of both components was added to represent the calculated NWTPH-Dx reporting value that was then denoted as not detected. Table 7 shows calculated NWTPH-Dx concentrations for samples not prepared with a silica gel cleanup. Table 8 shows calculated NWTPH-Dx concentrations for samples prepared with a silica gel cleanup, along with the NWTPH-Dx concentrations for the same sample without silica gel cleanup from Table 7. Figures 7 through 11 depict the groundwater NWTPH-Dx concentrations on Site plan maps for the five quarterly and semiannual monitoring events during the Reporting Period, and also show the estimated extent of light nonaqueous-phase liquid (LNAPL) identified at the Site during the five monitoring events of the Reporting Period.

Site-wide groundwater sampling was conducted on a semiannual schedule (March and September). In addition, select wells down-gradient of the HCC System, adjacent to the Former Maloney Creek Zone-East Wetland, the Levee Zone, and the HCC system gate and end wells were sampled on a quarterly schedule (June and December). Air sparging system wells were monitored and sampled on a monthly schedule.

Provided in the following sections is a discussion of the results of the semiannual Site-wide events (March and September 2012). Following this are discussions regarding results of more frequent monitoring events. The data are presented below by zone.

4.3.3 Results from Semiannual Site-Wide Groundwater Monitoring Events

Groundwater samples were collected from up to 57 locations during the March and September 2012 semiannual groundwater monitoring events. The Site-wide discussion below pertains to data collected from all monitoring locations, with the exception of HCC sentry, gate, and vault wells. Groundwater samples collected from all 57 locations sampled during the semiannual monitoring events are listed in Table 2. These samples were analyzed for NWTPH-Dx by Northwest Method NWTPH-Dx. NWTPH-Dx results from these semiannual events are shown on Figures 8 and 10, and are presented in Tables 7 and 8.



4.3.3.1 March 2012

The March 2012 semiannual groundwater monitoring event occurred from March 26 through 28, 2012. Groundwater samples were collected from 33 monitoring wells at the Site (not including HCC sentry, gate, or vault wells) during this Reporting Period. NWTPH-Dx was detected in 28 of the 33 samples collected during March 2012. NWTPH-Dx concentrations ranged from 42.5 to 27,400 µg/l, six of which exceeded the RL of 477 µg/l.

RL exceedances were detected in samples collected from monitoring wells 2A-W-9, 2A-W-10, 5-W-15, 5-W-50, 5-W-51, and 5-W-56. The RL exceedances occurred in monitoring wells located primarily within or adjacent to residual LNAPL plumes. Exceptions were monitoring well 2A-W-9 within the Railyard Zone and near a former LNAPL area, and monitoring well 5-W-15 in 6th Street and near an area containing LNAPL. Approximately 0.5 foot of LNAPL was measured in monitoring well 5-W-51 approximately 80 feet southwest of monitoring well 5-W-15 during the March 2012 groundwater monitoring event.

During the March 2012 groundwater monitoring event, six groundwater samples collected from the six Levee Zone monitoring wells were analyzed by Northwest Method NWTPH-Dx after the samples had been prepared with a silica gel cleanup. NWTPH-Dx was detected in two of the six samples prepared with silica gel cleanup. NWTPH-Dx concentrations (with silica gel cleanup) collected from monitoring wells 5-W-15 and 5-W-18 were 163.5 and 45.5 µg/l, respectively, and below the RL and CUL.

4.3.3.2 September 2012

The September 2012 semiannual groundwater monitoring event occurred from September 18 through 20, 2012. Groundwater samples were collected from 31 monitoring locations around the Site (not including HCC sentry, gate, or vault wells) during the September 2012 monitoring event and analyzed by Northwest Method NWTPH-Dx without silica gel cleanup. NWTPH-Dx was detected in 16 of the 31 samples collected during the September 2012 monitoring event. NWTPH-Dx concentrations ranged from 136 to 3,540 µg/l. NWTPH-Dx concentrations exceeding the RL were detected in four of these samples, with concentrations ranging from 500 to 3,540 µg/l.

The RL exceedances were detected in samples from monitoring wells 2A-W-9, 5-W-15, 5-W-50, and 5-W-56. The RL exceedances occurred in monitoring wells located primarily within or adjacent to residual LNAPL plumes (Figure 13). Exceptions were monitoring well 2A-W-9 within the Rail Yard Zone and near a former LNAPL area, and monitoring well 5-W-15 located in 6th Street and near an area containing LNAPL. Approximately 0.1 foot of LNAPL was measured in monitoring well 5-W-51 approximately 80 feet southwest of monitoring well 5-W-15 during the September 2012 groundwater monitoring event.



During the September 2012 groundwater monitoring event, six groundwater samples collected from the six Levee Zone monitoring locations were analyzed after the samples had been prepared with a silica gel cleanup. NWTPH-Dx was not detected in any of the six samples.

During the September 2012 monitoring event, high analytical method detection limits were provided by Pace Analytical Services, Inc. that were related to laboratory error with regards to project requirements and inability to re-run the samples within the analytical method holding time. The highest analytical method detection limit achieved by the analytical laboratory during the September 2012 monitoring event was 280 µg/l which is less than the 477 µg/l RL for total petroleum hydrocarbons.

4.3.4 Air Sparging System Monitoring

Groundwater samples were collected from air sparging area monitoring wells 1C-W-1, 1C-W-7, and 1C-W-8 on a monthly basis throughout the Reporting Period. NWTPH-Dx results from these events are shown on Figures 9 through 13 (for the quarterly and semiannual sampling events) and in Table 7 (12 monthly events). A total of 45 groundwater samples were collected from these three monitoring wells during the Reporting Period. NWTPH-Dx was detected in 41 of the 45 samples. NWTPH-Dx concentrations in the samples ranged from 43.5 to 625 µg/l. Of the 41 samples, only one sample collected from monitoring well 1C-W-8 exceeded the NWTPH-Dx RL. After review of the laboratory analytical data, the calculated NWTPH-Dx value at this location resulted from an anomalously high ORO MDL of 750 µg/l, although the ORO result was non-detect at this level. Air sparging system well monitoring results are described further and evaluated in the 2012 Annual Air Sparging System Report being prepared by Farallon (2013b).

4.3.5 Hydraulic Control and Containment System

The following sections summarize the groundwater analytical results from wells that monitor the HCC System and adjacent areas. Quarterly monitoring was completed during the Reporting Period for the HCC System monitoring wells in the backfill and down-gradient of the HCC System, and for the HCC System performance end and gate monitoring wells. If a sample from an HCC System monitoring well exceeded the NWTPH-Dx RL, the monitoring well was re-sampled the following month. NWTPH-Dx was detected at a concentration above the RL only in monitoring well GW-2 in March 2012. Monitoring well GW-2 was re-sampled in April 2012, and the NWTPH-Dx concentration was below the RL. NWTPH-Dx results from these events are shown on Figures 7 through 11 and in Table 7. The results from the HCC System well monitoring events are described further and evaluated in the 2012 Annual Hydraulic Control and Containment System Operations Report being prepared by Farallon (2013c).

4.3.5.1 Backfill and Down-gradient of the HCC

Groundwater samples were collected quarterly from groundwater monitoring wells within the clean backfill placed during the HCC barrier wall construction and down-gradient of the HCC wall at monitoring wells 1B-W-23, 1C-W-7, 2A-W-40, 2A-W-41, 2A-W-42, and 5-W-43. An exception to the quarterly sampling frequency was



monitoring well 1C-W-7, which is sampled monthly because it is also used to monitor the performance of the air sparging system at the Site. A total of 38 groundwater samples were collected throughout the Reporting Period from these six down-gradient monitoring wells and analyzed by Northwest Method NWTPH-Dx without silica gel cleanup. NWTPH-Dx was detected in 26 of the 38 samples. NWTPH-Dx concentrations in the samples ranged from 46.5 to 224 µg/l. Of the 26 samples with detected NWTPH-Dx, none of detections exceeded the RL.

4.3.5.2 HCC System Performance

Groundwater samples were collected quarterly throughout the Reporting Period from monitoring wells EW-1 and EW-2A located at the west and east ends of the HCC barrier wall, respectively. Groundwater samples were not collected from monitoring wells EW-1 or EW-2A during the December 2012 event due to inaccessibility resulting from heavy snow accumulation. NWTPH-Dx was detected in two of the four samples collected from monitoring well EW-1, and in two of the four samples collected from monitoring well EW-2A. NWTPH-Dx concentrations were below the RL in each of the four samples with detections.

Groundwater samples were collected quarterly during the Reporting Period from gate monitoring wells (GW-1 to GW-4). A total of 21 groundwater samples were collected from these four locations during the Reporting Period. NWTPH-Dx was detected in 11 of the 21 samples. NWTPH-Dx concentrations in the samples ranged from 45 to 500 µg/l. NWTPH-Dx was detected at a concentration exceeding the RL in monitoring well GW-2 in March 2012. Monitoring well GW-2 was re-sampled in April 2012, and the NWTPH-Dx result was below the RL.

Groundwater samples were collected from the gate sentry monitoring wells during the semiannual monitoring events in March and September 2012. The procedures identified in the CAP require that groundwater samples be collected from the gate sentry wells following a system shutdown lasting more than 48 hours. The system shut down in January 2012 after a major snowfall event that resulted in a power outage to the Town of Skykomish for a period longer than 48 hours. The gate sentry wells were not sampled until the March 2012 semiannual monitoring event due to the heavy snow accumulation. No other system shutdown lasting 48 hours or longer occurred during the Reporting Period. Gate sentry wells are intended to enable monitoring of petroleum hydrocarbon concentrations in the reactive material in each gate to evaluate treatment capacity and exhaustion rates. Petroleum hydrocarbon constituents in groundwater at these locations are 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 for the semiannual events are presented in Table 7 for reference.

4.3.6 Levee Zone

Groundwater samples were collected quarterly during the Reporting Period from Levee Zone monitoring wells 5-W-14 to 5-W-19. The NWTPH-Dx results from these events are shown on Figures 7 through 11. A total of 29 groundwater samples were collected from the six Levee



Zone monitoring wells during the Reporting Period and analyzed by Northwest Method NWTPH-Dx both with and without silica gel cleanup. NWTPH-Dx was detected in 12 of the 29 samples not prepared with a silica gel cleanup. NWTPH-Dx was detected in 2 of the 24 samples prepared with silica gel cleanup. No silica gel cleanup was conducted on the groundwater samples collected in December 2012. NWTPH-Dx concentrations in the samples without silica gel cleanup ranged from 45.5 to 900 µg/l. NWTPH-Dx concentrations in samples prepared with silica gel cleanup ranged from 45.5 to 163.5 µg/l. Of the 12 samples not prepared with silica gel cleanup, 3 contained NWTPH-Dx concentrations exceeding the CUL, with concentrations ranging from 224 to 900 µg/l. NWTPH-Dx CUL exceedances were detected in samples from monitoring well 5-W-15 during each of the five monitoring events, and in monitoring well 5-W-18 during two of the five monitoring events. Monitoring well 5-W-15 is located within the 2006 interim cleanup action area, adjacent to the Skykomish School, and where accumulations of LNAPL have been measured.

4.3.7 Former Maloney Creek Zone – East Wetland and Surrounding Area

Groundwater samples were collected quarterly from monitoring wells 2A-W-9, 2A-W-10, 2B-W-4, MW-3, and MW-4 adjacent to the Former Maloney Creek Zone-East Wetland during the Reporting Period. NWTPH-Dx results from these events are presented in Table 7 and are shown on Figures 7 through 11. A total of 25 groundwater samples were collected throughout the Reporting Period from these five monitoring locations. NWTPH-Dx was detected in 17 of the 25 samples. NWTPH-Dx concentrations ranged from 56.5 to 4,300 µg/l. Of the 17 samples with detections, 5 had NWTPH-Dx concentrations ranging from 500 to 4,300 µg/l, exceeding the RL. The NWTPH-Dx exceedances were detected in samples collected from monitoring wells 2A-W-9 and 2A-W-10.



5.0 CONCLUSIONS

This report presents the results of groundwater monitoring performed for the Reporting Period from October 27, 2011 to December 27, 2012. The groundwater elevation and analytical data collected throughout the Reporting Period were compared to previous monitoring data. These data indicate that groundwater flow gradients are relatively consistent throughout the year and similar to gradients observed during previous monitoring events.

Site-wide analytical data collected during the Reporting Period indicate that the overall extent of the LNAPL and dissolved plumes remained relatively stable. The estimated extent of LNAPL at the Site is depicted in Figures 7 through 11 for each of the five monitoring events in the Reporting Period and shows LNAPL thicknesses measured during each event and estimated extent of inferred LNAPL based on prior monitoring events. Up to 1.6 feet of LNAPL encountered during the Reporting Period along sections of the south side of the HCC barrier wall and in the area around the Skykomish School. The thickest accumulations were measured west of the central gate along the HCC barrier wall between the central and western vaults, and heavy sheens were noted in the recovery wells and oil-water separator at the western vault. LNAPL mobility is monitored as part of the HCC System operations (Farallon 2013c). LNAPL was not measured during the Reporting Period in the southern portion of the railyard where it had been observed previously proximate to monitoring wells MW-11 and 2A-W-10.

Groundwater NWTPH-Dx concentrations during the Reporting Period exceeded the CUL of 208 $\mu\text{g/l}$ and/or the RL of 477 $\mu\text{g/l}$ at monitoring wells down-gradient of and immediately adjacent to areas currently or formerly containing LNAPL. A total of 57 wells were sampled, with samples from 45 monitoring wells having at least one detection of NWTPH-Dx. Of these detections, samples from two of the monitoring wells in the Levee Zone exceeded the CUL, and samples from six monitoring wells exceeded the RL. The data do not indicate significant migration of LNAPL or changes in NWTPH-Dx concentrations during the Reporting Period. The data indicate that the HCC System is effectively preventing LNAPL and NWTPH-Dx from passing through the HCC barrier gates.

With the exception of the Skykomish School, 2011 marked the completion of cleanup action work at the Site. Cleanup at the school yard is tentatively scheduled to occur during the summer of 2013, followed by treatment beneath the Skykomish School building in 2014, pending negotiation of access agreements with the School District. Cleanup work to date has included installation of the HCC System and an air sparge system, and excavation of soil containing NWTPH-Dx and free product throughout a substantive portion of the Site. In accordance with the 2010 Compliance Monitoring Plan Update (AECOM 2010a), Site-wide groundwater monitoring has been conducted semiannually at the Site since 2006. In addition, groundwater monitoring in the air sparge system area has been conducted monthly, and a number of monitoring wells down- and up-gradient of the HCC System and along the levee have been monitored quarterly.

Upon completion of all cleanup actions specified in the CAP, groundwater monitoring will be conducted in accordance with a Long-Term Confirmational Monitoring Plan, which will be



prepared and submitted to Ecology in accordance with Exhibit C of the Consent Decree. In advance of developing the Long-Term Confirmational Monitoring Plan, BNSF proposes a number of changes to the groundwater monitoring activities conducted to date, as summarized below.

As outlined in the 2012 Annual Air Sparging System Report (Farallon 2013b), BNSF proposes to discontinue operation of the air sparge system. The 2012 Annual Hydraulic Control and Containment System Operations Report (Farallon 2013c) presents results of testing conducted during operation of the HCC System. Groundwater monitoring summarized in that report includes quarterly and semiannual groundwater monitoring associated with operation of the HCC System, including end wells EW-1 and EW-2A and gate wells GW-1 through GW-4, and semiannual monitoring of 20 sentry wells installed in the activated carbon media designed to treat dissolved NWTPH-Dx as it flows through the gates.

BNSF proposes that the number of wells monitored for NWTPH-Dx be reduced to those monitoring wells proximate to areas where cleanup work remains, measured LNAPL or sheen is present, and at the down-gradient monitoring wells along the Skykomish River. Modifications to the groundwater monitoring approach will be documented in an update to the 2010 GWMP with concurrence from Ecology. No changes are proposed to the number of locations for Site-wide groundwater level gauging at this time.



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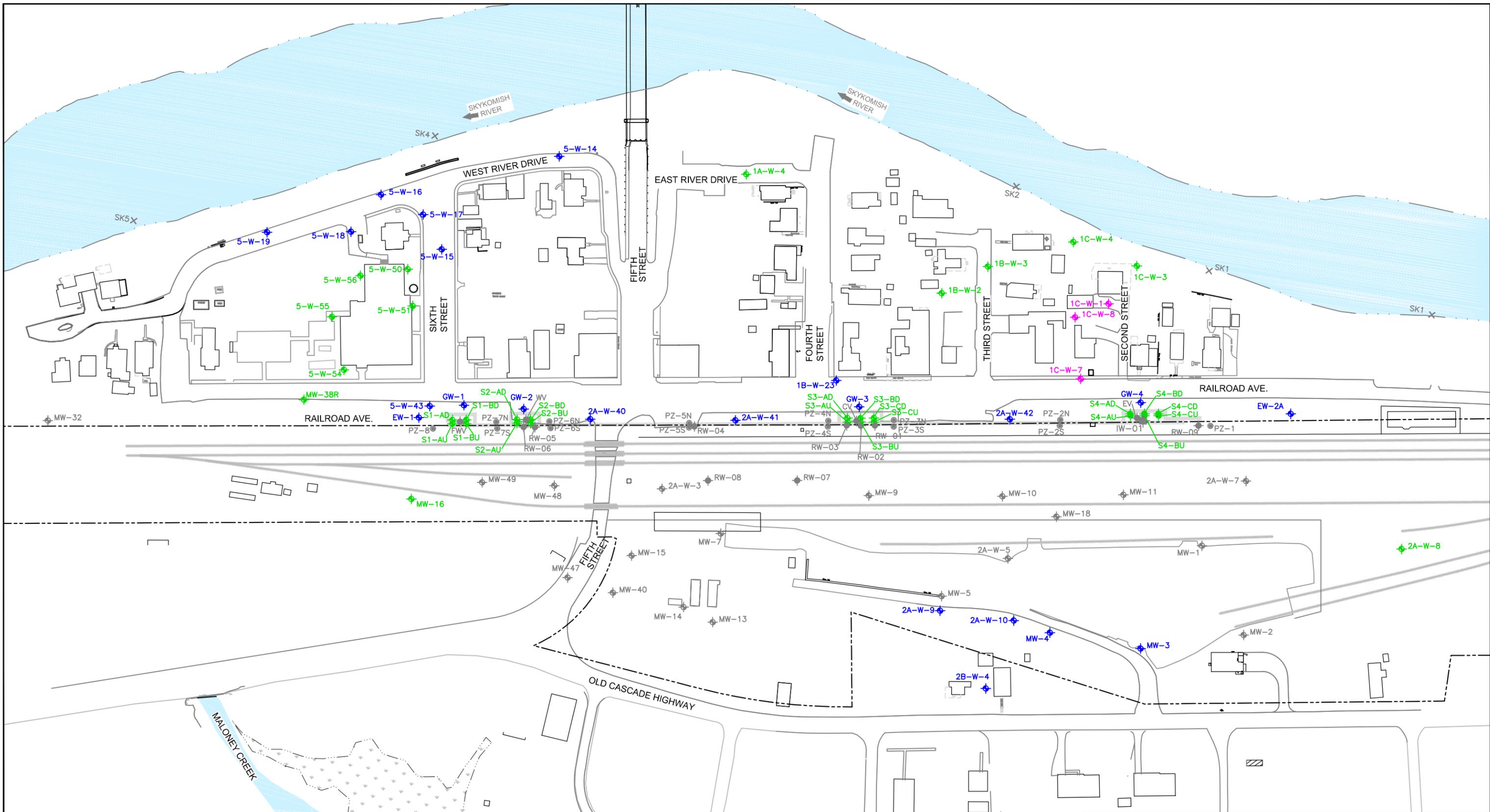
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FIGURES

2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-043



LEGEND

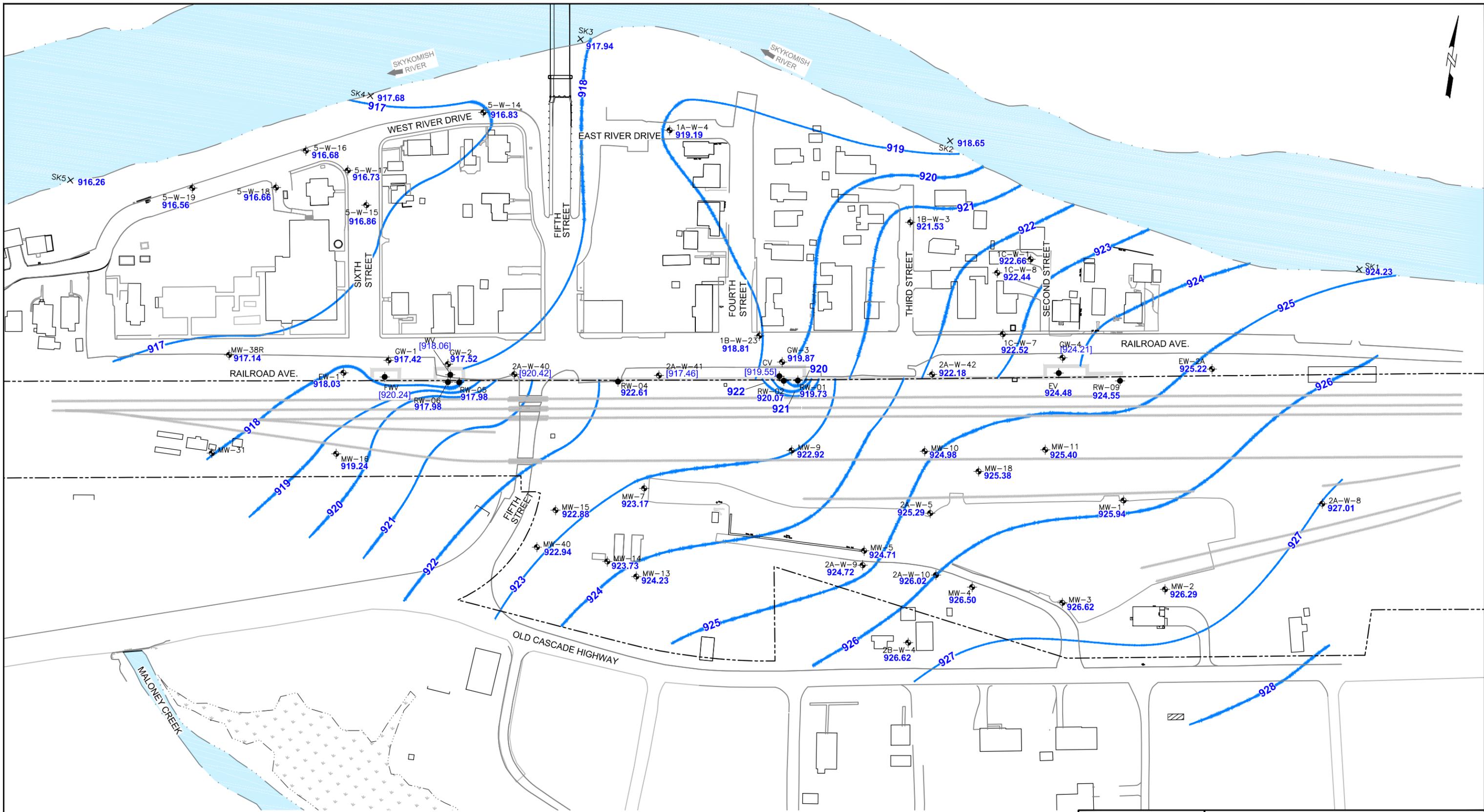
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- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ■ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS
- ◆ WELLS SAMPLED MONTHLY
- ◆ WELLS SAMPLED QUARTERLY (ALSO INCLUDES WELLS SAMPLED MONTHLY)
- ◆ WELLS SAMPLED SEMIANNUALLY (ALSO INCLUDES WELLS SAMPLED MONTHLY AND QUARTERLY)
- ✕ ● ■ ● ◆ GAUGE WELLS




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FIGURE 1
SITE PLAN SHOWING
GROUNDWATER MONITORING NETWORK
BNSF FORMER MAINTENANCE
AND FUELING FACILITY
SKYKOMISH, WASHINGTON
FARALLON PN: 683-043

Drawn By: DEW	Checked By: JP	Date: 7/27/13	Disk Reference: 683043
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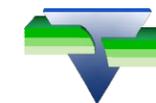
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- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 X SKYKOMISH RIVER GAUGE STATIONS

LEGEND

- 926.62 GROUNDWATER ELEVATION (DECEMBER 13, 2011)
- [924.21] GROUNDWATER ELEVATION NOT CONSIDERED FOR CONTOURING PURPOSES
- 928— APPROXIMATE GROUNDWATER ELEVATION CONTOUR

NOTE:

SOME OF THE MEASURED HEAD VALUES IN CLOSE PROXIMITY TO THE BARRIER WALL MAY EXHIBIT SOME VARIABILITY/SLIGHT INCONSISTENCY WITH THE INTERPRETED CONTOURS. THIS COULD BE ATTRIBUTED TO VARIABILITY OF MEASUREMENT PRACTICE WITH RESPECT TO VAULT LIDS.



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FIGURE 2

DECEMBER 2011
GROUNDWATER ELEVATION CONTOUR MAP
BNSF FORMER MAINTENANCE AND
FUELING FACILITY
SKYKOMISH, WASHINGTON

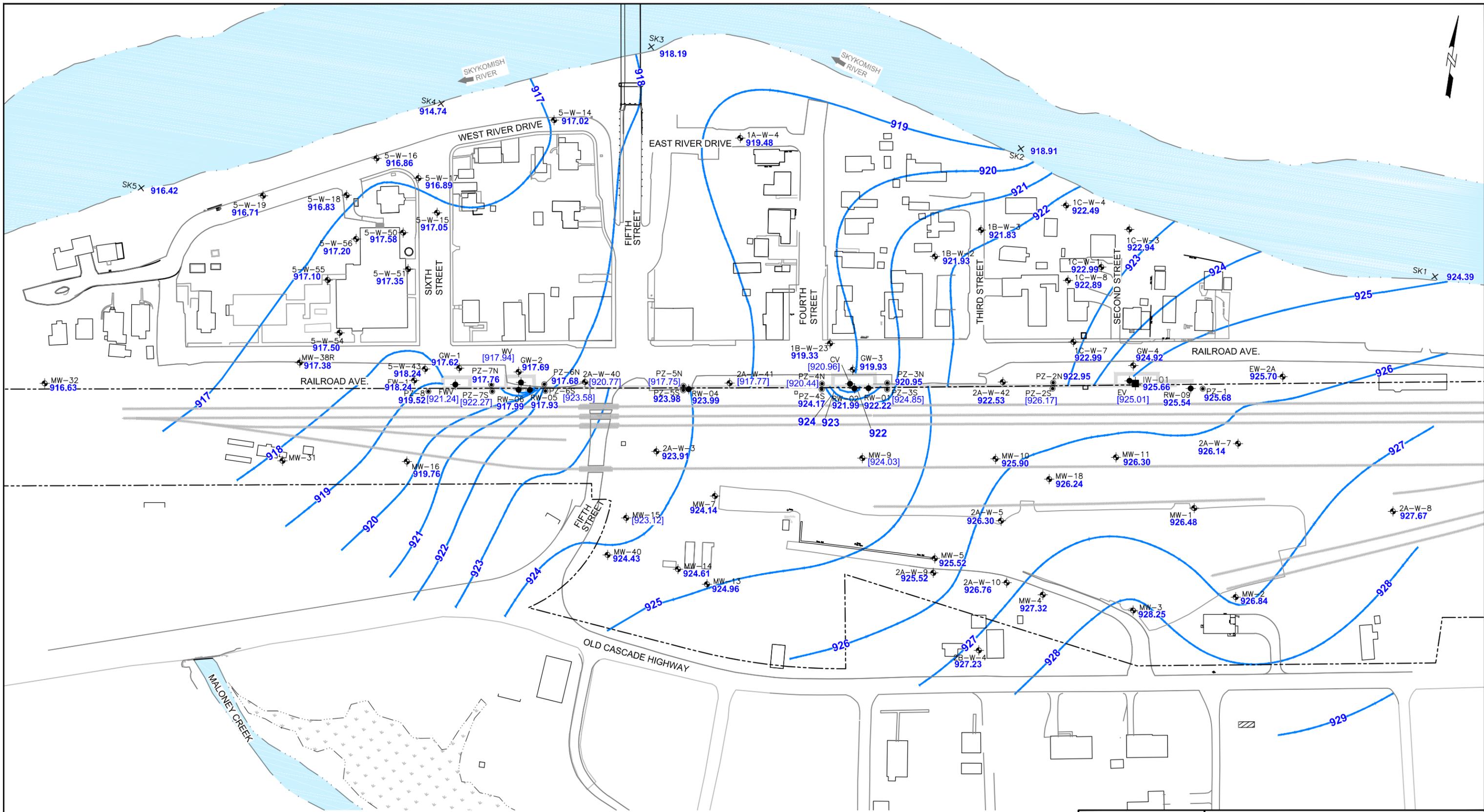
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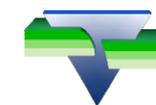
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- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ■ INJECTION WELL
- FMW ● VAULT WELL
- SK4 X SKYKOMISH RIVER GAUGE STATIONS

LEGEND

- 927.23 GROUNDWATER ELEVATION (MARCH 23, 2012)
- [923.12] GROUNDWATER ELEVATION NOT CONSIDERED FOR CONTOURING PURPOSES
- 928— APPROXIMATE GROUNDWATER ELEVATION CONTOUR

NOTE:

SOME OF THE MEASURED HEAD VALUES IN CLOSE PROXIMITY TO THE BARRIER WALL MAY EXHIBIT SOME VARIABILITY/SLIGHT INCONSISTENCY WITH THE INTERPRETED CONTOURS. THIS COULD BE ATTRIBUTED TO VARIABILITY OF MEASUREMENT PRACTICE WITH RESPECT TO VAULT LIDS.



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FIGURE 3

MARCH 2012
GROUNDWATER ELEVATION CONTOUR MAP
BNSF FORMER MAINTENANCE AND
FUELING FACILITY
SKYKOMISH, WASHINGTON

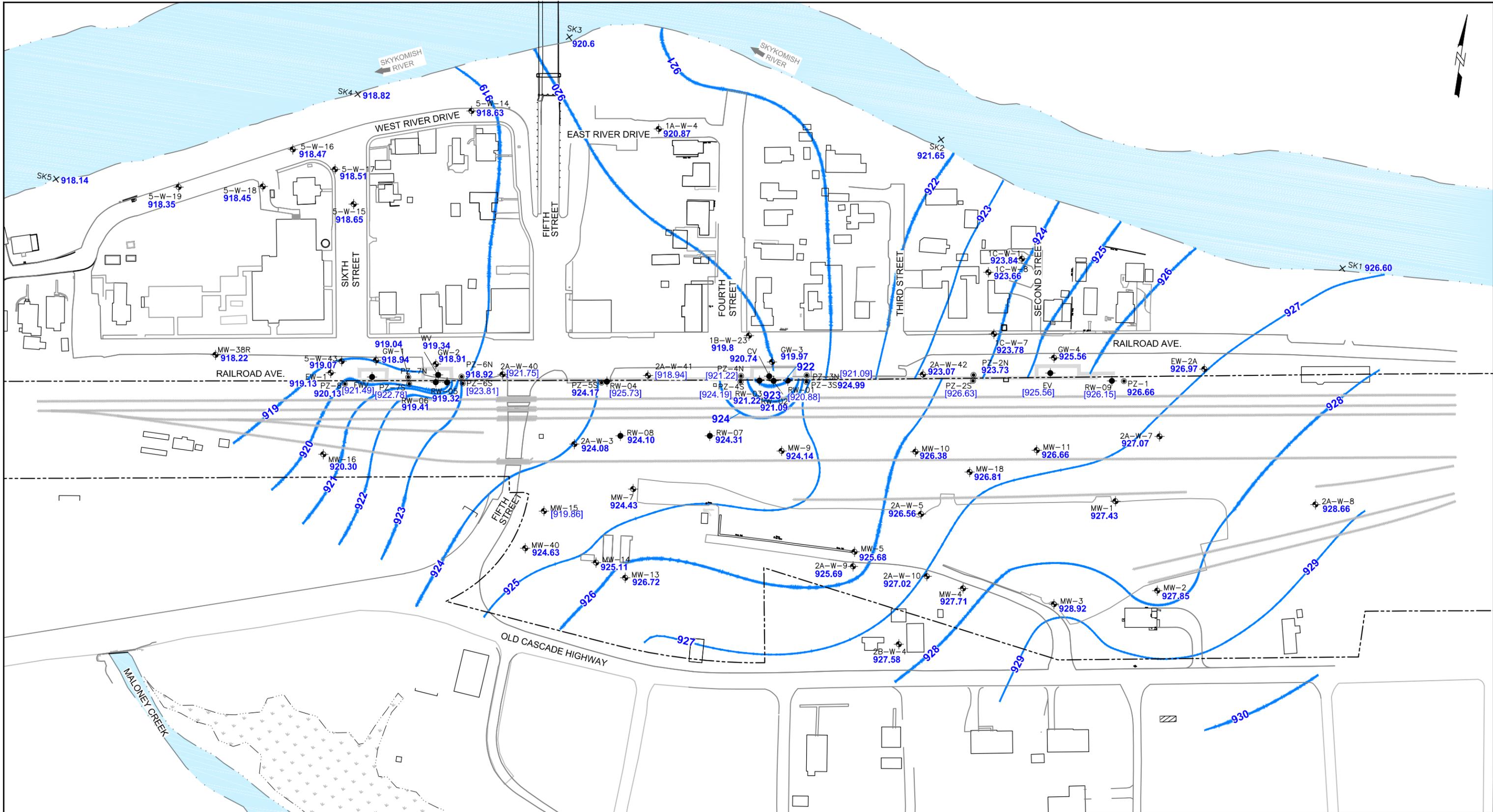
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Drawn By: DEW

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Date: 7/29/13

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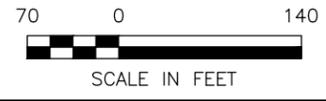


- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 X SKYKOMISH RIVER GAUGE STATIONS

LEGEND

- 927.58 GROUNDWATER ELEVATION (JUNE 26, 2012)
- [919.86] GROUNDWATER ELEVATION NOT CONSIDERED FOR CONTOURING PURPOSES
- 928— APPROXIMATE GROUNDWATER ELEVATION CONTOUR

NOTE:
 SOME OF THE MEASURED HEAD VALUES IN CLOSE PROXIMITY TO THE BARRIER WALL MAY EXHIBIT SOME VARIABILITY/SLIGHT INCONSISTENCY WITH THE INTERPRETED CONTOURS. THIS COULD BE ATTRIBUTED TO VARIABILITY OF MEASUREMENT PRACTICE WITH RESPECT TO VAULT LIDS.



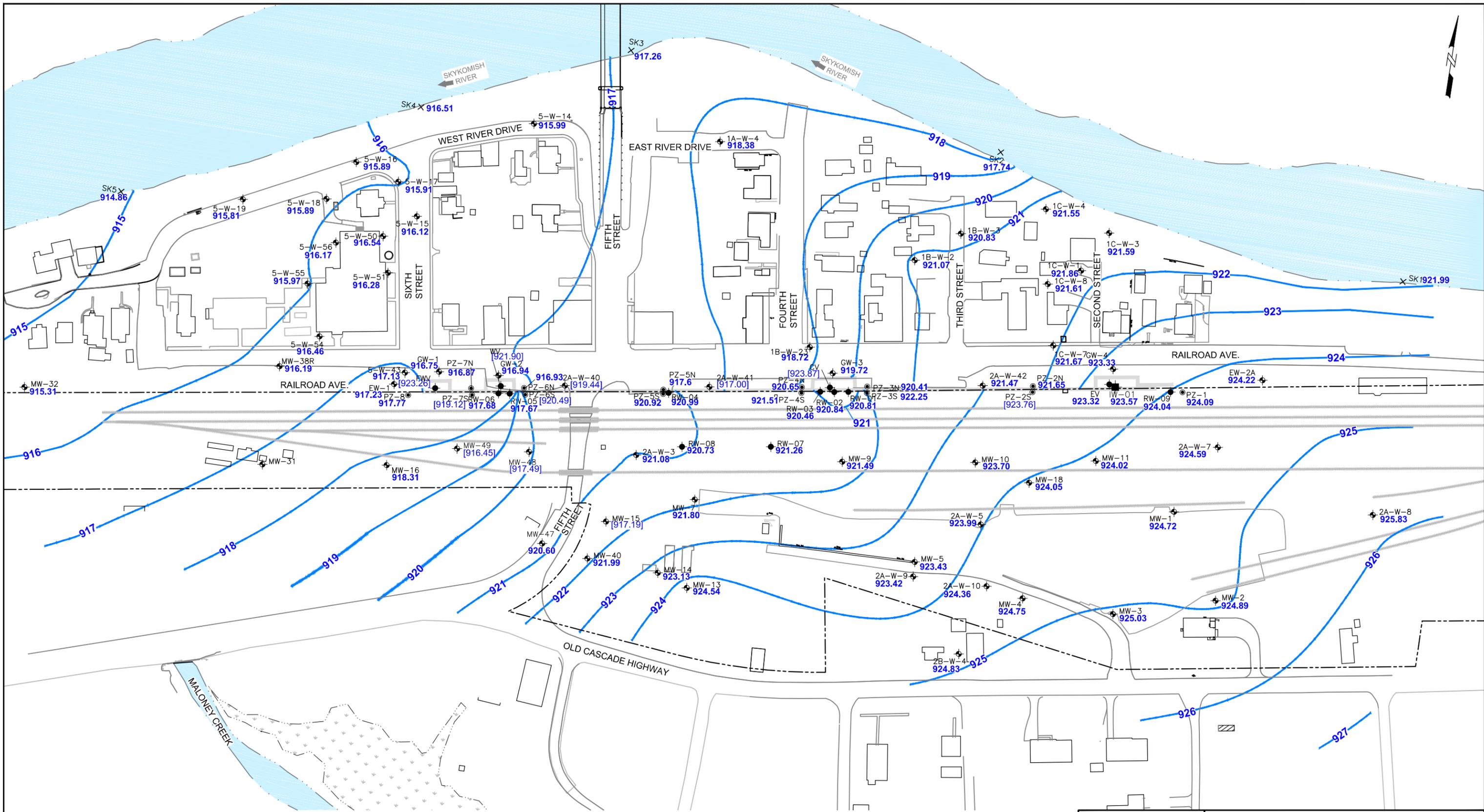

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FIGURE 4

JUNE 2012
 GROUNDWATER ELEVATION CONTOUR MAP
 BNSF FORMER MAINTENANCE AND
 FUELING FACILITY
 SKYKOMISH, WASHINGTON

FARALLON PN: 683-043

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- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ■ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS

LEGEND

- 927.23 GROUNDWATER ELEVATION (SEPTEMBER 17, 18, AND 20, 2012)
- [917.19] GROUNDWATER ELEVATION NOT CONSIDERED FOR CONTOURING PURPOSES
- 928— APPROXIMATE GROUNDWATER ELEVATION CONTOUR

NOTE:

SOME OF THE MEASURED HEAD VALUES IN CLOSE PROXIMITY TO THE BARRIER WALL MAY EXHIBIT SOME VARIABILITY/SLIGHT INCONSISTENCY WITH THE INTERPRETED CONTOURS. THIS COULD BE ATTRIBUTED TO VARIABILITY OF MEASUREMENT PRACTICE WITH RESPECT TO VAULT LIDS.



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FIGURE 5

SEPTEMBER 2012
GROUNDWATER ELEVATION CONTOUR MAP
BNSF FORMER MAINTENANCE AND
FUELING FACILITY
SKYKOMISH, WASHINGTON

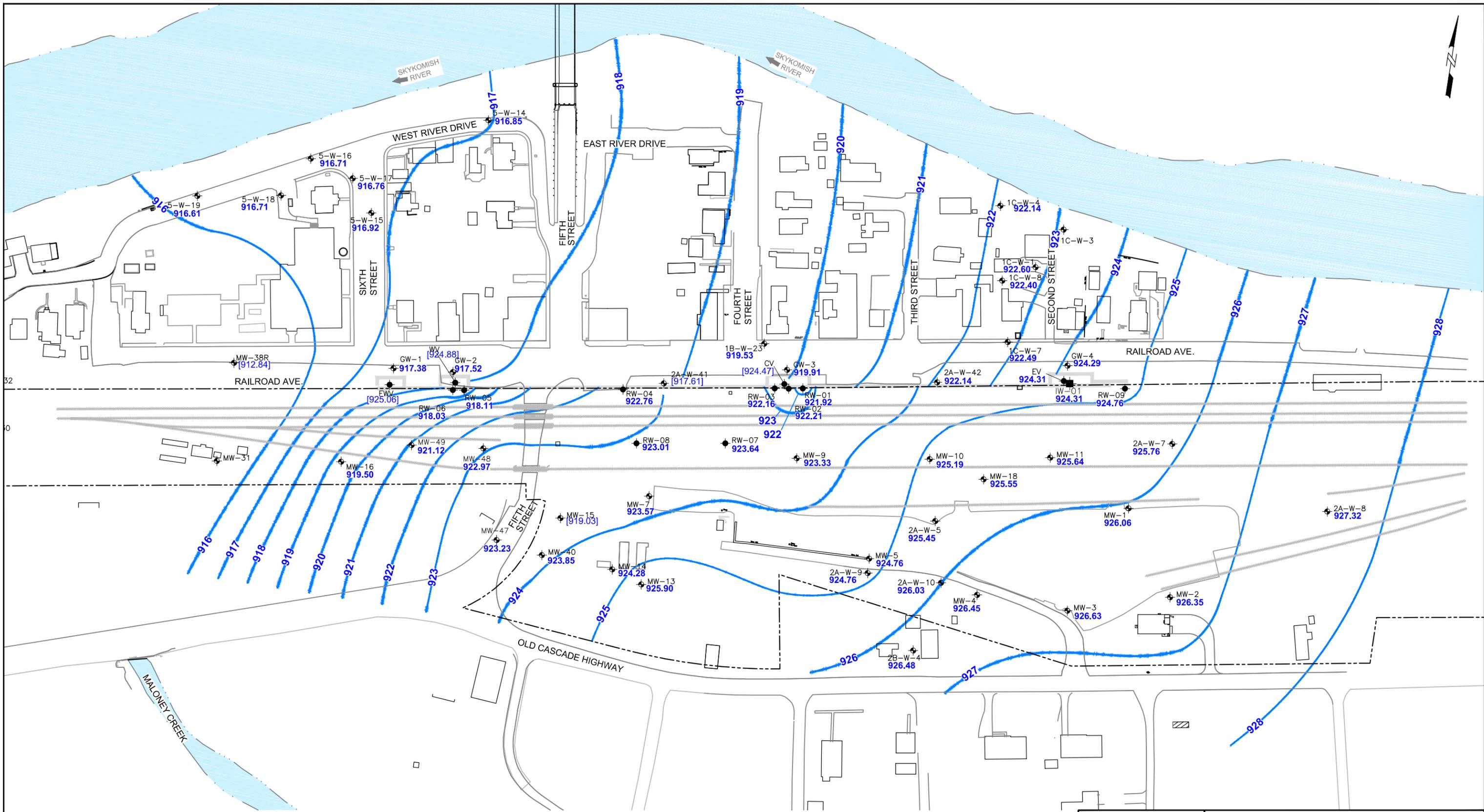
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- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS

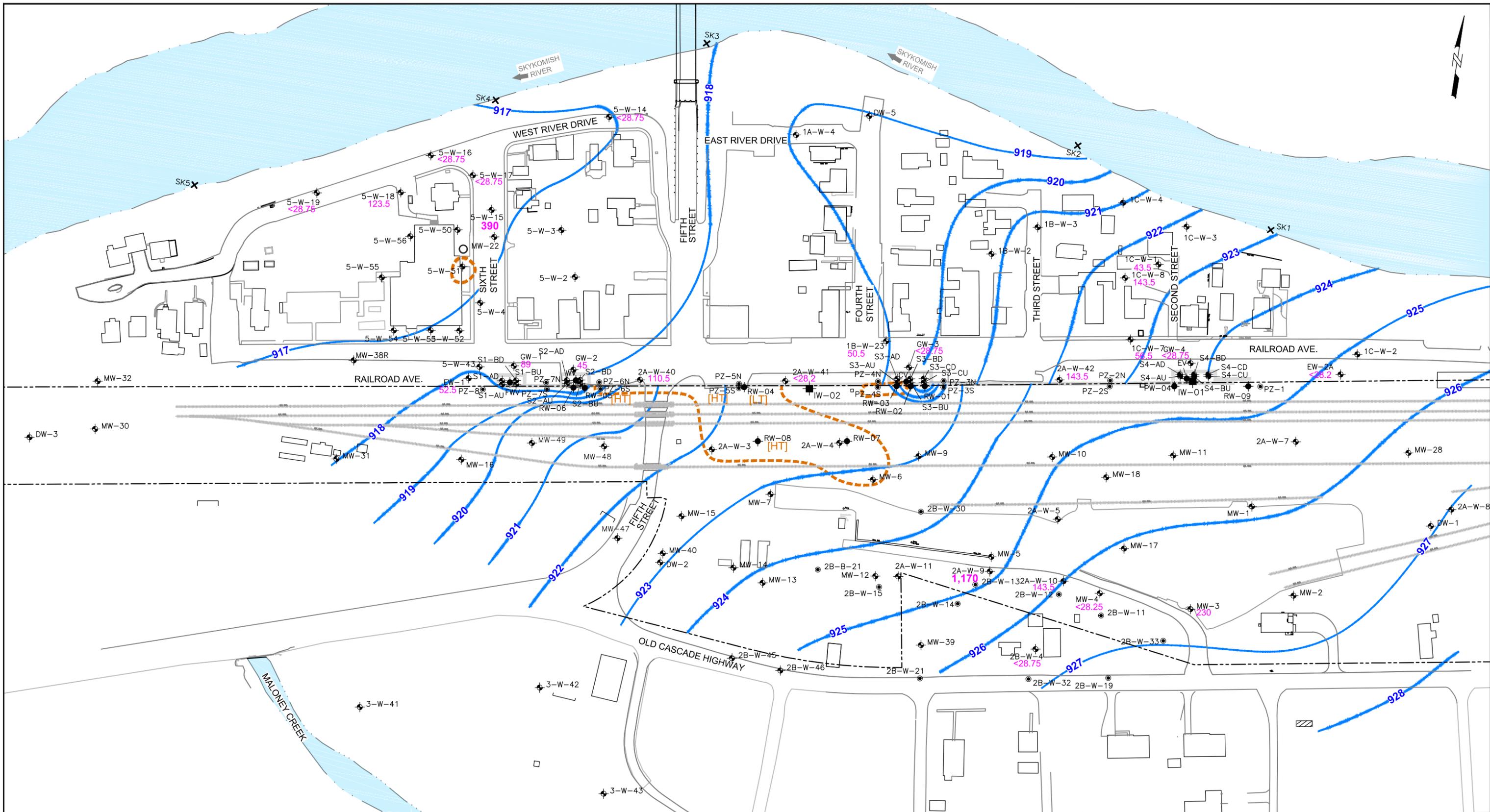
LEGEND

- 926.48 ◆ GROUNDWATER ELEVATION (DECEMBER 26 AND 27, 2012)
- [919.03] ◆ GROUNDWATER ELEVATION NOT CONSIDERED FOR CONTOURING PURPOSES
- 928— ◆ APPROXIMATE GROUNDWATER ELEVATION CONTOUR

NOTE:
 SOME OF THE MEASURED HEAD VALUES IN CLOSE PROXIMITY TO THE BARRIER WALL MAY EXHIBIT SOME VARIABILITY/SLIGHT INCONSISTENCY WITH THE INTERPRETED CONTOURS. THIS COULD BE ATTRIBUTED TO VARIABILITY OF MEASUREMENT PRACTICE WITH RESPECT TO VAULT LIDS.



 FARALLON CONSULTING 975 5th Avenue Northwest Issaquah, WA 98027	FIGURE 6	
	DECEMBER 2012 GROUNDWATER ELEVATION CONTOUR MAP BNSF FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON FARALLON PN: 683-043	
Drawn By: DEW	Checked By: TC	Date: 7/29/13
Disk Reference: 683043		



- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS

LEGEND

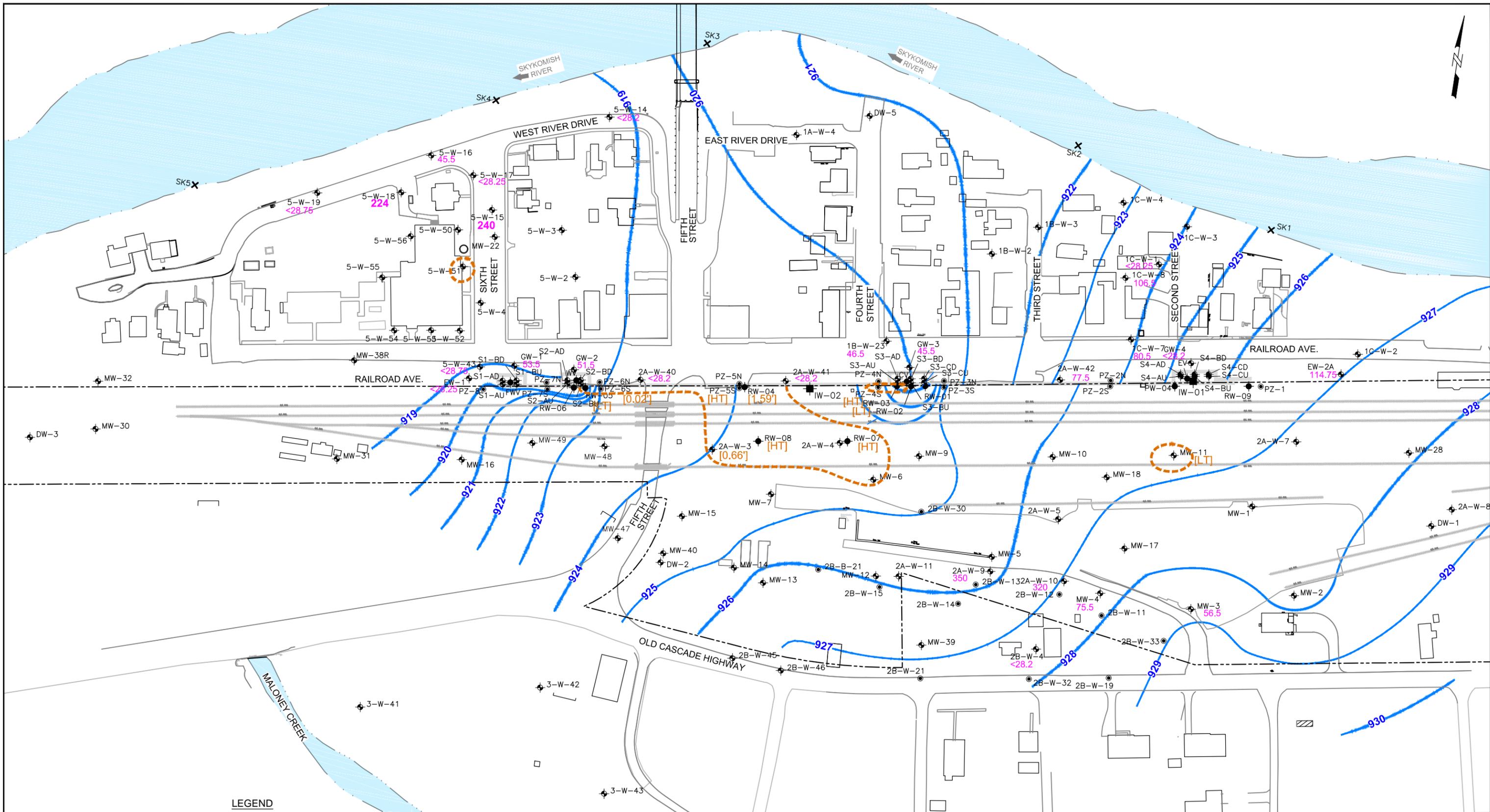
- 50.5 TOTAL PETROLEUM HYDROCARBONS IN MICROGRAMS PER LITER CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL-RANGE AND OIL-RANGE FRACTIONS. IF EITHER THE DIESEL OR OIL-RANGE FRACTIONS WERE NOT DETECTED THEN HALF THE ANALYTICAL METHOD DETECTION LIMIT WAS USED IN THE CALCULATION. IF BOTH FRACTIONS WERE NOT DETECTED, THEN HALF THE ANALYTICAL METHOD DETECTION LIMITS WERE ADDED TO REPRESENT THE CALCULATED TOTAL PETROLEUM HYDROCARBONS CONCENTRATION PREFIXED BY THE "<" SYMBOL.
- BOLD** INDICATES THAT THE TOTAL PETROLEUM HYDROCARBONS CONCENTRATION EXCEEDS THE 208 MICROGRAMS PER LITER CLEANUP LEVEL IN LEVEL ZONE MONITORING WELLS OR THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN OTHER MONITORING WELLS.
- ESTIMATED EXTENT OF LNAPL AS INDICATED BY LIGHT TRACE (LT), HEAVY TRACE (HT), OR PRODUCT THICKNESS ON GROUNDWATER DURING OR PRIOR TO THE MONITORING PERIOD.
- [HT] HEAVY TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET
- [LT] LIGHT TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET



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FIGURE 7
 DECEMBER 2011
 TOTAL PETROLEUM HYDROCARBONS
 IN GROUNDWATER
 BNSF FORMER MAINTENANCE
 AND FUELING FACILITY
 SKYKOMISH, WASHINGTON
 FARALLON PN: 683-043

Drawn By: DEW	Checked By: TC	Date: 7/29/13	Disk Reference: 683043
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LEGEND

- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS

- 50.5 TOTAL PETROLEUM HYDROCARBONS IN MICROGRAMS PER LITER CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL-RANGE AND OIL-RANGE FRACTIONS. IF EITHER THE DIESEL OR OIL-RANGE FRACTIONS WERE NOT DETECTED THEN HALF THE ANALYTICAL METHOD DETECTION LIMIT WAS USED IN THE CALCULATION. IF BOTH FRACTIONS WERE NOT DETECTED, THEN HALF THE ANALYTICAL METHOD DETECTION LIMITS WERE ADDED TO REPRESENT THE CALCULATED TOTAL PETROLEUM HYDROCARBONS CONCENTRATION PREFIXED BY THE "<" SYMBOL.
- BOLD** INDICATES THAT THE TOTAL PETROLEUM HYDROCARBONS CONCENTRATION EXCEEDS THE 208 MICROGRAMS PER LITER CLEANUP LEVEL IN LEVEE ZONE MONITORING WELLS OR THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN OTHER MONITORING WELLS.
- Estimated extent of LNAPL as indicated by light trace (LT), heavy trace (HT), or product thickness on groundwater during or prior to the monitoring period.
- [HT] HEAVY TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET
- [LT] LIGHT TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET
- [1.15'] MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET

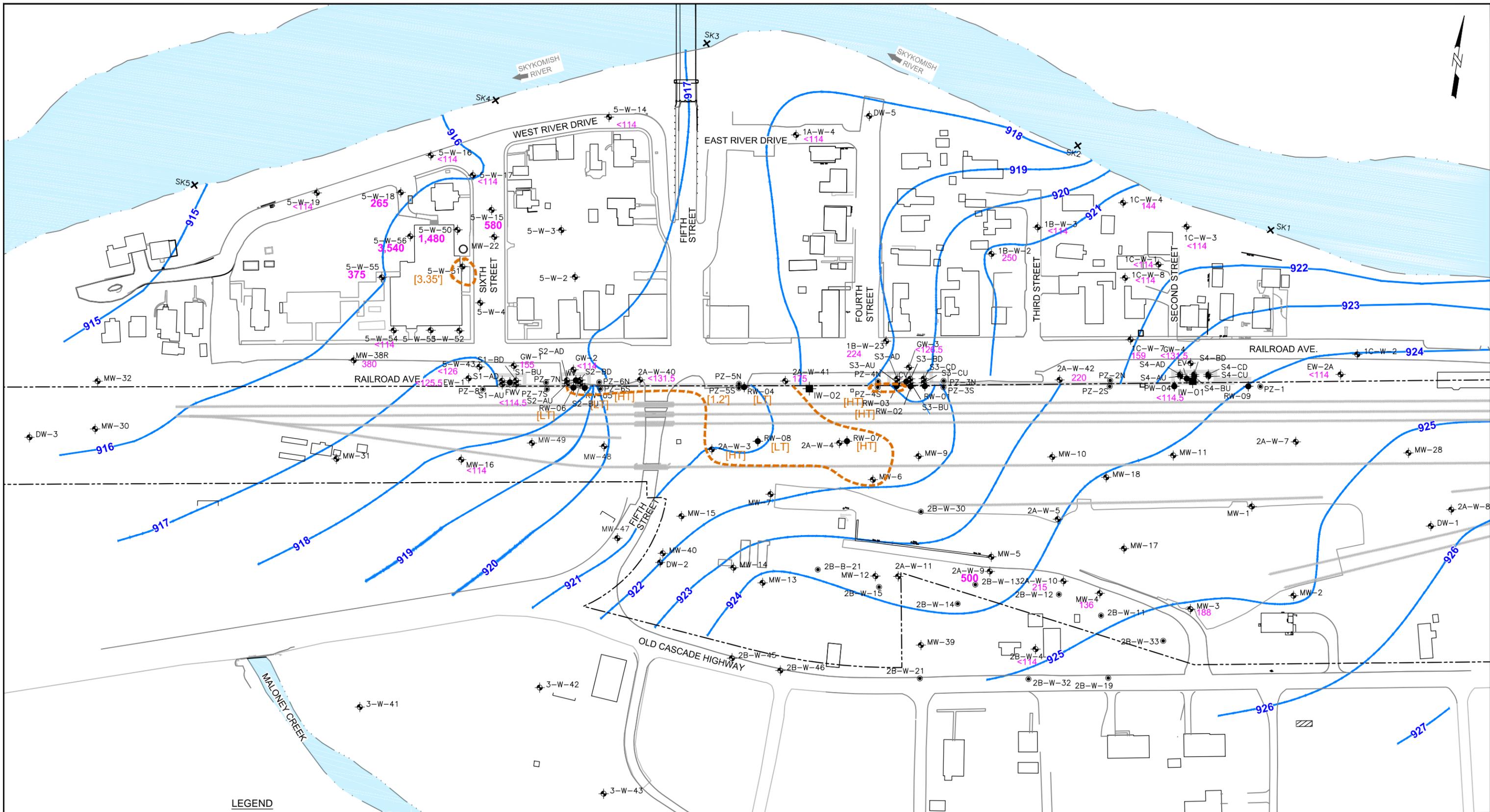



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FIGURE 9
JUNE 2012
GROUNDWATER ELEVATION CONTOUR MAP
BNSF FORMER MAINTENANCE
AND FUELING FACILITY
SKYKOMISH, WASHINGTON

FARALLON PN: 683-043

Drawn By: DEW	Checked By: TC	Date: 7/27/13	Disk Reference: 683043
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LEGEND

- 2A-W-41 ◆ MONITORING WELL
- RW-04 ◆ RECOVERY WELL
- PZ-5S ● PIEZOMETER
- IW-02 ◆ INJECTION WELL
- FMW ● VAULT WELL
- SK4 ✕ SKYKOMISH RIVER GAUGE STATIONS

- 50.5 TOTAL PETROLEUM HYDROCARBONS IN MICROGRAMS PER LITER CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL-RANGE AND OIL-RANGE FRACTIONS. IF EITHER THE DIESEL OR OIL-RANGE FRACTIONS WERE NOT DETECTED THEN HALF THE ANALYTICAL METHOD DETECTION LIMIT WAS USED IN THE CALCULATION. IF BOTH FRACTIONS WERE NOT DETECTED, THEN HALF THE ANALYTICAL METHOD DETECTION LIMITS WERE ADDED TO REPRESENT THE CALCULATED TOTAL PETROLEUM HYDROCARBONS CONCENTRATION PREFIXED BY THE "<" SYMBOL.
- BOLD** INDICATES THAT THE TOTAL PETROLEUM HYDROCARBONS CONCENTRATION EXCEEDS THE 208 MICROGRAMS PER LITER CLEANUP LEVEL IN LEVEE ZONE MONITORING WELLS OR THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN OTHER MONITORING WELLS.
- Estimated extent of LNAPL as indicated by light trace (LT), heavy trace (HT), or product thickness on groundwater during or prior to the monitoring period.
- [HT] HEAVY TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET
- [LT] LIGHT TRACE. NO MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET
- [1.15] MEASURABLE PRODUCT THICKNESS GREATER THAN 0.01 FEET



 FARALLON CONSULTING 975 5th Avenue Northwest Issaquah, WA 98027	FIGURE 10 SEPTEMBER 2012 GROUNDWATER ELEVATION CONTOUR MAP BNSF FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON		
	FARALLON PN: 683-043		
Drawn By: DEW	Checked By: TC	Date: 7/27/13	Disk Reference: 683043

TABLES

**2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA**

Farallon PN: 683-043

Table 1
Modifications to the Groundwater Monitoring Network
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Activity	Date	Location Identification	Location Type	Location Monitoring Function	Rationale for Abandoned, Destroyed, Deferred, Canceled, or Not Installed Locations	Reference for Planned Activity¹	Reference for Completed Activity¹
Installed	8/22/2012	MW-47	Monitoring Well	Site-wide	—	HCC System Optimization Work Plan	HCC System Optimization Status Report
Installed	8/24/2012	MW-48	Monitoring Well	Site-wide	—	HCC System Optimization Work Plan	HCC System Optimization Status Report
Installed	8/24/2012	MW-49	Monitoring Well	Site-wide	—	HCC System Optimization Work Plan	HCC System Optimization Status Report
Abandoned ²	2011	2A-W-4	Monitoring Well	Site-wide	Abandoned due to damage during grading activities.	—	—

NOTES:

¹Complete references are presented in Section 6.0 of the report.

HCC = Hydraulic Control and Containment

²Monitoring well 2A-W-4 was not abandoned in accordance with Chapter 173-360 of the Washington Administrative Code (WAC) Minimum Standards for the Construction and Maintenance of Wells.

— = not applicable

Table 2
Groundwater Monitoring Event Dates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Event	Start Date	End Date
Air Sparge System Monthly Groundwater Sampling Event	10/27/2011	10/27/2011
Air Sparge System Monthly Groundwater Sampling Event	11/21/2011	11/21/2011
Quarterly Fluid Gauging Event	12/13/2011	12/13/2011
Quarterly Groundwater Sampling Event	12/13/2011	12/14/2011
Air Sparge System Monthly Groundwater Sampling Event	1/31/2012	1/31/2012
Air Sparge System Monthly Groundwater Sampling Event	2/28/2012	2/28/2012
Semiannual Fluid Gauging Event	3/26/2012	3/26/2012
Semiannual Groundwater Sampling Event	3/26/2012	3/28/2012
Air Sparge System Monthly Groundwater Sampling Event	4/24/2012	4/24/2012
Air Sparge System Monthly Groundwater Sampling Event	5/30/2012	5/30/2012
Quarterly Fluid Gauging Event	6/26/2012	6/26/2012
Quarterly Groundwater Sampling Event	6/27/2012	6/28/2012
Air Sparge System Monthly and Compliance Groundwater Sampling Event	7/26/2012	7/26/2012
Air Sparge System Monthly and Compliance Groundwater Sampling Event	8/20/2012	8/20/2012
Semiannual Fluid Gauging Event	9/17/2012	9/18/2012
Semiannual Groundwater Sampling Event	9/18/2012	9/20/2012
Air Sparge System Monthly Groundwater Sampling Event	10/10/2012	10/10/2012
Air Sparge System Monthly Groundwater Sampling Event	11/21/2012	11/21/2012
Quarterly Fluid Gauging Event	12/26/2012	12/26/2012
Quarterly Groundwater Sampling Event	12/26/2012	12/27/2012

NOTES:

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

Table 3
Groundwater Sampling Event Details
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Zone	Location Identification	Groundwater Sampling Events			Analyte
		Monthly	Quarterly	Semiannually	
Air Sparging System	1C-W-1	X	X	X	NWTPH-Dx
	1C-W-7	X	X	X	NWTPH-Dx
	1C-W-8	X	X	X	NWTPH-Dx
Down-gradient of the HCC	1B-W-23	—	X	X	NWTPH-Dx
	2A-W-40	—	X	X	NWTPH-Dx
	2A-W-41	—	X	X	NWTPH-Dx
	2A-W-42	—	X	X	NWTPH-Dx
	5-W-43	—	X	X	NWTPH-Dx
FMCZ-EW and Surrounding Areas	2A-W-10	—	X	X	NWTPH-Dx
	2A-W-9	—	X	X	NWTPH-Dx
	2B-W-4	—	X	X	NWTPH-Dx
	MW-3	—	X	X	NWTPH-Dx
	MW-4	—	X	X	NWTPH-Dx
HCC System	EW-1	—	X	X	NWTPH-Dx
	EW-2A	—	X	X	NWTPH-Dx
	GW-1	—	X	X	NWTPH-Dx
	GW-2	—	X	X	NWTPH-Dx
	GW-3	—	X	X	NWTPH-Dx
	GW-4	—	X	X	NWTPH-Dx
	S1-AD	—	—	X	NWTPH-Dx
	S1-AU	—	—	X	NWTPH-Dx
	S1-BD	—	—	X	NWTPH-Dx
	S1-BU	—	—	X	NWTPH-Dx
	S2-AD	—	—	X	NWTPH-Dx
	S2-AU	—	—	X	NWTPH-Dx
	S2-BD	—	—	X	NWTPH-Dx
	S2-BU	—	—	X	NWTPH-Dx
	S3-AD	—	—	X	NWTPH-Dx
	S3-AU	—	—	X	NWTPH-Dx
	S3-BD	—	—	X	NWTPH-Dx
	S3-BU	—	—	X	NWTPH-Dx
	S3-CD	—	—	X	NWTPH-Dx
	S3-CU	—	—	X	NWTPH-Dx
	S4-AD	—	—	X	NWTPH-Dx
	S4-AU	—	—	X	NWTPH-Dx
S4-BD	—	—	X	NWTPH-Dx	
S4-BU	—	—	X	NWTPH-Dx	
S4-CD	—	—	X	NWTPH-Dx	
S4-CU	—	—	X	NWTPH-Dx	
Levee	5-W-14	—	X	X	NWTPH-Dx
	5-W-15	—	X	X	NWTPH-Dx
	5-W-16	—	X	X	NWTPH-Dx
	5-W-17	—	X	X	NWTPH-Dx
	5-W-18	—	X	X	NWTPH-Dx
	5-W-19	—	X	X	NWTPH-Dx

Table 3
Groundwater Sampling Event Details
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Zone	Location Identification	Groundwater Sampling Events			Analyte
		Monthly	Quarterly	Semiannually	
Schoolyard	5-W-50	—	—	X	NWTPH-Dx
	5-W-51	—	—	X	NWTPH-Dx
	5-W-54	—	—	X	NWTPH-Dx
	5-W-55	—	—	X	NWTPH-Dx
	5-W-56	—	—	X	NWTPH-Dx
Site-Wide	1A-W-4	—	—	X	NWTPH-Dx
	1B-W-2	—	—	X	NWTPH-Dx
	1B-W-3	—	—	X	NWTPH-Dx
	1C-W-3	—	—	X	NWTPH-Dx
	1C-W-4	—	—	X	NWTPH-Dx
	MW-16	—	—	X	NWTPH-Dx
	MW-38R	—	—	X	NWTPH-Dx

NOTES:

FMCZ - EW = Former Maloney Creek Zone - East Wetland

HCC = Hydraulic Control and Containment

TPH = total petroleum hydrocarbons by Northwest Method NWTPH-Dx

Table 4
Fluid Gauging Events Summary
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Zone	Location Identification	Gauging Monitoring Frequency				
		Continuous ¹	Weekly	Monthly	Quarterly	Semiannually
Air Sparging System	1C-W-1	—	—	X	X	X
	1C-W-7	—	—	X	X	X
	1C-W-8	—	—	X	X	X
Down-gradient of the HCC System ¹	1B-W-23	—	—	—	X	X
	2A-W-40	—	—	—	X	X
	2A-W-41	—	—	—	X	X
	2A-W-42	—	—	—	X	X
	5-W-43	—	—	—	X	X
FMCZ-EW and Surrounding Areas	2A-W-10	—	—	—	X	X
	2A-W-3	—	—	—	X	X
	2A-W-4 ²	—	—	—	—	—
	2A-W-5	—	—	—	X	X
	2A-W-7	—	—	—	X	X
	2A-W-9	—	—	—	X	X
	2B-W-4	—	—	—	X	X
	MW-1	—	—	—	X	X
	MW-11	—	—	—	X	X
	MW-13	—	—	—	X	X
	MW-14	—	—	—	X	X
	MW-15	—	—	—	X	X
	MW-18	—	—	—	X	X
	MW-2	—	—	—	X	X
	MW-3	—	—	—	X	X
	MW-4	—	—	—	X	X
	MW-40	—	—	—	X	X
	MW-5	—	—	—	X	X
MW-7	—	—	—	X	X	
MW-9	—	—	—	X	X	
MW-10	—	—	—	X	X	
HCC System	CV	—	X	—	X	X
	EV	—	X	—	X	X
	WV	—	X	—	X	X
	FWV	—	X	—	X	X
	EW-1	—	—	—	X	X
	EW-2A	—	—	—	X	X
	GW-1	—	X	—	X	X
	GW-2	—	X	—	X	X
	GW-3	—	X	—	X	X
	GW-4	—	X	—	X	X
	IW-01	X	—	—	—	X
	PW-04	—	—	—	—	—
	PZ-1	X	—	—	X	X
	PZ-2N	X	—	—	X	X
	PZ-2S	X	—	—	X	X
PZ-3N	X	—	—	X	X	
PZ-3S	X	—	—	X	X	

Table 4
Fluid Gauging Events Summary
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Zone	Location Identification	Gauging Monitoring Frequency				
		Continuous ¹	Weekly	Monthly	Quarterly	Semiannually
HCC System (continued)	PZ-4N	X	—	—	X	X
	PZ-4S	X	—	—	X	X
	PZ-5N	X	—	—	X	X
	PZ-5S	X	—	—	X	X
	PZ-6N	X	—	—	X	X
	PZ-6S	X	—	—	X	X
	PZ-7N	X	—	—	X	X
	PZ-7S	X	—	—	X	X
	PZ-8	X	—	—	X	X
	RW-01	—	—	—	X	X
	RW-02	X	—	—	X	X
	RW-03	—	—	—	X	X
	RW-04	—	—	—	X	X
	RW-05	X	—	—	X	X
	RW-06	—	—	—	X	X
	RW-07	—	—	—	X	X
	RW-08	—	—	—	X	X
	RW-09	—	—	—	X	X
	S1-AD	—	—	—	—	—
	S1-AU	—	—	—	—	—
	S1-BD	—	—	—	—	—
	S1-BU	—	—	—	—	—
	S2-AD	—	—	—	—	—
	S2-AU	—	—	—	—	—
	S2-BD	—	—	—	—	—
	S2-BU	—	—	—	—	—
	S3-AD	—	—	—	—	—
	S3-AU	—	—	—	—	—
	S3-BD	—	—	—	—	—
	S3-BU	—	—	—	—	—
	S3-CD	—	—	—	—	—
	S3-CU	—	—	—	—	—
	S4-AD	—	—	—	—	—
	S4-AU	—	—	—	—	—
	S4-BD	—	—	—	—	—
	S4-BU	—	—	—	—	—
	S4-CD	—	—	—	—	—
	S4-CU	—	—	—	—	—

Table 4
Fluid Gauging Events Summary
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Zone	Location Identification	Gauging Monitoring Frequency				
		Continuous ¹	Weekly	Monthly	Quarterly	Semiannually
Levee	5-W-14	—	—	—	X	X
	5-W-15	—	—	—	X	X
	5-W-16	—	—	—	X	X
	5-W-17	—	—	—	X	X
	5-W-18	—	—	—	X	X
	5-W-19	—	—	—	X	X
Schoolyard	5-W-50	—	—	—	—	X
	5-W-51	—	—	—	—	X
	5-W-54	—	—	—	—	X
	5-W-55	—	—	—	—	X
	5-W-56	—	—	—	—	X
Site-Wide	1A-W-4	—	—	—	X	X
	1B-W-2	—	—	—	—	X
	1B-W-3	—	—	—	—	X
	1C-W-3	—	—	—	—	X
	1C-W-4	—	—	—	—	X
	2A-W-8	—	—	—	X	X
	MW-16	—	—	—	X	X
	MW-32	—	—	—	—	X
	MW-38R	—	—	—	X	X
	MW-47 ³	—	—	—	X	X
	MW-48 ³	—	—	—	X	X
MW-49 ³	—	—	—	X	X	
Surface Water Gauging Locations						
South Fork Skykomish River	SK1	—	—	—	—	X
	SK2	—	—	—	—	X
	SK3	—	—	—	—	X
	SK4	—	—	—	—	X
	SK5	—	—	—	—	X

NOTES:

¹ Water level transducers have been used to collect continuous water level measurements at these locations since August 31, 2009. Water levels are recorded daily.

² Well abandoned due to damage during grading activities.

³ Wells installed during August 2012.

FMCZ - EW = Former Maloney Creek Zone - East Wetland
HCC = Hydraulic Control and Containment

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation ¹ (NAVD88)	Monitoring Date	Depth to Water (feet) ²	Water Level Elevation ² (feet, NAVD88)	LNAPL Thickness (feet)
Air Sparging System Monitoring Wells					
1C-W-1	936.44	12/13/2011	13.78	922.66	—
		3/26/2012	13.45	922.99	—
		6/26/2012	12.6	923.84	—
		9/17/2012	14.58	921.86	—
		12/26/2012	13.84	922.6	—
1C-W-7	935.04	12/13/2011	12.52	922.52	—
		3/26/2012	12.05	922.99	—
		6/26/2012	11.26	923.78	—
		9/17/2012	13.37	921.67	—
		12/26/2012	12.55	922.49	—
1C-W-8	935.7	12/13/2011	13.26	922.44	—
		3/26/2012	12.81	922.89	—
		6/26/2012	12.04	923.66	—
		9/17/2012	14.09	921.61	—
		12/26/2012	13.3	922.4	—
Monitoring Wells Down-Gradient of the Hydraulic Control and Containment System					
1B-W-23	936.25	12/13/2011	17.44	918.81	—
		3/26/2012	16.92	919.33	—
		6/26/2012	16.45	919.8	—
		9/17/2012	17.53	918.72	—
		12/26/2012	16.72	919.53	—
2A-W-40	933.3	12/13/2011	12.88	920.42	—
		3/26/2012	12.57	920.77	—
		6/26/2012	11.59	921.75	—
		9/17/2012	13.9	919.44	—
2A-W-41	935.12	12/13/2011	17.66	917.46	—
	935.22	3/26/2012	17.45	917.77	—
		6/26/2012	16.28	918.94	—
		9/17/2012	18.22	917	—
		12/26/2012	17.61	917.61	—
2A-W-42	935.37	12/13/2011	13.19	922.18	—
		3/26/2012	12.84	922.53	—
		6/26/2012	12.3	923.07	—
		9/17/2012	13.9	921.47	—
		12/26/2012	13.23	922.14	—
5-W-43	925.82	3/26/2012	7.58	918.24	—
		6/26/2012	6.75	919.07	—
		9/17/2012	8.69	917.13	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet) ²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
Former Maloney Creek Zone - East Wetland and Surrounding Area Monitoring Wells					
2A-W-10	937.93	12/13/2011	11.91	926.02	—
		3/26/2012	11.17	926.76	—
		6/26/2012	10.91	927.02	—
		9/17/2012	13.57	924.36	—
		12/26/2012	11.9	926.03	—
2A-W-3	934.43	3/26/2012	11	923.91	0.49
		6/26/2012	11	924.08	0.67
		9/20/2012	13.83	921.08	0.49
2A-W-5	939.47	12/13/2011	14.18	925.29	—
		3/26/2012	13.17	926.3	—
		6/26/2012	12.91	926.56	—
		9/17/2012	15.48	923.99	—
		12/26/2012	14.02	925.45	—
2A-W-7	937.76	3/26/2012	11.62	926.14	—
		6/26/2012	10.69	927.07	—
		9/17/2012	13.17	924.59	—
		12/26/2012	12	925.76	—
2A-W-9	936.58	12/13/2011	11.86	924.72	—
		3/26/2012	11.06	925.52	—
		6/26/2012	10.89	925.69	—
		9/17/2012	13.16	923.42	—
		12/26/2012	11.82	924.76	—
2B-W-4	931.03	12/13/2011	4.41	926.62	—
		3/26/2012	3.8	927.23	—
		6/26/2012	3.45	927.58	—
		9/17/2012	6.2	924.83	—
		12/26/2012	4.55	926.48	—
MW-1	939.2	12/13/2011	13.26	925.94	—
		3/26/2012	12.72	926.48	—
		6/26/2012	11.77	927.43	—
		9/17/2012	14.48	924.72	—
		12/26/2012	13.14	926.06	—
MW-10	938.34	12/13/2011	13.36	924.98	—
		3/26/2012	12.44	925.9	—
		6/26/2012	11.96	926.38	—
		9/17/2012	14.64	923.7	—
		12/26/2012	13.15	925.19	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet) ²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
MW-11	939.2	12/13/2011	13.8	925.4	—
		3/26/2012	12.9	926.3	—
		6/26/2012	12.54	926.66	—
		9/17/2012	15.18	924.02	—
		12/27/2012	13.56	925.64	—
MW-13	934.93	12/13/2011	10.7	924.23	—
		3/26/2012	9.97	924.96	—
		6/26/2012	9.77	926.72	—
		9/17/2012	11.95	924.54	—
		12/26/2012	10.59	925.9	—
MW-14	936.49	12/13/2011	12.76	923.73	—
		3/26/2012	11.88	924.61	—
	936.8	6/26/2012	11.69	925.11	—
		9/17/2012	13.67	923.13	—
		12/26/2012	12.52	924.28	—
MW-15	937.65	12/13/2011	14.77	922.88	—
		3/26/2012	13.68	923.12	—
	933.32	6/26/2012	13.46	919.86	—
		9/17/2012	16.13	917.19	—
		12/26/2012	14.29	919.03	—
MW-18	940.68	12/13/2011	15.3	925.38	—
		3/26/2012	14.44	926.24	—
		6/26/2012	13.87	926.81	—
		9/17/2012	16.63	924.05	—
		12/26/2012	15.13	925.55	—
MW-2	939.2	12/13/2011	12.91	926.29	—
		3/26/2012	12.36	926.84	—
		6/26/2012	11.35	927.85	—
		9/17/2012	14.31	924.89	—
		12/26/2012	12.85	926.35	—
MW-3	938.03	12/13/2011	11.41	926.62	—
		3/26/2012	9.78	928.25	—
		6/26/2012	9.11	928.92	—
		9/17/2012	13	925.03	—
		12/26/2012	11.4	926.63	—
MW-4	936.95	12/13/2011	10.45	926.5	—
		3/26/2012	9.63	927.32	—
		6/26/2012	9.24	927.71	—
		9/17/2012	12.2	924.75	—
		12/26/2012	10.5	926.45	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
MW-40	936.52	12/13/2011	13.58	922.94	—
		3/26/2012	12.52	924.43	—
	936.95	6/26/2012	12.32	924.63	—
		9/17/2012	14.96	921.99	—
		12/26/2012	13.1	923.85	—
MW-5	933.36	12/13/2011	8.65	924.71	—
		3/26/2012	7.84	925.52	—
		6/26/2012	7.68	925.68	—
		9/17/2012	9.93	923.43	—
		12/26/2012	8.6	924.76	—
MW-7	936.89	12/13/2011	13.72	923.17	—
		3/26/2012	12.75	924.14	—
		6/26/2012	12.46	924.43	—
		9/17/2012	15.09	921.8	—
		12/26/2012	13.32	923.57	—
MW-9	937.53	12/13/2011	14.61	922.92	—
		3/26/2012	13.5	924.03	—
		6/26/2012	13.39	924.14	—
		9/17/2012	16.04	921.49	—
		12/26/2012	14.2	923.33	—
Hydraulic Control and Containment System Monitoring Wells					
CV	936.1	12/13/2011	16.55	919.55	—
		3/26/2012	15.14	920.96	—
		6/26/2012	15.36	920.74	—
		9/17/2012	12.23	923.87	—
		12/26/2012	11.63	924.47	—
EV	934.31	12/13/2011	9.83	924.48	—
		3/26/2012	9.3	925.01	—
		6/26/2012	8.75	925.56	—
		9/17/2012	10.99	923.32	—
		12/26/2012	10	924.31	—
EW-1	928.7	12/13/2011	10.67	918.03	—
	928.72	3/26/2012	10.3	918.42	—
		6/26/2012	9.59	919.13	—
		9/17/2012	11.49	917.23	—
EW-2A	936.2	12/13/2011	10.98	925.22	—
		3/26/2012	10.5	925.7	—
		6/26/2012	9.23	926.97	—
		9/17/2012	11.98	924.22	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
FWV	930.74	12/13/2011	10.5	920.24	—
		3/26/2012	9.5	921.24	—
		6/26/2012	9.25	921.49	—
		9/18/2012	7.48	923.26	—
		12/26/2012	5.68	925.06	—
GW-1	928.23	12/13/2011	10.81	917.42	—
	928.24	3/26/2012	10.62	917.62	—
		6/26/2012	9.3	918.94	—
		9/17/2012	11.49	916.75	—
		12/26/2012	10.86	917.38	—
GW-2	930.27	12/13/2011	12.75	917.52	—
	930.29	3/26/2012	12.6	917.69	—
		6/26/2012	11.38	918.91	—
		9/17/2012	13.35	916.94	—
		12/26/2012	12.77	917.52	—
GW-3	935.82	12/13/2011	15.95	919.87	—
		3/26/2012	15.89	919.93	—
		6/26/2012	15.85	919.97	—
		9/17/2012	16.1	919.72	—
		12/26/2012	15.91	919.91	—
GW-4	934.64	12/13/2011	10.43	924.21	—
	934.68	3/26/2012	9.76	924.92	—
		6/26/2012	9.12	925.56	—
		9/17/2012	11.35	923.33	—
		12/26/2012	10.39	924.29	—
IW-01	933.49	3/26/2012	7.83	925.66	—
		9/17/2012	9.92	923.57	—
PZ-1A	935.38	9/17/2012	11.29	924.09	—
PZ-1R	935.37	3/26/2012	9.69	925.68	—
		6/26/2012	8.71	926.66	—
PZ-2N	934.35	3/26/2012	11.4	922.95	—
		6/26/2012	10.62	923.73	—
		9/17/2012	12.7	921.65	—
PZ-2S	934.94	3/26/2012	8.77	926.17	—
		6/26/2012	8.31	926.63	—
		9/17/2012	11.18	923.76	—
PZ-3N	934.41	3/26/2012	13.46	920.95	—
		9/17/2012	14	920.41	—
PZ-3S	934.45	3/26/2012	9.6	924.85	—
		6/26/2012	9.46	924.99	—
		9/17/2012	12.2	922.25	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
PZ-4N	935.27	3/26/2012	14.83	920.44	—
		9/17/2012	14.62	920.65	—
PZ-4S	935.31	3/26/2012	11.14	924.17	—
		6/26/2012	11.12	924.19	—
		9/17/2012	13.8	921.51	Heavy Trace
PZ-5N	933.15	3/26/2012	15.4	917.75	—
		9/17/2012	15.55	917.6	—
PZ-5S	933.46	3/26/2012	10.6	923.98	1.15
		6/26/2012	9.29	924.17	Heavy Trace
		9/20/2012	13.91	920.92	1.41
PZ-6N	931.17	3/26/2012	13.49	917.68	—
		6/26/2012	12.25	918.92	—
		9/18/2012	14.24	916.93	—
PZ-6S	931.41	3/26/2012	7.83	923.58	—
		6/26/2012	7.62	923.81	0.02
		9/20/2012	11.4	920.49	0.50
PZ-7N	930.37	3/26/2012	12.61	917.76	—
		6/26/2012	11.33	919.04	—
		9/18/2012	13.5	916.87	—
PZ-7S	930.4	3/26/2012	8.13	922.27	—
		6/26/2012	7.62	922.78	—
		9/18/2012	11.28	919.12	—
PZ-8	929.48	3/26/2012	9.96	919.52	—
		6/26/2012	9.35	920.13	—
		9/18/2012	11.71	917.77	—
RW-01	932.8	12/13/2011	13.07	919.73	—
		3/26/2012	10.62	922.22	—
	932.84	6/26/2012	11.96	920.88	—
		9/17/2012	12.03	920.81	—
		12/27/2012	10.92	921.92	—
RW-02	933.84	12/13/2011	13.77	920.07	—
		3/26/2012	11.85	921.99	—
		6/26/2012	12.75	921.09	—
		9/17/2012	13	920.84	—
		12/27/2012	11.63	922.21	Light Trace
RW-03	933.8	3/26/2012	11.87	921.93	—
		6/26/2012	12.58	921.22	—
		9/20/2012	13.38	920.46	0.04
		12/27/2012	11.64	922.16	Light Trace

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation ¹ (NAVD88)	Monitoring Date	Depth to Water (feet) ²	Water Level Elevation ² (feet, NAVD88)	LNAPL Thickness (feet)
RW-04	931.86	12/13/2011	9.25	922.61	—
		3/26/2012	7.87	923.99	—
		6/26/2012	7.67	925.73	1.59
		9/18/2012	10.87	920.99	Light Trace
		12/27/2012	9.1	922.76	Light Trace
RW-05	928.48	12/13/2011	10.5	917.98	—
	928.53	3/26/2012	10.6	917.93	—
		6/26/2012	9.21	919.32	—
		9/18/2012	10.86	917.67	Light Trace
		12/26/2012	10.42	918.11	Light Trace
RW-06	928.51	12/13/2011	10.53	917.98	—
	928.53	3/26/2012	10.54	917.99	—
		6/26/2012	9.12	919.41	—
		9/18/2012	10.85	917.68	Light Trace
		12/26/2012	10.5	918.03	—
RW-07	933.06	6/26/2012	8.75	924.31	Heavy Trace
		9/18/2012	11.8	921.26	Heavy Trace
		12/27/2012	9.42	923.64	Heavy Trace
RW-08	931.85	6/26/2012	7.75	924.1	Heavy Trace
		9/18/2012	11.12	920.73	Light Trace
		12/27/2012	8.84	923.01	Heavy Trace
RW-09	933.95	12/13/2011	9.4	924.55	—
	933.96	3/26/2012	8.42	925.54	—
		6/26/2012	7.81	926.15	—
		9/17/2012	9.92	924.04	—
		12/26/2012	9.2	924.76	—
WV	931.82	12/13/2011	13.76	918.06	—
		3/26/2012	13.88	917.94	—
		6/26/2012	12.48	919.34	—
		9/18/2012	9.92	921.9	—
		12/26/2012	6.94	924.88	Heavy Trace
Levee Zone Monitoring Wells					
5-W-14	926.59	12/13/2011	9.76	916.83	—
		3/26/2012	9.57	917.02	—
		6/26/2012	7.96	918.63	—
		9/17/2012	10.6	915.99	—
		12/26/2012	9.74	916.85	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
5-W-15	925.15	12/13/2011	8.29	916.86	—
		3/26/2012	8.1	917.05	—
		6/26/2012	6.5	918.65	—
		9/17/2012	9.03	916.12	—
		12/26/2012	8.23	916.92	—
5-W-16	925.2	12/13/2011	8.52	916.68	—
		3/26/2012	8.34	916.86	—
		6/26/2012	6.73	918.47	—
		9/17/2012	9.31	915.89	—
		12/26/2012	8.49	916.71	—
5-W-17	924.6	12/13/2011	7.87	916.73	—
		3/26/2012	7.71	916.89	—
		6/26/2012	6.09	918.51	—
		9/17/2012	8.69	915.91	—
		12/26/2012	7.84	916.76	—
5-W-18	924.64	12/13/2011	7.98	916.66	—
		3/26/2012	7.81	916.83	—
		6/26/2012	6.19	918.45	—
		9/17/2012	8.75	915.89	—
		12/26/2012	7.93	916.71	—
5-W-19	924.35	12/13/2011	7.79	916.56	—
		3/26/2012	7.64	916.71	—
		6/26/2012	6	918.35	—
		9/17/2012	8.54	915.81	—
		12/26/2012	7.74	916.61	—
Skykomish River					
SK-1	-	12/13/2011	-	924.23	—
	-	3/26/2012	-	924.39	—
	-	6/26/2012	-	926.6	—
	-	9/20/2012	-	921.99	—
SK-2	-	12/13/2011	-	918.65	—
	-	3/26/2012	-	918.91	—
	-	6/26/2012	-	921.65	—
	-	9/20/2012	-	917.74	—
SK-3	-	12/13/2011	-	917.94	—
	-	3/26/2012	-	918.19	—
	-	6/26/2012	-	920.6	—
	-	9/20/2012	-	917.26	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
SK-4	-	12/13/2011	-	917.68	—
	-	3/26/2012	-	917.74	—
	-	6/26/2012	-	918.82	—
SK-5	-	12/13/2011	-	916.26	—
	-	3/26/2012	-	916.42	—
	-	6/26/2012	-	918.14	—
	-	9/20/2012	-	916.51	—
	-	9/20/2012	-	914.86	—
Site-Wide Monitoring Wells					
1A-W-4	929.07	12/13/2011	9.88	919.19	—
		3/26/2012	9.59	919.48	—
		6/26/2012	8.2	920.87	—
		9/17/2012	10.69	918.38	—
1B-W-2	935.81	3/26/2012	13.88	921.93	—
		9/17/2012	14.74	921.07	—
1B-W-3	936.66	12/13/2011	15.13	921.53	—
		3/26/2012	14.83	921.83	—
		9/17/2012	15.83	920.83	—
1C-W-3	933.56	3/26/2012	10.62	922.94	—
		9/17/2012	11.97	921.59	—
1C-W-4	932.74	3/26/2012	10.25	922.49	—
		9/17/2012	11.19	921.55	—
		12/26/2012	10.6	922.14	—
2A-W-8	942.62	12/13/2011	15.61	927.01	—
		3/26/2012	14.95	927.67	—
		6/26/2012	13.96	928.66	—
		9/17/2012	16.79	925.83	—
		12/26/2012	15.3	927.32	—
MW-16	933.32	12/13/2011	14.08	919.24	—
		3/26/2012	13.56	919.76	—
		6/26/2012	13.02	920.3	—
		9/17/2012	15.01	918.31	—
		12/26/2012	13.82	919.5	—
MW-32	926.06	3/26/2012	9.43	916.63	—
		9/17/2012	10.75	915.31	—

Table 5
Groundwater Elevations and Product Thickness
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Top of Casing Elevation¹ (NAVD88)	Monitoring Date	Depth to Water (feet)²	Water Level Elevation² (feet, NAVD88)	LNAPL Thickness (feet)
MW-38R	922.39	12/13/2011	5.25	917.14	—
		3/26/2012	5.01	917.38	—
		6/26/2012	4.17	918.22	—
		9/17/2012	6.2	916.19	—
		12/26/2012	9.55	912.84	—
MW-47	932.61	9/17/2012	12.01	920.6	—
		12/26/2012	9.38	923.23	—
MW-48	933.9	9/17/2012	16.41	917.49	—
		12/26/2012	10.93	922.97	—
MW-49	933.14	9/17/2012	16.69	916.45	—
		12/26/2012	12.02	921.12	—
5-W-50	925.49	3/26/2012	7.91	917.58	—
		9/17/2012	8.95	916.54	—
5-W-51	925.08	3/26/2012	8.3	917.35	0.59
		9/20/2012	8.89	916.28	0.09
5-W-54	924.58	3/26/2012	7.08	917.5	—
		9/17/2012	8.12	916.46	—
5-W-55	923.92	3/26/2012	6.82	917.1	—
		9/17/2012	7.95	915.97	—
5-W-56	924.76	3/26/2012	7.56	917.2	—
		9/17/2012	8.59	916.17	—

NOTES:

— = denotes LNAPL was not present

¹ In feet above mean sea level.

² In feet below top of well casing.

Table 6
Stabilized Groundwater Field Parameter Measurements
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard pH Units)	Temperature (degrees Celsius)	Turbidity (NTU)
Air Sparging System Monitoring Wells						
1C-W-1	10/27/2011	4.14	179.6	5.98	10.81	0.71
	11/21/2011	4.42	139.9	4.86	8.26	0.79
	12/14/2011	3.86	200.9	5.71	7.89	0.42
	1/31/2012	6.21	182.9	4.79	7.06	0.43
	2/28/2012	5.35	360.1	4.91	5.86	0.81
	3/27/2012	5.81	-213.1	5.81	5.73	0.35
	4/24/2012	6.86	71.2	4.47	6.51	1.32
	5/30/2012	4.8	83	4.2	8.3	1.58
	6/27/2012	5.34	-216.1	5.46	8.84	0.2
	7/26/2012	10.14	107.6	4.82	10.75	0.73
	8/20/2012	4.99	30.1	6.16	12.21	0.94
	9/20/2012	4.09	148	6.96	9.35	1.7
	10/10/2012	3.65	-189.2	5.08	11.36	0.51
	11/21/2012	5.79	104	5.82	9.78	NM
12/27/2012	3.24	174.4	5.8	7.6	1.9	
1C-W-7	10/27/2011	3.57	131.6	6.2	9.96	0.76
	11/21/2011	4.79	257.2	5.32	8.46	1.39
	12/14/2011	5.48	184.7	6.17	7.31	0.79
	1/31/2012	3.08	287.2	5.37	6.99	0.66
	2/28/2012	3.53	293.1	5.39	5.49	0.32
	3/27/2012	3.42	-213.2	6.2	7.48	0.41
	4/24/2012	5.11	118.4	4.95	7.31	1.39
	5/30/2012	3.12	20.2	4.9	10.9	0.47
	6/27/2012	3.08	-248.3	6.06	9.9	0.44
	7/26/2012	7.9	81.7	6.08	12.08	4.58
	8/20/2012	7.19	132.3	6.12	13.19	3.87
	9/20/2012	6.03	101.6	7.35	10.69	3.8
	10/10/2012	7.5	-85.9	6.23	12.92	0.36
	11/21/2012	6.36	132.9	5.51	9.32	0.43
12/27/2012	5.3	170.1	6.08	7.52	3.6	
1C-W-8	10/27/2011	1.43	152.7	6.05	10.36	1.08
	11/21/2011	4.87	55.7	4.96	4.87	1.07
	12/14/2011	1.64	196.5	5.81	6.06	0.57
	1/31/2012	1.89	77.4	5	4.82	0.78
	2/28/2012	1.86	256.9	5.12	3.69	0.94
	3/27/2012	1.99	-249.2	5.96	6.04	0.57
	4/24/2012	6.27	45.1	4.66	7.63	1.75
	5/30/2012	2.71	13	4.57	11.4	1.32
	6/27/2012	4.23	-246.8	5.99	12.72	0.51
	7/26/2012	5.88	96.9	5.43	9.61	1.11
	8/20/2012	1.47	56	6	10.48	0.41
	9/20/2012	3.66	102.5	6.24	7.35	3.7
	10/10/2012	2.46	-175.2	5.08	10.59	45.2
	11/21/2012	1.74	103.2	5.8	10.22	NM
12/27/2012	1.77	192.9	5.95	8.36	1.84	

Table 6
Stabilized Groundwater Field Parameter Measurements
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard pH Units)	Temperature (degrees Celsius)	Turbidity (NTU)
Monitoring Wells Down-Gradient of the Hydraulic Control and Containment System						
1B-W-23	12/14/2011	6.54	145.4	6.27	7.08	22.4
	3/28/2012	9.7	-205.8	6.47	7.65	74.1
	6/28/2012	8.36	-76.2	6.23	14.45	19.5
	9/19/2012	5.82	115.5	5.99	11.14	IE
	12/27/2012	4.26	137.4	6.3	5.86	12.7
2A-W-40	12/13/2011	6.09	183.7	6.57	8.56	3.7
	3/27/2012	7.6	-154	6.35	6.99	0.24
	6/27/2012	6.69	-142.8	6.22	10.43	0.19
	9/19/2012	5.79	109	5.7	12.08	2.1
2A-W-41	12/14/2011	4.92	86.2	5.98	6.61	0.38
	3/27/2012	7.85	-153.7	6.21	8.3	0.39
	6/27/2012	7.04	-129.5	6.02	11.41	0.42
	9/19/2012	7.23	78.5	5.6	9.46	1.4
	12/27/2012	3.95	106.5	6.15	6.06	4.4
2A-W-42	12/14/2011	1.32	141.5	5.91	8.52	0.34
	3/27/2012	2.23	-224.1	6.19	7.86	0.33
	6/28/2012	1.8	-187.1	5.98	11.34	0.41
	9/19/2012	3.11	99	6.04	11.69	0
	12/27/2012	0.8	172.6	5.9	7.32	1.6
5-W-43	3/26/2011	2.72	101.2	6.08	5.52	0.38
	6/27/2012	1.27	-5.1	4.72	7.9	0.69
	9/19/2012	1.53	151.9	6	8.2	27.6
Former Malony Creek Zone East Wetland and Surrounding Area Monitoring Wells						
2A-W-10	12/14/2011	5.89	-63	4.93	6.9	2.26
	3/28/2012	0.2	63.2	5.1	5.5	3.71
	6/27/2012	0.13	23.2	4.6	11.2	1.31
	9/19/2012	1.57	111.4	5.67	9.25	36.4
	12/27/2012	0.33	168.9	5.16	7.08	9.02
2A-W-9	12/14/2011	2.6	-148	4.95	7.5	0.87
	3/28/2012	0.19	59	4.8	4.8	2.1
	6/27/2012	0.13	-97	4.75	10.8	1.12
	9/19/2012	1.45	-24.8	5.79	9.27	12.9
	12/27/2012	0.78	-5.2	6.19	6.48	5.67
2B-W-4	12/13/2011	5.16	95	4.78	7	2.66
	3/26/2011	3.65	245	4.6	5.2	0.8
	6/27/2012	2.27	-36.8	4.31	7.6	0.66
	9/19/2012	1.95	144.3	5.99	9.15	8.87
	12/27/2012	4.99	38.4	6.11	6.59	3.92
MW-3	12/14/2011	1.68	53	5.16	6.5	9.44
	3/28/2012	6.74	168	4.84	5.8	IE
	6/27/2012	4	94	4.57	13.4	1.1
	9/19/2012	1.21	54	5.99	9.08	55.3
	12/27/2012	1.33	60	5.01	7.1	40.3
MW-4	12/14/2011	3.55	-30	4.85	7.2	1.06
	3/28/2012	4.45	130	4.4	3.4	0.91
	6/27/2012	0.45	28.7	4.36	10.9	1.27
	9/19/2012	1.36	85.9	5.96	8.84	8.85
	12/27/2012	0.36	146.1	5.08	5.75	21.1

Table 6
Stabilized Groundwater Field Parameter Measurements
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard pH Units)	Temperature (degrees Celsius)	Turbidity (NTU)
Hydraulic Control and Containment System Monitoring Wells						
EW-1	12/14/2011	0.44	200.6	5.72	8.1	0.43
	3/28/2012	1.54	-267.6	6.07	5.82	0.29
	6/27/2012	1.15	-104	4.66	8.8	0.7
	9/19/2012	1.51	166.1	5.92	7.69	9.54
EW-2A	12/14/2011	4.15	221	5.57	8.24	0.49
	3/28/2012	5.77	-233.3	5.93	7.16	0.43
	6/27/2012	5.19	11.1	4.6	11.9	0.39
	9/19/2012	4.92	-45.6	4.59	9.67	0.01
GW-1	12/13/2011	0.51	45	5.65	8.4	5.92
	3/26/2011	1.83	178	5.83	5.6	12.1
	3/27/2012	0.88	75.3	6.34	6.5	1.86
	3/27/2012	4.92	137.4	6.25	7.43	41.2
	3/27/2012	0.7	142	5.96	6.24	4.4
	6/27/2012	0.25	-309.6	6.48	9.61	0.44
	9/20/2012	0.94	44.7	7.43	10.59	11.8
	12/27/2012	0.24	128.1	6.05	8.11	3.05
GW-2	12/13/2011	0.85	78	5.23	8.2	1.51
	4/24/2012	2.46	54.6	5.62	7.5	2.65
	6/27/2012	1	-253.5	6.21	9.93	0.47
	9/20/2012	0.93	34.6	7.62	10.2	4.4
	12/27/2012	1.71	46.1	6.41	6.72	22.27
GW-3	12/13/2011	5.75	47	5.32	6.3	174
	6/27/2012	5.28	-160.4	6.16	9.9	3.97
	9/19/2012	7.31	122.7	5.8	9.26	6
	12/27/2012	4	152	6.23	6.71	21.3
GW-4	12/13/2011	2.48	135	5.03	8.1	2.9
	6/27/2012	0.57	-21	5.11	9.8	2.28
	9/19/2012	5.47	156.6	5.48	10.53	4.02
	12/27/2012	0.8	100.1	6.42	7.02	3.9
Levee Zone Monitoring Wells						
5-W-14	12/14/2011	4.41	51	5.58	7	1.11
	3/28/2012	4.91	266	5.13	6.9	0.48
	6/28/2012	5.82	-188.7	5.94	9.39	0.19
	9/18/2012	4.97	208.1	4.94	7.34	0.72
	12/27/2012	5.37	101.3	5.77	6.35	5.98
5-W-15	12/14/2011	2.86	-53	6.5	7.3	2.91
	3/28/2012	0.16	-275.6	6.94	6.23	4.48
	6/28/2012	0.67	-194.5	6.73	12.22	2.78
	9/18/2012	0.97	-61.3	6.6	8.61	65.6
	12/27/2012	0.16	-18.4	6.26	7.64	84.3
5-W-16	12/14/2011	4.29	107	5.81	6.4	1.84
	3/28/2012	5.41	235	5.61	5.9	1.39
	6/28/2012	5.04	26	5.64	9.4	0.89
	9/18/2012	3.95	108.9	6.3	9.78	44.6
	12/27/2012	5.72	74.8	5.96	6.07	25.49

Table 6
Stabilized Groundwater Field Parameter Measurements
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard pH Units)	Temperature (degrees Celsius)	Turbidity (NTU)
5-W-17	12/14/2011	8.55	64	5.28	7	0.95
	3/28/2012	4.58	211	5.14	6.8	2.63
	6/28/2012	4.8	-6.5	4.8	8.6	0.63
	9/18/2012	5.13	99.8	6.1	8.16	5.42
	12/27/2012	6.4	55.7	6.15	7.12	1.71
5-W-18	12/14/2011	0.48	36	6.29	7.1	0.75
	3/28/2012	0.26	151	6.4	5.8	3.96
	6/28/2012	0.67	79	6.08	10.2	1.15
	9/18/2012	1.49	106.5	6.55	12.34	47.6
	12/27/2012	0.56	7	6.86	6.65	4.36
5-W-19	12/14/2011	7	28.6	5.52	6.5	0.5
	3/28/2012	6.19	-247.9	6.47	6.73	0.34
	6/28/2012	5.4	-54	5.14	8.9	0.58
	9/18/2012	5.24	150.1	6.14	9.66	2.21
	12/27/2012	4.81	230.8	4.94	6.65	0.65
Site-Wide Monitoring Wells						
1A-W-4	3/28/2012	7.23	-219.5	6.49	6.86	0.3
	9/19/2012	7.53	-41.3	6.35	9.95	0.19
1B-W-2	3/27/2012	5.67	153.6	5.97	6.87	2.47
	9/19/2012	0.5	-141.3	5.41	12.72	16.86
1B-W-3	3/28/2012	3.59	-253.6	6.72	6.36	0.44
	9/19/2012	3.3	-118.2	6.07	11.21	0.38
1C-W-3	3/27/2012	5.27	-223.4	6.07	7.94	229
	9/20/2012	5.52	125.3	6.83	12.41	615
1C-W-4	3/27/2012	1.2	-235.1	5.93	6.74	0.65
	9/20/2012	3.98	167.9	5.17	7.81	8.4
MW-16	3/28/2012	6.37	251	4.41	5.4	1.76
	9/19/2012	3.13	191.2	5.76	9.36	74.5
MW-38R	3/26/2011	0.42	110.5	6.24	6.99	0.17
	9/19/2012	0.98	181.1	6.14	7.34	40.9
5-W-50	3/27/2012	0.35	-96.1	5.93	4.83	1.22
	9/19/2012	0.96	-99.7	6.55	11.59	12.8
5-W-54	3/27/2012	1.85	107.6	6.14	5.89	1.21
	9/18/2012	0.85	174.6	6.09	12.98	19.8
5-W-55	3/27/2012	6.86	76.9	6.27	8.54	1.97
	9/18/2012	1.08	80.2	5.92	14.62	92
5-W-56	3/27/2012	0.27	9.6	5.87	6.65	2.41
	9/18/2012	0.92	-74.1	6.11	14.8	24.6

NOTES:

IE = instrument error
umhos/cm = micromhos per centimeter
NM = not measured
NTU = nephelometric turbidity units

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
Air Sparging System Monitoring Wells								
1C-W-1	10/27/2011	35	19	9.4	< 47	94	47	58.5
	11/21/2011	41	19	9.4	< 47	94	47	64.5
	12/14/2011	20	19	9.4	< 47	94	47	43.5
	1/31/2012	< 47	47	94	38	9.4	19	61.5
	2/28/2012	< 47	47	94	89	9.4	19	112.5
	3/27/2012	91	19	9.4	< 47	94	47	114.5
	4/24/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	5/30/2012	< 38	76	38	< 190	380	190	<114
	6/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	7/26/2012	< 9.6	19	9.6	< 48	96	48	<28.8
	8/20/2012	21	19	9.5	< 47	95	47	44.5
	9/20/2012	< 38	38	38	< 190	190	190	<114
	10/10/2012	< 150	150	150	< 750	750	750	<450
11/21/2012	<83	400	83	<200	400	200	<141.5	
12/27/2012	<21	100	21	<30	100	30	<25.5	
1C-W-7	10/27/2011	69	19	9.4	< 47	94	47	92.5
	11/21/2011	89	19	9.4	< 47	94	47	112.5
	12/14/2011	33	19	9.5	< 47	95	47	56.5
	1/31/2012	< 47	47	94	120	9.4	19	143.5
	1/31/2012 ¹	< 47	47	94	140	9.4	19	163.5
	2/28/2012	< 47	47	94	160	9.4	19	183.5
	3/27/2012	77	19	9.5	< 47	95	47	100.5
	4/24/2012	130	19	9.4	< 47	94	47	153.5
	5/30/2012	< 38	76	38	< 190	380	190	<114
	6/27/2012	57	19	9.4	< 47	94	47	80.5
	7/26/2012	31	19	9.5	< 48	95	48	55
	7/26/2012 ¹	44	19	9.5	< 48	95	48	68
	8/20/2012	27	19	9.5	< 47	95	47	50.5
	8/20/2012 ¹	34	19	9.5	< 47	95	47	57.5
	9/20/2012	59	41	41	< 200	200	200	159
	10/10/2012	< 150	150	150	< 750	750	750	<450
	10/10/2012 ¹	< 150	150	150	< 750	750	750	<450
	11/21/2012	< 83	400	83	< 200	400	200	<141.5
11/21/2012 ¹	< 83	400	83	< 200	400	200	<141.5	
12/27/2012	< 21	100	21	120	100	30	130.5	
12/27/2012 ¹	<83	400	83	<200	400	200	<141.5	

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
1C-W-8	10/27/2011	180	19	9.4	< 47	94	47	203.5
	11/21/2011	230	19	9.4	< 47	94	47	253.5
	12/14/2011	120	19	9.4	< 47	94	47	143.5
	1/31/2012	130	47	95	290	9.4	19	420
	2/28/2012	120	47	95	330	9.4	19	450
	2/28/2012 ¹	120	47	95	310	9.4	19	430
	3/27/2012	210	19	9.4	140	94	47	350
	4/24/2012	220	19	9.4	< 47	94	47	243.5
	5/30/2012	100	76	38	< 190	380	190	195
	6/27/2012	83	19	9.5	< 47	95	47	106.5
	7/26/2012	78	19	9.5	< 48	95	48	102
	8/20/2012	72	19	9.5	< 47	95	47	95.5
	9/20/2012	< 38	38	38	< 190	190	190	<114
	9/20/2012 ¹	< 38	38	38	< 190	190	190	<114
10/10/2012	250	150	150	< 750	750	750	625	
11/21/2012	< 83	400	83	< 200	400	200	<141.5	
12/27/2012	160	100	21	200	100	30	360	
Monitoring Wells Down-Gradient of the Hydraulic Control and Containment System								
1B-W-23	12/14/2011	27	19	9.5	< 47	95	47	50.5
	3/28/2012	39	19	9.5	< 47	95	47	62.5
	6/28/2012	23	19	9.5	< 47	95	47	46.5
	9/19/2012	84	56	56	< 280	280	280	224
	12/27/2012	< 22	110	22	< 32	110	32	<27
2A-W-40	12/13/2012	87	19	9.4	< 47	94	47	110.5
	3/27/2012	36	19	9.4	< 47	94	47	59.5
	6/27/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	9/19/2012	< 43	43	43	< 220	220	220	<131.5
2A-W-41	12/14/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	52	19	9.5	< 47	95	47	75.5
	6/27/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	9/19/2012	65	45	45	< 220	220	220	175
	12/27/2012	< 21	100	21	< 30	100	30	<25.5
2A-W-42	12/14/2011	120	19	9.4	< 47	94	47	143.5
	3/27/2012	110	19	9.4	< 47	94	47	133.5
	6/28/2012	54	19	9.4	< 47	94	47	77.5
	9/19/2012	110	44	44	< 220	220	220	220
	12/27/2012	< 22	100	22	210	100	31	221
5-W-43	3/26/2012	35	19	9.7	< 49	97	49	59.5
	6/27/2012	< 9.5	19	9.5	< 48	95	48	<28.75
	9/19/2012	< 42	42	42	< 210	210	210	<126

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
Former Malony Creek Zone--East Wetland and Surrounding Area Monitoring Wells								
2A-W-10	12/14/2011	120	19	9.5	< 47	95	47	143.5
	3/28/2012	260	19	9.5	350	95	48	610
	6/27/2012	170	19	9.5	150	95	48	320
	9/19/2012	120	38	38	< 190	190	190	215
	12/27/2012 ¹	140	100	22	270	100	31	410
	12/27/2012	130	100	21	250	100	30	380
2A-W-9	12/14/2011	910	19	9.5	260	95	47	1,170
	3/28/2012	600	19	9.5	460	95	47	1,060
	6/27/2012	230	19	9.5	120	95	48	350
	9/19/2012	210	38	38	290	190	190	500
	12/27/2012	2,700	100	22	1,600	100	31	4,300
2B-W-4	12/13/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/26/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	6/27/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	9/19/2012	< 38	38	38	< 190	190	190	<114
	12/27/2012	< 21	100	21	< 30	100	30	<25.5
MW-3	12/14/2011	120	19	9.5	110	95	48	230
	3/28/2012	78	19	9.5	110	95	48	188
	6/27/2012	33	19	9.5	< 47	95	47	56.5
	9/19/2012	93	38	38	< 190	190	190	188
	12/27/2012	< 22	100	22	< 31	100	31	<26.5
MW-4	12/14/2011	< 9.5	19	9.5	< 47	95	47	<28.25
	3/28/2012	160	19	9.5	220	95	48	380
	6/27/2012	52	19	9.5	< 47	95	47	75.5
	9/19/2012	41	38	38	< 190	190	190	136
	12/27/2012	< 21	100	21	< 31	100	31	<26
Hydraulic Control and Containment System Monitoring Wells								
EW-1	12/14/2011	29	19	9.4	< 47	94	47	52.5
	3/28/2012	29	19	9.4	< 47	94	47	52.5
	6/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/19/2012	< 41	41	41	< 210	210	210	<125.5
EW-2A	12/14/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/28/2012	20	19	9.4	< 47	94	47	43.5
	6/27/2012	< 9.5	19	9.5	110	95	48	114.75
	9/19/2012	< 38	38	38	< 190	190	190	<114

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
GW-1	12/13/2011	65	19	9.6	< 48	96	48	89
	3/26/2012	63	19	9.5	< 48	95	48	87
	6/27/2012	30	19	9.5	< 47	95	47	53.5
	9/20/2012	60	38	38	< 190	190	190	155
	12/27/2012	< 21	100	21	< 30	100	30	<25.5
GW-2	12/13/2011	21	19	9.5	< 48	95	48	45
	3/27/2012	330	20	9.9	170	99	50	500
	4/24/2012	140	19	9.4	100	94	47	240
	6/27/2012	28	19	9.5	< 47	95	47	51.5
	9/20/2012	< 38	38	38	< 190	190	190	<114
	12/27/2012	< 21	100	21	< 31	100	31	<26
GW-3	12/13/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/27/2012	47	21	10	< 52	100	52	73
	6/27/2012	22	19	9.4	< 47	94	47	45.5
	9/19/2012	< 43	43	43	< 210	210	210	<126.5
	12/27/2012	< 22	110	22	< 32	110	32	<27
GW-4	12/13/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/27/2012	160	21	10	110	100	52	270
	6/27/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	9/19/2012	< 43	43	43	< 220	220	220	<131.5
	12/27/2012	< 21	100	21	< 30	100	30	<25.5
S1-AD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.6	19	9.6	< 48	96	48	<28.8
	9/19/2012	< 44	44	44	< 220	220	220	<132
S1-AU	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/19/2012	< 44	44	44	< 220	220	220	<132
S1-BD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	41	19	9.5	160	95	47	201
	9/19/2012	< 41	41	41	< 200	200	200	<120.5
S1-BU	11/3/2011	< 9.5	19	9.5	< 47	95	47	<28.25
	3/27/2012	19	19	9.5	< 47	95	47	42.5
	9/19/2012	< 42	42	42	< 210	210	210	<126
S2-AD	11/3/2011	150	19	9.4	< 47	94	47	173.5
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/19/2012	< 38	38	38	< 190	190	190	<114
S2-AU	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/19/2012	< 39	39	39	< 190	190	190	<114.5

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
S2-BD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	22	19	9.5	< 47	95	47	45.5
	9/19/2012	< 42	42	42	< 210	210	210	<126
S2-BU	11/3/2011	150	19	9.4	< 47	94	47	173.5
	3/27/2012	41	19	9.5	< 47	95	47	64.5
	9/19/2012	45	43	43	< 220	220	220	155
	9/19/2012 ¹	< 41	41	41	< 200	200	200	<120.5
S3-AD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	< 42	42	42	< 210	210	210	<126
	9/18/2012 ¹	< 42	42	42	< 210	210	210	<126
S3-AU	11/3/2011	69	19	9.4	< 47	94	47	92.5
	3/27/2012	85	19	9.5	< 47	95	47	108.5
	9/19/2012	< 42	42	42	< 210	210	210	<126
S3-BD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	22	19	9.5	< 47	95	47	45.5
	9/18/2012	< 38	38	38	< 190	190	190	<114
S3-BU	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	42	19	9.5	< 47	95	47	65.5
	9/19/2012	82	38	38	< 190	190	190	177
	9/19/2012 ¹	< 38	38	38	< 190	190	190	<114
S3-CD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	< 42	42	42	< 210	210	210	<126
S3-CU	11/3/2011	< 9.5	19	9.5	< 47	95	47	<28.25
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	< 38	38	38	< 190	190	190	<114
S4-AD	11/3/2011	< 9.5	19	9.5	< 47	95	47	<28.25
	3/27/2012	61	19	9.5	< 47	95	47	84.5
	9/18/2012	< 38	38	38	< 190	190	190	<114
S4-AU	11/3/2011	< 9.5	19	9.5	< 47	95	47	<28.25
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	< 39	39	39	< 190	190	190	<114.5
S4-BD	11/4/2011	20	19	9.4	< 47	94	47	43.5
	3/27/2012	24	19	9.5	< 47	95	47	47.5
	9/18/2012	< 38	38	38	< 190	190	190	<114

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
S4-BU	11/4/2011	72	19	9.5	180	95	47	252
	3/27/2012	40	19	9.4	< 47	94	47	63.5
	9/18/2012	< 38	38	38	< 190	190	190	<114
S4-CD	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	86	40	40	250	200	200	336
S4-CU	11/3/2011	< 9.4	19	9.4	< 47	94	47	<28.2
	3/27/2012	34	19	9.5	< 47	95	47	57.5
	9/18/2012	< 39	39	39	< 200	200	200	<119.5
Levee Zone Monitoring Wells								
5-W-14	12/14/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/28/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	6/28/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	12/27/2012	< 21	100	21	< 30	100	30	<25.5
5-W-15	12/14/2011	280	19	9.5	110	95	48	390
	3/28/2012	570	19	9.4	330	94	47	900
	6/28/2012	110	19	9.4	130	94	47	240
	9/18/2012	370	38	38	210	190	190	580
	12/27/2012	210	100	21	290	100	30	500
5-W-16	12/14/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/28/2012	27	19	9.4	< 47	94	47	50.5
	6/28/2012	22	19	9.5	< 47	95	47	45.5
	9/18/2012	< 38	38	38	< 190	190	190	<114
	12/27/2012	< 86	410	86	< 410	410	0	<248
	12/27/2012 1	< 90	430	90	< 430	430	0	<260
5-W-17	12/14/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/28/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	6/28/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/18/2012	< 38	38	38	< 190	190	190	<114
	12/27/2012	< 22	100	22	< 31	100	31	<26.5
5-W-18	12/14/2011	100	19	9.5	< 47	95	47	123.5
	3/28/2012	95	19	9.4	95	94	47	190
	6/28/2012	94	19	9.5	130	95	47	224
	9/18/2012	170	38	38	< 190	190	190	265
	12/27/2012	< 22	100	22	160	100	31	171
5-W-19	12/14/2011	< 9.5	19	9.5	< 48	95	48	<28.75
	3/28/2012	< 9.4	19	9.4	< 47	94	47	<28.2
	6/28/2012	< 9.5	19	9.5	< 48	95	48	<28.75
	9/18/2012	< 38	38	38	< 190	190	190	<114
	12/27/2012	< 21	100	21	< 30	100	30	<25.5

Table 7
Calculated Total Petroleum Hydrocarbons Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	DRO (micrograms per liter)			ORO (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
Site-Wide Monitoring Wells								
1A-W-4	3/28/2012	< 9.5	19	9.5	< 47	95	47	<28.25
	9/19/2012	< 38	38	38	< 190	190	190	<114
	9/19/2012	< 38	38	38	< 190	190	190	<114
1B-W-2	3/27/2012	51	21	10	< 52	100	52	77
	9/19/2012	120	53	53	< 260	260	260	250
1B-W-3	3/28/2012	35	19	9.5	< 47	95	47	58.5
	9/19/2012	< 38	38	38	< 190	190	190	<114
1C-W-3	3/27/2012	30	19	9.5	< 47	95	47	53.5
	9/20/2012	< 38	38	38	< 190	190	190	<114
1C-W-4	3/27/2012	260	19	9.5	160	95	47	420
	9/20/2012	49	38	38	< 190	190	190	144
MW-16	3/28/2012	20	19	9.5	< 47	95	47	43.5
	9/19/2012	< 38	38	38	< 190	190	190	<114
MW-38R	3/26/2012	49	20	9.9	< 50	99	50	74
	9/19/2012	170	38	38	210	190	190	380
5-W-50	3/27/2012	2,000	21	10	660	100	52	2,660
	9/18/2012	1,000	42	42	480	210	210	1,480
5-W-51	3/28/2012	14,100	190	95	13300	950	470	27,400
5-W-54	3/27/2012	30	20	9.8	< 49	98	49	54.5
	9/18/2012	< 38	38	38	< 190	190	190	<114
5-W-55	3/27/2012	40	21	10	< 52	100	52	66
	9/18/2012	260	38	38	< 190	190	190	355
	9/18/2012	280	38	38	< 190	190	190	375
5-W-56	3/27/2012	420	20	9.9	410	99	50	830
	9/18/2012	2,700	38	38	840	190	190	3,540

NOTES:

 Yellow shading denotes the presence of non-aqueous phase liquid.

Bold denotes concentration exceeds 208 ug/l TPH cleanup level (Levee Zone) or exceeds 477 ug/l TPH remediation level (all zones except Levee Zone).

MDL = method detection limit

MRL = method reporting limit

µg/l = micrograms per liter

DRO = total petroleum hydrocarbons as diesel-range organics

ORO = total petroleum hydrocarbons as oil-range organics

< = analyte not detected at or above the laboratory method detection limit

¹NWTPH-Dx calculation uses one-half the MDL for non-detectable concentrations to derive the sum of TPH-O and TPH-D result.

Table 8
Comparison of Total Petroleum Hydrocarbon Concentrations in Groundwater With and Without Silica Gel Cleanup
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	TPH-D (micrograms per liter)			TPH-O (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
5-W-14	2011-12-14	< 9.5	19	9.5	< 47	95	47	<28.25
		< 9.5	19	9.5	< 48	95	48	<28.75
	2012-03-28	< 9.4	19	9.4	< 47	94	47	<28.2
		< 9.5	19	9.5	< 47	95	47	<28.25
	2012-06-28	< 9.4	19	9.4	< 47	94	47	<28.2
		< 9.4	19	9.4	< 47	94	47	<28.2
2012-09-18	< 38	38	38	< 190	190	190	<114	
5-W-15	2011-12-14	< 9.5	19	9.5	< 48	95	48	<28.75
		280	19	9.5	110	95	48	390
	2012-03-28	140	19	9.5	< 47	95	47	163.5
		570	19	9.4	330	94	47	900
	2012-06-28	< 9.4	19	9.4	< 47	94	47	<28.2
		110	19	9.4	130	94	47	240
2012-09-18	< 38	38	38	< 190	190	190	<114	
		370	38	38	210	190	190	580
5-W-16	2011-12-14	< 9.5	19	9.5	< 47	95	47	<28.25
		< 9.5	19	9.5	< 48	95	48	<28.75
	2012-03-28	< 9.4	19	9.4	< 47	94	47	<28.2
		27	19	9.4	< 47	94	47	50.5
	2012-06-28	< 9.5	19	9.5	< 47	95	47	<28.25
		22	19	9.5	< 47	95	47	45.5
2012-09-18	< 38	38	38	< 190	190	190	<114	
		< 38	38	38	< 190	190	190	<114
5-W-17	2011-12-14	< 9.5	19	9.5	< 47	95	47	<28.25
		< 9.5	19	9.5	< 48	95	48	<28.75
	2012-03-28	< 9.4	19	9.4	< 47	94	47	<28.2
		< 9.4	19	9.4	< 47	94	47	<28.2
	2012-06-28	< 9.5	19	9.5	< 47	95	47	<28.25
		< 9.5	19	9.5	< 47	95	47	<28.25
2012-09-18	< 38	38	38	< 190	190	190	<114	
		< 38	38	38	< 190	190	190	<114

Table 8
Comparison of Total Petroleum Hydrocarbon Concentrations in Groundwater With and Without Silica Gel Cleanup
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-043

Location	Sample Date	TPH-D (micrograms per liter)			TPH-O (micrograms per liter)			Calculated NWTPH-Dx ¹ (micrograms per liter)
		Result	MRL	MDL	Result	MRL	MDL	
5-W-18	2011-12-14	< 9.5	19	9.5	< 47	95	47	<28.25
		<i>100</i>	<i>19</i>	<i>9.5</i>	<i>< 47</i>	<i>95</i>	<i>47</i>	<i>123.5</i>
	2012-03-28	22	19	9.5	< 47	95	47	45.5
		<i>95</i>	<i>19</i>	<i>9.4</i>	<i>95</i>	<i>94</i>	<i>47</i>	<i>190</i>
	2012-06-28	< 9.5	19	9.5	< 47	95	47	<28.25
		<i>94</i>	<i>19</i>	<i>9.5</i>	<i>130</i>	<i>95</i>	<i>47</i>	<i>224</i>
	2012-09-18	< 38	38	38	< 190	190	190	<114
		<i>170</i>	<i>38</i>	<i>38</i>	<i>< 190</i>	<i>190</i>	<i>190</i>	<i>265</i>
5-W-19	2011-12-14	< 9.4	19	9.4	< 47	94	47	<28.2
		<i>< 9.5</i>	<i>19</i>	<i>9.5</i>	<i>< 48</i>	<i>95</i>	<i>48</i>	<i><28.75</i>
	2012-03-28	< 9.5	19	9.5	< 47	95	47	<28.25
		<i>< 9.4</i>	<i>19</i>	<i>9.4</i>	<i>< 47</i>	<i>94</i>	<i>47</i>	<i><28.2</i>
	2012-06-28	< 9.5	19	9.5	< 48	95	48	<28.75
		<i>< 9.5</i>	<i>19</i>	<i>9.5</i>	<i>< 48</i>	<i>95</i>	<i>48</i>	<i><28.75</i>
	2012-09-18	< 38	38	38	< 190	190	190	<114
		<i>< 38</i>	<i>38</i>	<i>38</i>	<i>< 190</i>	<i>190</i>	<i>190</i>	<i><114</i>

NOTES:

Bold denotes concentration exceeds 208 ug/l TPH Levee Zone cleanup level.
Italics and shading indicates analytical result without silica gel cleanup.
 < denotes analyte not detected at or above the laboratory method detection limit.
¹NWTPH-Dx calculation uses one-half the MDL for non-detectable concentrations to derive the sum of TPH-O and TPH-D result.

MDL = method detection limit
 MRL = method reporting limit
 TPH-D = total petroleum hydrocarbons as diesel-range organics
 TPH-O = total petroleum hydrocarbons as oil-range organics

APPENDIX A
INSTALLATION OF NEW MONITORING WELLS

2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-043

APPENDIX A

SUMMARY OF INSTALLATION OF ADDITIONAL MONITORING WELLS

Groundwater monitoring wells MW-47 through MW-49 were installed in the vicinity of the west end of the Hydraulic Control and Containment (HCC) System wall as part of the HCC System optimization implementation for investigation of the groundwater flow direction and gradient west of 5th Street and south of the HCC System. The locations and screened intervals of the monitoring wells were based on hydrogeologic conditions observed at the Site and laboratory analytical results for groundwater samples collected during previous groundwater monitoring events at the Site. The monitoring well locations are depicted on Figures 2 and 3 of the report.

Cascade Drilling, L.P. performed the drilling activities at the Site on August 22 and 24, 2012 using a limited-access sonic drill rig. Each boring was sampled continuously from the surface to 20 feet below ground surface (bgs). The soil from each boring was described in accordance with Unified Soil Classification System ASTM Standard D2488-06, *Standard Practice for Description and Identification of Soils*, and evidence of potential contamination such as unusual odor, discoloration, or sheen was noted. The soil samples were also screened in the field using a photoionization detector (PID) to assess for the presence of volatile organic vapors. The boring logs containing the soil descriptions, field observations, and PID readings are provided in this appendix.

The monitoring wells were constructed of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing and a 0.010-inch slotted PVC well screen. The three monitoring wells were screened from 5 to 20 feet bgs. A No. 2/12 sand filter pack was placed from the bottom of the screened interval to approximately 2 feet above the top of the screened interval. A minimum 2-foot-thick bentonite chip seal was emplaced above the sand pack in each well. Each monitoring well was fitted with a locking cap and completed using a flush-mounted traffic-rated monuments encased in concrete. Boring logs showing well construction details are included in this appendix.

Monitoring well MW-47 was partially developed immediately following well construction but the submersible pump failed. Well development was completed two days following well construction. Monitoring wells MW-48 and MW-49 were developed immediately after construction. Each monitoring well was surged using a polyvinyl chloride surge rod to flush water into the soil surrounding the well screen to loosen fine-grained sediment and pull it into the well. The surge rod was then removed from the monitoring well, and a submersible pump was used to evacuate the water from the monitoring well. This process was repeated until three to five well volumes of water had been removed from the monitoring well or visual observation indicated that sediment no longer was present in groundwater.

The installation of monitoring wells was conducted in accordance with Farallon Standard Operating Procedure No. FAR-101 for well construction and Standard Operating Procedure No. FAR-102 for well development. The monitoring wells also were constructed in accordance with Chapter 173-160 of the Washington Administrative Code, *Minimum Standards for Construction and Maintenance of Wells*. Decontamination water and purged groundwater generated during installation and development of the monitoring wells was stored on Site in labeled 55-gallon drums for future disposal.

The position of groundwater monitoring wells MW-47 through MW-49 and the elevations of the top of casing measuring points were surveyed by professional surveyors True North Land Surveying, Inc. of Seattle, Washington on October 25, 2012.



Log of Boring: MW-47

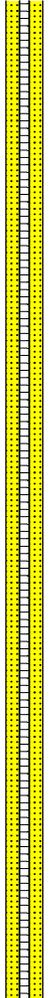
Client: BNSF Project: BNSF Skykomish Location: Skykomish, WA	Date/Time Started: 8/22/12 1313 Date/Time Completed: 8/22/12 1449 Equipment: Geoprobe 8140LS Drilling Company: Cascade Drilling Drilling Foreman: Jeff Johnson Drilling Method: Sonic	Sampler Type: D&M SS 18"x2" Drive Hammer (lbs.): AUTO Depth of Water ATD (ft bgs): 10.9 Total Boring Depth (ft bgs): 20.0 Total Well Depth (ft bgs): 20.0
	Farallon PN: 683-043 Logged By: Dincer Kayhan	

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0	0.0-0.8	Asphalt. 3 separate layers. .2-.3' thick each	AC							
	0.8-1.8	Poorly graded SAND with gravel [65% sand, 35% gravel] fine to coarse sand, fine to coarse gravel, gray, dry, no odor	SP							Concrete
	1.8-2.9	Poorly graded SAND with gravel [80% sand, 20% gravel] fine to coarse sand, fine to coarse gravel, brown, dry, no odor	SP		75	NA				Bentonite
	2.9-3.8	Poorly graded SAND with gravel [75% sand, 25% gravel] fine to coarse sand, fine to coarse gravel, gray, dry, no odor, contains organic bark/tree debris	SP				1.3			
	3.8-4.0	No recovery								
	4.0-4.8	Poorly graded SAND with gravel [75% sand, 25% gravel] fine to coarse sand, fine to coarse gravel, gray, dry, no odor	SP							
5	4.8-5.5	Wood debris, moist at 4.8' bgs	WD				1.9			
	5.5-6.3	Poorly graded SAND with gravel [80% sand, 15% gravel, 5% silt] fine to coarse sand, fine to coarse gravel, gray, moist, no odor	SP							
	6.3-7.5	No recovery			80	NA				
	7.5-8.5	Poorly graded SAND [85% sand, 10% silt, 5% gravel] fine to medium sand, coarse gravel, brown, moist, no odor	SP				1.4			
	8.5-9.5	Poorly graded GRAVEL with sand [80% gravel, 20% sand] fine to coarse gravel, medium to coarse sand, brown, moist, no odor	GP							
10	9.5-10.9	Poorly graded SAND [85% sand, 10% silt, 5% gravel] fine to medium sand, coarse gravel, brown, moist, no odor, water at 10.9' bgs	SP				19.3			

Well Construction Information		
Monument Type: Flush Mount	Filter Pack: #2/12 Sand	Ground Surface Elevation (ft): 932.98
Casing Diameter (inches): 2	Surface Seal: Concrete	Top of Casing Elevation (ft): 932.61
Screen Slot Size (inches): 0.020	Annular Seal: Bentonite	Surveyed Location: X: 1510528.16
Screened Interval (ft bgs): 5-20	Boring Abandonment: NA	Y: 258862.76

Client: BNSF Project: BNSF Skykomish Location: Skykomish, WA	Date/Time Started: 8/22/12 1313 Date/Time Completed: 8/22/12 1449 Equipment: Geoprobe 8140LS Drilling Company: Cascade Drilling Drilling Foreman: Jeff Johnson Drilling Method: Sonic	Sampler Type: D&M SS 18"x2" Drive Hammer (lbs.): AUTO Depth of Water ATD (ft bgs): 10.9 Total Boring Depth (ft bgs): 20.0 Total Well Depth (ft bgs): 20.0
	Farallon PN: 683-043 Logged By: Dincer Kayhan	

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
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	10.9-12.0	Poorly graded SAND with gravel [80% sand, 15% gravel, 5% silt] fine to coarse sand, fine to coarse gravel, gray, moist, no odor	SP		80	NA				 <p>Water Level</p> <p>Sand Pack</p>
	12.0-12.5	No recovery								
	12.5-15.0	Poorly graded GRAVEL with sand [80% gravel, 20% sand] fine to coarse gravel, medium to coarse sand, cobbles present, brown to light grey at 14.3' bgs, wet, sand percentage increases to 50% sand and 50% gravel at 14.4' bgs	GP				1.6			
15	15.0-16.5	Poorly graded GRAVEL with sand [80% gravel, 20% sand] fine to coarse gravel, medium to coarse sand, cobbles present, gray, wet, no odor	GP							
	16.5-17.5	Poorly graded SAND with gravel [60% sand, 40% gravel] coarse sand, fine to coarse gravel, brown, wet, no odor	SP		100	NA				
	17.5-20.0	Poorly graded SAND [90% sand, 10% gravel] fine to coarse sand, fine gravel, brown, wet, no odor	SP		100	NA	1.0			
20							1.9			

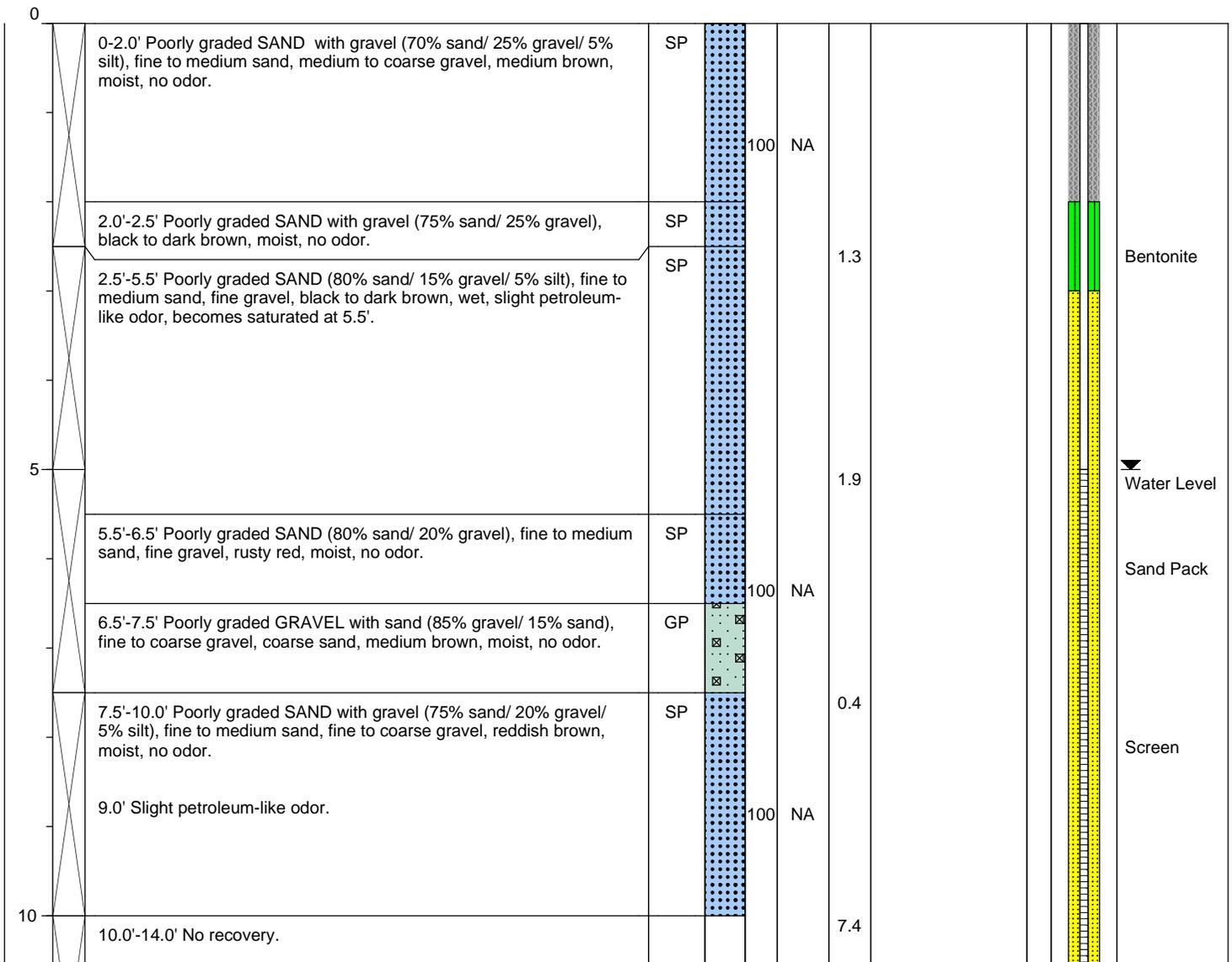
Well Construction Information		
Monument Type: Flush Mount	Filter Pack: #2/12 Sand	Ground Surface Elevation (ft): 932.98
Casing Diameter (inches): 2	Surface Seal: Concrete	Top of Casing Elevation (ft): 932.61
Screen Slot Size (inches): 0.020	Annular Seal: Bentonite	Surveyed Location: X: 1510528.16
Screened Interval (ft bgs): 5-20	Boring Abandonment: NA	Y: 258862.76



Log of Boring: MW-48

Client: BNSF Project: BNSF Skykomish Location: Skykomish, WA	Date/Time Started: 8/24/12 0953 Date/Time Completed: 8/24/12 1124 Equipment: Sonic SDC 390-14 Drilling Company: Cascade Drilling Drilling Foreman: Andy Drilling Method: Sonic	Sampler Type: Plastic sleeve Drive Hammer (lbs.): NA Depth of Water ATD (ft bgs): 5.0 Total Boring Depth (ft bgs): 20.0 Total Well Depth (ft bgs): 20.0
	Farallon PN: 683-043 Logged By: E.E. Mulanax	

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
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Well Construction Information		
Monument Type: Flush Mount	Filter Pack: #2/12 Sand	Ground Surface Elevation (ft): 934.34
Casing Diameter (inches): 2	Surface Seal: Concrete	Top of Casing Elevation (ft): 933.90
Screen Slot Size (inches): 0.020	Annular Seal: Bentonite	Surveyed Location: X: 1510485.27
Screened Interval (ft bgs): 5-20	Boring Abandonment: NA	Y: 258999.99

Client: BNSF Project: BNSF Skykomish Location: Skykomish, WA	Date/Time Started: 8/24/12 0953 Date/Time Completed: 8/24/12 1124 Equipment: Sonic SDC 390-14 Drilling Company: Cascade Drilling Drilling Foreman: Andy Drilling Method: Sonic	Sampler Type: Plastic sleeve Drive Hammer (lbs.): NA Depth of Water ATD (ft bgs): 5.0 Total Boring Depth (ft bgs): 20.0 Total Well Depth (ft bgs): 20.0
	Farallon PN: 683-043 Logged By: E.E. Mulanax	

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
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						100	NA			
15	14.0'-15.0'	Poorly graded SAND with silt (80% sand/ 10% gravel/ 10% silt), fine to medium sand, fine gravel, black, moist to dry.	SP-SM			25	NA	8.7		
	14.5'	Becomes medium brown, dry, slight petroleum-like odor.								
	15.0'-15.5'	Poorly graded GRAVEL with sand (65% sand/ 30% gravel/ 5% silt), fine to medium sand, fine to coarse gravel, dark brown, wet, no odor.	SP GP	 						
	15.5'-17.8'	Poorly graded GRAVEL with sand (75% gravel/ 20% sand/ 5% silt), fine to medium sand, coarse gravel, wet, petroleum-like odor, sheen from 16'-17', cobbles.	GP			80	NA	194.1		
	17.8'-19.0'	Poorly graded GRAVEL with sand (75% gravel/ 20% sand/ 5% silt), fine to coarse gravel, fine to coarse sand, medium brown, saturated, petroleum-like odor, no sheen.	GP			80	NA	82.7		
20	19.0'-20.0'	No recovery.								

Well Construction Information		
Monument Type: Flush Mount	Filter Pack: #2/12 Sand	Ground Surface Elevation (ft): 934.34
Casing Diameter (inches): 2	Surface Seal: Concrete	Top of Casing Elevation (ft): 933.90
Screen Slot Size (inches): 0.020	Annular Seal: Bentonite	Surveyed Location: X: 1510485.27
Screened Interval (ft bgs): 5-20	Boring Abandonment: NA	Y: 258999.99



Log of Boring: MW-49

Client: BNSF
Project: Skykomish Ongoing Cleanup
Location: Skykomish, WA

Date/Time Started: 8/24/12 1342
Date/Time Completed: 8/24/12 1441
Equipment: Sonic SDC 390-14
Drilling Company: Cascade Drilling
Drilling Foreman: Andy
Drilling Method: Sonic

Sampler Type: Plastic sleeve
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 20.0
Total Well Depth (ft bgs): 20.0

Farallon PN: 683-043

Logged By: E.E. Mulanax

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-1.3' Poorly graded SAND with gravel (70% sand/ 25% gravel/ 5% silt), fine to medium sand, fine to coarse gravel, medium brown, dry, no odor. 1.0' Becomes dark brown to black, moist, no odor.	SP							
		1.3'-2.5' No recovery.			50	NA	7.0			
		2.5'-3.5' Poorly graded SAND with gravel (80% sand/ 15% gravel/ 5% silt), fine to medium sand, fine gravel, dark brown, moist, no odor.	SP							Bentonite
		3.5'-6.5' Poorly graded SAND (90% sand/ 10% gravel), fine to medium sand, fine gravel, black, moist, no odor.	SP				2.5			
5		5.7'-6.0' Sand grains become rusty brown.								
		6.5'-7.2' Silty SAND (70% sand/ 30% silt), fine to medium sand, medium brown, moist, no odor.	SM				1.8			
		7.2'-12.0' Poorly graded SAND (85% sand/ 5% silt), fine to medium sand, medium brown, moist, no odor, black layers between 10'-10.2', 10.5'-10.7', and 11'-11.5'.	SP							
		10' Becomes wet.			100	NA	3.2			Screen

Well Construction Information

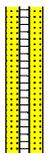
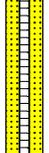
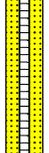
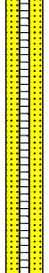
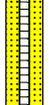
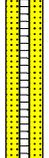
Monument Type: Flush Mount
Casing Diameter (inches): 2
Screen Slot Size (inches): 0.020
Screened Interval (ft bgs): 5-20

Filter Pack: #2/12 Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 933.57
Top of Casing Elevation (ft): 933.14
Surveyed Location: X: 1510373.13
Y: 258987.47

Client: BNSF Project: Skykomish Ongoing Cleanup Location: Skykomish, WA	Date/Time Started: 8/24/12 1342 Date/Time Completed: 8/24/12 1441 Equipment: Sonic SDC 390-14 Drilling Company: Cascade Drilling Drilling Foreman: Andy Drilling Method: Sonic	Sampler Type: Plastic sleeve Drive Hammer (lbs.): NA Depth of Water ATD (ft bgs): 10.0 Total Boring Depth (ft bgs): 20.0 Total Well Depth (ft bgs): 20.0
	Farallon PN: 683-043 Logged By: E.E. Mulanax	

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
-------------------	-----------------	------------------------	------	--------------	------------	-------------------	-----------	-----------	-----------------	----------------------------------

15	12.0'-13.0'	Poorly graded SAND (95% sand/ 5% gravel), fine to medium sand, fine gravel, brown, wet, no odor.	SP		100	NA	6.6			
	13.0'-14.0'	Poorly graded SAND with gravel (60% sand/ 40% gravel), fine to medium sand, coarse gravel, medium brown to rusty orange, wet, no odor.	SP		80	NA	2.4			
	14.0'-15.0'	No recovery.								
	15.0'-17.5'	Poorly graded GRAVEL with sand (70% gravel/ 25% sand/ 5% silt), fine to coarse gravel, fine to coarse sand, gray to medium brown, saturated, no odor.	GP		80	NA	2.7			
	17.5'-18.5'	Poorly graded SAND with gravel (55% sand/ 40% gravel/ 5% silt), fine to medium sand, fine to coarse gravel, gray to medium brown, no odor.	SP							
20	18.5'-20.0'	Poorly graded GRAVEL with sand (70% gravel/ 25% sand/ 5% silt), fine to coarse gravel, fine to coarse sand, gray to medium brown, saturated, no odor.	GP		100	NA	3.3			

Well Construction Information		
Monument Type: Flush Mount	Filter Pack: #2/12 Sand	Ground Surface Elevation (ft): 933.57
Casing Diameter (inches): 2	Surface Seal: Concrete	Top of Casing Elevation (ft): 933.14
Screen Slot Size (inches): 0.020	Annular Seal: Bentonite	Surveyed Location: X: 1510373.13
Screened Interval (ft bgs): 5-20	Boring Abandonment: NA	Y: 258987.47

**APPENDIX B
LABORATORY ANALYTICAL REPORTS
(PROVIDED ON CD IN PRINT REPORT)**

2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-043

November 07, 2011

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: Skykomish
Pace Project No.: 259777

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Andy Brownfield

andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Skykomish

Pace Project No.: 259777

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: Skykomish

Pace Project No.: 259777

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
259777001	IC-W-7-1011	NWTPH-Dx	AY1	4	PASI-S
259777002	IC-W-1-1011	NWTPH-Dx	AY1	4	PASI-S
259777003	IC-W-8-1011	NWTPH-Dx	AY1	4	PASI-S
259777004	IC-W-80-1011	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Skykomish

Pace Project No.: 259777

Sample: IC-W-7-1011		Lab ID: 259777001	Collected: 10/27/11 11:10	Received: 10/27/11 16:25	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	0.069	mg/L	0.019	1	11/01/11 12:50	11/03/11 01:48		
Motor Oil Range	ND	mg/L	0.094	1	11/01/11 12:50	11/03/11 01:48	64742-65-0	
n-Octacosane (S)	75 %		50-150	1	11/01/11 12:50	11/03/11 01:48	630-02-4	
o-Terphenyl (S)	57 %		50-150	1	11/01/11 12:50	11/03/11 01:48	84-15-1	

Sample: IC-W-1-1011		Lab ID: 259777002	Collected: 10/27/11 12:00	Received: 10/27/11 16:25	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	0.035	mg/L	0.019	1	11/01/11 12:50	11/03/11 02:40		
Motor Oil Range	ND	mg/L	0.094	1	11/01/11 12:50	11/03/11 02:40	64742-65-0	
n-Octacosane (S)	72 %		50-150	1	11/01/11 12:50	11/03/11 02:40	630-02-4	
o-Terphenyl (S)	56 %		50-150	1	11/01/11 12:50	11/03/11 02:40	84-15-1	

Sample: IC-W-8-1011		Lab ID: 259777003	Collected: 10/27/11 12:40	Received: 10/27/11 16:25	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	0.18	mg/L	0.019	1	11/01/11 12:50	11/03/11 03:57		
Motor Oil Range	ND	mg/L	0.094	1	11/01/11 12:50	11/03/11 03:57	64742-65-0	
n-Octacosane (S)	66 %		50-150	1	11/01/11 12:50	11/03/11 03:57	630-02-4	
o-Terphenyl (S)	52 %		50-150	1	11/01/11 12:50	11/03/11 03:57	84-15-1	

Sample: IC-W-80-1011		Lab ID: 259777004	Collected: 10/27/11 13:00	Received: 10/27/11 16:25	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	0.21	mg/L	0.019	1	11/01/11 12:50	11/03/11 04:23		
Motor Oil Range	ND	mg/L	0.094	1	11/01/11 12:50	11/03/11 04:23	64742-65-0	
n-Octacosane (S)	66 %		50-150	1	11/01/11 12:50	11/03/11 04:23	630-02-4	
o-Terphenyl (S)	54 %		50-150	1	11/01/11 12:50	11/03/11 04:23	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish
Pace Project No.: 259777

QC Batch: OEXT/4668 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 259777001, 259777002, 259777003, 259777004

METHOD BLANK: 92486 Matrix: Water
Associated Lab Samples: 259777001, 259777002, 259777003, 259777004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	11/03/11 00:06	
Motor Oil Range	mg/L	ND	0.10	11/03/11 00:06	
n-Octacosane (S)	%	91	50-150	11/03/11 00:06	
o-Terphenyl (S)	%	79	50-150	11/03/11 00:06	

LABORATORY CONTROL SAMPLE: 92487

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	4	3.2	81	51-147	
Motor Oil Range	mg/L	4	3.4	86	20-160	
n-Octacosane (S)	%			93	50-150	
o-Terphenyl (S)	%			86	50-150	

SAMPLE DUPLICATE: 92488

Parameter	Units	259777001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.069	0.059	16	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	75	69	8	
o-Terphenyl (S)	%	57	57	.05	

SAMPLE DUPLICATE: 92489

Parameter	Units	259783007 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	93	92	2	
o-Terphenyl (S)	%	78	78	3	

QUALIFIERS

Project: Skykomish

Pace Project No.: 259777

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI 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.: 259777

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
259777001	IC-W-7-1011	EPA 3510	OEXT/4668	NWTPH-Dx	GCSV/3050
259777002	IC-W-1-1011	EPA 3510	OEXT/4668	NWTPH-Dx	GCSV/3050
259777003	IC-W-8-1011	EPA 3510	OEXT/4668	NWTPH-Dx	GCSV/3050
259777004	IC-W-80-1011	EPA 3510	OEXT/4668	NWTPH-Dx	GCSV/3050

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: **AECOM** Report To: **Mark Havishorst** Attention: _____ Invoice Information: _____

Section B Required Project Information: Address: **710 2nd Ave. Ste 1600** Copy To: **Renee Knecht** Company Name: _____

Email To: **Mark Havishorst** Purchase Order No.: **Dean Kinney** Address: _____

Phone: **206-6449444** Project Name: **SKYKOMISH-BNSF** Pace Quote Reference: _____

Requested Due Date/TAT: _____ Project Number: **6019113-0540** Pace Project Manager: **Jen Gross**

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

ITEM #	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
		COMPOSITE START	COMPOSITE END/GRAB					
1	1C-W-7-1011	X	10/27 1110	2	X			
2	1C-W-1-1011	X	10/27 1200	2	X			
3	1C-W-8-1011	X	10/27 1240	2	X			
4	1C-W-80-1011	X	10/27 1300	2	X			
5								
6								
7								
8								
9								
10								
11								
12								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Without Seals.	Michelle L. Lysane	10/27/11	10:25	Jen Gross	10/27/11	12:15	Temp in °C _____ Received on Ice (Y/N) Y Custody Sealed Cooler (Y/N) Y Samples Intact (Y/N) N
	AECOM						

ORIGINAL

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____

DATE Signed (MM/DD/YY): _____

Sample Container Count

259777

CLIENT: ASCOM



COC PAGE 1 of 1

COC ID# 1391118

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	Comments
1		22										
2		↓										
3		↓										
4		↓										
5												
6												
7												
8												
9												
10												
11												
12												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 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		



Sample Condition Upon Receipt

259777

Client Name: AECOM Project # _____

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 12 Biological Tissue is Frozen: Yes No
Temp should be above freezing $\leq 6^{\circ}\text{C}$ Comments:

Date and Initials of person examining contents: PC 10/27/11

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17. <u>No trip blanks present</u>
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: UARB Date: 10/28/11

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)

December 01, 2011

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 2510110

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Andy Brownfield

andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 2510110

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 2510110

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510110001	IC-W-1-1111	NWTPH-Dx	AY1	4	PASI-S
2510110002	IC-W-8-1111	NWTPH-Dx	AY1	4	PASI-S
2510110003	IC-W-80-1111	NWTPH-Dx	AY1	4	PASI-S
2510110004	IC-W-7-1111	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2510110

Sample: IC-W-1-1111		Lab ID: 2510110001	Collected: 11/21/11 14:00	Received: 11/22/11 09:50	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	0.041 mg/L		0.019	1	11/28/11 11:40	11/28/11 23:23		
Motor Oil Range	ND mg/L		0.094	1	11/28/11 11:40	11/28/11 23:23	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	11/28/11 11:40	11/28/11 23:23	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	11/28/11 11:40	11/28/11 23:23	84-15-1	

Sample: IC-W-8-1111		Lab ID: 2510110002	Collected: 11/21/11 14:50	Received: 11/22/11 09:50	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	0.23 mg/L		0.019	1	11/28/11 11:40	11/29/11 00:13		
Motor Oil Range	ND mg/L		0.094	1	11/28/11 11:40	11/29/11 00:13	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	11/28/11 11:40	11/29/11 00:13	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	11/28/11 11:40	11/29/11 00:13	84-15-1	

Sample: IC-W-80-1111		Lab ID: 2510110003	Collected: 11/21/11 15:30	Received: 11/22/11 09:50	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	0.20 mg/L		0.019	1	11/28/11 11:40	11/29/11 00:38		
Motor Oil Range	ND mg/L		0.094	1	11/28/11 11:40	11/29/11 00:38	64742-65-0	
Surrogates								
n-Octacosane (S)	88 %		50-150	1	11/28/11 11:40	11/29/11 00:38	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	11/28/11 11:40	11/29/11 00:38	84-15-1	

Sample: IC-W-7-1111		Lab ID: 2510110004	Collected: 11/21/11 16:00	Received: 11/22/11 09:50	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	0.089 mg/L		0.019	1	11/28/11 11:40	11/29/11 01:03		
Motor Oil Range	ND mg/L		0.094	1	11/28/11 11:40	11/29/11 01:03	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	11/28/11 11:40	11/29/11 01:03	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	11/28/11 11:40	11/29/11 01:03	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2510110

QC Batch: OEXT/4790 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2510110001, 2510110002, 2510110003, 2510110004

METHOD BLANK: 95512 Matrix: Water

Associated Lab Samples: 2510110001, 2510110002, 2510110003, 2510110004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	11/28/11 17:59	
Motor Oil Range	mg/L	ND	0.10	11/28/11 17:59	
n-Octacosane (S)	%	96	50-150	11/28/11 17:59	
o-Terphenyl (S)	%	82	50-150	11/28/11 17:59	

LABORATORY CONTROL SAMPLE: 95513

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	4	3.2	79	51-114	
Motor Oil Range	mg/L	4	3.5	87	62-120	
n-Octacosane (S)	%			94	50-150	
o-Terphenyl (S)	%			88	50-150	

SAMPLE DUPLICATE: 95514

Parameter	Units	2510078015 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	96	93	2	
o-Terphenyl (S)	%	83	80	3	

SAMPLE DUPLICATE: 95515

Parameter	Units	2510110001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.041	0.050	20	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	83	94	12	
o-Terphenyl (S)	%	72	81	12	

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 2510110

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI 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.: 2510110

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510110001	IC-W-1-1111	EPA 3510	OEXT/4790	NWTPH-Dx	GCSV/3124
2510110002	IC-W-8-1111	EPA 3510	OEXT/4790	NWTPH-Dx	GCSV/3124
2510110003	IC-W-80-1111	EPA 3510	OEXT/4790	NWTPH-Dx	GCSV/3124
2510110004	IC-W-7-1111	EPA 3510	OEXT/4790	NWTPH-Dx	GCSV/3124

Sample Container Count

2 5 1 0 1 1 0



CLIENT: Aecom

COC PAGE 1 of 1
 COC ID# 1470484

Trip Blank(s) Provided?
Y / <u>N</u>

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 [←]														
2		↓														
3		↓														
4		↓														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: Aecom

Project # 2510110

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 0.92 Temp should be above freezing <= 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 11/22/11 CW

Comments:

Table with 17 rows of checklist items and checkboxes. Items include Chain of Custody Present, Short Hold Time Analysis, Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Sample Labels match COC, All containers needing preservation have been checked, Samples checked for dechlorination, Headspace in VOA Vials, Trip Blanks Present, Trip Blank Custody Seals Present.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 11/22/11

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)

December 27, 2011

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish TT0100-K40
Pace Project No.: 2510337

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on December 15, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Regina SteMarie for
Andy Brownfield
andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 16

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish TT0100-K40
Pace Project No.: 2510337

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510337001	2B-W-4-1211	NWTPH-Dx	AY1	4	PASI-S
2510337002	GW-1-1211	NWTPH-Dx	AY1	4	PASI-S
2510337003	GW-2-1211	NWTPH-Dx	AY1	4	PASI-S
2510337004	GW-3-1211	NWTPH-Dx	AY1	4	PASI-S
2510337005	GW-4-1211	NWTPH-Dx	AY1	4	PASI-S
2510337006	GW-30-1211	NWTPH-Dx	AY1	4	PASI-S
2510337007	2A-W-40-1211	NWTPH-Dx	AY1	4	PASI-S
2510337008	5-W-17-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337009	5-W-18-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337010	5-W-180-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337011	5-W-14-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337012	5-W-15-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337013	5-W-16-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337014	5-W-19-1211	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	DMT	4	PASI-S
2510337015	MW-4-1211	NWTPH-Dx	AY1	4	PASI-S
2510337016	2A-W-10-1211	NWTPH-Dx	AY1	4	PASI-S
2510337017	2A-W-9-1211	NWTPH-Dx	AY1	4	PASI-S
2510337018	2A-W-90-1211	NWTPH-Dx	AY1	4	PASI-S
2510337019	MW-3-1211	NWTPH-Dx	AY1	4	PASI-S
2510337020	IC-W-1-1211	NWTPH-Dx	AY1	4	PASI-S
2510337021	IC-W-8-1211	NWTPH-Dx	AY1	4	PASI-S
2510337022	IC-W-7-1211	NWTPH-Dx	AY1	4	PASI-S
2510337023	EW-2A-1211	NWTPH-Dx	AY1	4	PASI-S
2510337024	2A-W-42-1211	NWTPH-Dx	AY1	4	PASI-S
2510337025	1B-W-23-1211	NWTPH-Dx	AY1	4	PASI-S
2510337026	2A-W-41-1211	NWTPH-Dx	AY1	4	PASI-S
2510337027	2A-W-410-1211	NWTPH-Dx	AY1	4	PASI-S
2510337028	EW-1-1211	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 2B-W-4-1211		Lab ID: 2510337001	Collected: 12/13/11 12:00	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/21/11 11:50	12/22/11 00:29		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 00:29	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	12/21/11 11:50	12/22/11 00:29	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	12/21/11 11:50	12/22/11 00:29	84-15-1	

Sample: GW-1-1211		Lab ID: 2510337002	Collected: 12/13/11 13:30	Received: 12/15/11 10:45	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	0.065 mg/L		0.019	1	12/21/11 11:50	12/22/11 00:53		
Motor Oil Range	ND mg/L		0.096	1	12/21/11 11:50	12/22/11 00:53	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	12/21/11 11:50	12/22/11 00:53	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	12/21/11 11:50	12/22/11 00:53	84-15-1	

Sample: GW-2-1211		Lab ID: 2510337003	Collected: 12/13/11 14:05	Received: 12/15/11 10:45	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	0.021 mg/L		0.019	1	12/21/11 11:50	12/22/11 01:17		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 01:17	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	12/21/11 11:50	12/22/11 01:17	630-02-4	
o-Terphenyl (S)	59 %		50-150	1	12/21/11 11:50	12/22/11 01:17	84-15-1	

Sample: GW-3-1211		Lab ID: 2510337004	Collected: 12/13/11 15:00	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/21/11 11:50	12/22/11 01:42		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 01:42	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	12/21/11 11:50	12/22/11 01:42	630-02-4	
o-Terphenyl (S)	59 %		50-150	1	12/21/11 11:50	12/22/11 01:42	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: GW-4-1211		Lab ID: 2510337005	Collected: 12/13/11 16:00	Received: 12/15/11 10:45	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	ND	mg/L	0.019	1	12/21/11 11:50	12/22/11 02:07		
Motor Oil Range	ND	mg/L	0.095	1	12/21/11 11:50	12/22/11 02:07	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	12/21/11 11:50	12/22/11 02:07	630-02-4	
o-Terphenyl (S)	62 %		50-150	1	12/21/11 11:50	12/22/11 02:07	84-15-1	

Sample: GW-30-1211		Lab ID: 2510337006	Collected: 12/13/11 15:15	Received: 12/15/11 10:45	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	ND	mg/L	0.019	1	12/21/11 11:50	12/22/11 02:31		
Motor Oil Range	ND	mg/L	0.095	1	12/21/11 11:50	12/22/11 02:31	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	12/21/11 11:50	12/22/11 02:31	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	12/21/11 11:50	12/22/11 02:31	84-15-1	

Sample: 2A-W-40-1211		Lab ID: 2510337007	Collected: 12/13/11 16:15	Received: 12/15/11 10:45	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	0.087	mg/L	0.019	1	12/21/11 11:50	12/22/11 02:56		
Motor Oil Range	ND	mg/L	0.094	1	12/21/11 11:50	12/22/11 02:56	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	12/21/11 11:50	12/22/11 02:56	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	12/21/11 11:50	12/22/11 02:56	84-15-1	

Sample: 5-W-17-1211		Lab ID: 2510337008	Collected: 12/14/11 09:25	Received: 12/15/11 10:45	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	ND	mg/L	0.019	1	12/21/11 11:50	12/22/11 04:09		
Motor Oil Range	ND	mg/L	0.095	1	12/21/11 11:50	12/22/11 04:09	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	12/21/11 11:50	12/22/11 04:09	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	12/21/11 11:50	12/22/11 04:09	84-15-1	

Sample: NWTPH-Dx GCS Silica Gel		Lab ID: 2510337008	Collected: 12/14/11 09:25	Received: 12/15/11 10:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	12/23/11 10:45	12/23/11 18:57		
Motor Oil Range SG	ND	mg/L	0.095	1	12/23/11 10:45	12/23/11 18:57	64742-65-0	
Surrogates								
n-Octacosane (S) SG	76 %		50-150	1	12/23/11 10:45	12/23/11 18:57	630-02-4	

Date: 12/27/2011 04:23 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 5-W-17-1211	Lab ID: 2510337008	Collected: 12/14/11 09:25	Received: 12/15/11 10:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Surrogates

o-Terphenyl (S) SG	61 %		50-150	1	12/23/11 10:45	12/23/11 18:57	84-15-1	
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Sample: 5-W-18-1211	Lab ID: 2510337009	Collected: 12/14/11 10:05	Received: 12/15/11 10:45	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	0.10 mg/L		0.019	1	12/21/11 11:50	12/22/11 04:59		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 04:59	64742-65-0	
Surrogates								
n-Octacosane (S)	69 %		50-150	1	12/21/11 11:50	12/22/11 04:59	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	12/21/11 11:50	12/22/11 04:59	84-15-1	

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	12/23/11 10:45	12/23/11 19:21		
Motor Oil Range SG	ND mg/L		0.095	1	12/23/11 10:45	12/23/11 19:21	64742-65-0	
Surrogates								
n-Octacosane (S) SG	85 %		50-150	1	12/23/11 10:45	12/23/11 19:21	630-02-4	
o-Terphenyl (S) SG	72 %		50-150	1	12/23/11 10:45	12/23/11 19:21	84-15-1	

Sample: 5-W-180-1211	Lab ID: 2510337010	Collected: 12/14/11 10:20	Received: 12/15/11 10:45	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	0.12 mg/L		0.019	1	12/21/11 11:50	12/22/11 05:23		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 05:23	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	12/21/11 11:50	12/22/11 05:23	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	12/21/11 11:50	12/22/11 05:23	84-15-1	

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	12/23/11 10:45	12/23/11 19:46		
Motor Oil Range SG	ND mg/L		0.095	1	12/23/11 10:45	12/23/11 19:46	64742-65-0	
Surrogates								
n-Octacosane (S) SG	87 %		50-150	1	12/23/11 10:45	12/23/11 19:46	630-02-4	
o-Terphenyl (S) SG	74 %		50-150	1	12/23/11 10:45	12/23/11 19:46	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 5-W-14-1211		Lab ID: 2510337011	Collected: 12/14/11 12:15	Received: 12/15/11 10:45	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	ND	mg/L	0.019	1	12/21/11 11:50	12/22/11 05:48		
Motor Oil Range	ND	mg/L	0.095	1	12/21/11 11:50	12/22/11 05:48	64742-65-0	
Surrogates								
n-Octacosane (S)	73 %		50-150	1	12/21/11 11:50	12/22/11 05:48	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	12/21/11 11:50	12/22/11 05:48	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	12/23/11 10:45	12/23/11 20:10		
Motor Oil Range SG	ND	mg/L	0.095	1	12/23/11 10:45	12/23/11 20:10	64742-65-0	
Surrogates								
n-Octacosane (S) SG	88 %		50-150	1	12/23/11 10:45	12/23/11 20:10	630-02-4	
o-Terphenyl (S) SG	72 %		50-150	1	12/23/11 10:45	12/23/11 20:10	84-15-1	

Sample: 5-W-15-1211		Lab ID: 2510337012	Collected: 12/14/11 12:55	Received: 12/15/11 10:45	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	0.28	mg/L	0.019	1	12/21/11 11:50	12/22/11 06:13		
Motor Oil Range	0.11	mg/L	0.095	1	12/21/11 11:50	12/22/11 06:13	64742-65-0	
Surrogates								
n-Octacosane (S)	69 %		50-150	1	12/21/11 11:50	12/22/11 06:13	630-02-4	
o-Terphenyl (S)	60 %		50-150	1	12/21/11 11:50	12/22/11 06:13	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	12/23/11 10:45	12/23/11 20:35		
Motor Oil Range SG	ND	mg/L	0.095	1	12/23/11 10:45	12/23/11 20:35	64742-65-0	
Surrogates								
n-Octacosane (S) SG	84 %		50-150	1	12/23/11 10:45	12/23/11 20:35	630-02-4	
o-Terphenyl (S) SG	72 %		50-150	1	12/23/11 10:45	12/23/11 20:35	84-15-1	

Sample: 5-W-16-1211		Lab ID: 2510337013	Collected: 12/14/11 13:40	Received: 12/15/11 10:45	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	ND	mg/L	0.019	1	12/21/11 11:50	12/22/11 06:37		
Motor Oil Range	ND	mg/L	0.095	1	12/21/11 11:50	12/22/11 06:37	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	12/21/11 11:50	12/22/11 06:37	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	12/21/11 11:50	12/22/11 06:37	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	12/23/11 10:45	12/23/11 21:00		
Motor Oil Range SG	ND	mg/L	0.095	1	12/23/11 10:45	12/23/11 21:00	64742-65-0	

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ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 5-W-16-1211		Lab ID: 2510337013	Collected: 12/14/11 13:40	Received: 12/15/11 10:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Surrogates

n-Octacosane (S) SG	91 %		50-150	1	12/23/11 10:45	12/23/11 21:00	630-02-4	
o-Terphenyl (S) SG	73 %		50-150	1	12/23/11 10:45	12/23/11 21:00	84-15-1	

Sample: 5-W-19-1211		Lab ID: 2510337014	Collected: 12/14/11 15:00	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/21/11 11:50	12/22/11 07:01		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 07:01	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	12/21/11 11:50	12/22/11 07:01	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	12/21/11 11:50	12/22/11 07:01	84-15-1	

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	12/23/11 10:45	12/23/11 21:24		
Motor Oil Range SG	ND mg/L		0.094	1	12/23/11 10:45	12/23/11 21:24	64742-65-0	
Surrogates								
n-Octacosane (S) SG	78 %		50-150	1	12/23/11 10:45	12/23/11 21:24	630-02-4	
o-Terphenyl (S) SG	61 %		50-150	1	12/23/11 10:45	12/23/11 21:24	84-15-1	

Sample: MW-4-1211		Lab ID: 2510337015	Collected: 12/14/11 15:55	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/21/11 11:50	12/22/11 08:38		
Motor Oil Range	ND mg/L		0.095	1	12/21/11 11:50	12/22/11 08:38	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	12/21/11 11:50	12/22/11 08:38	630-02-4	
o-Terphenyl (S)	67 %		50-150	1	12/21/11 11:50	12/22/11 08:38	84-15-1	

Sample: 2A-W-10-1211		Lab ID: 2510337016	Collected: 12/14/11 16:25	Received: 12/15/11 10:45	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	0.12 mg/L		0.019	1	12/22/11 12:40	12/22/11 17:12		
Motor Oil Range	ND mg/L		0.095	1	12/22/11 12:40	12/22/11 17:12	64742-65-0	
Surrogates								
n-Octacosane (S)	75 %		50-150	1	12/22/11 12:40	12/22/11 17:12	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	12/22/11 12:40	12/22/11 17:12	84-15-1	

Date: 12/27/2011 04:23 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 2A-W-9-1211		Lab ID: 2510337017	Collected: 12/14/11 17:05	Received: 12/15/11 10:45	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	0.91 mg/L		0.019	1	12/22/11 12:40	12/22/11 19:13		
Motor Oil Range	0.26 mg/L		0.095	1	12/22/11 12:40	12/22/11 19:13	64742-65-0	
Surrogates								
n-Octacosane (S)	72 %		50-150	1	12/22/11 12:40	12/22/11 19:13	630-02-4	
o-Terphenyl (S)	63 %		50-150	1	12/22/11 12:40	12/22/11 19:13	84-15-1	

Sample: 2A-W-90-1211		Lab ID: 2510337018	Collected: 12/14/11 17:20	Received: 12/15/11 10:45	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	0.80 mg/L		0.019	1	12/22/11 12:40	12/22/11 19:37		
Motor Oil Range	0.26 mg/L		0.094	1	12/22/11 12:40	12/22/11 19:37	64742-65-0	
Surrogates								
n-Octacosane (S)	71 %		50-150	1	12/22/11 12:40	12/22/11 19:37	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	12/22/11 12:40	12/22/11 19:37	84-15-1	

Sample: MW-3-1211		Lab ID: 2510337019	Collected: 12/14/11 18:00	Received: 12/15/11 10:45	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	0.12 mg/L		0.019	1	12/22/11 12:40	12/22/11 17:59		
Motor Oil Range	0.11 mg/L		0.095	1	12/22/11 12:40	12/22/11 17:59	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	12/22/11 12:40	12/22/11 17:59	630-02-4	
o-Terphenyl (S)	67 %		50-150	1	12/22/11 12:40	12/22/11 17:59	84-15-1	

Sample: IC-W-1-1211		Lab ID: 2510337020	Collected: 12/14/11 09:20	Received: 12/15/11 10:45	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	0.020 mg/L		0.019	1	12/22/11 12:40	12/22/11 18:24		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 18:24	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	12/22/11 12:40	12/22/11 18:24	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	12/22/11 12:40	12/22/11 18:24	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: IC-W-8-1211		Lab ID: 2510337021	Collected: 12/14/11 10:00	Received: 12/15/11 10:45	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	0.12 mg/L		0.019	1	12/22/11 12:40	12/22/11 18:48		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 18:48	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	12/22/11 12:40	12/22/11 18:48	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	12/22/11 12:40	12/22/11 18:48	84-15-1	

Sample: IC-W-7-1211		Lab ID: 2510337022	Collected: 12/14/11 10:50	Received: 12/15/11 10:45	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	0.033 mg/L		0.019	1	12/22/11 12:40	12/22/11 20:48		
Motor Oil Range	ND mg/L		0.095	1	12/22/11 12:40	12/22/11 20:48	64742-65-0	
Surrogates								
n-Octacosane (S)	73 %		50-150	1	12/22/11 12:40	12/22/11 20:48	630-02-4	
o-Terphenyl (S)	62 %		50-150	1	12/22/11 12:40	12/22/11 20:48	84-15-1	

Sample: EW-2A-1211		Lab ID: 2510337023	Collected: 12/14/11 11:40	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/22/11 12:40	12/22/11 21:12		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 21:12	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	12/22/11 12:40	12/22/11 21:12	630-02-4	
o-Terphenyl (S)	63 %		50-150	1	12/22/11 12:40	12/22/11 21:12	84-15-1	

Sample: 2A-W-42-1211		Lab ID: 2510337024	Collected: 12/14/11 12:30	Received: 12/15/11 10:45	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	0.12 mg/L		0.019	1	12/22/11 12:40	12/22/11 21:35		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 21:35	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	12/22/11 12:40	12/22/11 21:35	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	12/22/11 12:40	12/22/11 21:35	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

Sample: 1B-W-23-1211		Lab ID: 2510337025	Collected: 12/14/11 14:20	Received: 12/15/11 10:45	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	0.027 mg/L		0.019	1	12/22/11 12:40	12/22/11 21:59		
Motor Oil Range	ND mg/L		0.095	1	12/22/11 12:40	12/22/11 21:59	64742-65-0	
Surrogates								
n-Octacosane (S)	68 %		50-150	1	12/22/11 12:40	12/22/11 21:59	630-02-4	
o-Terphenyl (S)	60 %		50-150	1	12/22/11 12:40	12/22/11 21:59	84-15-1	

Sample: 2A-W-41-1211		Lab ID: 2510337026	Collected: 12/14/11 15:25	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/22/11 12:40	12/22/11 22:23		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 22:23	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	12/22/11 12:40	12/22/11 22:23	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	12/22/11 12:40	12/22/11 22:23	84-15-1	

Sample: 2A-W-410-1211		Lab ID: 2510337027	Collected: 12/14/11 16:00	Received: 12/15/11 10:45	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	ND mg/L		0.019	1	12/22/11 12:40	12/22/11 22:46		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 22:46	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	12/22/11 12:40	12/22/11 22:46	630-02-4	
o-Terphenyl (S)	58 %		50-150	1	12/22/11 12:40	12/22/11 22:46	84-15-1	

Sample: EW-1-1211		Lab ID: 2510337028	Collected: 12/14/11 16:30	Received: 12/15/11 10:45	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	0.029 mg/L		0.019	1	12/22/11 12:40	12/22/11 23:10		
Motor Oil Range	ND mg/L		0.094	1	12/22/11 12:40	12/22/11 23:10	64742-65-0	
Surrogates								
n-Octacosane (S)	68 %		50-150	1	12/22/11 12:40	12/22/11 23:10	630-02-4	
o-Terphenyl (S)	57 %		50-150	1	12/22/11 12:40	12/22/11 23:10	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish TT0100-K40

Project No.: 2510337

QC Batch: OEXT/4891 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2510337001, 2510337002, 2510337003, 2510337004, 2510337005, 2510337006, 2510337007, 2510337008, 2510337009, 2510337010, 2510337011, 2510337012, 2510337013, 2510337014, 2510337015

METHOD BLANK: 98051 Matrix: Water
 Associated Lab Samples: 2510337001, 2510337002, 2510337003, 2510337004, 2510337005, 2510337006, 2510337007, 2510337008, 2510337009, 2510337010, 2510337011, 2510337012, 2510337013, 2510337014, 2510337015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	12/21/11 23:40	
Motor Oil Range	mg/L	ND	0.10	12/21/11 23:40	
n-Octacosane (S)	%	87	50-150	12/21/11 23:40	
o-Terphenyl (S)	%	76	50-150	12/21/11 23:40	

LABORATORY CONTROL SAMPLE: 98052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.70	70	51-114	
Motor Oil Range	mg/L	1	0.70	70	62-120	
n-Octacosane (S)	%			76	50-150	
o-Terphenyl (S)	%			74	50-150	

SAMPLE DUPLICATE: 98053

Parameter	Units	2510337008 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	84	73	15	
o-Terphenyl (S)	%	72	62	17	

SAMPLE DUPLICATE: 98064

Parameter	Units	2510337014 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	74	79	6	
o-Terphenyl (S)	%	64	71	12	

QUALITY CONTROL DATA

Project: BNSF-Skykomish TT0100-K40

Project No.: 2510337

QC Batch: OEXT/4893

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510337016, 2510337017, 2510337018, 2510337019, 2510337020, 2510337021, 2510337022, 2510337023, 2510337024, 2510337025, 2510337026, 2510337027, 2510337028

METHOD BLANK: 98199

Matrix: Water

Associated Lab Samples: 2510337016, 2510337017, 2510337018, 2510337019, 2510337020, 2510337021, 2510337022, 2510337023, 2510337024, 2510337025, 2510337026, 2510337027, 2510337028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	12/22/11 16:23	
Motor Oil Range	mg/L	ND	0.10	12/22/11 16:23	
n-Octacosane (S)	%	80	50-150	12/22/11 16:23	
o-Terphenyl (S)	%	70	50-150	12/22/11 16:23	

LABORATORY CONTROL SAMPLE: 98200

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.69	69	51-114	
Motor Oil Range	mg/L	1	0.78	78	62-120	
n-Octacosane (S)	%			82	50-150	
o-Terphenyl (S)	%			76	50-150	

SAMPLE DUPLICATE: 98201

Parameter	Units	2510337016 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.12	0.13	9	
Motor Oil Range	mg/L	ND	0.11		
n-Octacosane (S)	%	75	74	.3	
o-Terphenyl (S)	%	65	65	.1	

SAMPLE DUPLICATE: 98202

Parameter	Units	2510400004 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	90	75	18	
o-Terphenyl (S)	%	80	67	18	

QUALITY CONTROL DATA

Project: BNSF-Skykomish TT0100-K40
Pace Project No.: 2510337

QC Batch: OEXT/4896 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS SG
Associated Lab Samples: 2510337008, 2510337009, 2510337010, 2510337011, 2510337012, 2510337013, 2510337014

METHOD BLANK: 98298 Matrix: Water
Associated Lab Samples: 2510337008, 2510337009, 2510337010, 2510337011, 2510337012, 2510337013, 2510337014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	12/23/11 18:08	
Motor Oil Range SG	mg/L	ND	0.10	12/23/11 18:08	
n-Octacosane (S) SG	%	87	50-150	12/23/11 18:08	
o-Terphenyl (S) SG	%	72	50-150	12/23/11 18:08	

LABORATORY CONTROL SAMPLE: 98299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1	0.70	70	59-114	
Motor Oil Range SG	mg/L	1	0.80	80	69-124	
n-Octacosane (S) SG	%			82	50-150	
o-Terphenyl (S) SG	%			75	50-150	

SAMPLE DUPLICATE: 98300

Parameter	Units	2510337014 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	78	83	7	
o-Terphenyl (S) SG	%	61	69	12	

SAMPLE DUPLICATE: 98301

Parameter	Units	2510369002 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	97	101	6	
o-Terphenyl (S) SG	%	83	86	6	

QUALIFIERS

Project: BNSF-Skykomish TT0100-K40

Pace Project No.: 2510337

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI 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 TT0100-K40

Pace Project No.: 2510337

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510337001	2B-W-4-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337002	GW-1-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337003	GW-2-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337004	GW-3-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337005	GW-4-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337006	GW-30-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337007	2A-W-40-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337008	5-W-17-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337009	5-W-18-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337010	5-W-180-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337011	5-W-14-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337012	5-W-15-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337013	5-W-16-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337014	5-W-19-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337015	MW-4-1211	EPA 3510	OEXT/4891	NWTPH-Dx	GCSV/3186
2510337016	2A-W-10-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337017	2A-W-9-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337018	2A-W-90-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337019	MW-3-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337020	IC-W-1-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337021	IC-W-8-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337022	IC-W-7-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337023	EW-2A-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337024	2A-W-42-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337025	1B-W-23-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337026	2A-W-41-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337027	2A-W-410-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337028	EW-1-1211	EPA 3510	OEXT/4893	NWTPH-Dx	GCSV/3189
2510337008	5-W-17-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337009	5-W-18-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337010	5-W-180-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337011	5-W-14-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337012	5-W-15-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337013	5-W-16-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191
2510337014	5-W-19-1211	EPA 3510	OEXT/4896	NWTPH-Dx	GCSV/3191

Sample Container Count

2510337 -



CLIENT: BNSF - ASCOM

COC PAGE 1 of 3
 COC ID# 1470475

Trip Blank(s) Provided?
 Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2														
2		↓														
3		↓														
4		↓														
5		↓														
6		↓														
7		2														
8		4														
9		↓														
10		↓														
11		↓														
12		4														

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

2510337 -



CLIENT: BNSF - AECOM

COC PAGE 2 of 3
 COC ID# 1470474

Trip Blank(s) Provided? Y / <u>N</u>

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		42														
2		10														
3		2														
4		1														
5																
6																
7																
8																
9																
10																
11																
12		2														

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1 liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

2510337 -



CLIENT: BNSF - AECOM

COC PAGE 3 of 3

COC ID# 1471303

Trip Blank(s) Provided?
Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments	
1		2 ^u															
2		↓															
3		↓															
4		2 ↓															
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Condition Upon Receipt



Client Name: BNSF - AECOM Project # _____

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 101731952 or 226099 Type of Ice: Wei Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.5°C, 1.3°C, 0.6°C, 0.3°C, 0.9°C, 1.1°C, 3.9°C, 3.8°C, 3.9°C
Temp should be above freezing $\leq 6^\circ\text{C}$

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: RC 12/11

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: ARB Date: 12/16/11

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)

February 11, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 2510713

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on February 01, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Andy Brownfield

andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 2510713

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 2510713

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2510713001	IC-W-1-0112	NWTPH-Dx	AY1	4	PASI-S
2510713002	IC-W-8-0112	NWTPH-Dx	AY1	4	PASI-S
2510713003	IC-W-7-0112	NWTPH-Dx	AY1	4	PASI-S
2510713004	IC-W-70-0112	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2510713

Sample: IC-W-1-0112		Lab ID: 2510713001	Collected: 01/31/12 10:30	Received: 02/01/12 09:30	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	0.038 mg/L		0.019	1	02/07/12 09:20	02/08/12 15:30		
Motor Oil Range	ND mg/L		0.094	1	02/07/12 09:20	02/08/12 15:30	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %		50-150	1	02/07/12 09:20	02/08/12 15:30	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	02/07/12 09:20	02/08/12 15:30	84-15-1	

Sample: IC-W-8-0112		Lab ID: 2510713002	Collected: 01/31/12 11:25	Received: 02/01/12 09:30	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	02/07/12 09:20	02/08/12 16:04		
Motor Oil Range	0.13 mg/L		0.095	1	02/07/12 09:20	02/08/12 16:04	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	02/07/12 09:20	02/08/12 16:04	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	02/07/12 09:20	02/08/12 16:04	84-15-1	

Sample: IC-W-7-0112		Lab ID: 2510713003	Collected: 01/31/12 12:20	Received: 02/01/12 09:30	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	0.12 mg/L		0.019	1	02/07/12 09:20	02/08/12 16:21		
Motor Oil Range	ND mg/L		0.094	1	02/07/12 09:20	02/08/12 16:21	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	02/07/12 09:20	02/08/12 16:21	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	02/07/12 09:20	02/08/12 16:21	84-15-1	

Sample: IC-W-70-0112		Lab ID: 2510713004	Collected: 01/31/12 13:00	Received: 02/01/12 09:30	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	0.14 mg/L		0.019	1	02/07/12 09:20	02/08/12 16:38		
Motor Oil Range	ND mg/L		0.094	1	02/07/12 09:20	02/08/12 16:38	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %		50-150	1	02/07/12 09:20	02/08/12 16:38	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	02/07/12 09:20	02/08/12 16:38	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2510713

QC Batch: OEXT/5063

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2510713001, 2510713002, 2510713003, 2510713004

METHOD BLANK: 102031

Matrix: Water

Associated Lab Samples: 2510713001, 2510713002, 2510713003, 2510713004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	02/08/12 14:56	
Motor Oil Range	mg/L	ND	0.10	02/08/12 14:56	
n-Octacosane (S)	%	102	50-150	02/08/12 14:56	
o-Terphenyl (S)	%	98	50-150	02/08/12 14:56	

LABORATORY CONTROL SAMPLE: 102032

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.80	80	51-114	
Motor Oil Range	mg/L	1	0.95	95	62-120	
n-Octacosane (S)	%			95	50-150	
o-Terphenyl (S)	%			96	50-150	

SAMPLE DUPLICATE: 102033

Parameter	Units	2510713001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.038	0.036	6	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	94	90	4	
o-Terphenyl (S)	%	91	85	7	

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 2510713

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI 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.: 2510713

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2510713001	IC-W-1-0112	EPA 3510	OEXT/5063	NWTPH-Dx	GCSV/3292
2510713002	IC-W-8-0112	EPA 3510	OEXT/5063	NWTPH-Dx	GCSV/3292
2510713003	IC-W-7-0112	EPA 3510	OEXT/5063	NWTPH-Dx	GCSV/3292
2510713004	IC-W-70-0112	EPA 3510	OEXT/5063	NWTPH-Dx	GCSV/3292

Sample Container Count

2510713



CLIENT: AECOM

COC PAGE 1 of 1
 COC ID# 1470483

Trip Blank(s) Provided?
 Y / (N)

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ²														
2		↓														
3		↓														
4		↓														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

25 1 07 13

Client Name: AECOM

Project #

Courier: [] Fed Ex [] UPS [] USPS [x] Client [] Commercial [] Pace Other

Tracking #: _____

Custody Seal on Cooler/Box Present: [] Yes [x] No Seals intact: [] Yes [] No

Packing Material: [x] Bubble Wrap [x] Bubble Bags [] None [] Other Temp. Blank Yes [x] No

Thermometer Used 132013 of 101731962 or 226099 Type of Ice: [x] Wet [] Blue [] None [] Samples on ice, cooling process has begun

Cooler Temperature 0.7 Temp should be above freezing <= 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 01/01/12 CW

Comments:

Table with 17 rows of checklist items and checkboxes. Items include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Follow Up / Hold Analysis Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, Exceptions: VOA, coliform, TOC, O&G, Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blanks Present, Trip Blank Custody Seals Present, Pace Trip Blank Creation Date.

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: ARB

Date: 2/1/12

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)

March 14, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 2511010

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on February 29, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Mariah Peronto for
Andy Brownfield
andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 2511010

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 2511010

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2511010001	IC-W-1-0212	NWTPH-Dx	AY1	4	PASI-S
2511010002	IC-W-8-0212	NWTPH-Dx	AY1	4	PASI-S
2511010003	IC-W-80-0212	NWTPH-Dx	AY1	4	PASI-S
2511010004	IC-W-7-0212	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2511010

Sample: IC-W-1-0212		Lab ID: 2511010001	Collected: 02/28/12 14:50	Received: 02/29/12 09:05	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	0.089	mg/L	0.019	1	03/02/12 13:10	03/02/12 18:12		
Motor Oil Range	ND	mg/L	0.094	1	03/02/12 13:10	03/02/12 18:12	64742-65-0	
Surrogates								
n-Octacosane (S)	110	%	50-150	1	03/02/12 13:10	03/02/12 18:12	630-02-4	
o-Terphenyl (S)	103	%	50-150	1	03/02/12 13:10	03/02/12 18:12	84-15-1	

Sample: IC-W-8-0212		Lab ID: 2511010002	Collected: 02/28/12 16:00	Received: 02/29/12 09:05	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	03/02/12 13:10	03/06/12 03:58		
Motor Oil Range	0.12	mg/L	0.095	1	03/02/12 13:10	03/06/12 03:58	64742-65-0	
Surrogates								
n-Octacosane (S)	103	%	50-150	1	03/02/12 13:10	03/06/12 03:58	630-02-4	
o-Terphenyl (S)	93	%	50-150	1	03/02/12 13:10	03/06/12 03:58	84-15-1	

Sample: IC-W-80-0212		Lab ID: 2511010003	Collected: 02/28/12 17:00	Received: 02/29/12 09:05	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	0.31	mg/L	0.019	1	03/02/12 13:10	03/06/12 04:15		
Motor Oil Range	0.12	mg/L	0.095	1	03/02/12 13:10	03/06/12 04:15	64742-65-0	
Surrogates								
n-Octacosane (S)	105	%	50-150	1	03/02/12 13:10	03/06/12 04:15	630-02-4	
o-Terphenyl (S)	93	%	50-150	1	03/02/12 13:10	03/06/12 04:15	84-15-1	

Sample: IC-W-7-0212		Lab ID: 2511010004	Collected: 02/28/12 17:10	Received: 02/29/12 09:05	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	03/02/12 13:10	03/02/12 19:04		
Motor Oil Range	ND	mg/L	0.094	1	03/02/12 13:10	03/02/12 19:04	64742-65-0	
Surrogates								
n-Octacosane (S)	112	%	50-150	1	03/02/12 13:10	03/02/12 19:04	630-02-4	
o-Terphenyl (S)	101	%	50-150	1	03/02/12 13:10	03/02/12 19:04	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish
Pace Project No.: 2511010

QC Batch: OEXT/5162 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 2511010001, 2511010002, 2511010003, 2511010004

METHOD BLANK: 104872 Matrix: Water
Associated Lab Samples: 2511010001, 2511010002, 2511010003, 2511010004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	03/06/12 03:07	
Motor Oil Range	mg/L	ND	0.10	03/06/12 03:07	
n-Octacosane (S)	%	99	50-150	03/06/12 03:07	
o-Terphenyl (S)	%	92	50-150	03/06/12 03:07	

LABORATORY CONTROL SAMPLE: 104873

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.81	81	51-114	
Motor Oil Range	mg/L	1	0.90	90	62-120	
n-Octacosane (S)	%			99	50-150	
o-Terphenyl (S)	%			93	50-150	

SAMPLE DUPLICATE: 104874

Parameter	Units	2511010001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.089	0.089	.005	
Motor Oil Range	mg/L	ND	.063J		
n-Octacosane (S)	%	110	110	.04	
o-Terphenyl (S)	%	103	90	13	

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 2511010

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI 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.: 2511010

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2511010001	IC-W-1-0212	EPA 3510	OEXT/5162	NWTPH-Dx	GCSV/3345
2511010002	IC-W-8-0212	EPA 3510	OEXT/5162	NWTPH-Dx	GCSV/3345
2511010003	IC-W-80-0212	EPA 3510	OEXT/5162	NWTPH-Dx	GCSV/3345
2511010004	IC-W-7-0212	EPA 3510	OEXT/5162	NWTPH-Dx	GCSV/3345

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: AECOM	Report To: Mark Havighorst	Attention:
Address: 710 2nd Ave.	Copy To: Renee Knecht	Company Name:
Suite 1000, Seattle, WA 98104	Purchase Order No.:	Address:
Email To: Mark.Havighorst@aecom.com	Project Name: Skykomish BNSF	Pace Quote Reference:
Phone: 206-624-9349 Fax: 206-623-3793	Project Number: 60241075-0540	Pace Project Manager:
Requested Due Date/TAT: standard		Pace Profile #:

Page: **1** of **1**

1532602

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER

UST RCRA OTHER _____

Site Location: **Skykomish**

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								Analysis Test Y/N	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	Other							
					DATE	TIME	DATE	TIME																	
1	IC-W-1-0212		W		2/28/12	1450			5.8	2				X											
2	IC-W-8-0212		W		2/28/12	1600			3.8	2				X											
3	IC-W-80-0212		W		2/28/12	1700			3.7	2				X											
4	IC-W-7-0212		W		2/28/12	1710			5.4	2				X											
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Without SGCU	Abdelghani Seltan AECOM	2/29/12	0905	Collette Weaver/PACE	02/29/12	0905	0.6	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>Abdelghani Seltan</i>				
SIGNATURE of SAMPLER:	<i>Abdelghani Seltan</i>				
DATE Signed (MM/DD/YY):	02/29/12				

Sample Container Count

2511010



CLIENT: BNSF AECOM

COC PAGE 1 of 1
 COC ID# 1532602

Trip Blank(s) Provided?
 Y / (N)

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 nd														
2		↓														
3		↓														
4		↓														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: BNSF AECOM

Project # 2511010

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 0.6°C
Temp should be above freezing ≤ 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 022912 OW

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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 type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
-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	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: ARB Date: 2/29/12

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)

April 11, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: Skykomish 60241075
Pace Project No.: 2511401

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 28, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett for
Andy Brownfield
andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Cynthia Jennings, BNSF_AECOM-WA
Eric Storkerson, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Skykomish 60241075

Pace Project No.: 2511401

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 14

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SAMPLE ANALYTE COUNT

Project: Skykomish 60241075

Pace Project No.: 2511401

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2511401001	S1-AU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401002	S1-AD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401003	S1-BU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401004	S1-BD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401005	S2-AU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401006	S2-AD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401007	S2-BU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401008	S20-BU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401009	S2-BD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401010	S3-AU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401011	S3-AD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401012	S3-BU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401013	S3-BD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401014	S3-CU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401015	S3-CD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401016	S30-CU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401017	S4-AU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401018	S4-AD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401019	S4-BU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401020	S4-BD-0312	NWTPH-Dx	AY1	4	PASI-S
2511401021	S4-CU-0312	NWTPH-Dx	AY1	4	PASI-S
2511401022	S4-CD-0312	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Skykomish 60241075

Pace Project No.: 2511401

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_AECOM-WA

Date: April 11, 2012

General Information:

22 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: OEXT/5309

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 109202)
- Diesel Range

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S1-AU-0312		Lab ID: 2511401001	Collected: 03/27/12 08:30	Received: 03/28/12 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	ND mg/L		0.019	1	04/03/12 10:25	04/03/12 16:01		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 16:01	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	04/03/12 10:25	04/03/12 16:01	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	04/03/12 10:25	04/03/12 16:01	84-15-1	

Sample: S1-AD-0312		Lab ID: 2511401002	Collected: 03/27/12 08:35	Received: 03/28/12 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	ND mg/L		0.019	1	04/03/12 10:25	04/03/12 16:35		
Motor Oil Range	ND mg/L		0.096	1	04/03/12 10:25	04/03/12 16:35	64742-65-0	
Surrogates								
n-Octacosane (S)	95 %		50-150	1	04/03/12 10:25	04/03/12 16:35	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	04/03/12 10:25	04/03/12 16:35	84-15-1	

Sample: S1-BU-0312		Lab ID: 2511401003	Collected: 03/27/12 08:50	Received: 03/28/12 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	0.019 mg/L		0.019	1	04/03/12 10:25	04/03/12 17:27		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 17:27	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	04/03/12 10:25	04/03/12 17:27	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	04/03/12 10:25	04/03/12 17:27	84-15-1	

Sample: S1-BD-0312		Lab ID: 2511401004	Collected: 03/27/12 08:55	Received: 03/28/12 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	0.041 mg/L		0.019	1	04/03/12 10:25	04/03/12 17:44		
Motor Oil Range	0.16 mg/L		0.095	1	04/03/12 10:25	04/03/12 17:44	64742-65-0	
Surrogates								
n-Octacosane (S)	86 %		50-150	1	04/03/12 10:25	04/03/12 17:44	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	04/03/12 10:25	04/03/12 17:44	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S2-AU-0312		Lab ID: 2511401005	Collected: 03/27/12 10:15	Received: 03/28/12 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	ND mg/L		0.019	1	04/03/12 10:25	04/03/12 18:02		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 18:02	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	04/03/12 10:25	04/03/12 18:02	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	04/03/12 10:25	04/03/12 18:02	84-15-1	

Sample: S2-AD-0312		Lab ID: 2511401006	Collected: 03/27/12 10:20	Received: 03/28/12 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	ND mg/L		0.019	1	04/03/12 10:25	04/03/12 18:19		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 18:19	64742-65-0	
Surrogates								
n-Octacosane (S)	89 %		50-150	1	04/03/12 10:25	04/03/12 18:19	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	04/03/12 10:25	04/03/12 18:19	84-15-1	

Sample: S2-BU-0312		Lab ID: 2511401007	Collected: 03/27/12 10:40	Received: 03/28/12 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	0.041 mg/L		0.019	1	04/03/12 10:25	04/03/12 18:36		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 18:36	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	04/03/12 10:25	04/03/12 18:36	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	04/03/12 10:25	04/03/12 18:36	84-15-1	

Sample: S20-BU-0312		Lab ID: 2511401008	Collected: 03/27/12 10:50	Received: 03/28/12 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	0.063 mg/L		0.019	1	04/03/12 10:25	04/03/12 18:53		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 18:53	64742-65-0	
Surrogates								
n-Octacosane (S)	89 %		50-150	1	04/03/12 10:25	04/03/12 18:53	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	04/03/12 10:25	04/03/12 18:53	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S2-BD-0312		Lab ID: 2511401009	Collected: 03/27/12 10:55	Received: 03/28/12 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	0.022 mg/L		0.019	1	04/03/12 10:25	04/03/12 19:10		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 19:10	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	04/03/12 10:25	04/03/12 19:10	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	04/03/12 10:25	04/03/12 19:10	84-15-1	

Sample: S3-AU-0312		Lab ID: 2511401010	Collected: 03/27/12 13:15	Received: 03/28/12 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	0.085 mg/L		0.019	1	04/03/12 10:25	04/03/12 19:28		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 19:28	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %		50-150	1	04/03/12 10:25	04/03/12 19:28	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	04/03/12 10:25	04/03/12 19:28	84-15-1	

Sample: S3-AD-0312		Lab ID: 2511401011	Collected: 03/27/12 13:20	Received: 03/28/12 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	ND mg/L		0.019	1	04/03/12 10:25	04/03/12 20:53		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 20:53	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	04/03/12 10:25	04/03/12 20:53	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	04/03/12 10:25	04/03/12 20:53	84-15-1	

Sample: S3-BU-0312		Lab ID: 2511401012	Collected: 03/27/12 13:35	Received: 03/28/12 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	0.042 mg/L		0.019	1	04/03/12 10:25	04/03/12 21:11		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 21:11	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	04/03/12 10:25	04/03/12 21:11	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	04/03/12 10:25	04/03/12 21:11	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S3-BD-0312		Lab ID: 2511401013	Collected: 03/27/12 13:40	Received: 03/28/12 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	0.022 mg/L		0.019	1	04/03/12 10:25	04/03/12 21:28		
Motor Oil Range	ND mg/L		0.095	1	04/03/12 10:25	04/03/12 21:28	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	04/03/12 10:25	04/03/12 21:28	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	04/03/12 10:25	04/03/12 21:28	84-15-1	

Sample: S3-CU-0312		Lab ID: 2511401014	Collected: 03/27/12 13:50	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 00:01		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 00:01	64742-65-0	
Surrogates								
n-Octacosane (S)	72 %		50-150	1	04/04/12 13:05	04/05/12 00:01	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	04/04/12 13:05	04/05/12 00:01	84-15-1	

Sample: S3-CD-0312		Lab ID: 2511401015	Collected: 03/27/12 14:00	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 00:36		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 00:36	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %		50-150	1	04/04/12 13:05	04/05/12 00:36	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	04/04/12 13:05	04/05/12 00:36	84-15-1	

Sample: S30-CU-0312		Lab ID: 2511401016	Collected: 03/27/12 13:55	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 00:53		
Motor Oil Range	ND mg/L		0.094	1	04/04/12 13:05	04/05/12 00:53	64742-65-0	
Surrogates								
n-Octacosane (S)	60 %		50-150	1	04/04/12 13:05	04/05/12 00:53	630-02-4	
o-Terphenyl (S)	56 %		50-150	1	04/04/12 13:05	04/05/12 00:53	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S4-AU-0312		Lab ID: 2511401017	Collected: 03/27/12 15:00	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 01:10		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 01:10	64742-65-0	
Surrogates								
n-Octacosane (S)	68 %		50-150	1	04/04/12 13:05	04/05/12 01:10	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	04/04/12 13:05	04/05/12 01:10	84-15-1	

Sample: S4-AD-0312		Lab ID: 2511401018	Collected: 03/27/12 15:05	Received: 03/28/12 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	0.061 mg/L		0.019	1	04/04/12 13:05	04/05/12 01:27		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 01:27	64742-65-0	
Surrogates								
n-Octacosane (S)	68 %		50-150	1	04/04/12 13:05	04/05/12 01:27	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	04/04/12 13:05	04/05/12 01:27	84-15-1	

Sample: S4-BU-0312		Lab ID: 2511401019	Collected: 03/27/12 15:25	Received: 03/28/12 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	0.040 mg/L		0.019	1	04/04/12 13:05	04/05/12 02:01		
Motor Oil Range	ND mg/L		0.094	1	04/04/12 13:05	04/05/12 02:01	64742-65-0	
Surrogates								
n-Octacosane (S)	58 %		50-150	1	04/04/12 13:05	04/05/12 02:01	630-02-4	
o-Terphenyl (S)	55 %		50-150	1	04/04/12 13:05	04/05/12 02:01	84-15-1	

Sample: S4-BD-0312		Lab ID: 2511401020	Collected: 03/27/12 15:30	Received: 03/28/12 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	0.024 mg/L		0.019	1	04/04/12 13:05	04/05/12 02:18		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 02:18	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	04/04/12 13:05	04/05/12 02:18	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	04/04/12 13:05	04/05/12 02:18	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511401

Sample: S4-CU-0312		Lab ID: 2511401021	Collected: 03/27/12 15:50	Received: 03/28/12 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	0.034 mg/L		0.019	1	04/04/12 13:05	04/05/12 03:09		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 03:09	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	04/04/12 13:05	04/05/12 03:09	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	04/04/12 13:05	04/05/12 03:09	84-15-1	

Sample: S4-CD-0312		Lab ID: 2511401022	Collected: 03/27/12 15:55	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 03:26		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 03:26	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	04/04/12 13:05	04/05/12 03:26	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	04/04/12 13:05	04/05/12 03:26	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish 60241075

Pace Project No.: 2511401

QC Batch: OEXT/5309 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511401001, 2511401002, 2511401003, 2511401004, 2511401005, 2511401006, 2511401007, 2511401008, 2511401009, 2511401010, 2511401011, 2511401012, 2511401013

METHOD BLANK: 109199 Matrix: Water
 Associated Lab Samples: 2511401001, 2511401002, 2511401003, 2511401004, 2511401005, 2511401006, 2511401007, 2511401008, 2511401009, 2511401010, 2511401011, 2511401012, 2511401013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/03/12 20:36	
Motor Oil Range	mg/L	ND	0.10	04/03/12 20:36	
n-Octacosane (S)	%	96	50-150	04/03/12 20:36	
o-Terphenyl (S)	%	87	50-150	04/03/12 20:36	

LABORATORY CONTROL SAMPLE: 109200

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.88	88	51-114	
Motor Oil Range	mg/L	1	0.98	98	62-120	
n-Octacosane (S)	%			104	50-150	
o-Terphenyl (S)	%			96	50-150	

SAMPLE DUPLICATE: 109201

Parameter	Units	2511401001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	.018J		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	82	90	10	
o-Terphenyl (S)	%	73	80	10	

SAMPLE DUPLICATE: 109202

Parameter	Units	2511401010 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.085	0.049	54	D6
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	94	96	2	
o-Terphenyl (S)	%	84	86	2	

QUALITY CONTROL DATA

Project: Skykomish 60241075

Pace Project No.: 2511401

QC Batch: OEXT/5321 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511401014, 2511401015, 2511401016, 2511401017, 2511401018, 2511401019, 2511401020, 2511401021, 2511401022

METHOD BLANK: 109404 Matrix: Water
 Associated Lab Samples: 2511401014, 2511401015, 2511401016, 2511401017, 2511401018, 2511401019, 2511401020, 2511401021, 2511401022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/04/12 22:53	
Motor Oil Range	mg/L	ND	0.10	04/04/12 22:53	
n-Octacosane (S)	%	89	50-150	04/04/12 22:53	
o-Terphenyl (S)	%	84	50-150	04/04/12 22:53	

LABORATORY CONTROL SAMPLE: 109405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.83	83	51-114	
Motor Oil Range	mg/L	1	0.92	92	62-120	
n-Octacosane (S)	%			93	50-150	
o-Terphenyl (S)	%			89	50-150	

SAMPLE DUPLICATE: 109406

Parameter	Units	2511401014 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	0.033		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	72	96	29	
o-Terphenyl (S)	%	69	91	28	

SAMPLE DUPLICATE: 109407

Parameter	Units	2511401018 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.061	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	68	73	7	
o-Terphenyl (S)	%	65	71	9	

QUALIFIERS

Project: Skykomish 60241075

Pace Project No.: 2511401

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish 60241075

Pace Project No.: 2511401

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2511401001	S1-AU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401002	S1-AD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401003	S1-BU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401004	S1-BD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401005	S2-AU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401006	S2-AD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401007	S2-BU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401008	S20-BU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401009	S2-BD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401010	S3-AU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401011	S3-AD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401012	S3-BU-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401013	S3-BD-0312	EPA 3510	OEXT/5309	NWTPH-Dx	GCSV/3429
2511401014	S3-CU-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401015	S3-CD-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401016	S30-CU-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401017	S4-AU-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401018	S4-AD-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401019	S4-BU-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401020	S4-BD-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401021	S4-CU-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511401022	S4-CD-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 2 of 2	
Company: AECOM		Report To: Mark Havighorst		Attention: Bruce Sheppard		1471304	
Address: 710 2nd AVE Ste 1000 Seattle, WA 98104		Copy To: Renee Knecht		Company Name: BNSF			
Email To: Mark.Havighorst@AECOM.com		Purchase Order No.: TT01DD-M06		Pace Quote Reference:		REGULATORY AGENCY	
Phone: 206 624-5349		Project Name: Skip Komish		Pace Project Manager:		<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 _____	
Requested Due Date/TAT: std		Project Number: 60241075		Pace Profile #:		Site Location: WA	
						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							Analysis Test Y/N	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					Other				
					DATE	TIME	DATE	TIME																		
1	S3-BD-0312						3/27/12	1340	2																	
2	↓ CU-							1350	2																	
3	↓ CD-							1400	2																	
4	S30-CU-							1355	2																	
5	S4-AU-							1500	2																	
6	↓ AD-							1505	4																	
7	↓ BU-							1525	2																	
8	↓ BD-							1530	2																	
9	↓ CU-							1550	2																	
10	↓ CD-							1555	2																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
w/o - without silica gel/charcoal S4-AD-0312 = extra sample volume for lab QC	Mindy Gadden AECOM	3/28/12	0840	Collette W. Leaux/PACE	03/28/12	0840	Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Mindy Gadden	DATE Signed (MM/DD/YY): 03/28/12				
SIGNATURE of SAMPLER: Mindy Gadden					

Sample Container Count

2511401



CLIENT: Aecom

COC PAGE 1 of 2
 COC ID# 1468032

Trip Blank(s) Provided?
Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments	
1		2 ²															
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic		Wipe/Swab	U	Summa Can

Sample Container Count

2511401



CLIENT: Aecom

COC PAGE 2 of 2
 COC ID# 1471304

Trip Blank(s) Provided?
Y / <u>N</u>

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ^{CR}														
2																
3																
4																
5																
6		4 ^{CR}														
7		2 ^{CR}														
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

2511401

Client Name: AECOM Project #

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 3.3, 4.3, 0.1, 2.2, 3.6 Biological Tissue is Frozen: Yes No Temp should be above freezing <= 6°C 3.6, 3.8, 0.3, 1.3, 1.4 Comments:

Date and Initials of person examining contents: ND 3/28/12

Table with 17 rows of checklist items including Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Follow Up / Hold Analysis Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, Exceptions: VOA, coliform, TOC, O&G, Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blanks Present, Trip Blank Custody Seals Present, Pace Trip Blank Creation Date.

Client Notification/ Resolution: Field Data Required? Y / N Person Contacted: Date/Time: Comments/ Resolution:

Project Manager Review: ARB Date: 3/29/12

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)

April 11, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: Skykomish 60241075
Pace Project No.: 2511402

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 28, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett for
Andy Brownfield
andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Sarah Albano, AECOM (BNSF)
Cynthia Jennings, BNSF_AECOM-WA
Eric Storkerson, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: Skykomish 60241075

Pace Project No.: 2511402

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

SAMPLE ANALYTE COUNT

Project: Skykomish 60241075

Pace Project No.: 2511402

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2511402001	2B-W-4-0312	NWTPH-Dx	AY1	4	PASI-S
2511402002	5-W-43-0312	NWTPH-Dx	AY1	4	PASI-S
2511402003	GW-1-0312	NWTPH-Dx	AY1	4	PASI-S
2511402004	MW-38R-0312	NWTPH-Dx	AY1	4	PASI-S
2511402005	GW-4-0312	NWTPH-Dx	AY1	4	PASI-S
2511402006	IB-W-2-0312	NWTPH-Dx	AY1	4	PASI-S
2511402007	GW-3-0312	NWTPH-Dx	AY1	4	PASI-S
2511402008	GW-2-0312	NWTPH-Dx	AY1	4	PASI-S
2511402009	5-W-50-0312	NWTPH-Dx	AY1	4	PASI-S
2511402010	5-W-56-0312	NWTPH-Dx	AY1	4	PASI-S
2511402011	5-W-55-0312	NWTPH-Dx	AY1	4	PASI-S
2511402012	IC-W-1-0312	NWTPH-Dx	AY1	4	PASI-S
2511402013	IC-W-8-0312	NWTPH-Dx	AY1	4	PASI-S
2511402014	IC-W-3-0312	NWTPH-Dx	AY1	4	PASI-S
2511402015	IC-W-4-0312	NWTPH-Dx	AY1	4	PASI-S
2511402016	IC-W-7-0312	NWTPH-Dx	AY1	4	PASI-S
2511402017	ZA-W-42-0312	NWTPH-Dx	AY1	4	PASI-S
2511402018	ZA-W-41-0312	NWTPH-Dx	AY1	4	PASI-S
2511402019	ZA-W-40-0312	NWTPH-Dx	AY1	4	PASI-S
2511402020	5-W-54-0312	NWTPH-Dx	AY1	4	PASI-S
2511402021	ZA-W-400-0312	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Skykomish 60241075

Pace Project No.: 2511402

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_AECOM-WA

Date: April 11, 2012

General Information:

21 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: 2B-W-4-0312		Lab ID: 2511402001	Collected: 03/26/12 15:25	Received: 03/28/12 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	ND mg/L		0.019	1	04/04/12 13:05	04/05/12 03:42		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 03:42	64742-65-0	
Surrogates								
n-Octacosane (S)	88 %		50-150	1	04/04/12 13:05	04/05/12 03:42	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	04/04/12 13:05	04/05/12 03:42	84-15-1	

Sample: 5-W-43-0312		Lab ID: 2511402002	Collected: 03/26/12 16:05	Received: 03/28/12 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	0.035 mg/L		0.019	1	04/04/12 13:05	04/05/12 03:59		
Motor Oil Range	ND mg/L		0.097	1	04/04/12 13:05	04/05/12 03:59	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	04/04/12 13:05	04/05/12 03:59	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	04/04/12 13:05	04/05/12 03:59	84-15-1	

Sample: GW-1-0312		Lab ID: 2511402003	Collected: 03/26/12 16:25	Received: 03/28/12 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	0.063 mg/L		0.019	1	04/04/12 13:05	04/05/12 04:16		
Motor Oil Range	ND mg/L		0.095	1	04/04/12 13:05	04/05/12 04:16	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	04/04/12 13:05	04/05/12 04:16	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	04/04/12 13:05	04/05/12 04:16	84-15-1	

Sample: MW-38R-0312		Lab ID: 2511402004	Collected: 03/26/12 17:00	Received: 03/28/12 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		0.020	1	04/04/12 13:05	04/05/12 04:33		
Motor Oil Range	ND mg/L		0.099	1	04/04/12 13:05	04/05/12 04:33	64742-65-0	
Surrogates								
n-Octacosane (S)	62 %		50-150	1	04/04/12 13:05	04/05/12 04:33	630-02-4	
o-Terphenyl (S)	59 %		50-150	1	04/04/12 13:05	04/05/12 04:33	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: GW-4-0312		Lab ID: 2511402005	Collected: 03/27/12 09:10	Received: 03/28/12 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	0.16	mg/L	0.021	1	04/04/12 13:05	04/05/12 04:50		
Motor Oil Range	0.11	mg/L	0.10	1	04/04/12 13:05	04/05/12 04:50	64742-65-0	
Surrogates								
n-Octacosane (S)	93 %		50-150	1	04/04/12 13:05	04/05/12 04:50	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	04/04/12 13:05	04/05/12 04:50	84-15-1	

Sample: IB-W-2-0312		Lab ID: 2511402006	Collected: 03/27/12 09:50	Received: 03/28/12 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	0.051	mg/L	0.021	1	04/04/12 13:05	04/05/12 05:07		
Motor Oil Range	ND	mg/L	0.10	1	04/04/12 13:05	04/05/12 05:07	64742-65-0	
Surrogates								
n-Octacosane (S)	86 %		50-150	1	04/04/12 13:05	04/05/12 05:07	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	04/04/12 13:05	04/05/12 05:07	84-15-1	

Sample: GW-3-0312		Lab ID: 2511402007	Collected: 03/27/12 10:50	Received: 03/28/12 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	0.047	mg/L	0.021	1	04/04/12 13:05	04/05/12 05:23		
Motor Oil Range	ND	mg/L	0.10	1	04/04/12 13:05	04/05/12 05:23	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	04/04/12 13:05	04/05/12 05:23	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	04/04/12 13:05	04/05/12 05:23	84-15-1	

Sample: GW-2-0312		Lab ID: 2511402008	Collected: 03/27/12 11:40	Received: 03/28/12 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	0.33	mg/L	0.020	1	04/05/12 09:30	04/05/12 14:21		
Motor Oil Range	0.17	mg/L	0.099	1	04/05/12 09:30	04/05/12 14:21	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	04/05/12 09:30	04/05/12 14:21	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	04/05/12 09:30	04/05/12 14:21	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: 5-W-50-0312		Lab ID: 2511402009	Collected: 03/27/12 13:30	Received: 03/28/12 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	2.0 mg/L		0.021	1	04/05/12 09:30	04/05/12 14:55		
Motor Oil Range	0.66 mg/L		0.10	1	04/05/12 09:30	04/05/12 14:55	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	04/05/12 09:30	04/05/12 14:55	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	04/05/12 09:30	04/05/12 14:55	84-15-1	

Sample: 5-W-56-0312		Lab ID: 2511402010	Collected: 03/27/12 14:15	Received: 03/28/12 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	0.42 mg/L		0.020	1	04/05/12 09:30	04/05/12 15:12		
Motor Oil Range	0.41 mg/L		0.099	1	04/05/12 09:30	04/05/12 15:12	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	04/05/12 09:30	04/05/12 15:12	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	04/05/12 09:30	04/05/12 15:12	84-15-1	

Sample: 5-W-55-0312		Lab ID: 2511402011	Collected: 03/27/12 15:10	Received: 03/28/12 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	0.040 mg/L		0.021	1	04/05/12 09:30	04/05/12 15:29		
Motor Oil Range	ND mg/L		0.10	1	04/05/12 09:30	04/05/12 15:29	64742-65-0	
Surrogates								
n-Octacosane (S)	100 %		50-150	1	04/05/12 09:30	04/05/12 15:29	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	04/05/12 09:30	04/05/12 15:29	84-15-1	

Sample: IC-W-1-0312		Lab ID: 2511402012	Collected: 03/27/12 09:40	Received: 03/28/12 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	0.091 mg/L		0.019	1	04/05/12 09:30	04/05/12 15:47		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 09:30	04/05/12 15:47	64742-65-0	
Surrogates								
n-Octacosane (S)	98 %		50-150	1	04/05/12 09:30	04/05/12 15:47	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	04/05/12 09:30	04/05/12 15:47	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: IC-W-8-0312		Lab ID: 2511402013	Collected: 03/27/12 10:30	Received: 03/28/12 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	0.21 mg/L		0.019	1	04/05/12 09:30	04/05/12 16:04		
Motor Oil Range	0.14 mg/L		0.094	1	04/05/12 09:30	04/05/12 16:04	64742-65-0	
Surrogates								
n-Octacosane (S)	101 %		50-150	1	04/05/12 09:30	04/05/12 16:04	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	04/05/12 09:30	04/05/12 16:04	84-15-1	

Sample: IC-W-3-0312		Lab ID: 2511402014	Collected: 03/27/12 11:55	Received: 03/28/12 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	0.030 mg/L		0.019	1	04/05/12 09:30	04/05/12 16:56		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 09:30	04/05/12 16:56	64742-65-0	
Surrogates								
n-Octacosane (S)	106 %		50-150	1	04/05/12 09:30	04/05/12 16:56	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	04/05/12 09:30	04/05/12 16:56	84-15-1	

Sample: IC-W-4-0312		Lab ID: 2511402015	Collected: 03/27/12 13:00	Received: 03/28/12 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	0.26 mg/L		0.019	1	04/05/12 09:30	04/05/12 17:13		
Motor Oil Range	0.16 mg/L		0.095	1	04/05/12 09:30	04/05/12 17:13	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	04/05/12 09:30	04/05/12 17:13	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	04/05/12 09:30	04/05/12 17:13	84-15-1	

Sample: IC-W-7-0312		Lab ID: 2511402016	Collected: 03/27/12 14:15	Received: 03/28/12 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	0.077 mg/L		0.019	1	04/05/12 09:30	04/05/12 17:30		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 09:30	04/05/12 17:30	64742-65-0	
Surrogates								
n-Octacosane (S)	106 %		50-150	1	04/05/12 09:30	04/05/12 17:30	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	04/05/12 09:30	04/05/12 17:30	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: ZA-W-42-0312		Lab ID: 2511402017	Collected: 03/27/12 15:10	Received: 03/28/12 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	04/05/12 09:30	04/05/12 17:47		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 09:30	04/05/12 17:47	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	04/05/12 09:30	04/05/12 17:47	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	04/05/12 09:30	04/05/12 17:47	84-15-1	

Sample: ZA-W-41-0312		Lab ID: 2511402018	Collected: 03/27/12 16:00	Received: 03/28/12 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	0.052 mg/L		0.019	1	04/05/12 09:30	04/05/12 18:04		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 09:30	04/05/12 18:04	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	04/05/12 09:30	04/05/12 18:04	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	04/05/12 09:30	04/05/12 18:04	84-15-1	

Sample: ZA-W-40-0312		Lab ID: 2511402019	Collected: 03/27/12 16:50	Received: 03/28/12 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	0.036 mg/L		0.019	1	04/05/12 09:30	04/05/12 18:21		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 09:30	04/05/12 18:21	64742-65-0	
Surrogates								
n-Octacosane (S)	104 %		50-150	1	04/05/12 09:30	04/05/12 18:21	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	04/05/12 09:30	04/05/12 18:21	84-15-1	

Sample: 5-W-54-0312		Lab ID: 2511402020	Collected: 03/27/12 16:20	Received: 03/28/12 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	0.030 mg/L		0.020	1	04/05/12 09:30	04/05/12 18:39		
Motor Oil Range	ND mg/L		0.098	1	04/05/12 09:30	04/05/12 18:39	64742-65-0	
Surrogates								
n-Octacosane (S)	106 %		50-150	1	04/05/12 09:30	04/05/12 18:39	630-02-4	
o-Terphenyl (S)	94 %		50-150	1	04/05/12 09:30	04/05/12 18:39	84-15-1	

ANALYTICAL RESULTS

Project: Skykomish 60241075

Pace Project No.: 2511402

Sample: ZA-W-400-0312		Lab ID: 2511402021	Collected: 03/27/12 17:10	Received: 03/28/12 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	0.025 mg/L		0.019	1	04/05/12 09:30	04/05/12 19:13		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 09:30	04/05/12 19:13	64742-65-0	
Surrogates								
n-Octacosane (S)	106 %		50-150	1	04/05/12 09:30	04/05/12 19:13	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	04/05/12 09:30	04/05/12 19:13	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish 60241075

Pace Project No.: 2511402

QC Batch: OEXT/5321 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511402001, 2511402002, 2511402003, 2511402004, 2511402005, 2511402006, 2511402007

METHOD BLANK: 109404 Matrix: Water
 Associated Lab Samples: 2511402001, 2511402002, 2511402003, 2511402004, 2511402005, 2511402006, 2511402007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/04/12 22:53	
Motor Oil Range	mg/L	ND	0.10	04/04/12 22:53	
n-Octacosane (S)	%	89	50-150	04/04/12 22:53	
o-Terphenyl (S)	%	84	50-150	04/04/12 22:53	

LABORATORY CONTROL SAMPLE: 109405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.83	83	51-114	
Motor Oil Range	mg/L	1	0.92	92	62-120	
n-Octacosane (S)	%			93	50-150	
o-Terphenyl (S)	%			89	50-150	

SAMPLE DUPLICATE: 109406

Parameter	Units	2511401014 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	0.033		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	72	96	29	
o-Terphenyl (S)	%	69	91	28	

SAMPLE DUPLICATE: 109407

Parameter	Units	2511401018 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.061	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	68	73	7	
o-Terphenyl (S)	%	65	71	9	

QUALITY CONTROL DATA

Project: Skykomish 60241075

Pace Project No.: 2511402

QC Batch: OEXT/5327 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511402008, 2511402009, 2511402010, 2511402011, 2511402012, 2511402013, 2511402014, 2511402015, 2511402016, 2511402017, 2511402018, 2511402019, 2511402020, 2511402021

METHOD BLANK: 109590 Matrix: Water
 Associated Lab Samples: 2511402008, 2511402009, 2511402010, 2511402011, 2511402012, 2511402013, 2511402014, 2511402015, 2511402016, 2511402017, 2511402018, 2511402019, 2511402020, 2511402021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/05/12 13:47	
Motor Oil Range	mg/L	ND	0.10	04/05/12 13:47	
n-Octacosane (S)	%	96	50-150	04/05/12 13:47	
o-Terphenyl (S)	%	85	50-150	04/05/12 13:47	

LABORATORY CONTROL SAMPLE: 109591

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.74	74	51-114	
Motor Oil Range	mg/L	1	0.81	81	62-120	
n-Octacosane (S)	%			84	50-150	
o-Terphenyl (S)	%			77	50-150	

SAMPLE DUPLICATE: 109592

Parameter	Units	2511402008 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.33	0.25	28	
Motor Oil Range	mg/L	0.17	0.13	25	
n-Octacosane (S)	%	96	67	32	
o-Terphenyl (S)	%	87	63	30	

SAMPLE DUPLICATE: 109593

Parameter	Units	2511402020 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.030	0.034	14	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	106	104	2	
o-Terphenyl (S)	%	94	94	4	

QUALIFIERS

Project: Skykomish 60241075

Pace Project No.: 2511402

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish 60241075

Pace Project No.: 2511402

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2511402001	2B-W-4-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402002	5-W-43-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402003	GW-1-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402004	MW-38R-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402005	GW-4-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402006	IB-W-2-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402007	GW-3-0312	EPA 3510	OEXT/5321	NWTPH-Dx	GCSV/3433
2511402008	GW-2-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402009	5-W-50-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402010	5-W-56-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402011	5-W-55-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402012	IC-W-1-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402013	IC-W-8-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402014	IC-W-3-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402015	IC-W-4-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402016	IC-W-7-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402017	ZA-W-42-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402018	ZA-W-41-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402019	ZA-W-40-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402020	5-W-54-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437
2511402021	ZA-W-400-0312	EPA 3510	OEXT/5327	NWTPH-Dx	GCSV/3437

April 12, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish 60241075
Pace Project No.: 2511414

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on March 29, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett for
Andy Brownfield
andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2511414001	MW-16-0312	NWTPH-Dx	AY1	4	PASI-S
2511414002	ZA-W-9-0312	NWTPH-Dx	AY1	4	PASI-S
2511414003	ZA-W-10-0312	NWTPH-Dx	AY1	4	PASI-S
2511414004	ZA-W-100-0312	NWTPH-Dx	AY1	4	PASI-S
2511414005	MW-4-0312	NWTPH-Dx	AY1	4	PASI-S
2511414006	MW-3-0312	NWTPH-Dx	AY1	4	PASI-S
2511414007	1B-W-3-0312	NWTPH-Dx	AY1	4	PASI-S
2511414008	1B-W-23-0312	NWTPH-Dx	AY1	4	PASI-S
2511414009	1A-W-4-0312	NWTPH-Dx	AY1	4	PASI-S
2511414010	1A-W-40-0312	NWTPH-Dx	AY1	4	PASI-S
2511414011	EW-2A-0312	NWTPH-Dx	AY1	4	PASI-S
2511414012	EW-1-0312	NWTPH-Dx	AY1	4	PASI-S
2511414013	5-W-17-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414014	5-W-18-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414015	5-W-16-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414016	5-W-160-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414017	5-W-19-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414018	5-W-14-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414019	5-W-15-0312	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2511414020	5-W-51-0312	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: MW-16-0312		Lab ID: 2511414001	Collected: 03/28/12 08:45	Received: 03/29/12 09:37	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	0.020 mg/L		0.019	1	04/05/12 14:05	04/06/12 00:38		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 14:05	04/06/12 00:38	64742-65-0	
Surrogates								
n-Octacosane (S)	101 %		50-150	1	04/05/12 14:05	04/06/12 00:38	630-02-4	
o-Terphenyl (S)	92 %		50-150	1	04/05/12 14:05	04/06/12 00:38	84-15-1	

Sample: ZA-W-9-0312		Lab ID: 2511414002	Collected: 03/28/12 09:15	Received: 03/29/12 09:37	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	0.60 mg/L		0.019	1	04/05/12 14:05	04/06/12 00:56		
Motor Oil Range	0.46 mg/L		0.095	1	04/05/12 14:05	04/06/12 00:56	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	04/05/12 14:05	04/06/12 00:56	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	04/05/12 14:05	04/06/12 00:56	84-15-1	

Sample: ZA-W-10-0312		Lab ID: 2511414003	Collected: 03/28/12 10:05	Received: 03/29/12 09:37	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	0.26 mg/L		0.019	1	04/05/12 14:05	04/06/12 01:30		
Motor Oil Range	0.35 mg/L		0.095	1	04/05/12 14:05	04/06/12 01:30	64742-65-0	
Surrogates								
n-Octacosane (S)	101 %		50-150	1	04/05/12 14:05	04/06/12 01:30	630-02-4	
o-Terphenyl (S)	93 %		50-150	1	04/05/12 14:05	04/06/12 01:30	84-15-1	

Sample: ZA-W-100-0312		Lab ID: 2511414004	Collected: 03/28/12 10:15	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 02:21		
Motor Oil Range	0.30 mg/L		0.095	1	04/05/12 14:05	04/06/12 02:21	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	04/05/12 14:05	04/06/12 02:21	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	04/05/12 14:05	04/06/12 02:21	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: MW-4-0312		Lab ID: 2511414005	Collected: 03/28/12 10:45	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 02:38		
Motor Oil Range	0.22 mg/L		0.095	1	04/05/12 14:05	04/06/12 02:38	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	04/05/12 14:05	04/06/12 02:38	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	04/05/12 14:05	04/06/12 02:38	84-15-1	

Sample: MW-3-0312		Lab ID: 2511414006	Collected: 03/28/12 12:20	Received: 03/29/12 09:37	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	0.078 mg/L		0.019	1	04/05/12 14:05	04/06/12 02:55		
Motor Oil Range	0.11 mg/L		0.095	1	04/05/12 14:05	04/06/12 02:55	64742-65-0	
Surrogates								
n-Octacosane (S)	75 %		50-150	1	04/05/12 14:05	04/06/12 02:55	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	04/05/12 14:05	04/06/12 02:55	84-15-1	

Sample: 1B-W-3-0312		Lab ID: 2511414007	Collected: 03/28/12 10:00	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 03:13		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 14:05	04/06/12 03:13	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	04/05/12 14:05	04/06/12 03:13	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	04/05/12 14:05	04/06/12 03:13	84-15-1	

Sample: 1B-W-23-0312		Lab ID: 2511414008	Collected: 03/28/12 11:45	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 03:30		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 14:05	04/06/12 03:30	64742-65-0	
Surrogates								
n-Octacosane (S)	95 %		50-150	1	04/05/12 14:05	04/06/12 03:30	630-02-4	
o-Terphenyl (S)	86 %		50-150	1	04/05/12 14:05	04/06/12 03:30	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: 1A-W-4-0312		Lab ID: 2511414009	Collected: 03/28/12 09:00	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 03:47		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 14:05	04/06/12 03:47	64742-65-0	
Surrogates								
n-Octacosane (S)	105 %		50-150	1	04/05/12 14:05	04/06/12 03:47	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	04/05/12 14:05	04/06/12 03:47	84-15-1	

Sample: 1A-W-40-0312		Lab ID: 2511414010	Collected: 03/28/12 09:30	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 19:02		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 19:02	64742-65-0	
Surrogates								
n-Octacosane (S)	112 %		50-150	1	04/05/12 14:05	04/06/12 19:02	630-02-4	
o-Terphenyl (S)	104 %		50-150	1	04/05/12 14:05	04/06/12 19:02	84-15-1	

Sample: EW-2A-0312		Lab ID: 2511414011	Collected: 03/28/12 10:55	Received: 03/29/12 09:37	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	0.020 mg/L		0.019	1	04/05/12 14:05	04/06/12 19:37		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 19:37	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	04/05/12 14:05	04/06/12 19:37	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	04/05/12 14:05	04/06/12 19:37	84-15-1	

Sample: EW-1-0312		Lab ID: 2511414012	Collected: 03/28/12 13:15	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 19:54		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 19:54	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	04/05/12 14:05	04/06/12 19:54	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	04/05/12 14:05	04/06/12 19:54	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: 5-W-17-0312		Lab ID: 2511414013	Collected: 03/28/12 13:05	Received: 03/29/12 09:37	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	04/05/12 14:05	04/06/12 06:04		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 06:04	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	04/05/12 14:05	04/06/12 06:04	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	04/05/12 14:05	04/06/12 06:04	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.019	1	04/02/12 11:30	04/06/12 18:00		
Motor Oil Range SG	ND mg/L		0.094	1	04/02/12 11:30	04/06/12 18:00	64742-65-0	
Surrogates								
n-Octacosane (S) SG	104 %		50-150	1	04/02/12 11:30	04/06/12 18:00	630-02-4	
o-Terphenyl (S) SG	100 %		50-150	1	04/02/12 11:30	04/06/12 18:00	84-15-1	

Sample: 5-W-18-0312		Lab ID: 2511414014	Collected: 03/28/12 13:40	Received: 03/29/12 09:37	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	0.095 mg/L		0.019	1	04/05/12 14:05	04/06/12 06:21		
Motor Oil Range	0.095 mg/L		0.094	1	04/05/12 14:05	04/06/12 06:21	64742-65-0	
Surrogates								
n-Octacosane (S)	72 %		50-150	1	04/05/12 14:05	04/06/12 06:21	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	04/05/12 14:05	04/06/12 06:21	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	0.022 mg/L		0.019	1	04/02/12 11:30	04/06/12 18:42		
Motor Oil Range SG	ND mg/L		0.095	1	04/02/12 11:30	04/06/12 18:42	64742-65-0	
Surrogates								
n-Octacosane (S) SG	128 %		50-150	1	04/02/12 11:30	04/06/12 18:42	630-02-4	
o-Terphenyl (S) SG	120 %		50-150	1	04/02/12 11:30	04/06/12 18:42	84-15-1	

Sample: 5-W-16-0312		Lab ID: 2511414015	Collected: 03/28/12 14:30	Received: 03/29/12 09:37	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	0.027 mg/L		0.019	1	04/05/12 14:05	04/06/12 06:38		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 06:38	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	04/05/12 14:05	04/06/12 06:38	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	04/05/12 14:05	04/06/12 06:38	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.019	1	04/02/12 11:30	04/06/12 19:04		
Motor Oil Range SG	ND mg/L		0.094	1	04/02/12 11:30	04/06/12 19:04	64742-65-0	

Date: 04/12/2012 11:27 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: 5-W-16-0312	Lab ID: 2511414015	Collected: 03/28/12 14:30	Received: 03/29/12 09:37	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Surrogates

n-Octacosane (S) SG	126 %		50-150	1	04/02/12 11:30	04/06/12 19:04	630-02-4	
o-Terphenyl (S) SG	123 %		50-150	1	04/02/12 11:30	04/06/12 19:04	84-15-1	

Sample: 5-W-160-0312	Lab ID: 2511414016	Collected: 03/28/12 14:45	Received: 03/29/12 09:37	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	0.027 mg/L		0.019	1	04/05/12 14:05	04/06/12 06:55		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 14:05	04/06/12 06:55	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	04/05/12 14:05	04/06/12 06:55	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	04/05/12 14:05	04/06/12 06:55	84-15-1	

Sample: 5-W-19-0312	Lab ID: 2511414017	Collected: 03/28/12 14:20	Received: 03/29/12 09:37	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	04/03/12 13:15	04/04/12 00:37		
Motor Oil Range SG	ND mg/L		0.095	1	04/03/12 13:15	04/04/12 00:37	64742-65-0	
Surrogates								
n-Octacosane (S) SG	70 %		50-150	1	04/03/12 13:15	04/04/12 00:37	630-02-4	
o-Terphenyl (S) SG	66 %		50-150	1	04/03/12 13:15	04/04/12 00:37	84-15-1	

Sample: 5-W-19-0312	Lab ID: 2511414017	Collected: 03/28/12 14:20	Received: 03/29/12 09:37	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	04/05/12 15:05	04/06/12 07:12		
Motor Oil Range	ND mg/L		0.094	1	04/05/12 15:05	04/06/12 07:12	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	04/05/12 15:05	04/06/12 07:12	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	04/05/12 15:05	04/06/12 07:12	84-15-1	

Sample: 5-W-19-0312	Lab ID: 2511414017	Collected: 03/28/12 14:20	Received: 03/29/12 09:37	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	04/03/12 13:15	04/04/12 00:54		
Motor Oil Range SG	ND mg/L		0.095	1	04/03/12 13:15	04/04/12 00:54	64742-65-0	
Surrogates								
n-Octacosane (S) SG	109 %		50-150	1	04/03/12 13:15	04/04/12 00:54	630-02-4	
o-Terphenyl (S) SG	98 %		50-150	1	04/03/12 13:15	04/04/12 00:54	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Sample: 5-W-14-0312	Lab ID: 2511414018	Collected: 03/28/12 15:10	Received: 03/29/12 09:37	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	04/05/12 15:05	04/06/12 07:29		
Motor Oil Range	ND mg/L		0.095	1	04/05/12 15:05	04/06/12 07:29	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	04/05/12 15:05	04/06/12 07:29	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	04/05/12 15:05	04/06/12 07:29	84-15-1	
NWTPH-Dx GCS Silica Gel								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range SG	ND mg/L		0.019	1	04/03/12 13:15	04/04/12 01:10		
Motor Oil Range SG	ND mg/L		0.094	1	04/03/12 13:15	04/04/12 01:10	64742-65-0	
Surrogates								
n-Octacosane (S) SG	95 %		50-150	1	04/03/12 13:15	04/04/12 01:10	630-02-4	
o-Terphenyl (S) SG	83 %		50-150	1	04/03/12 13:15	04/04/12 01:10	84-15-1	
Sample: 5-W-15-0312								
Lab ID: 2511414019 Collected: 03/28/12 15:25 Received: 03/29/12 09:37 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	0.57 mg/L		0.019	1	04/05/12 15:05	04/06/12 07:46		
Motor Oil Range	0.33 mg/L		0.094	1	04/05/12 15:05	04/06/12 07:46	64742-65-0	
Surrogates								
n-Octacosane (S)	95 %		50-150	1	04/05/12 15:05	04/06/12 07:46	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	04/05/12 15:05	04/06/12 07:46	84-15-1	
NWTPH-Dx GCS Silica Gel								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Range SG	0.14 mg/L		0.019	1	04/03/12 13:15	04/04/12 01:44		
Motor Oil Range SG	ND mg/L		0.095	1	04/03/12 13:15	04/04/12 01:44	64742-65-0	
Surrogates								
n-Octacosane (S) SG	105 %		50-150	1	04/03/12 13:15	04/04/12 01:44	630-02-4	
o-Terphenyl (S) SG	97 %		50-150	1	04/03/12 13:15	04/04/12 01:44	84-15-1	
Sample: 5-W-51-0312								
Lab ID: 2511414020 Collected: 03/28/12 15:45 Received: 03/29/12 09:37 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	14.1 mg/L		0.19	10	04/05/12 15:05	04/06/12 20:11		
Motor Oil Range	13.3 mg/L		0.95	10	04/05/12 15:05	04/06/12 20:11	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	10	04/05/12 15:05	04/06/12 20:11	630-02-4	
o-Terphenyl (S)	87 %		50-150	10	04/05/12 15:05	04/06/12 20:11	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

QC Batch: OEXT/5331 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511414001, 2511414002, 2511414003, 2511414004, 2511414005, 2511414006, 2511414007, 2511414008, 2511414009, 2511414010, 2511414011, 2511414012, 2511414013, 2511414014, 2511414015, 2511414016, 2511414017, 2511414018, 2511414019, 2511414020

METHOD BLANK: 109637 Matrix: Water

Associated Lab Samples: 2511414001, 2511414002, 2511414003, 2511414004, 2511414005, 2511414006, 2511414007, 2511414008, 2511414009, 2511414010, 2511414011, 2511414012, 2511414013, 2511414014, 2511414015, 2511414016, 2511414017, 2511414018, 2511414019, 2511414020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	04/06/12 00:04	
Motor Oil Range	mg/L	ND	0.10	04/06/12 00:04	
n-Octacosane (S)	%	99	50-150	04/06/12 00:04	
o-Terphenyl (S)	%	93	50-150	04/06/12 00:04	

LABORATORY CONTROL SAMPLE: 109638

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.89	89	51-114	
Motor Oil Range	mg/L	1	0.97	97	62-120	
n-Octacosane (S)	%			95	50-150	
o-Terphenyl (S)	%			88	50-150	

SAMPLE DUPLICATE: 109639

Parameter	Units	2511414002 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.60	0.66	9	
Motor Oil Range	mg/L	0.46	0.50	9	
n-Octacosane (S)	%	92	93	1	
o-Terphenyl (S)	%	85	84	.3	

SAMPLE DUPLICATE: 109640

Parameter	Units	2511414010 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	112	103	8	
o-Terphenyl (S)	%	104	96	8	

QUALITY CONTROL DATA

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

QC Batch: OEXT/5299 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS SG
 Associated Lab Samples: 2511414013, 2511414014, 2511414015

METHOD BLANK: 109062 Matrix: Water

Associated Lab Samples: 2511414013, 2511414014, 2511414015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	04/06/12 17:17	
Motor Oil Range SG	mg/L	ND	0.10	04/06/12 17:17	
n-Octacosane (S) SG	%	132	50-150	04/06/12 17:17	
o-Terphenyl (S) SG	%	134	50-150	04/06/12 17:17	

LABORATORY CONTROL SAMPLE: 109063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	4	4.5	113	59-114	
Motor Oil Range SG	mg/L	4	4.8	120	69-124	
n-Octacosane (S) SG	%			100	50-150	
o-Terphenyl (S) SG	%			110	50-150	

SAMPLE DUPLICATE: 109064

Parameter	Units	2511390012 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	86	84	1	
o-Terphenyl (S) SG	%	93	89	4	

SAMPLE DUPLICATE: 109065

Parameter	Units	2511414013 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	.014J		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	104	130	22	
o-Terphenyl (S) SG	%	100	126	23	

QUALITY CONTROL DATA

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

QC Batch: OEXT/5313 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS SG
 Associated Lab Samples: 2511414016, 2511414017, 2511414018, 2511414019

METHOD BLANK: 109241 Matrix: Water

Associated Lab Samples: 2511414016, 2511414017, 2511414018, 2511414019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	04/03/12 21:45	
Motor Oil Range SG	mg/L	ND	0.10	04/03/12 21:45	
n-Octacosane (S) SG	%	115	50-150	04/03/12 21:45	
o-Terphenyl (S) SG	%	104	50-150	04/03/12 21:45	

LABORATORY CONTROL SAMPLE: 109242

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1	0.91	91	59-114	
Motor Oil Range SG	mg/L	1	1.0	100	69-124	
n-Octacosane (S) SG	%			105	50-150	
o-Terphenyl (S) SG	%			95	50-150	

SAMPLE DUPLICATE: 109243

Parameter	Units	2511463001 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	112	110	2	
o-Terphenyl (S) SG	%	101	99	3	

SAMPLE DUPLICATE: 109244

Parameter	Units	2511414018 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	.012J		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	95	97	3	
o-Terphenyl (S) SG	%	83	86	4	

QUALIFIERS

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish 60241075

Pace Project No.: 2511414

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2511414001	MW-16-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414002	ZA-W-9-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414003	ZA-W-10-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414004	ZA-W-100-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414005	MW-4-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414006	MW-3-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414007	1B-W-3-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414008	1B-W-23-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414009	1A-W-4-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414010	1A-W-40-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414011	EW-2A-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414012	EW-1-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414013	5-W-17-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414014	5-W-18-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414015	5-W-16-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414016	5-W-160-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414017	5-W-19-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414018	5-W-14-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414019	5-W-15-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414020	5-W-51-0312	EPA 3510	OEXT/5331	NWTPH-Dx	GCSV/3439
2511414013	5-W-17-0312	EPA 3510	OEXT/5299	NWTPH-Dx	GCSV/3426
2511414014	5-W-18-0312	EPA 3510	OEXT/5299	NWTPH-Dx	GCSV/3426
2511414015	5-W-16-0312	EPA 3510	OEXT/5299	NWTPH-Dx	GCSV/3426
2511414016	5-W-160-0312	EPA 3510	OEXT/5313	NWTPH-Dx	GCSV/3430
2511414017	5-W-19-0312	EPA 3510	OEXT/5313	NWTPH-Dx	GCSV/3430
2511414018	5-W-14-0312	EPA 3510	OEXT/5313	NWTPH-Dx	GCSV/3430
2511414019	5-W-15-0312	EPA 3510	OEXT/5313	NWTPH-Dx	GCSV/3430

May 08, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 2511926

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on April 26, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 2511926

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 8

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SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish

Pace Project No.: 2511926

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2511926001	1C-W-1-0412	NWTPH-Dx	AY1	4	PASI-S
2511926002	1C-W-8-0412	NWTPH-Dx	AY1	4	PASI-S
2511926003	1C-W-80-0412	NWTPH-Dx	AY1	4	PASI-S
2511926004	1C-W-7-0412	NWTPH-Dx	AY1	4	PASI-S
2511926005	GW-2-0412	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2511926

Sample: 1C-W-1-0412		Lab ID: 2511926001	Collected: 04/24/12 09:05	Received: 04/26/12 09:45	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	ND mg/L		0.019	1	05/01/12 10:00	05/02/12 00:07		
Motor Oil Range	ND mg/L		0.094	1	05/01/12 10:00	05/02/12 00:07	64742-65-0	
Surrogates								
n-Octacosane (S)	89 %		50-150	1	05/01/12 10:00	05/02/12 00:07	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	05/01/12 10:00	05/02/12 00:07	84-15-1	

Sample: 1C-W-8-0412		Lab ID: 2511926002	Collected: 04/24/12 09:50	Received: 04/26/12 09:45	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	0.22 mg/L		0.019	1	05/01/12 10:00	05/02/12 00:24		
Motor Oil Range	ND mg/L		0.094	1	05/01/12 10:00	05/02/12 00:24	64742-65-0	
Surrogates								
n-Octacosane (S)	93 %		50-150	1	05/01/12 10:00	05/02/12 00:24	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	05/01/12 10:00	05/02/12 00:24	84-15-1	

Sample: 1C-W-80-0412		Lab ID: 2511926003	Collected: 04/24/12 10:30	Received: 04/26/12 09:45	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	0.24 mg/L		0.019	1	05/01/12 10:00	05/02/12 00:42		
Motor Oil Range	ND mg/L		0.094	1	05/01/12 10:00	05/02/12 00:42	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	05/01/12 10:00	05/02/12 00:42	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	05/01/12 10:00	05/02/12 00:42	84-15-1	

Sample: 1C-W-7-0412		Lab ID: 2511926004	Collected: 04/24/12 10:50	Received: 04/26/12 09:45	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	0.13 mg/L		0.019	1	05/01/12 10:00	05/02/12 01:33		
Motor Oil Range	ND mg/L		0.094	1	05/01/12 10:00	05/02/12 01:33	64742-65-0	
Surrogates								
n-Octacosane (S)	100 %		50-150	1	05/01/12 10:00	05/02/12 01:33	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	05/01/12 10:00	05/02/12 01:33	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2511926

Sample: GW-2-0412		Lab ID: 2511926005	Collected: 04/24/12 12:20	Received: 04/26/12 09:45	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	0.14	mg/L	0.019	1	05/01/12 10:00	05/02/12 01:50		
Motor Oil Range	0.10	mg/L	0.094	1	05/01/12 10:00	05/02/12 01:50	64742-65-0	
Surrogates								
n-Octacosane (S)	83	%	50-150	1	05/01/12 10:00	05/02/12 01:50	630-02-4	
o-Terphenyl (S)	74	%	50-150	1	05/01/12 10:00	05/02/12 01:50	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2511926

QC Batch: OEXT/5443 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2511926001, 2511926002, 2511926003, 2511926004, 2511926005

METHOD BLANK: 113171 Matrix: Water

Associated Lab Samples: 2511926001, 2511926002, 2511926003, 2511926004, 2511926005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	05/01/12 22:58	
Motor Oil Range	mg/L	ND	0.10	05/01/12 22:58	
n-Octacosane (S)	%	97	50-150	05/01/12 22:58	
o-Terphenyl (S)	%	84	50-150	05/01/12 22:58	

LABORATORY CONTROL SAMPLE: 113172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	1.1	106	51-114	
Motor Oil Range	mg/L	1	0.99	99	62-120	
n-Octacosane (S)	%			108	50-150	
o-Terphenyl (S)	%			102	50-150	

SAMPLE DUPLICATE: 113173

Parameter	Units	2511928001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.095	.061J		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	88	87	2	
o-Terphenyl (S)	%	77	76	3	

SAMPLE DUPLICATE: 113174

Parameter	Units	2511926005 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.14	0.11	19	
Motor Oil Range	mg/L	0.10	.052J		
n-Octacosane (S)	%	83	71	15	
o-Terphenyl (S)	%	74	63	17	

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 2511926

DEFINITIONS

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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

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish

Pace Project No.: 2511926

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2511926001	1C-W-1-0412	EPA 3510	OEXT/5443	NWTPH-Dx	GCSV/3491
2511926002	1C-W-8-0412	EPA 3510	OEXT/5443	NWTPH-Dx	GCSV/3491
2511926003	1C-W-80-0412	EPA 3510	OEXT/5443	NWTPH-Dx	GCSV/3491
2511926004	1C-W-7-0412	EPA 3510	OEXT/5443	NWTPH-Dx	GCSV/3491
2511926005	GW-2-0412	EPA 3510	OEXT/5443	NWTPH-Dx	GCSV/3491

1471228

Section A

Required Client Information:

Company: **AECOM**
Address: **710 2nd Ave. suite 1000**
Seattle, WA 98104
Email To: **Mark.Havichors@aecom.com**
Phone: **206-624-9349** Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: **Mark. H**
Copy To: **Renee Knecht**
Purchase Order No.:
Project Name: **SKYKOMISH BNSF**
Project Number: **60241075-0540**

Section C

Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location: **SKYKOMISH**
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								Analysis Test ↓ 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	Other											
					DATE	TIME	DATE	TIME																					
1	IC-W-1-0412				4/24/12	0905			6.8	2				X															
2	IC-W-8-0412				4/24/12	0950			7.8	2				X															
3	IC-W-80-0412				4/24/12	1030			7	2				X															
4	IC-W-7-0412				4/24/12	1050			7.4	2				X															
5	GW-2-0412				4/24/12	1220			7.6	2				X															
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Abdelghani Sellam	4/26/12	0945	Carly Weaver/PACE	0426/12	0945	0.6 Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Abdelghani Sellam				
SIGNATURE of SAMPLER:	Abdelghani Sellam	DATE Signed (MM/DD/YY):	04/26/12		

Sample Container Count

2511926



CLIENT: AECOM

COC PAGE 1 of 1
 COC ID# 1471228

Trip Blank(s) Provided?
 Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ⁴²														
2		2 ⁴²														
3		2 ⁴²														
4		2 ⁴²														
5		2 ⁴²														
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: AECOM Project # 2511926

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 0.6°C
Temp should be above freezing ≤ 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 04/26/12 CW

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Date: 4/26

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)

June 12, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: Skykomish
Pace Project No.: 2512392

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on May 31, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Skykomish

Pace Project No.: 2512392

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 7

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SAMPLE ANALYTE COUNT

Project: Skykomish

Pace Project No.: 2512392

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2512392001	IC-W-1-0512	NWTPH-Dx	AY1	4	PASI-S
2512392002	IC-W-8-0512	NWTPH-Dx	AY1	4	PASI-S
2512392003	IC-W-7-0512	NWTPH-Dx	AY1	4	PASI-S
2512392004	IC-W-70-0512	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Skykomish

Pace Project No.: 2512392

Sample: IC-W-1-0512		Lab ID: 2512392001	Collected: 05/30/12 11:45	Received: 05/31/12 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		0.076	1	06/06/12 09:30	06/07/12 05:09		
Motor Oil Range	ND mg/L		0.38	1	06/06/12 09:30	06/07/12 05:09	64742-65-0	
Surrogates								
n-Octacosane (S)	89 %		50-150	1	06/06/12 09:30	06/07/12 05:09	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	06/06/12 09:30	06/07/12 05:09	84-15-1	

Sample: IC-W-8-0512		Lab ID: 2512392002	Collected: 05/30/12 12:35	Received: 05/31/12 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	0.10 mg/L		0.076	1	06/06/12 09:30	06/07/12 05:27		
Motor Oil Range	ND mg/L		0.38	1	06/06/12 09:30	06/07/12 05:27	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	06/06/12 09:30	06/07/12 05:27	630-02-4	
o-Terphenyl (S)	86 %		50-150	1	06/06/12 09:30	06/07/12 05:27	84-15-1	

Sample: IC-W-7-0512		Lab ID: 2512392003	Collected: 05/30/12 14:00	Received: 05/31/12 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		0.076	1	06/06/12 09:30	06/07/12 05:44		
Motor Oil Range	ND mg/L		0.38	1	06/06/12 09:30	06/07/12 05:44	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	06/06/12 09:30	06/07/12 05:44	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	06/06/12 09:30	06/07/12 05:44	84-15-1	

Sample: IC-W-70-0512		Lab ID: 2512392004	Collected: 05/30/12 14:15	Received: 05/31/12 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		0.076	1	06/06/12 09:30	06/07/12 06:35		
Motor Oil Range	ND mg/L		0.38	1	06/06/12 09:30	06/07/12 06:35	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	06/06/12 09:30	06/07/12 06:35	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	06/06/12 09:30	06/07/12 06:35	84-15-1	

QUALITY CONTROL DATA

Project: Skykomish
Pace Project No.: 2512392

QC Batch: OEXT/5614 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 2512392001, 2512392002, 2512392003, 2512392004

METHOD BLANK: 117903 Matrix: Water
Associated Lab Samples: 2512392001, 2512392002, 2512392003, 2512392004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.080	06/07/12 01:58	
Motor Oil Range	mg/L	ND	0.40	06/07/12 01:58	
n-Octacosane (S)	%	87	50-150	06/07/12 01:58	
o-Terphenyl (S)	%	83	50-150	06/07/12 01:58	

LABORATORY CONTROL SAMPLE: 117904

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	4	3.7	92	51-114	
Motor Oil Range	mg/L	4	4.0	100	62-120	
n-Octacosane (S)	%			97	50-150	
o-Terphenyl (S)	%			93	50-150	

SAMPLE DUPLICATE: 117905

Parameter	Units	2512366001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	93	94	6	
o-Terphenyl (S)	%	86	90	2	

SAMPLE DUPLICATE: 117909

Parameter	Units	2512392004 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	.055J		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	90	97	8	
o-Terphenyl (S)	%	85	93	9	

QUALIFIERS

Project: Skykomish

Pace Project No.: 2512392

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Skykomish

Pace Project No.: 2512392

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512392001	IC-W-1-0512	EPA 3510	OEXT/5614	NWTPH-Dx	GCSV/3593
2512392002	IC-W-8-0512	EPA 3510	OEXT/5614	NWTPH-Dx	GCSV/3593
2512392003	IC-W-7-0512	EPA 3510	OEXT/5614	NWTPH-Dx	GCSV/3593
2512392004	IC-W-70-0512	EPA 3510	OEXT/5614	NWTPH-Dx	GCSV/3593

Sample Container Count

25 1 2 3 9 2



CLIENT: AECOM

COC PAGE 1 of 1
 COC ID# 1471231

Trip Blank(s) Provided?
Y / <u>N</u>

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2														
2		↓														
3		↓														
4		↓														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: AECOM

Project # 2512392

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 1.2c
Temp should be above freezing ≤ 6°C

Biological Tissue is Frozen: Yes No
Comments: _____

Date and Initials of person examining contents: 05/31/2012 CW

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:	_____	

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 5/31

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)

July 18, 2012

Mark Havighorst
AECOM - BNSF
333 SW 5th Avenue, Suite 225
Portland, OR 97204

RE: Project: BNSF-Skykomish
Pace Project No.: 2512751

Dear Mark Havighorst:

Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Renee Knecht, AECOM (BNSF)
Jennifer Wald, AECOM (BNSF)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF-Skykomish

Pace Project No.: 2512751

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

SAMPLE ANALYTE COUNT

Project: BNSF-Skykomish
Pace Project No.: 2512751

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2512751001	2B-W-4-0612	NWTPH-Dx	AY1	4	PASI-S
2512751002	5-W-43-0612	NWTPH-Dx	AY1	4	PASI-S
2512751003	EW-1-0612	NWTPH-Dx	AY1	4	PASI-S
2512751004	GW-4-0612	NWTPH-Dx	AY1	4	PASI-S
2512751005	EW-2A-0612	NWTPH-Dx	AY1	4	PASI-S
2512751006	2A-W-9-0612	NWTPH-Dx	AY1	4	PASI-S
2512751007	2A-W-10-0612	NWTPH-Dx	AY1	4	PASI-S
2512751008	2A-W-100-0612	NWTPH-Dx	AY1	4	PASI-S
2512751009	MW-4-0612	NWTPH-Dx	AY1	4	PASI-S
2512751010	MW-3-0612	NWTPH-Dx	AY1	4	PASI-S
2512751011	GW-1-0612	NWTPH-Dx	AY1	4	PASI-S
2512751012	GW-2-0612	NWTPH-Dx	AY1	4	PASI-S
2512751013	1C-W-1-0612	NWTPH-Dx	AY1	4	PASI-S
2512751014	1C-W-8-0612	NWTPH-Dx	AY1	4	PASI-S
2512751015	1C-W-7-0612	NWTPH-Dx	AY1	4	PASI-S
2512751016	2A-W-40-0612	NWTPH-Dx	AY1	4	PASI-S
2512751017	2A-W-400-0612	NWTPH-Dx	AY1	4	PASI-S
2512751018	GW-3-0612	NWTPH-Dx	AY1	4	PASI-S
2512751019	2A-W-41-0612	NWTPH-Dx	AY1	4	PASI-S
2512751020	2A-W-42-0612	NWTPH-Dx	AY1	4	PASI-S
2512751021	1B-W-23-0612	NWTPH-Dx	AY1	4	PASI-S
2512751022	5-W-17-0612	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751023	5-W-18-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751024	5-W-180-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751025	5-W-14-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751026	5-W-15-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751027	5-W-16-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S
2512751028	5-W-19-0612	NWTPH-Dx	MTJ	4	PASI-S
		NWTPH-Dx	MTJ	4	PASI-S

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2512751

Sample: 2B-W-4-0612		Lab ID: 2512751001	Collected: 06/27/12 08:40	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 19:07		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/16/12 19:07	64742-65-0	
Surrogates								
n-Octacosane (S)	98 %		50-150	1	07/10/12 09:35	07/16/12 19:07	630-02-4	
o-Terphenyl (S)	97 %		50-150	1	07/10/12 09:35	07/16/12 19:07	84-15-1	

Sample: 5-W-43-0612		Lab ID: 2512751002	Collected: 06/27/12 09:25	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 19:42		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 19:42	64742-65-0	
Surrogates								
n-Octacosane (S)	93 %		50-150	1	07/10/12 09:35	07/16/12 19:42	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	07/10/12 09:35	07/16/12 19:42	84-15-1	

Sample: EW-1-0612		Lab ID: 2512751003	Collected: 06/27/12 10:10	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 20:33		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 20:33	64742-65-0	
Surrogates								
n-Octacosane (S)	56 %		50-150	1	07/10/12 09:35	07/16/12 20:33	630-02-4	
o-Terphenyl (S)	57 %		50-150	1	07/10/12 09:35	07/16/12 20:33	84-15-1	

Sample: GW-4-0612		Lab ID: 2512751004	Collected: 06/27/12 11:30	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 20:50		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/16/12 20:50	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	07/10/12 09:35	07/16/12 20:50	630-02-4	
o-Terphenyl (S)	67 %		50-150	1	07/10/12 09:35	07/16/12 20:50	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2512751

Sample: EW-2A-0612		Lab ID: 2512751005	Collected: 06/27/12 13:10	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 21:08		
Motor Oil Range	0.11	mg/L	0.095	1	07/10/12 09:35	07/16/12 21:08	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	07/10/12 09:35	07/16/12 21:08	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	07/10/12 09:35	07/16/12 21:08	84-15-1	

Sample: 2A-W-9-0612		Lab ID: 2512751006	Collected: 06/27/12 14:15	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 21:25		
Motor Oil Range	0.12	mg/L	0.095	1	07/10/12 09:35	07/16/12 21:25	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	07/10/12 09:35	07/16/12 21:25	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	07/10/12 09:35	07/16/12 21:25	84-15-1	

Sample: 2A-W-10-0612		Lab ID: 2512751007	Collected: 06/27/12 14:50	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 21:42		
Motor Oil Range	0.15	mg/L	0.095	1	07/10/12 09:35	07/16/12 21:42	64742-65-0	
Surrogates								
n-Octacosane (S)	73 %		50-150	1	07/10/12 09:35	07/16/12 21:42	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	07/10/12 09:35	07/16/12 21:42	84-15-1	

Sample: 2A-W-100-0612		Lab ID: 2512751008	Collected: 06/27/12 15:00	Received: 06/28/12 15:20	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	07/10/12 09:35	07/16/12 21:59		
Motor Oil Range	0.14	mg/L	0.095	1	07/10/12 09:35	07/16/12 21:59	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	07/10/12 09:35	07/16/12 21:59	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	07/10/12 09:35	07/16/12 21:59	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2512751

Sample: MW-4-0612		Lab ID: 2512751009	Collected: 06/27/12 15:35	Received: 06/28/12 15:20	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	0.052 mg/L		0.019	1	07/10/12 09:35	07/16/12 22:16		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 22:16	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	07/10/12 09:35	07/16/12 22:16	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	07/10/12 09:35	07/16/12 22:16	84-15-1	

Sample: MW-3-0612		Lab ID: 2512751010	Collected: 06/27/12 16:05	Received: 06/28/12 15:20	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		0.019	1	07/10/12 09:35	07/16/12 22:51		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 22:51	64742-65-0	
Surrogates								
n-Octacosane (S)	47 %		50-150	1	07/10/12 09:35	07/16/12 22:51	630-02-4	S0
o-Terphenyl (S)	45 %		50-150	1	07/10/12 09:35	07/16/12 22:51	84-15-1	S0

Sample: GW-1-0612		Lab ID: 2512751011	Collected: 06/27/12 12:05	Received: 06/28/12 15:20	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	0.030 mg/L		0.019	1	07/10/12 09:35	07/16/12 23:42		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 23:42	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	07/10/12 09:35	07/16/12 23:42	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	07/10/12 09:35	07/16/12 23:42	84-15-1	

Sample: GW-2-0612		Lab ID: 2512751012	Collected: 06/27/12 12:55	Received: 06/28/12 15:20	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	0.028 mg/L		0.019	1	07/10/12 09:35	07/16/12 23:59		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 09:35	07/16/12 23:59	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	07/10/12 09:35	07/16/12 23:59	630-02-4	
o-Terphenyl (S)	94 %		50-150	1	07/10/12 09:35	07/16/12 23:59	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2512751

Sample: 1C-W-1-0612		Lab ID: 2512751013	Collected: 06/27/12 09:30	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 00:16		
Motor Oil Range	ND	mg/L	0.095	1	07/10/12 09:35	07/17/12 00:16	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	07/10/12 09:35	07/17/12 00:16	630-02-4	
o-Terphenyl (S)	80 %		50-150	1	07/10/12 09:35	07/17/12 00:16	84-15-1	

Sample: 1C-W-8-0612		Lab ID: 2512751014	Collected: 06/27/12 10:10	Received: 06/28/12 15:20	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	0.083	mg/L	0.019	1	07/10/12 09:35	07/17/12 00:33		
Motor Oil Range	ND	mg/L	0.095	1	07/10/12 09:35	07/17/12 00:33	64742-65-0	
Surrogates								
n-Octacosane (S)	95 %		50-150	1	07/10/12 09:35	07/17/12 00:33	630-02-4	
o-Terphenyl (S)	93 %		50-150	1	07/10/12 09:35	07/17/12 00:33	84-15-1	

Sample: 1C-W-7-0612		Lab ID: 2512751015	Collected: 06/27/12 11:05	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 00:51		
Motor Oil Range	ND	mg/L	0.094	1	07/10/12 09:35	07/17/12 00:51	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	07/10/12 09:35	07/17/12 00:51	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	07/10/12 09:35	07/17/12 00:51	84-15-1	

Sample: 2A-W-40-0612		Lab ID: 2512751016	Collected: 06/27/12 14:30	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 01:08		
Motor Oil Range	ND	mg/L	0.094	1	07/10/12 09:35	07/17/12 01:08	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	07/10/12 09:35	07/17/12 01:08	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	07/10/12 09:35	07/17/12 01:08	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2512751

Sample: 2A-W-400-0612		Lab ID: 2512751017	Collected: 06/27/12 15:10	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 01:25		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/17/12 01:25	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	07/10/12 09:35	07/17/12 01:25	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	07/10/12 09:35	07/17/12 01:25	84-15-1	

Sample: GW-3-0612		Lab ID: 2512751018	Collected: 06/27/12 15:25	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 01:42		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/17/12 01:42	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	07/10/12 09:35	07/17/12 01:42	630-02-4	
o-Terphenyl (S)	94 %		50-150	1	07/10/12 09:35	07/17/12 01:42	84-15-1	

Sample: 2A-W-41-0612		Lab ID: 2512751019	Collected: 06/27/12 16:15	Received: 06/28/12 15:20	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	07/10/12 09:35	07/17/12 01:59		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/17/12 01:59	64742-65-0	
Surrogates								
n-Octacosane (S)	93 %		50-150	1	07/10/12 09:35	07/17/12 01:59	630-02-4	
o-Terphenyl (S)	91 %		50-150	1	07/10/12 09:35	07/17/12 01:59	84-15-1	

Sample: 2A-W-42-0612		Lab ID: 2512751020	Collected: 06/28/12 10:00	Received: 06/28/12 15:20	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	0.054 mg/L		0.019	1	07/10/12 09:35	07/17/12 02:50		
Motor Oil Range	ND mg/L		0.094	1	07/10/12 09:35	07/17/12 02:50	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	07/10/12 09:35	07/17/12 02:50	630-02-4	
o-Terphenyl (S)	95 %		50-150	1	07/10/12 09:35	07/17/12 02:50	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish
Pace Project No.: 2512751

Sample: 1B-W-23-0612		Lab ID: 2512751021	Collected: 06/28/12 09:05	Received: 06/28/12 15:20	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	07/10/12 12:10	07/11/12 00:18		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 12:10	07/11/12 00:18	64742-65-0	
Surrogates								
n-Octacosane (S)	66 %		50-150	1	07/10/12 12:10	07/11/12 00:18	630-02-4	
o-Terphenyl (S)	63 %		50-150	1	07/10/12 12:10	07/11/12 00:18	84-15-1	

Sample: 5-W-17-0612		Lab ID: 2512751022	Collected: 06/28/12 08:45	Received: 06/28/12 15:20	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	07/10/12 12:10	07/11/12 00:35		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 12:10	07/11/12 00:35	64742-65-0	
Surrogates								
n-Octacosane (S)	71 %		50-150	1	07/10/12 12:10	07/11/12 00:35	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	07/10/12 12:10	07/11/12 00:35	84-15-1	

Sample: 5-W-17-0612		Lab ID: 2512751022	Collected: 06/28/12 08:45	Received: 06/28/12 15:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.019	1	07/11/12 15:00	07/13/12 12:33		
Motor Oil Range SG	ND mg/L		0.095	1	07/11/12 15:00	07/13/12 12:33	64742-65-0	
Surrogates								
n-Octacosane (S)	100 %		50-150	1	07/11/12 15:00	07/13/12 12:33	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	07/11/12 15:00	07/13/12 12:33	84-15-1	

Sample: 5-W-18-0612		Lab ID: 2512751023	Collected: 06/28/12 09:45	Received: 06/28/12 15:20	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	0.094 mg/L		0.019	1	07/10/12 12:10	07/13/12 10:33		
Motor Oil Range	0.13 mg/L		0.095	1	07/10/12 12:10	07/13/12 10:33	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	07/10/12 12:10	07/13/12 10:33	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	07/10/12 12:10	07/13/12 10:33	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.019	1	07/11/12 15:00	07/13/12 13:25		
Motor Oil Range SG	ND mg/L		0.095	1	07/11/12 15:00	07/13/12 13:25	64742-65-0	
Surrogates								
n-Octacosane (S)	85 %		50-150	1	07/11/12 15:00	07/13/12 13:25	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	07/11/12 15:00	07/13/12 13:25	84-15-1	

ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2512751

Sample: 5-W-180-0612		Lab ID: 2512751024	Collected: 06/28/12 10:00	Received: 06/28/12 15:20	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	0.092	mg/L	0.019	1	07/10/12 12:10	07/13/12 10:50		
Motor Oil Range	0.13	mg/L	0.094	1	07/10/12 12:10	07/13/12 10:50	64742-65-0	
Surrogates								
n-Octacosane (S)	80	%	50-150	1	07/10/12 12:10	07/13/12 10:50	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	07/10/12 12:10	07/13/12 10:50	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	07/11/12 15:00	07/13/12 13:59		
Motor Oil Range SG	ND	mg/L	0.095	1	07/11/12 15:00	07/13/12 13:59	64742-65-0	
Surrogates								
n-Octacosane (S)	88	%	50-150	1	07/11/12 15:00	07/13/12 13:59	630-02-4	
o-Terphenyl (S)	77	%	50-150	1	07/11/12 15:00	07/13/12 13:59	84-15-1	

Sample: 5-W-14-0612		Lab ID: 2512751025	Collected: 06/28/12 10:45	Received: 06/28/12 15:20	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	07/10/12 12:10	07/13/12 11:07		
Motor Oil Range	ND	mg/L	0.094	1	07/10/12 12:10	07/13/12 11:07	64742-65-0	
Surrogates								
n-Octacosane (S)	95	%	50-150	1	07/10/12 12:10	07/13/12 11:07	630-02-4	
o-Terphenyl (S)	87	%	50-150	1	07/10/12 12:10	07/13/12 11:07	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	07/11/12 15:00	07/13/12 14:16		
Motor Oil Range SG	ND	mg/L	0.094	1	07/11/12 15:00	07/13/12 14:16	64742-65-0	
Surrogates								
n-Octacosane (S)	90	%	50-150	1	07/11/12 15:00	07/13/12 14:16	630-02-4	
o-Terphenyl (S)	79	%	50-150	1	07/11/12 15:00	07/13/12 14:16	84-15-1	

Sample: 5-W-15-0612		Lab ID: 2512751026	Collected: 06/28/12 12:05	Received: 06/28/12 15:20	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	07/10/12 12:10	07/13/12 11:24		
Motor Oil Range	0.13	mg/L	0.094	1	07/10/12 12:10	07/13/12 11:24	64742-65-0	
Surrogates								
n-Octacosane (S)	86	%	50-150	1	07/10/12 12:10	07/13/12 11:24	630-02-4	
o-Terphenyl (S)	80	%	50-150	1	07/10/12 12:10	07/13/12 11:24	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.019	1	07/11/12 15:00	07/13/12 14:34		
Motor Oil Range SG	ND	mg/L	0.094	1	07/11/12 15:00	07/13/12 14:34	64742-65-0	

Date: 07/18/2012 08:55 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF-Skykomish

Pace Project No.: 2512751

Sample: 5-W-15-0612		Lab ID: 2512751026	Collected: 06/28/12 12:05	Received: 06/28/12 15:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Surrogates

n-Octacosane (S)	108 %		50-150	1	07/11/12 15:00	07/13/12 14:34	630-02-4	
o-Terphenyl (S)	96 %		50-150	1	07/11/12 15:00	07/13/12 14:34	84-15-1	

Sample: 5-W-16-0612		Lab ID: 2512751027	Collected: 06/28/12 11:10	Received: 06/28/12 15:20	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	07/10/12 12:10	07/13/12 11:41		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 12:10	07/13/12 11:41	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	07/10/12 12:10	07/13/12 11:41	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	07/10/12 12:10	07/13/12 11:41	84-15-1	

Sample: 5-W-16-0612		Lab ID: 2512751027	Collected: 06/28/12 11:10	Received: 06/28/12 15:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	07/11/12 15:00	07/13/12 14:51		
Motor Oil Range SG	ND mg/L		0.095	1	07/11/12 15:00	07/13/12 14:51	64742-65-0	
Surrogates								
n-Octacosane (S)	103 %		50-150	1	07/11/12 15:00	07/13/12 14:51	630-02-4	
o-Terphenyl (S)	90 %		50-150	1	07/11/12 15:00	07/13/12 14:51	84-15-1	

Sample: 5-W-19-0612		Lab ID: 2512751028	Collected: 06/28/12 10:40	Received: 06/28/12 15:20	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	07/10/12 12:10	07/13/12 11:59		
Motor Oil Range	ND mg/L		0.095	1	07/10/12 12:10	07/13/12 11:59	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	07/10/12 12:10	07/13/12 11:59	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	07/10/12 12:10	07/13/12 11:59	84-15-1	

Sample: 5-W-19-0612		Lab ID: 2512751028	Collected: 06/28/12 10:40	Received: 06/28/12 15:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.019	1	07/11/12 15:00	07/13/12 15:08		
Motor Oil Range SG	ND mg/L		0.095	1	07/11/12 15:00	07/13/12 15:08	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	07/11/12 15:00	07/13/12 15:08	630-02-4	
o-Terphenyl (S)	87 %		50-150	1	07/11/12 15:00	07/13/12 15:08	84-15-1	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2512751

QC Batch: OEXT/5750

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2512751001, 2512751002, 2512751003, 2512751004, 2512751005, 2512751006, 2512751007, 2512751008, 2512751009, 2512751010, 2512751011, 2512751012, 2512751013, 2512751014, 2512751015, 2512751016, 2512751017, 2512751018, 2512751019, 2512751020

METHOD BLANK: 121919

Matrix: Water

Associated Lab Samples: 2512751001, 2512751002, 2512751003, 2512751004, 2512751005, 2512751006, 2512751007, 2512751008, 2512751009, 2512751010, 2512751011, 2512751012, 2512751013, 2512751014, 2512751015, 2512751016, 2512751017, 2512751018, 2512751019, 2512751020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	07/16/12 18:33	
Motor Oil Range	mg/L	ND	0.10	07/16/12 18:33	
n-Octacosane (S)	%	92	50-150	07/16/12 18:33	
o-Terphenyl (S)	%	91	50-150	07/16/12 18:33	

LABORATORY CONTROL SAMPLE: 121920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.84	84	51-114	
Motor Oil Range	mg/L	1	0.84	84	62-120	
n-Octacosane (S)	%			90	50-150	
o-Terphenyl (S)	%			89	50-150	

SAMPLE DUPLICATE: 121921

Parameter	Units	2512751001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	98	100	2	
o-Terphenyl (S)	%	97	99	2	

SAMPLE DUPLICATE: 121922

Parameter	Units	2512751009 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.052	0.067	25	
Motor Oil Range	mg/L	ND	0.11		
n-Octacosane (S)	%	80	85	6	
o-Terphenyl (S)	%	79	83	4	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2512751

QC Batch: OEXT/5751

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2512751021, 2512751022, 2512751023, 2512751024, 2512751025, 2512751026, 2512751027, 2512751028

METHOD BLANK: 121926

Matrix: Water

Associated Lab Samples: 2512751021, 2512751022, 2512751023, 2512751024, 2512751025, 2512751026, 2512751027, 2512751028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	07/10/12 23:43	
Motor Oil Range	mg/L	ND	0.10	07/10/12 23:43	
n-Octacosane (S)	%	94	50-150	07/10/12 23:43	
o-Terphenyl (S)	%	92	50-150	07/10/12 23:43	

LABORATORY CONTROL SAMPLE: 121927

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.95	95	51-114	
Motor Oil Range	mg/L	1	0.87	87	62-120	
n-Octacosane (S)	%			92	50-150	
o-Terphenyl (S)	%			91	50-150	

SAMPLE DUPLICATE: 121928

Parameter	Units	2512751022 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	71	71	.5	
o-Terphenyl (S)	%	66	66	.3	

QUALITY CONTROL DATA

Project: BNSF-Skykomish

Pace Project No.: 2512751

QC Batch: OEXT/5763 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS SG
 Associated Lab Samples: 2512751022, 2512751023, 2512751024, 2512751025, 2512751026, 2512751027, 2512751028

METHOD BLANK: 122197 Matrix: Water

Associated Lab Samples: 2512751022, 2512751023, 2512751024, 2512751025, 2512751026, 2512751027, 2512751028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.020	07/13/12 11:59	
Motor Oil Range SG	mg/L	ND	0.10	07/13/12 11:59	
n-Octacosane (S)	%	100	50-150	07/13/12 11:59	
o-Terphenyl (S)	%	87	50-150	07/13/12 11:59	

LABORATORY CONTROL SAMPLE: 122198

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1	0.71	71	59-114	
Motor Oil Range SG	mg/L	1	0.86	86	69-124	
n-Octacosane (S)	%			84	50-150	
o-Terphenyl (S)	%			74	50-150	

SAMPLE DUPLICATE: 122199

Parameter	Units	2512751023 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	.01J		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S)	%	85	101	17	
o-Terphenyl (S)	%	74	87	17	

QUALIFIERS

Project: BNSF-Skykomish

Pace Project No.: 2512751

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF-Skykomish
Pace Project No.: 2512751

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2512751001	2B-W-4-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751002	5-W-43-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751003	EW-1-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751004	GW-4-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751005	EW-2A-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751006	2A-W-9-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751007	2A-W-10-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751008	2A-W-100-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751009	MW-4-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751010	MW-3-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751011	GW-1-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751012	GW-2-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751013	1C-W-1-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751014	1C-W-8-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751015	1C-W-7-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751016	2A-W-40-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751017	2A-W-400-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751018	GW-3-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751019	2A-W-41-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751020	2A-W-42-0612	EPA 3510	OEXT/5750	NWTPH-Dx	GCSV/3672
2512751021	1B-W-23-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751022	5-W-17-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751023	5-W-18-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751024	5-W-180-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751025	5-W-14-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751026	5-W-15-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751027	5-W-16-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751028	5-W-19-0612	EPA 3510	OEXT/5751	NWTPH-Dx	GCSV/3674
2512751022	5-W-17-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751023	5-W-18-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751024	5-W-180-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751025	5-W-14-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751026	5-W-15-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751027	5-W-16-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680
2512751028	5-W-19-0612	EPA 3510	OEXT/5763	NWTPH-Dx	GCSV/3680

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: AECOM		Report To: Renee Knecht		Attention: Bruce Sheppard	
Address: 710 2nd AVE, Ste 1000		Copy To: Jennifer Wald		Company Name: BNSF	
Seattle, WA 98104				Address:	
Email To: Renee.Knecht@AECOM.com		Purchase Order No.: TT0100-MDG		Pace Quote Reference:	
Phone: 206 624-9349 Fax:		Project Name: BNSF-Skykomish		Pace Project Manager:	
Requested Due Date/TAT: std		Project Number: 60241075		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	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	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					Other						
					DATE	TIME	DATE	TIME																				
1	2B-W-4 = 0612						6/27/12	0840	7.6	2				X														
2	5-W-43 -							0717	7.9	2				X														
3	EW-1 -							1016	3.8	2				X														
4	GW-4 -							1130	9.8	2				X														
5	EW-2A -							1310	1.9	2				X														
6	2A-W-9 -							1415	10.8	2				X														
7	2A-W-10 -							1450	1.2	2				X														
8	2A-W-100 -							1500	1.2	2				X														
9	MW-4 -							1535	10.9	2				X														
10	MW-3 -							1605	3.4	2				X														
11	GW-1 -							1705	0.6	2				X														
12	GW-2 -							1755	9.9	2				X														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
SGCU - silica gel cleanup	Additional Section	6/28/12	1520	AECOM	6/28/12	1520	3.4	Y	N	Y
							1.4	3.5	2.5	1.3
							1.6	4.3	0.5	1.3

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
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 AECOM

25 1275 1

Trip Blank(s) Provided? Y / <u>N</u>

COC PAGE 1 of 3

COC ID# _____

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2														
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

CLIENT: BNSF AECOM

25 1275 1



COC PAGE 2 of 3

COC ID# _____

Trip Blank(s) Provided?
Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2														
2		↓														
3																
4																
5																
6																
7																
8																
9		↓														
10		10														
11		4														
12		↓														

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

CLIENT: BNSF AECOM

25 12 75 1



COC PAGE 3 of 3

COC ID# _____

Trip Blank(s) Provided?
Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		4														
2		↓														
3		↓														
4		↓														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: BNSF AECOM Project # 2512751

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 10173192 or 226099 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.4, 1.4, 1.6, 3.5, 4.3, 2.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C 0.5, 2.3, 1.3

Date and Initials of person examining contents: 6/28/12 by

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 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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Exceptions: VOA, coliform, TOC, O&G <u>ORO</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 6/28

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)

August 10, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: SKYKOMISH ONGOING CLEANUP
Pace Project No.: 2513117

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on July 27, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: SKYKOMISH ONGOING CLEANUP

Pace Project No.: 2513117

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 8

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SAMPLE ANALYTE COUNT

Project: SKYKOMISH ONGOING CLEANUP

Pace Project No.: 2513117

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513117001	1C-W-7-0712	NWTPH-Dx	AY1	4	PASI-S
2513117002	1C-W-70-0712	NWTPH-Dx	AY1	4	PASI-S
2513117003	1C-W-8-0712	NWTPH-Dx	AY1	4	PASI-S
2513117004	1C-W-1-0712	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: SKYKOMISH ONGOING CLEANUP

Pace Project No.: 2513117

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: August 10, 2012

General Information:

4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: OEXT/5908

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 125989)
- Diesel Range

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: SKYKOMISH ONGOING CLEANUP

Project No.: 2513117

Sample: 1C-W-7-0712		Lab ID: 2513117001	Collected: 07/26/12 10:45	Received: 07/27/12 13:15	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	08/06/12 09:40	08/06/12 17:55		
Motor Oil Range	ND mg/L		0.095	1	08/06/12 09:40	08/06/12 17:55	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	08/06/12 09:40	08/06/12 17:55	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	08/06/12 09:40	08/06/12 17:55	84-15-1	

Sample: 1C-W-70-0712		Lab ID: 2513117002	Collected: 07/26/12 12:00	Received: 07/27/12 13:15	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	0.044 mg/L		0.019	1	08/06/12 09:40	08/06/12 18:13		
Motor Oil Range	ND mg/L		0.095	1	08/06/12 09:40	08/06/12 18:13	64742-65-0	
Surrogates								
n-Octacosane (S)	71 %		50-150	1	08/06/12 09:40	08/06/12 18:13	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	08/06/12 09:40	08/06/12 18:13	84-15-1	

Sample: 1C-W-8-0712		Lab ID: 2513117003	Collected: 07/26/12 11:36	Received: 07/27/12 13:15	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	0.078 mg/L		0.019	1	08/06/12 09:40	08/06/12 18:30		
Motor Oil Range	ND mg/L		0.095	1	08/06/12 09:40	08/06/12 18:30	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	08/06/12 09:40	08/06/12 18:30	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	08/06/12 09:40	08/06/12 18:30	84-15-1	

Sample: 1C-W-1-0712		Lab ID: 2513117004	Collected: 07/26/12 12:16	Received: 07/27/12 13:15	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	08/06/12 09:40	08/06/12 19:05		
Motor Oil Range	ND mg/L		0.096	1	08/06/12 09:40	08/06/12 19:05	64742-65-0	
Surrogates								
n-Octacosane (S)	52 %		50-150	1	08/06/12 09:40	08/06/12 19:05	630-02-4	
o-Terphenyl (S)	50 %		50-150	1	08/06/12 09:40	08/06/12 19:05	84-15-1	

QUALITY CONTROL DATA

Project: SKYKOMISH ONGOING CLEANUP

Project No.: 2513117

QC Batch: OEXT/5908

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2513117001, 2513117002, 2513117003, 2513117004

METHOD BLANK: 125986

Matrix: Water

Associated Lab Samples: 2513117001, 2513117002, 2513117003, 2513117004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	08/06/12 17:21	
Motor Oil Range	mg/L	ND	0.10	08/06/12 17:21	
n-Octacosane (S)	%	77	50-150	08/06/12 17:21	
o-Terphenyl (S)	%	74	50-150	08/06/12 17:21	

LABORATORY CONTROL SAMPLE: 125987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.84	84	51-114	
Motor Oil Range	mg/L	1	0.95	95	62-120	
n-Octacosane (S)	%			83	50-150	
o-Terphenyl (S)	%			81	50-150	

SAMPLE DUPLICATE: 125989

Parameter	Units	2513117001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.031	0.049	46	D8
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	87	76	14	
o-Terphenyl (S)	%	82	71	15	

QUALIFIERS

Project: SKYKOMISH ONGOING CLEANUP

Pace Project No.: 2513117

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

D8 The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SKYKOMISH ONGOING CLEANUP

Pace Project No.: 2513117

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513117001	1C-W-7-0712	EPA 3510	OEXT/5908	NWTPH-Dx	GCSV/3747
2513117002	1C-W-70-0712	EPA 3510	OEXT/5908	NWTPH-Dx	GCSV/3747
2513117003	1C-W-8-0712	EPA 3510	OEXT/5908	NWTPH-Dx	GCSV/3747
2513117004	1C-W-1-0712	EPA 3510	OEXT/5908	NWTPH-Dx	GCSV/3747

1648922

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: FARALON CONSULTING		Report To: TAD CLINE; JERRY PORTELE		Attention:	
Address: 975 5 th AVENUE NORTHWEST		Copy To:		Company Name: REGULATORY AGENCY	
ISSAQUAH, WA 98027				Address:	
Email To: TCLINE@FARALONCONSULTING.COM		Purchase Order No.:		<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 _____	
Phone: 425-295-0849 Fax: 425-295-0850		Project Name: SKYKOMISH ONGOING CLEANUP		Site Location	
Requested Due Date/TAT: STANDARD		Project Number: 683-043		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	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	Other	Analysis Test ↓	NWTPH-Dx						
					DATE	TIME	DATE	TIME																		
1	IC-W-7-0712		W		7/26	1045			2																	
2	IC-W-70-0712		W		7/26	1200			2																	
3	IC-W-8-0712		W		7/26	1136			2																	
4	IC-W-1-0712		W		7/26	1216			2																	
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
		7/27/12	1014	Colette Weaver / PACE	07/27/12	1315	41	Y	Y	Y	

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: DINER, KATHAN					
SIGNATURE of SAMPLER:					
DATE Signed (MM/DD/YY): 07/27/12					

Sample Container Count

2513117



CLIENT: BNSF

COC PAGE 1 of 1
 COC ID# 1648922

Trip Blank(s) Provided?
 Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 [←]														
2		2 [←]														
3		2 [←]														
4		2 [←]														
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

2513117

Client Name: BNSF Project # _____

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 4.1c
Temp should be above freezing ≤ 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 07/27/12 CW

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DC Date: 7/13/12

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)

September 04, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: SKYKOMISH
Pace Project No.: 2513365

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on August 21, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: SKYKOMISH

Pace Project No.: 2513365

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 8

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SAMPLE ANALYTE COUNT

Project: SKYKOMISH

Pace Project No.: 2513365

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513365001	IC-W-7-082012	NWTPH-Dx	AY1	4	PASI-S
2513365002	IC-W-70-082012	NWTPH-Dx	AY1	4	PASI-S
2513365003	IC-W-8-082012	NWTPH-Dx	AY1	4	PASI-S
2513365004	IC-W-1-082012	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: SKYKOMISH

Pace Project No.: 2513365

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: September 04, 2012

General Information:

4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

Page 4 of 8

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ANALYTICAL RESULTS

Project: SKYKOMISH

Pace Project No.: 2513365

Sample: IC-W-7-082012		Lab ID: 2513365001	Collected: 08/20/12 12:20	Received: 08/21/12 14:15	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	0.027 mg/L		0.019	1	08/24/12 09:55	08/25/12 07:29		
Motor Oil Range	ND mg/L		0.095	1	08/24/12 09:55	08/25/12 07:29	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	08/24/12 09:55	08/25/12 07:29	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	08/24/12 09:55	08/25/12 07:29	84-15-1	

Sample: IC-W-70-082012		Lab ID: 2513365002	Collected: 08/20/12 18:00	Received: 08/21/12 14:15	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	08/24/12 09:55	08/25/12 08:37		
Motor Oil Range	ND mg/L		0.095	1	08/24/12 09:55	08/25/12 08:37	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	08/24/12 09:55	08/25/12 08:37	630-02-4	
o-Terphenyl (S)	69 %		50-150	1	08/24/12 09:55	08/25/12 08:37	84-15-1	

Sample: IC-W-8-082012		Lab ID: 2513365003	Collected: 08/20/12 13:13	Received: 08/21/12 14:15	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	0.072 mg/L		0.019	1	08/24/12 09:55	08/25/12 08:54		
Motor Oil Range	ND mg/L		0.095	1	08/24/12 09:55	08/25/12 08:54	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	08/24/12 09:55	08/25/12 08:54	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	08/24/12 09:55	08/25/12 08:54	84-15-1	

Sample: IC-W-1-082012		Lab ID: 2513365004	Collected: 08/20/12 13:59	Received: 08/21/12 14:15	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	08/24/12 09:55	08/25/12 09:10		
Motor Oil Range	ND mg/L		0.095	1	08/24/12 09:55	08/25/12 09:10	64742-65-0	
Surrogates								
n-Octacosane (S)	85 %		50-150	1	08/24/12 09:55	08/25/12 09:10	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	08/24/12 09:55	08/25/12 09:10	84-15-1	

QUALITY CONTROL DATA

Project: SKYKOMISH

Pace Project No.: 2513365

QC Batch: OEXT/6002

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 2513365001, 2513365002, 2513365003, 2513365004

METHOD BLANK: 128298

Matrix: Water

Associated Lab Samples: 2513365001, 2513365002, 2513365003, 2513365004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.020	08/25/12 06:55	
Motor Oil Range	mg/L	ND	0.10	08/25/12 06:55	
n-Octacosane (S)	%	95	50-150	08/25/12 06:55	
o-Terphenyl (S)	%	85	50-150	08/25/12 06:55	

LABORATORY CONTROL SAMPLE: 128299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.84	84	51-114	
Motor Oil Range	mg/L	1	0.90	90	62-120	
n-Octacosane (S)	%			90	50-150	
o-Terphenyl (S)	%			80	50-150	

SAMPLE DUPLICATE: 128300

Parameter	Units	2513365001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.027	0.034	23	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	76	85	11	
o-Terphenyl (S)	%	66	77	14	

QUALIFIERS

Project: SKYKOMISH

Pace Project No.: 2513365

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SKYKOMISH

Pace Project No.: 2513365

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513365001	IC-W-7-082012	EPA 3510	OEXT/6002	NWTPH-Dx	GCSV/3796
2513365002	IC-W-70-082012	EPA 3510	OEXT/6002	NWTPH-Dx	GCSV/3796
2513365003	IC-W-8-082012	EPA 3510	OEXT/6002	NWTPH-Dx	GCSV/3796
2513365004	IC-W-1-082012	EPA 3510	OEXT/6002	NWTPH-Dx	GCSV/3796

Section A

Required Client Information:

Section B

Required Project Information:

Section C

Invoice Information:

Page: 1 of 1
1648848

Company: **FARALLON CONSULTING**
Address: **975 5th AVENUE**
ISSAQUAH, WA
Email To: **TCLINE@FARALLONCONSULTING.COM**
Phone: **425-295-0819** Fax: **425-295-0870**
Requested Due Date/TAT: **STANDARD**

Report To: **TAD CLINE**
Copy To:
Purchase Order No.: **TT0100 M06**
Project Name: **SKYKOMISM**
Project Number: **083-043**

Attention:
Company Name:
Address:
Price Quote Reference:
Price Project Manager:
Price Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location
STATE: **WA**

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 void codes to left)
SAMPLE TYPE (G=GRAB C=COMP)

ITEM #	COLLECTED				SAMPLE TEMP AT COLLECTION	NO OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N ↓	Residual Chlorine (Y/N)	
	COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other			
	DATE	TIME	DATE	TIME													
1	8/20/12	1220	8/20/12	1220	2				X								
2	8/20/12	1800	8/20/12	1800	2				X								
3	8/20/12	1313	8/20/12	1313	2				X								
4	8/20/12	1359	8/20/12	1359	2				X								

Requested Analysis Filtered (Y/N)

Analysis Test ↓	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
-----------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	FARALLON	8/21/12	1055	Pace	8/21/12	1415	1.9 Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **DINGER KAYHAN**

SIGNATURE of SAMPLER: *[Signature]* DATE Signed (MM/DD/YY): **8/21/12**

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 Condition Upon Receipt

Client Name: Farallon Project # 2513365

Courier: Fed Ex UPS USPS Client Commercial Pace Other Bill

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 01731862 or 226099 Type of Ice Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 1.9
Temp should be above freezing $\leq 6^{\circ}\text{C}$

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/21/12

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed <u>WJS</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: D. Glavin Date: 8/22/12

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)

October 12, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: BNSF Skykomish
Pace Project No.: 2513615

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on September 19, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF Skykomish

Pace Project No.: 2513615

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BNSF Skykomish

Pace Project No.: 2513615

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513615001	5-W-14-091812	NWTPH-Dx	AY1	4	PASI-S
2513615002	5-W-15-091812	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2513615003	5-W-16-091812	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2513615004	5-W-17-091812	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2513615005	5-W-18-091812	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2513615006	5-W-19-091812	NWTPH-Dx	AY1	4	PASI-S
		NWTPH-Dx	AY1	4	PASI-S
2513615007	5-W-54-091812	NWTPH-Dx	AY1	4	PASI-S
2513615008	5-W-55-091812	NWTPH-Dx	AY1	4	PASI-S
2513615009	5-W-550-091812	NWTPH-Dx	AY1	4	PASI-S
2513615010	5-W-56-091812	NWTPH-Dx	AY1	4	PASI-S
2513615011	S4-BD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615012	S4-CD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615013	S4-BU-091812	NWTPH-Dx	AY1	4	PASI-S
2513615014	S4-CU-091812	NWTPH-Dx	AY1	4	PASI-S
2513615015	S4-AU-091812	NWTPH-Dx	AY1	4	PASI-S
2513615016	S4-AD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615017	S3-BD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615018	S3-CD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615019	S3-CU-091812	NWTPH-Dx	AY1	4	PASI-S
2513615020	S3-AD-091812	NWTPH-Dx	AY1	4	PASI-S
2513615021	S30-AD-091812	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: BNSF Skykomish

Pace Project No.: 2513615

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: October 12, 2012

General Information:

20 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BNSF Skykomish

Pace Project No.: 2513615

Method: NWTPH-Dx

Description: NWTPH-Dx GCS Silica Gel

Client: BNSF_Farallon - WA

Date: October 12, 2012

General Information:

6 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: OEXT/6109

CU: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- 5-W-19-091812 (Lab ID: 2513615006)
- Diesel Range SG

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513615

Sample: 5-W-14-091812		Lab ID: 2513615001	Collected: 09/18/12 09:50	Received: 09/19/12 09:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 09:40	09/25/12 13:54		
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 09:40	09/25/12 13:54	64742-65-0	
Surrogates								
n-Octacosane (S) SG	102 %		50-150	1	09/21/12 09:40	09/25/12 13:54	630-02-4	
o-Terphenyl (S) SG	95 %		50-150	1	09/21/12 09:40	09/25/12 13:54	84-15-1	

Sample: 5-W-15-091812		Lab ID: 2513615002	Collected: 09/18/12 10:25	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	10/02/12 15:14		
Motor Oil Range	0.21 mg/L		0.19	1	09/28/12 11:55	10/02/12 15:14	64742-65-0	
Surrogates								
n-Octacosane (S)	98 %		50-150	1	09/28/12 11:55	10/02/12 15:14	630-02-4	
o-Terphenyl (S)	85 %		50-150	1	09/28/12 11:55	10/02/12 15:14	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 12:00	09/25/12 14:31		
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 12:00	09/25/12 14:31	64742-65-0	
Surrogates								
n-Octacosane (S) SG	100 %		50-150	1	09/21/12 12:00	09/25/12 14:31	630-02-4	
o-Terphenyl (S) SG	93 %		50-150	1	09/21/12 12:00	09/25/12 14:31	84-15-1	

Sample: 5-W-16-091812		Lab ID: 2513615003	Collected: 09/18/12 11:15	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	10/02/12 15:32		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	10/02/12 15:32	64742-65-0	
Surrogates								
n-Octacosane (S)	85 %		50-150	1	09/28/12 11:55	10/02/12 15:32	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	09/28/12 11:55	10/02/12 15:32	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 12:00	09/25/12 14:49		
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 12:00	09/25/12 14:49	64742-65-0	
Surrogates								
n-Octacosane (S) SG	96 %		50-150	1	09/21/12 12:00	09/25/12 14:49	630-02-4	
o-Terphenyl (S) SG	91 %		50-150	1	09/21/12 12:00	09/25/12 14:49	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish
Pace Project No.: 2513615

Sample: 5-W-17-091812		Lab ID: 2513615004	Collected: 09/18/12 12:15	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	09/30/12 02:15		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	09/30/12 02:15	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	09/28/12 11:55	09/30/12 02:15	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	09/28/12 11:55	09/30/12 02:15	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 12:00	09/25/12 15:07		
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 12:00	09/25/12 15:07	64742-65-0	
Surrogates								
n-Octacosane (S) SG	106 %		50-150	1	09/21/12 12:00	09/25/12 15:07	630-02-4	
o-Terphenyl (S) SG	102 %		50-150	1	09/21/12 12:00	09/25/12 15:07	84-15-1	

Sample: 5-W-18-091812		Lab ID: 2513615005	Collected: 09/18/12 12:55	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	10/02/12 15:50		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	10/02/12 15:50	64742-65-0	
Surrogates								
n-Octacosane (S)	100 %		50-150	1	09/28/12 11:55	10/02/12 15:50	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	09/28/12 11:55	10/02/12 15:50	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 12:00	09/25/12 15:25		
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 12:00	09/25/12 15:25	64742-65-0	
Surrogates								
n-Octacosane (S) SG	105 %		50-150	1	09/21/12 12:00	09/25/12 15:25	630-02-4	
o-Terphenyl (S) SG	100 %		50-150	1	09/21/12 12:00	09/25/12 15:25	84-15-1	

Sample: 5-W-19-091812		Lab ID: 2513615006	Collected: 09/18/12 13:30	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	09/30/12 02:50		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	09/30/12 02:50	64742-65-0	
Surrogates								
n-Octacosane (S)	67 %		50-150	1	09/28/12 11:55	09/30/12 02:50	630-02-4	
o-Terphenyl (S)	61 %		50-150	1	09/28/12 11:55	09/30/12 02:50	84-15-1	
NWTPH-Dx GCS Silica Gel		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.038	1	09/21/12 12:00	09/25/12 16:20		CU
Motor Oil Range SG	ND mg/L		0.19	1	09/21/12 12:00	09/25/12 16:20	64742-65-0	

Date: 10/12/2012 01:55 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513615

Sample: 5-W-19-091812	Lab ID: 2513615006	Collected: 09/18/12 13:30	Received: 09/19/12 09:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS Silica Gel Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Surrogates

n-Octacosane (S) SG	99 %	50-150	1	09/21/12 12:00	09/25/12 16:20	630-02-4
o-Terphenyl (S) SG	94 %	50-150	1	09/21/12 12:00	09/25/12 16:20	84-15-1

Sample: 5-W-54-091812	Lab ID: 2513615007	Collected: 09/18/12 14:20	Received: 09/19/12 09:15	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	0.038	1	09/28/12 11:55	10/02/12 16:08	
Motor Oil Range	ND mg/L	0.19	1	09/28/12 11:55	10/02/12 16:08	64742-65-0
Surrogates						
n-Octacosane (S)	97 %	50-150	1	09/28/12 11:55	10/02/12 16:08	630-02-4
o-Terphenyl (S)	83 %	50-150	1	09/28/12 11:55	10/02/12 16:08	84-15-1

Sample: 5-W-55-091812	Lab ID: 2513615008	Collected: 09/18/12 14:50	Received: 09/19/12 09:15	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	0.038	1	09/28/12 11:55	10/02/12 16:45	
Motor Oil Range	ND mg/L	0.19	1	09/28/12 11:55	10/02/12 16:45	64742-65-0
Surrogates						
n-Octacosane (S)	98 %	50-150	1	09/28/12 11:55	10/02/12 16:45	630-02-4
o-Terphenyl (S)	84 %	50-150	1	09/28/12 11:55	10/02/12 16:45	84-15-1

Sample: 5-W-550-091812	Lab ID: 2513615009	Collected: 09/18/12 14:55	Received: 09/19/12 09:15	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	0.26 mg/L	0.038	1	09/28/12 11:55	10/02/12 17:22	
Motor Oil Range	ND mg/L	0.19	1	09/28/12 11:55	10/02/12 17:22	64742-65-0
Surrogates						
n-Octacosane (S)	95 %	50-150	1	09/28/12 11:55	10/02/12 17:22	630-02-4
o-Terphenyl (S)	81 %	50-150	1	09/28/12 11:55	10/02/12 17:22	84-15-1

Sample: 5-W-56-091812	Lab ID: 2513615010	Collected: 09/18/12 15:45	Received: 09/19/12 09:15	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	2.7 mg/L	0.038	1	09/28/12 11:55	10/02/12 08:59	
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Date: 10/12/2012 01:55 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513615

Sample: 5-W-56-091812		Lab ID: 2513615010	Collected: 09/18/12 15:45	Received: 09/19/12 09:15	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	0.84	mg/L	0.19	1	09/28/12 11:55	10/02/12 08:59	64742-65-0	
Surrogates								
n-Octacosane (S)	107	%	50-150	1	09/28/12 11:55	10/02/12 08:59	630-02-4	
o-Terphenyl (S)	95	%	50-150	1	09/28/12 11:55	10/02/12 08:59	84-15-1	

Sample: S4-BD-091812		Lab ID: 2513615011	Collected: 09/18/12 14:54	Received: 09/19/12 09:15	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	0.038	1	09/28/12 11:55	09/30/12 05:26		
Motor Oil Range	ND	mg/L	0.19	1	09/28/12 11:55	09/30/12 05:26	64742-65-0	
Surrogates								
n-Octacosane (S)	88	%	50-150	1	09/28/12 11:55	09/30/12 05:26	630-02-4	
o-Terphenyl (S)	75	%	50-150	1	09/28/12 11:55	09/30/12 05:26	84-15-1	

Sample: S4-CD-091812		Lab ID: 2513615012	Collected: 09/18/12 15:14	Received: 09/19/12 09:15	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	0.086	mg/L	0.040	1	09/28/12 11:55	10/02/12 09:17		
Motor Oil Range	0.25	mg/L	0.20	1	09/28/12 11:55	10/02/12 09:17	64742-65-0	
Surrogates								
n-Octacosane (S)	91	%	50-150	1	09/28/12 11:55	10/02/12 09:17	630-02-4	
o-Terphenyl (S)	78	%	50-150	1	09/28/12 11:55	10/02/12 09:17	84-15-1	

Sample: S4-BU-091812		Lab ID: 2513615013	Collected: 09/18/12 15:28	Received: 09/19/12 09:15	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	0.038	1	09/28/12 11:55	10/02/12 09:35		
Motor Oil Range	ND	mg/L	0.19	1	09/28/12 11:55	10/02/12 09:35	64742-65-0	
Surrogates								
n-Octacosane (S)	84	%	50-150	1	09/28/12 11:55	10/02/12 09:35	630-02-4	
o-Terphenyl (S)	71	%	50-150	1	09/28/12 11:55	10/02/12 09:35	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513615

Sample: S4-CU-091812		Lab ID: 2513615014	Collected: 09/18/12 15:30	Received: 09/19/12 09:15	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		0.039	1	09/28/12 11:55	09/30/12 06:18		
Motor Oil Range	ND mg/L		0.20	1	09/28/12 11:55	09/30/12 06:18	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	09/28/12 11:55	09/30/12 06:18	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	09/28/12 11:55	09/30/12 06:18	84-15-1	

Sample: S4-AU-091812		Lab ID: 2513615015	Collected: 09/18/12 15:52	Received: 09/19/12 09:15	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		0.039	1	09/28/12 11:55	09/30/12 06:35		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	09/30/12 06:35	64742-65-0	
Surrogates								
n-Octacosane (S)	81 %		50-150	1	09/28/12 11:55	09/30/12 06:35	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	09/28/12 11:55	09/30/12 06:35	84-15-1	

Sample: S4-AD-091812		Lab ID: 2513615016	Collected: 09/18/12 15:56	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	09/30/12 07:27		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	09/30/12 07:27	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	09/28/12 11:55	09/30/12 07:27	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	09/28/12 11:55	09/30/12 07:27	84-15-1	

Sample: S3-BD-091812		Lab ID: 2513615017	Collected: 09/18/12 16:50	Received: 09/19/12 09:15	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		0.038	1	09/28/12 11:55	09/30/12 07:44		
Motor Oil Range	ND mg/L		0.19	1	09/28/12 11:55	09/30/12 07:44	64742-65-0	
Surrogates								
n-Octacosane (S)	73 %		50-150	1	09/28/12 11:55	09/30/12 07:44	630-02-4	
o-Terphenyl (S)	62 %		50-150	1	09/28/12 11:55	09/30/12 07:44	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513615

Sample: S3-CD-091812		Lab ID: 2513615018		Collected: 09/18/12 16:50	Received: 09/19/12 09:15	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		0.042	1	10/02/12 09:00	10/02/12 23:08		
Motor Oil Range	ND mg/L		0.21	1	10/02/12 09:00	10/02/12 23:08	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	10/02/12 09:00	10/02/12 23:08	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	10/02/12 09:00	10/02/12 23:08	84-15-1	

Sample: S3-CU-091812		Lab ID: 2513615019		Collected: 09/18/12 17:10	Received: 09/19/12 09:15	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		0.038	1	10/02/12 09:00	10/02/12 23:44		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/02/12 23:44	64742-65-0	
Surrogates								
n-Octacosane (S)	95 %		50-150	1	10/02/12 09:00	10/02/12 23:44	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	10/02/12 09:00	10/02/12 23:44	84-15-1	

Sample: S3-AD-091812		Lab ID: 2513615020		Collected: 09/18/12 17:36	Received: 09/19/12 09:15	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		0.042	1	10/02/12 09:00	10/03/12 00:56		
Motor Oil Range	ND mg/L		0.21	1	10/02/12 09:00	10/03/12 00:56	64742-65-0	
Surrogates								
n-Octacosane (S)	76 %		50-150	1	10/02/12 09:00	10/03/12 00:56	630-02-4	
o-Terphenyl (S)	67 %		50-150	1	10/02/12 09:00	10/03/12 00:56	84-15-1	

Sample: S30-AD-091812		Lab ID: 2513615021		Collected: 09/18/12 16:00	Received: 09/19/12 09:15	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		0.042	1	10/02/12 09:00	10/03/12 01:14		
Motor Oil Range	ND mg/L		0.21	1	10/02/12 09:00	10/03/12 01:14	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	10/02/12 09:00	10/03/12 01:14	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	10/02/12 09:00	10/03/12 01:14	84-15-1	

QUALITY CONTROL DATA

Project: BNSF Skykomish

Pace Project No.: 2513615

QC Batch: OEXT/6141 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2513615002, 2513615003, 2513615004, 2513615005, 2513615006, 2513615007, 2513615008, 2513615009, 2513615010, 2513615011, 2513615012, 2513615013, 2513615014, 2513615015, 2513615016, 2513615017

METHOD BLANK: 132149 Matrix: Water

Associated Lab Samples: 2513615002, 2513615003, 2513615004, 2513615005, 2513615006, 2513615007, 2513615008, 2513615009, 2513615010, 2513615011, 2513615012, 2513615013, 2513615014, 2513615015, 2513615016, 2513615017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.040	09/30/12 01:03	
Motor Oil Range	mg/L	ND	0.20	09/30/12 01:03	
n-Octacosane (S)	%	86	50-150	09/30/12 01:03	
o-Terphenyl (S)	%	75	50-150	09/30/12 01:03	

LABORATORY CONTROL SAMPLE: 132150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	1.0	102	51-114	
Motor Oil Range	mg/L	1	1.0	101	62-120	
n-Octacosane (S)	%			93	50-150	
o-Terphenyl (S)	%			80	50-150	

SAMPLE DUPLICATE: 132151

Parameter	Units	2513615007 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	97	89	8	
o-Terphenyl (S)	%	83	74	10	

SAMPLE DUPLICATE: 132152

Parameter	Units	2513615008 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.28	0.26	5	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	98	106	7	
o-Terphenyl (S)	%	84	92	9	

QUALITY CONTROL DATA

Project: BNSF Skykomish

Pace Project No.: 2513615

QC Batch: OEXT/6149 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2513615018, 2513615019, 2513615020, 2513615021

METHOD BLANK: 132451 Matrix: Water
 Associated Lab Samples: 2513615018, 2513615019, 2513615020, 2513615021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.040	10/02/12 22:31	
Motor Oil Range	mg/L	ND	0.20	10/02/12 22:31	
n-Octacosane (S)	%	91	50-150	10/02/12 22:31	
o-Terphenyl (S)	%	80	50-150	10/02/12 22:31	

LABORATORY CONTROL SAMPLE: 132452

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.87	87	51-114	
Motor Oil Range	mg/L	1	0.87	87	62-120	
n-Octacosane (S)	%			77	50-150	
o-Terphenyl (S)	%			68	50-150	

SAMPLE DUPLICATE: 132453

Parameter	Units	2513615018 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	77	71	18	
o-Terphenyl (S)	%	66	60	19	

SAMPLE DUPLICATE: 132454

Parameter	Units	2513615019 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	95	78	14	
o-Terphenyl (S)	%	81	69	12	

QUALITY CONTROL DATA

Project: BNSF Skykomish

Pace Project No.: 2513615

QC Batch: OEXT/6109 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS SG
 Associated Lab Samples: 2513615001, 2513615002, 2513615003, 2513615004, 2513615005, 2513615006

METHOD BLANK: 131197 Matrix: Water
 Associated Lab Samples: 2513615001, 2513615002, 2513615003, 2513615004, 2513615005, 2513615006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.040	09/25/12 08:20	
Motor Oil Range SG	mg/L	ND	0.20	09/25/12 08:20	
n-Octacosane (S) SG	%	90	50-150	09/25/12 08:20	
o-Terphenyl (S) SG	%	86	50-150	09/25/12 08:20	

LABORATORY CONTROL SAMPLE: 131198

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range SG	mg/L	1	0.94	94	59-114	
Motor Oil Range SG	mg/L	1	1.0	100	69-124	
n-Octacosane (S) SG	%			100	50-150	
o-Terphenyl (S) SG	%			95	50-150	

SAMPLE DUPLICATE: 131199

Parameter	Units	2513602001 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	0.18	0.24	33	
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	99	98	1	
o-Terphenyl (S) SG	%	92	93	.1	

SAMPLE DUPLICATE: 131200

Parameter	Units	2513615001 Result	Dup Result	RPD	Qualifiers
Diesel Range SG	mg/L	ND	ND		
Motor Oil Range SG	mg/L	ND	ND		
n-Octacosane (S) SG	%	102	94	7	
o-Terphenyl (S) SG	%	95	88	8	

QUALIFIERS

Project: BNSF Skykomish

Pace Project No.: 2513615

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

CU The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF Skykomish

Pace Project No.: 2513615

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513615002	5-W-15-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615003	5-W-16-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615004	5-W-17-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615005	5-W-18-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615006	5-W-19-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615007	5-W-54-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615008	5-W-55-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615009	5-W-550-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615010	5-W-56-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615011	S4-BD-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615012	S4-CD-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615013	S4-BU-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615014	S4-CU-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615015	S4-AU-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615016	S4-AD-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615017	S3-BD-091812	EPA 3510	OEXT/6141	NWTPH-Dx	GCSV/3869
2513615018	S3-CD-091812	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513615019	S3-CU-091812	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513615020	S3-AD-091812	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513615021	S30-AD-091812	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513615001	5-W-14-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850
2513615002	5-W-15-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850
2513615003	5-W-16-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850
2513615004	5-W-17-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850
2513615005	5-W-18-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850
2513615006	5-W-19-091812	EPA 3510	OEXT/6109	NWTPH-Dx	GCSV/3850

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 1 of 2	
Company: FARALLON		Report To: Tad Cline		Attention: Bruce Sheppard		1649130	
Address: 975 5th AVE NW ISSAQUAH, WA		Copy To: -		Company Name: Farallon Consulting		REGULATORY AGENCY	
Email To:		Purchase Order No.:		Address: 975 5th Ave NW		<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	
Phone: 425-295-0800 Fax: 425-295-0890		Project Name: BUSE Sky/Komish		Pace Quote Reference:		Site Location: WA	
Requested Due Date/TAT:		Project Number: 683-045		Pace Project Manager:		STATE: WA	

ITEM #	SAMPLE ID (A-Z, 0-9, -) Sample IDs MUST BE UNIQUE	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.	
					COMPOSITE START		COMPOSITE END/STOP				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				Other
					DATE	TIME	DATE	TIME													
1	5-W-14-091812	Drinking Water	WTG	G	9/18/12	0950			2												
2	5-W-15-091812	Water	WTG	G		1025			1												
3	5-W-16-091812	Waste Water	WTG	G		1115			1												
4	5-W-17-091812	Product	WTG	G		1215			1												
5	5-W-18-091812	Soil/Solid	WTG	G		1255			1												
6	5-W-19-091812	Oil	WTG	G		1330			1												
7	5-W-54-091812	Wipe	WTG	G		1420			1												
8	5-W-55-091812	Air	WTG	G		1450			1												
9	5-W-550-091812	Tissue	WTG	G		1455			1												
10	5-W-56-091812	Other	WTG	G		1545			1												
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Farallon	9/19/12	0800	Bruce K Pace	9/19/12	0800	3.9			
	Bruce K Pace	9/19/12	0915	Collective Wear/PAVE	9/19/12	0915	4.0	Y	Y	Y
							5.6			
							2.0			

ORIGINAL

SAMPLER NAME AND SIGNATURE				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Jovan Ruark							
SIGNATURE of SAMPLER: [Signature]							
DATE Signed (MM/DD/YY): 9/19/12							

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: <u>2</u> of <u>2</u> 1649129	
Company: FARALLON CONSULTING		Report To: TAD CLINE		Attention: Bruce Sheppard		REGULATORY AGENCY	
Address: 976 8th AVE NW		Copy To:		Company Name: BUSE			
ISSAQUAH, WA 98027				Address:		<input checked="" type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Email To: TCLINE@FARALLONCONSULTING.COM		Purchase Order No.:		Pace Quote Reference:		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Phone: 425 245 0800 Fax: 425 245 0850		Project Name: BNSF SKYCOMISH		Pace Project Manager:		Site Location	
Requested Due Date/TAT: STANDARDS/STAT		Project Number: 083-043		Pace Profile #:		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							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					Other	
					DATE	TIME	DATE	TIME															
1	S4-BD-091812		WT	G			9/18/12	1454	2														
2	S4-CD-091812						9/18/12	1514															
3	S4-BU-091812						9/18/12	1528															
4	S4-CU-091812						9/18/12	1530															
5	S4-AU-091812						9/18/12	1552															
6	S4-AD-091812						9/18/12	1556															
7	S3-BD-091812						9/18/12	1650															
8	S3-CD-091812						9/18/12	1650															
9	S3-CU-091812						9/18/12	1710															
10	S3-AD-091812						9/18/12	1736															
11	S30-AD-091812						9/18/12	1600															
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i> Farallon	9/19/12	0800	Bruce K Pace	9/19/12	0800	
	Bruce K Pace	9/19/12	0915	Colin Weaver / PACE	09/19/12	0915	

ORIGINAL	SAMPLER NAME AND SIGNATURE				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: Jawan Ruerk							
	SIGNATURE of SAMPLER: <i>[Signature]</i> DATE Signed (MM/DD/YYYY): 9/19/12							

*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

2513615



CLIENT: BNSF-Farallon

COC PAGE 1 of 2
 COC ID# 1649130

Trip Blank(s) Provided?
 Y N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ²														
2																
3																
4																
5																
6																
7																
8																
9																
10		2 ²														
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

2513615



CLIENT: BNSF - Farallon

COC PAGE 2 of 2
 COC ID# 1649129

Trip Blank(s) Provided?
 Y / (N)

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ²²														
2																
3																
4																
5																
6																
7																
8																
9																
10		↓ ↓														
11		2 ²²														
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: BNSE Farallon

Project # 2513615

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 of 101731962 or 226099 Type of Ice: Yes Blue None Samples on ice, cooling process has begun

Cooler Temperature 39c, 4.0c, 5.6c, 2.0c Biological Tissue Is Frozen: Yes No
Temp should be above freezing $\leq 6^{\circ}\text{C}$

Date and Initials of person examining contents: 09/12/02 CW

		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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WI</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 9/12/02

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)

October 04, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: BNSF Skykomish 683-043
Pace Project No.: 2513621

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 17

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SAMPLE ANALYTE COUNT

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513621001	2A-W-9-091912	NWTPH-Dx	AY1	4	PASI-S
2513621002	2A-W-10-091912	NWTPH-Dx	AY1	4	PASI-S
2513621003	MW-4-091912	NWTPH-Dx	AY1	4	PASI-S
2513621004	MW-3-091912	NWTPH-Dx	AY1	4	PASI-S
2513621005	2B-W-4-091912	NWTPH-Dx	AY1	4	PASI-S
2513621006	MW-16-091912	NWTPH-Dx	AY1	4	PASI-S
2513621007	EW-43-091912	NWTPH-Dx	AY1	4	PASI-S
2513621008	EW-1-091912	NWTPH-Dx	AY1	4	PASI-S
2513621009	MW-38R-091912	NWTPH-Dx	AY1	4	PASI-S
2513621010	5-W-50-091912	NWTPH-Dx	AY1	4	PASI-S
2513621011	GW-4-091912	NWTPH-Dx	AY1	4	PASI-S
2513621012	EW-2A-091912	NWTPH-Dx	AY1	4	PASI-S
2513621013	2A-W-42-091912	NWTPH-Dx	AY1	4	PASI-S
2513621014	1B-W-3-091912	NWTPH-Dx	AY1	4	PASI-S
2513621015	GW-3-091912	NWTPH-Dx	AY1	4	PASI-S
2513621016	1B-W-2-091912	NWTPH-Dx	AY1	4	PASI-S
2513621017	1B-W-23-091912	NWTPH-Dx	AY1	4	PASI-S
2513621018	2A-W-41-091912	NWTPH-Dx	AY1	4	PASI-S
2513621019	1A-W-4-091912	NWTPH-Dx	AY1	4	PASI-S
2513621020	1A-W-40-091912	NWTPH-Dx	AY1	4	PASI-S
2513621021	2A-W-40-091912	NWTPH-Dx	AY1	4	PASI-S
2513621022	S3-BU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621023	S30-BU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621024	S3-AU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621025	S2-AU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621026	S2-BD-091912	NWTPH-Dx	AY1	4	PASI-S
2513621027	S2-AD-091912	NWTPH-Dx	AY1	4	PASI-S
2513621028	S2-BU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621029	S20-BU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621030	S1-BD-091912	NWTPH-Dx	AY1	4	PASI-S
2513621031	S1-AD-091912	NWTPH-Dx	AY1	4	PASI-S
2513621032	S1-AU-091912	NWTPH-Dx	AY1	4	PASI-S
2513621033	S1-BU-091912	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: October 04, 2012

General Information:

33 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: 2A-W-9-091912		Lab ID: 2513621001	Collected: 09/19/12 10:45	Received: 09/20/12 09:30	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		0.038	1	10/02/12 09:00	10/03/12 01:32		
Motor Oil Range	0.29 mg/L		0.19	1	10/02/12 09:00	10/03/12 01:32	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	10/02/12 09:00	10/03/12 01:32	630-02-4	
o-Terphenyl (S)	65 %		50-150	1	10/02/12 09:00	10/03/12 01:32	84-15-1	

Sample: 2A-W-10-091912		Lab ID: 2513621002	Collected: 09/19/12 11:30	Received: 09/20/12 09:30	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	0.12 mg/L		0.038	1	10/02/12 09:00	10/03/12 08:18		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 08:18	64742-65-0	
Surrogates								
n-Octacosane (S)	99 %		50-150	1	10/02/12 09:00	10/03/12 08:18	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/02/12 09:00	10/03/12 08:18	84-15-1	

Sample: MW-4-091912		Lab ID: 2513621003	Collected: 09/19/12 12:05	Received: 09/20/12 09:30	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	0.041 mg/L		0.038	1	10/02/12 09:00	10/03/12 09:01		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 09:01	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	10/02/12 09:00	10/03/12 09:01	630-02-4	
o-Terphenyl (S)	70 %		50-150	1	10/02/12 09:00	10/03/12 09:01	84-15-1	

Sample: MW-3-091912		Lab ID: 2513621004	Collected: 09/19/12 12:40	Received: 09/20/12 09:30	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	0.093 mg/L		0.038	1	10/02/12 09:00	10/03/12 09:19		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 09:19	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	10/02/12 09:00	10/03/12 09:19	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	10/02/12 09:00	10/03/12 09:19	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: 2B-W-4-091912		Lab ID: 2513621005	Collected: 09/19/12 13:10	Received: 09/20/12 09:30	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		0.038	1	10/02/12 09:00	10/03/12 09:37		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 09:37	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	10/02/12 09:00	10/03/12 09:37	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	10/02/12 09:00	10/03/12 09:37	84-15-1	

Sample: MW-16-091912		Lab ID: 2513621006	Collected: 09/19/12 13:45	Received: 09/20/12 09:30	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		0.038	1	10/02/12 09:00	10/03/12 09:54		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 09:54	64742-65-0	
Surrogates								
n-Octacosane (S)	74 %		50-150	1	10/02/12 09:00	10/03/12 09:54	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	10/02/12 09:00	10/03/12 09:54	84-15-1	

Sample: EW-43-091912		Lab ID: 2513621007	Collected: 09/19/12 14:35	Received: 09/20/12 09:30	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		0.042	1	10/02/12 09:00	10/03/12 10:12		
Motor Oil Range	ND mg/L		0.21	1	10/02/12 09:00	10/03/12 10:12	64742-65-0	
Surrogates								
n-Octacosane (S)	88 %		50-150	1	10/02/12 09:00	10/03/12 10:12	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/02/12 09:00	10/03/12 10:12	84-15-1	

Sample: EW-1-091912		Lab ID: 2513621008	Collected: 09/19/12 14:55	Received: 09/20/12 09:30	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		0.041	1	10/02/12 09:00	10/03/12 14:47		
Motor Oil Range	ND mg/L		0.21	1	10/02/12 09:00	10/03/12 14:47	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	10/02/12 09:00	10/03/12 14:47	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	10/02/12 09:00	10/03/12 14:47	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: MW-38R-091912		Lab ID: 2513621009	Collected: 09/19/12 15:25	Received: 09/20/12 09:30	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		0.038	1	10/02/12 09:00	10/03/12 15:05		
Motor Oil Range	0.21 mg/L		0.19	1	10/02/12 09:00	10/03/12 15:05	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	10/02/12 09:00	10/03/12 15:05	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	10/02/12 09:00	10/03/12 15:05	84-15-1	

Sample: 5-W-50-091912		Lab ID: 2513621010	Collected: 09/19/12 16:00	Received: 09/20/12 09:30	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	1.0 mg/L		0.042	1	10/02/12 09:00	10/03/12 15:23		
Motor Oil Range	0.48 mg/L		0.21	1	10/02/12 09:00	10/03/12 15:23	64742-65-0	
Surrogates								
n-Octacosane (S)	100 %		50-150	1	10/02/12 09:00	10/03/12 15:23	630-02-4	
o-Terphenyl (S)	89 %		50-150	1	10/02/12 09:00	10/03/12 15:23	84-15-1	

Sample: GW-4-091912		Lab ID: 2513621011	Collected: 09/19/12 11:12	Received: 09/20/12 09:30	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		0.043	1	10/02/12 09:00	10/03/12 15:42		
Motor Oil Range	ND mg/L		0.22	1	10/02/12 09:00	10/03/12 15:42	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	10/02/12 09:00	10/03/12 15:42	630-02-4	
o-Terphenyl (S)	68 %		50-150	1	10/02/12 09:00	10/03/12 15:42	84-15-1	

Sample: EW-2A-091912		Lab ID: 2513621012	Collected: 09/19/12 11:25	Received: 09/20/12 09:30	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		0.038	1	10/02/12 09:00	10/03/12 16:00		
Motor Oil Range	ND mg/L		0.19	1	10/02/12 09:00	10/03/12 16:00	64742-65-0	
Surrogates								
n-Octacosane (S)	86 %		50-150	1	10/02/12 09:00	10/03/12 16:00	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/02/12 09:00	10/03/12 16:00	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: 2A-W-42-091912		Lab ID: 2513621013	Collected: 09/19/12 12:12	Received: 09/20/12 09:30	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		0.044	1	10/02/12 09:00	10/03/12 16:18		
Motor Oil Range	ND mg/L		0.22	1	10/02/12 09:00	10/03/12 16:18	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	10/02/12 09:00	10/03/12 16:18	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/02/12 09:00	10/03/12 16:18	84-15-1	

Sample: 1B-W-3-091912		Lab ID: 2513621014	Collected: 09/19/12 12:20	Received: 09/20/12 09:30	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		0.038	1	10/03/12 08:50	10/03/12 23:53		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/03/12 23:53	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	10/03/12 08:50	10/03/12 23:53	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/03/12 08:50	10/03/12 23:53	84-15-1	

Sample: GW-3-091912		Lab ID: 2513621015	Collected: 09/19/12 12:55	Received: 09/20/12 09:30	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		0.043	1	10/03/12 08:50	10/04/12 00:47		
Motor Oil Range	ND mg/L		0.21	1	10/03/12 08:50	10/04/12 00:47	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	10/03/12 08:50	10/04/12 00:47	630-02-4	
o-Terphenyl (S)	71 %		50-150	1	10/03/12 08:50	10/04/12 00:47	84-15-1	

Sample: 1B-W-2-091912		Lab ID: 2513621016	Collected: 09/19/12 13:58	Received: 09/20/12 09:30	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	0.12 mg/L		0.053	1	10/03/12 08:50	10/04/12 01:04		
Motor Oil Range	ND mg/L		0.26	1	10/03/12 08:50	10/04/12 01:04	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %		50-150	1	10/03/12 08:50	10/04/12 01:04	630-02-4	
o-Terphenyl (S)	88 %		50-150	1	10/03/12 08:50	10/04/12 01:04	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: 1B-W-23-091912		Lab ID: 2513621017	Collected: 09/19/12 13:45	Received: 09/20/12 09:30	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	0.084 mg/L		0.056	1	10/03/12 08:50	10/04/12 01:21		
Motor Oil Range	ND mg/L		0.28	1	10/03/12 08:50	10/04/12 01:21	64742-65-0	
Surrogates								
n-Octacosane (S)	77 %		50-150	1	10/03/12 08:50	10/04/12 01:21	630-02-4	
o-Terphenyl (S)	66 %		50-150	1	10/03/12 08:50	10/04/12 01:21	84-15-1	

Sample: 2A-W-41-091912		Lab ID: 2513621018	Collected: 09/19/12 14:55	Received: 09/20/12 09:30	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	0.065 mg/L		0.045	1	10/03/12 08:50	10/04/12 01:39		
Motor Oil Range	ND mg/L		0.22	1	10/03/12 08:50	10/04/12 01:39	64742-65-0	
Surrogates								
n-Octacosane (S)	89 %		50-150	1	10/03/12 08:50	10/04/12 01:39	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	10/03/12 08:50	10/04/12 01:39	84-15-1	

Sample: 1A-W-4-091912		Lab ID: 2513621019	Collected: 09/19/12 15:20	Received: 09/20/12 09:30	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		0.038	1	10/03/12 08:50	10/04/12 02:13		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 02:13	64742-65-0	
Surrogates								
n-Octacosane (S)	79 %		50-150	1	10/03/12 08:50	10/04/12 02:13	630-02-4	
o-Terphenyl (S)	67 %		50-150	1	10/03/12 08:50	10/04/12 02:13	84-15-1	

Sample: 1A-W-40-091912		Lab ID: 2513621020	Collected: 09/19/12 20:00	Received: 09/20/12 09:30	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		0.038	1	10/03/12 08:50	10/04/12 02:48		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 02:48	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	10/03/12 08:50	10/04/12 02:48	630-02-4	
o-Terphenyl (S)	78 %		50-150	1	10/03/12 08:50	10/04/12 02:48	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: 2A-W-40-091912		Lab ID: 2513621021	Collected: 09/19/12 15:40	Received: 09/20/12 09:30	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		0.043	1	10/03/12 08:50	10/04/12 03:05		
Motor Oil Range	ND mg/L		0.22	1	10/03/12 08:50	10/04/12 03:05	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %		50-150	1	10/03/12 08:50	10/04/12 03:05	630-02-4	
o-Terphenyl (S)	86 %		50-150	1	10/03/12 08:50	10/04/12 03:05	84-15-1	

Sample: S3-BU-091912		Lab ID: 2513621022	Collected: 09/19/12 16:22	Received: 09/20/12 09:30	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	0.082 mg/L		0.038	1	10/03/12 08:50	10/04/12 03:57		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 03:57	64742-65-0	
Surrogates								
n-Octacosane (S)	85 %		50-150	1	10/03/12 08:50	10/04/12 03:57	630-02-4	
o-Terphenyl (S)	72 %		50-150	1	10/03/12 08:50	10/04/12 03:57	84-15-1	

Sample: S30-BU-091912		Lab ID: 2513621023	Collected: 09/19/12 23:59	Received: 09/20/12 09:30	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		0.038	1	10/03/12 08:50	10/04/12 04:14		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 04:14	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	10/03/12 08:50	10/04/12 04:14	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/03/12 08:50	10/04/12 04:14	84-15-1	

Sample: S3-AU-091912		Lab ID: 2513621024	Collected: 09/19/12 16:25	Received: 09/20/12 09:30	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		0.042	1	10/03/12 08:50	10/04/12 04:32		
Motor Oil Range	ND mg/L		0.21	1	10/03/12 08:50	10/04/12 04:32	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	10/03/12 08:50	10/04/12 04:32	630-02-4	
o-Terphenyl (S)	82 %		50-150	1	10/03/12 08:50	10/04/12 04:32	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: S2-AU-091912		Lab ID: 2513621025	Collected: 09/19/12 16:56	Received: 09/20/12 09:30	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		0.039	1	10/03/12 08:50	10/04/12 04:49		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 04:49	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	10/03/12 08:50	10/04/12 04:49	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/03/12 08:50	10/04/12 04:49	84-15-1	

Sample: S2-BD-091912		Lab ID: 2513621026	Collected: 09/19/12 16:55	Received: 09/20/12 09:30	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		0.042	1	10/03/12 08:50	10/04/12 05:06		
Motor Oil Range	ND mg/L		0.21	1	10/03/12 08:50	10/04/12 05:06	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %		50-150	1	10/03/12 08:50	10/04/12 05:06	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/03/12 08:50	10/04/12 05:06	84-15-1	

Sample: S2-AD-091912		Lab ID: 2513621027	Collected: 09/19/12 17:10	Received: 09/20/12 09:30	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		0.038	1	10/03/12 08:50	10/04/12 05:24		
Motor Oil Range	ND mg/L		0.19	1	10/03/12 08:50	10/04/12 05:24	64742-65-0	
Surrogates								
n-Octacosane (S)	96 %		50-150	1	10/03/12 08:50	10/04/12 05:24	630-02-4	
o-Terphenyl (S)	86 %		50-150	1	10/03/12 08:50	10/04/12 05:24	84-15-1	

Sample: S2-BU-091912		Lab ID: 2513621028	Collected: 09/19/12 17:15	Received: 09/20/12 09:30	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	0.045 mg/L		0.043	1	10/03/12 08:50	10/04/12 05:41		
Motor Oil Range	ND mg/L		0.22	1	10/03/12 08:50	10/04/12 05:41	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	10/03/12 08:50	10/04/12 05:41	630-02-4	
o-Terphenyl (S)	77 %		50-150	1	10/03/12 08:50	10/04/12 05:41	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: S20-BU-091912		Lab ID: 2513621029	Collected: 09/19/12 17:00	Received: 09/20/12 09:30	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		0.041	1	10/03/12 08:50	10/04/12 05:58		
Motor Oil Range	ND mg/L		0.20	1	10/03/12 08:50	10/04/12 05:58	64742-65-0	
Surrogates								
n-Octacosane (S)	87 %		50-150	1	10/03/12 08:50	10/04/12 05:58	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	10/03/12 08:50	10/04/12 05:58	84-15-1	

Sample: S1-BD-091912		Lab ID: 2513621030	Collected: 09/19/12 17:41	Received: 09/20/12 09:30	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		0.041	1	10/03/12 08:50	10/04/12 06:15		
Motor Oil Range	ND mg/L		0.20	1	10/03/12 08:50	10/04/12 06:15	64742-65-0	
Surrogates								
n-Octacosane (S)	86 %		50-150	1	10/03/12 08:50	10/04/12 06:15	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/03/12 08:50	10/04/12 06:15	84-15-1	

Sample: S1-AD-091912		Lab ID: 2513621031	Collected: 09/19/12 17:42	Received: 09/20/12 09:30	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		0.044	1	10/03/12 08:50	10/04/12 07:07		
Motor Oil Range	ND mg/L		0.22	1	10/03/12 08:50	10/04/12 07:07	64742-65-0	
Surrogates								
n-Octacosane (S)	88 %		50-150	1	10/03/12 08:50	10/04/12 07:07	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/03/12 08:50	10/04/12 07:07	84-15-1	

Sample: S1-AU-091912		Lab ID: 2513621032	Collected: 09/19/12 17:55	Received: 09/20/12 09:30	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		0.044	1	10/03/12 08:50	10/04/12 07:25		
Motor Oil Range	ND mg/L		0.22	1	10/03/12 08:50	10/04/12 07:25	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	10/03/12 08:50	10/04/12 07:25	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/03/12 08:50	10/04/12 07:25	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Sample: S1-BU-091912		Lab ID: 2513621033		Collected: 09/19/12 17:55	Received: 09/20/12 09:30	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	0.042	1	10/03/12 08:50	10/04/12 07:42		
Motor Oil Range	ND	mg/L	0.21	1	10/03/12 08:50	10/04/12 07:42	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	10/03/12 08:50	10/04/12 07:42	630-02-4	
o-Terphenyl (S)	79 %		50-150	1	10/03/12 08:50	10/04/12 07:42	84-15-1	

QUALITY CONTROL DATA

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

QC Batch: OEXT/6149 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2513621001, 2513621002, 2513621003, 2513621004, 2513621005, 2513621006, 2513621007, 2513621008, 2513621009, 2513621010, 2513621011, 2513621012, 2513621013

METHOD BLANK: 132451 Matrix: Water
 Associated Lab Samples: 2513621001, 2513621002, 2513621003, 2513621004, 2513621005, 2513621006, 2513621007, 2513621008, 2513621009, 2513621010, 2513621011, 2513621012, 2513621013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.040	10/02/12 22:31	
Motor Oil Range	mg/L	ND	0.20	10/02/12 22:31	
n-Octacosane (S)	%	91	50-150	10/02/12 22:31	
o-Terphenyl (S)	%	80	50-150	10/02/12 22:31	

LABORATORY CONTROL SAMPLE: 132452

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.87	87	51-114	
Motor Oil Range	mg/L	1	0.87	87	62-120	
n-Octacosane (S)	%			77	50-150	
o-Terphenyl (S)	%			68	50-150	

SAMPLE DUPLICATE: 132453

Parameter	Units	2513615018 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	77	71	18	
o-Terphenyl (S)	%	66	60	19	

SAMPLE DUPLICATE: 132454

Parameter	Units	2513615019 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	95	78	14	
o-Terphenyl (S)	%	81	69	12	

QUALITY CONTROL DATA

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

QC Batch: OEXT/6157 Analysis Method: NWTPH-Dx
 QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
 Associated Lab Samples: 2513621014, 2513621015, 2513621016, 2513621017, 2513621018, 2513621019, 2513621020, 2513621021, 2513621022, 2513621023, 2513621024, 2513621025, 2513621026, 2513621027, 2513621028, 2513621029, 2513621030, 2513621031, 2513621032, 2513621033

METHOD BLANK: 132596 Matrix: Water

Associated Lab Samples: 2513621014, 2513621015, 2513621016, 2513621017, 2513621018, 2513621019, 2513621020, 2513621021, 2513621022, 2513621023, 2513621024, 2513621025, 2513621026, 2513621027, 2513621028, 2513621029, 2513621030, 2513621031, 2513621032, 2513621033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.040	10/03/12 23:17	
Motor Oil Range	mg/L	ND	0.20	10/03/12 23:17	
n-Octacosane (S)	%	65	50-150	10/03/12 23:17	
o-Terphenyl (S)	%	59	50-150	10/03/12 23:17	

LABORATORY CONTROL SAMPLE: 132597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	1.1	106	51-114	
Motor Oil Range	mg/L	1	1.0	102	62-120	
n-Octacosane (S)	%			98	50-150	
o-Terphenyl (S)	%			89	50-150	

SAMPLE DUPLICATE: 132598

Parameter	Units	2513621018 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.065	0.052	24	
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	89	95	3	
o-Terphenyl (S)	%	78	81	.4	

SAMPLE DUPLICATE: 132599

Parameter	Units	2513621019 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	79	72	8	
o-Terphenyl (S)	%	67	64	4	

QUALIFIERS

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF Skykomish 683-043

Pace Project No.: 2513621

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513621001	2A-W-9-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621002	2A-W-10-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621003	MW-4-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621004	MW-3-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621005	2B-W-4-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621006	MW-16-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621007	EW-43-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621008	EW-1-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621009	MW-38R-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621010	5-W-50-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621011	GW-4-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621012	EW-2A-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621013	2A-W-42-091912	EPA 3510	OEXT/6149	NWTPH-Dx	GCSV/3870
2513621014	1B-W-3-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621015	GW-3-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621016	1B-W-2-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621017	1B-W-23-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621018	2A-W-41-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621019	1A-W-4-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621020	1A-W-40-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621021	2A-W-40-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621022	S3-BU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621023	S30-BU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621024	S3-AU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621025	S2-AU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621026	S2-BD-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621027	S2-AD-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621028	S2-BU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621029	S20-BU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621030	S1-BD-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621031	S1-AD-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621032	S1-AU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874
2513621033	S1-BU-091912	EPA 3510	OEXT/6157	NWTPH-Dx	GCSV/3874

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: <u>1</u> of <u>3</u> 1649135
Company: <u>FARALLON</u>	Report To: <u>Tad Cline</u>	Attention: <u>Bruce Sheppard</u>	REGULATORY AGENCY
Address: <u>975 5th Ave NW</u> <u>ISSAQUAH, WA</u>	Copy To:	Company Name: <u>RUSE</u>	
Email To: <u>tccline@farallonconsulting.com</u>	Purchase Order No.:	Address:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____
Phone: <u>425-295-0900</u> Fax: <u>425-295-0950</u>	Project Name: <u>RUSE SK/Komish</u>	Pace Quote Reference:	Site Location
Requested Due Date/TAT: <u>STAT</u>	Project Number: <u>683-043</u>	Pace Project Manager:	STATE: <u>WA</u>
		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.				
					DATE	TIME	DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol					Other			
1	2A-W-091912	WT	G	GRAB COMPOSITE	9/20/12	1045			2																
2	2A-W-10-091912	WT	G	GRAB COMPOSITE		1130			1																
3	MW-4-091912	WT	G	GRAB COMPOSITE		1225			1																
4	MW-3-091912	WT	G	GRAB COMPOSITE		1240			1																
5	2B-W-4-091912	WT	G	GRAB COMPOSITE		1310			1																
6	MW-16-091912	WT	G	GRAB COMPOSITE		1345			1																
7	EW-43-091912	WT	G	GRAB COMPOSITE		1435			1																
8	EW-1-091912	WT	G	GRAB COMPOSITE		1455			1																
9	MW-38R-091912	WT	G	GRAB COMPOSITE		1525			1																
10	5-W-50-091912	WT	G	GRAB COMPOSITE		1600			1																
11	GW-4-091912	WT	G	GRAB COMPOSITE		1112			1																
12	EW-2A-091912	WT	G	GRAB COMPOSITE		1129			1																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
	<u>Farallon</u>	<u>9/20/12</u>	<u>0730</u>	<u>Bruce K Pace</u>	<u>9/20/12</u>	<u>730</u>	<u>4.3</u>				
	<u>Bruce K Pace</u>	<u>9/20/12</u>	<u>0930</u>	<u>Jyoti Sway</u>	<u>9/20/12</u>	<u>0930</u>	<u>2.3</u>	<u>4</u>	<u>4</u>	<u>4</u>	
							<u>3.9</u>				
							<u>4.9</u>				
							<u>5.8</u>				
							<u>4.0</u>				

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Jovan Rueda</u>	DATE Signed (MM/DD/YY): <u>9/20/12</u>				
SIGNATURE of SAMPLER: <u>[Signature]</u>					

Sample Container Count

2513621



CLIENT: Farallon

COC PAGE 1 of 3
 COC ID# 1049135

Trip Blank(s) Provided?
 Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2L														
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1 liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

Sample Container Count

25 1 3 6 2 1 -



CLIENT: Farallon

COC PAGE 2 of 3
COC ID# 1649131

Trip Blank(s) Provided?
Y / N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		22														
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12		↓														

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1 liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can



CLIENT: Farallon

COC PAGE 2 of 3
COC ID# 1649132

Trip Blank(s) Provided?
Y / (N)

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 ⁺														
2																
3																
4																
5																
6																
7																
8		↓														
9		2 ⁺														
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic	I	Wipe/Swab	U	Summa Can

25 1 3 6 2 1

Sample Condition Upon Receipt



Client Name: Farallon Project # _____

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 4.3, 5.9, 2.3, 12.06 Biological Tissue is Frozen: Yes No
Temp should be above freezing $\leq 8^{\circ}\text{C}$ 3.9, 4.9, 5.8, 4.0 Comments: _____
Date and Initials of person examining contents: AD 9/20/12

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N
Person Contacted: Tad Date/Time: 9/20/2012

Comments/ Resolution: Per Tad: All samples to be run NWTPH-Dx w/0.5G.

Project Manager Review: D. Rubin Date: 9/20/12

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)

October 05, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: BNSF Skykomish
Pace Project No.: 2513629

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on September 21, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF Skykomish

Pace Project No.: 2513629

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 9

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SAMPLE ANALYTE COUNT

Project: BNSF Skykomish

Pace Project No.: 2513629

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513629001	IC-W-8-092012	NWTPH-Dx	AY1	4	PASI-S
2513629002	IC-WO-8-092012	NWTPH-Dx	AY1	4	PASI-S
2513629003	IC-W-7-092012	NWTPH-Dx	AY1	4	PASI-S
2513629004	W-1-092012	NWTPH-Dx	AY1	4	PASI-S
2513629005	IC-W-3-092012	NWTPH-Dx	AY1	4	PASI-S
2513629006	IC-W-4-092012	NWTPH-Dx	AY1	4	PASI-S
2513629007	GW-2-092012	NWTPH-Dx	AY1	4	PASI-S
2513629008	GW-1-092012	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: BNSF Skykomish

Pace Project No.: 2513629

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: October 05, 2012

General Information:

8 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF Skykomish

Pace Project No.: 2513629

Sample: IC-W-8-092012		Lab ID: 2513629001	Collected: 09/20/12 09:30	Received: 09/21/12 11:40	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	ND mg/L		0.038	1	10/04/12 12:40	10/05/12 05:43		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 05:43	64742-65-0	
Surrogates								
n-Octacosane (S)	84 %		50-150	1	10/04/12 12:40	10/05/12 05:43	630-02-4	
o-Terphenyl (S)	76 %		50-150	1	10/04/12 12:40	10/05/12 05:43	84-15-1	

Sample: IC-WO-8-092012		Lab ID: 2513629002	Collected: 09/20/12 09:40	Received: 09/21/12 11:40	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	ND mg/L		0.038	1	10/04/12 12:40	10/05/12 06:19		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 06:19	64742-65-0	
Surrogates								
n-Octacosane (S)	70 %		50-150	1	10/04/12 12:40	10/05/12 06:19	630-02-4	
o-Terphenyl (S)	64 %		50-150	1	10/04/12 12:40	10/05/12 06:19	84-15-1	

Sample: IC-W-7-092012		Lab ID: 2513629003	Collected: 09/20/12 10:30	Received: 09/21/12 11:40	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	0.059 mg/L		0.041	1	10/04/12 12:40	10/05/12 06:53		
Motor Oil Range	ND mg/L		0.20	1	10/04/12 12:40	10/05/12 06:53	64742-65-0	
Surrogates								
n-Octacosane (S)	83 %		50-150	1	10/04/12 12:40	10/05/12 06:53	630-02-4	
o-Terphenyl (S)	75 %		50-150	1	10/04/12 12:40	10/05/12 06:53	84-15-1	

Sample: W-1-092012		Lab ID: 2513629004	Collected: 09/20/12 11:15	Received: 09/21/12 11:40	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	ND mg/L		0.038	1	10/04/12 12:40	10/05/12 07:11		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 07:11	64742-65-0	
Surrogates								
n-Octacosane (S)	90 %		50-150	1	10/04/12 12:40	10/05/12 07:11	630-02-4	
o-Terphenyl (S)	81 %		50-150	1	10/04/12 12:40	10/05/12 07:11	84-15-1	

ANALYTICAL RESULTS

Project: BNSF Skykomish
Pace Project No.: 2513629

Sample: IC-W-3-092012		Lab ID: 2513629005	Collected: 09/20/12 12:00	Received: 09/21/12 11:40	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	ND mg/L		0.038	1	10/04/12 12:40	10/05/12 07:28		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 07:28	64742-65-0	
Surrogates								
n-Octacosane (S)	92 %		50-150	1	10/04/12 12:40	10/05/12 07:28	630-02-4	
o-Terphenyl (S)	83 %		50-150	1	10/04/12 12:40	10/05/12 07:28	84-15-1	

Sample: IC-W-4-092012		Lab ID: 2513629006	Collected: 09/20/12 13:00	Received: 09/21/12 11:40	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		0.038	1	10/04/12 12:40	10/05/12 07:45		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 07:45	64742-65-0	
Surrogates								
n-Octacosane (S)	82 %		50-150	1	10/04/12 12:40	10/05/12 07:45	630-02-4	
o-Terphenyl (S)	74 %		50-150	1	10/04/12 12:40	10/05/12 07:45	84-15-1	

Sample: GW-2-092012		Lab ID: 2513629007	Collected: 09/20/12 13:50	Received: 09/21/12 11:40	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	ND mg/L		0.038	1	10/04/12 12:40	10/05/12 08:03		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 08:03	64742-65-0	
Surrogates								
n-Octacosane (S)	91 %		50-150	1	10/04/12 12:40	10/05/12 08:03	630-02-4	
o-Terphenyl (S)	84 %		50-150	1	10/04/12 12:40	10/05/12 08:03	84-15-1	

Sample: GW-1-092012		Lab ID: 2513629008	Collected: 09/20/12 14:40	Received: 09/21/12 11:40	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	0.060 mg/L		0.038	1	10/04/12 12:40	10/05/12 08:54		
Motor Oil Range	ND mg/L		0.19	1	10/04/12 12:40	10/05/12 08:54	64742-65-0	
Surrogates								
n-Octacosane (S)	80 %		50-150	1	10/04/12 12:40	10/05/12 08:54	630-02-4	
o-Terphenyl (S)	73 %		50-150	1	10/04/12 12:40	10/05/12 08:54	84-15-1	

QUALITY CONTROL DATA

Project: BNSF Skykomish
Pace Project No.: 2513629

QC Batch: OEXT/6160 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 2513629001, 2513629002, 2513629003, 2513629004, 2513629005, 2513629006, 2513629007, 2513629008

METHOD BLANK: 132713 Matrix: Water
Associated Lab Samples: 2513629001, 2513629002, 2513629003, 2513629004, 2513629005, 2513629006, 2513629007, 2513629008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.040	10/05/12 04:31	
Motor Oil Range	mg/L	ND	0.20	10/05/12 04:31	
n-Octacosane (S)	%	87	50-150	10/05/12 04:31	
o-Terphenyl (S)	%	80	50-150	10/05/12 04:31	

LABORATORY CONTROL SAMPLE: 132714

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	1	0.97	97	51-114	
Motor Oil Range	mg/L	1	0.97	97	62-120	
n-Octacosane (S)	%			85	50-150	
o-Terphenyl (S)	%			78	50-150	

SAMPLE DUPLICATE: 132715

Parameter	Units	2513629001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	84	78	7	
o-Terphenyl (S)	%	76	71	7	

SAMPLE DUPLICATE: 132716

Parameter	Units	2513629002 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	70	82	16	
o-Terphenyl (S)	%	64	75	15	

QUALIFIERS

Project: BNSF Skykomish

Pace Project No.: 2513629

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF Skykomish

Pace Project No.: 2513629

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513629001	IC-W-8-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629002	IC-WO-8-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629003	IC-W-7-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629004	W-1-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629005	IC-W-3-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629006	IC-W-4-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629007	GW-2-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878
2513629008	GW-1-092012	EPA 3510	OEXT/6160	NWTPH-Dx	GCSV/3878

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 1 of 1	
Company: FARALLON		Report To: TAD CLINE		Attention: BRUCE SHEPPARD		1649133	
Address: 975 5th AVE NW		Copy To:		Company Name: BNSF		REGULATORY AGENCY	
ISSAQUAH, WA 98027				Address:		<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 _____	
Email To: TCCLINE@FARALLONCONSULTING.COM		Purchase Order No.:		Pace Quote Reference:		Site Location	
Phone: 425-295-2800 Fax: 425-295-0850		Project Name: BNSF SKYKOMISH		Pace Project Manager:		STATE: WA	
Requested Due Date/TAT: STAT		Project Number: 683-043		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.					
					GRAB		COMPOSITE				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol					Other				
					DATE	TIME	DATE	TIME																		
1	IC-W-8-092012	WT	G	9/20/12	930	9/20/12	930	2				X														
2	IC-W-8-092012	WT	G	9/20	740		740	2				X														
3	IC-W-7-092012	WT	G	1030			1030	2				X														
4	W-1-092012	WT	G	1115			1115	2				X														
5	IC-W-3-092012	WT	G	1200			1200	2				X														
6	IC-W-4-092012	WT	G	1300			1300	2				X														
7	GW-2-092012	WT	G	1350			1350	2				X														
8	GW-1-092012	WT	G	1440			1440	2				X														
9																										
10																										
11																										
12																										

ORIGINAL	SAMPLER NAME AND SIGNATURE				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: Jason Russell							
	SIGNATURE of SAMPLER: <i>[Signature]</i>							
				DATE Signed (MM/DD/YY): 9/21/12				

Sample Container Count

2513629



CLIENT: BNSF - Farallon

COC PAGE 1 of 1
 COC ID# 1649133

Trip Blank(s) Provided?
 Y N

Sample Line Item	VG9H	AG1H	AG1U	BP1U	BP2U	BP3U	BP3N	BP3S	WGKU	WGFU	WG2U	DG9M	DG9B	VG9W	VSG	Comments
1		2 nd														
2																
3																
4																
5																
6																
7																
8		2 nd														
9																
10																
11																
12																

AG1H	1 liter HCL amber glass	BP2S	500mL H2SO4 plastic	JGFU	4 oz amber glass soil jar
AG1U	1liter unpreserved amber glass	BP2U	500mL unpreserved plastic	WGKU	8 oz clear glass soil jar
AG2S	500mL H2SO4 amber glass	BP2Z	500mL NaOH, Zn Ac	WGFU	4 oz clear glass soil jar
AG2U	500mL unpreserved amber glass	BP3C	250mL NaOH plastic	WG2U	2 oz clear glass soil jar
AG3S	250mL H2SO4 amber glass	BP3N	250mL HNO3 plastic	JGFM	4 oz amber glass soil jar with MeOH
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 clear vial pre-weighted with DI water
BP1N	1 liter HNO3 plastic	DG9B	40mL Na Bisulfate clear vial	VSG	Headspace septa vial
BP1S	1 liter H2SO4 plastic	DG9H	40mL HCL amber voa vial	VG9H	40mL HCL clear vial
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	VG9T	40mL Na Thio. clear vial
BP2N	500mL HNO3 plastic	DG9U	40mL unpreserved amber vial	ZPLC	Ziploc Bag
BP2O	500mL NaOH plastic		Wipe/Swab	U	Summa Can



Sample Condition Upon Receipt

Client Name: BNSE-Farallon

Project #

2513629

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 101731962 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.6°C, 4.7°C Biological Tissue Is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and initials of person examining contents: 092112 CW

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	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	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

D. E. Rubin

Date: 9/12/12

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)

October 26, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: BNSF SKYKOMISH
Pace Project No.: 2513834

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on October 12, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Gossett

dan.gossett@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108

Alaska CS Certification #: UST-025

Arizona Certification #: AZ0770

California Certification #: 01153CA

Florida/NELAP Certification #: E87617

Oregon Certification #: WA200007

Washington Certification #: C555

REPORT OF LABORATORY ANALYSIS

Page 2 of 8

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SAMPLE ANALYTE COUNT

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2513834001	1C-W-7-101012	NWTPH-Dx	AY1	4	PASI-S
2513834002	1C-W-8-101012	NWTPH-Dx	AY1	4	PASI-S
2513834003	1C-W-1-101012	NWTPH-Dx	AY1	4	PASI-S
2513834004	1C-W-70-101012	NWTPH-Dx	AY1	4	PASI-S

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: BNSF_Farallon - WA

Date: October 26, 2012

General Information:

4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

Sample: 1C-W-7-101012		Lab ID: 2513834001	Collected: 10/10/12 13:56	Received: 10/12/12 09:45	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	ND mg/L		0.15	1	10/18/12 13:20	10/18/12 20:55		
Motor Oil Range	ND mg/L		0.75	1	10/18/12 13:20	10/18/12 20:55	64742-65-0	
Surrogates								
n-Octacosane (S)	101 %.		50-150	1	10/18/12 13:20	10/18/12 20:55	630-02-4	
o-Terphenyl (S)	89 %.		50-150	1	10/18/12 13:20	10/18/12 20:55	84-15-1	

Sample: 1C-W-8-101012		Lab ID: 2513834002	Collected: 10/10/12 14:46	Received: 10/12/12 09:45	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	0.25 mg/L		0.15	1	10/18/12 13:20	10/18/12 21:51		
Motor Oil Range	ND mg/L		0.75	1	10/18/12 13:20	10/18/12 21:51	64742-65-0	
Surrogates								
n-Octacosane (S)	102 %.		50-150	1	10/18/12 13:20	10/18/12 21:51	630-02-4	
o-Terphenyl (S)	93 %.		50-150	1	10/18/12 13:20	10/18/12 21:51	84-15-1	

Sample: 1C-W-1-101012		Lab ID: 2513834003	Collected: 10/10/12 15:10	Received: 10/12/12 09:45	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	ND mg/L		0.15	1	10/18/12 13:20	10/18/12 22:09		
Motor Oil Range	ND mg/L		0.75	1	10/18/12 13:20	10/18/12 22:09	64742-65-0	
Surrogates								
n-Octacosane (S)	94 %.		50-150	1	10/18/12 13:20	10/18/12 22:09	630-02-4	
o-Terphenyl (S)	84 %.		50-150	1	10/18/12 13:20	10/18/12 22:09	84-15-1	

Sample: 1C-W-70-101012		Lab ID: 2513834004	Collected: 10/10/12 17:00	Received: 10/12/12 09:45	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	ND mg/L		0.15	1	10/18/12 13:20	10/18/12 22:27		
Motor Oil Range	ND mg/L		0.75	1	10/18/12 13:20	10/18/12 22:27	64742-65-0	
Surrogates								
n-Octacosane (S)	97 %.		50-150	1	10/18/12 13:20	10/18/12 22:27	630-02-4	
o-Terphenyl (S)	86 %.		50-150	1	10/18/12 13:20	10/18/12 22:27	84-15-1	

QUALITY CONTROL DATA

Project: BNSF SKYKOMISH
Pace Project No.: 2513834

QC Batch: OEXT/6209 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 2513834001, 2513834002, 2513834003, 2513834004

METHOD BLANK: 134429 Matrix: Water
Associated Lab Samples: 2513834001, 2513834002, 2513834003, 2513834004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	ND	0.16	10/18/12 19:05	
Motor Oil Range	mg/L	ND	0.80	10/18/12 19:05	
n-Octacosane (S)	%	97	50-150	10/18/12 19:05	
o-Terphenyl (S)	%	86	50-150	10/18/12 19:05	

LABORATORY CONTROL SAMPLE: 134430

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range	mg/L	4	4.5	111	51-114	
Motor Oil Range	mg/L	4	4.4	109	62-120	
n-Octacosane (S)	%			103	50-150	
o-Terphenyl (S)	%			90	50-150	

SAMPLE DUPLICATE: 134431

Parameter	Units	2513858001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	0.49	0.50	1	
Motor Oil Range	mg/L	<0.81	ND		
n-Octacosane (S)	%	101	102	2	
o-Terphenyl (S)	%	87	88	1	

SAMPLE DUPLICATE: 134432

Parameter	Units	2513892001 Result	Dup Result	RPD	Qualifiers
Diesel Range	mg/L	ND	ND		
Motor Oil Range	mg/L	ND	ND		
n-Octacosane (S)	%	103	102	3	
o-Terphenyl (S)	%	92	90	2	

QUALIFIERS

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel Clean-Up

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-S Pace Analytical Services - Seattle

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BNSF SKYKOMISH

Pace Project No.: 2513834

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2513834001	1C-W-7-101012	EPA 3510	OEXT/6209	NWTPH-Dx	GCSV/3908
2513834002	1C-W-8-101012	EPA 3510	OEXT/6209	NWTPH-Dx	GCSV/3908
2513834003	1C-W-1-101012	EPA 3510	OEXT/6209	NWTPH-Dx	GCSV/3908
2513834004	1C-W-70-101012	EPA 3510	OEXT/6209	NWTPH-Dx	GCSV/3908



Sample Condition Upon Receipt

Client Name: BNSF Farallon

Project # 2513834

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 1R2 Type of Ice Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.4 Biological Tissue Is Frozen: Yes No Date and Initials of person examining contents: 10/2/12 KMS

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.
Follow Up / Hold Analysis Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
-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	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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
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, ccliform, TOC, O&G	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed <u>KMS</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blanks Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Creation Date:		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 10/1/12

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)

December 11, 2012

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: 683-04B BNSF SKYKOMISH
Pace Project No.: 10213827

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on November 28, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Page 1 of 11

CERTIFICATIONS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nebraska Certification #: Pace

Nevada Certification #: MN_00064

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

Page 2 of 11

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SAMPLE ANALYTE COUNT

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10213827001	1C-W-7-112112	NWTPH-Dx	KL1	3	PASI-M
10213827002	1C-W-70-112112	NWTPH-Dx	KL1	3	PASI-M
10213827003	1C-W-8-112112	NWTPH-Dx	KL1	3	PASI-M
10213827004	1C-W-1-112112	NWTPH-Dx	KL1	3	PASI-M

REPORT OF LABORATORY ANALYSIS

Page 3 of 11

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PROJECT NARRATIVE

Project: 683-04B BNSF SKYKOMISH
Pace Project No.: 10213827

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Farallon - WA BNSF
Date: December 11, 2012

General Information:

4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

Page 4 of 11

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ANALYTICAL RESULTS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Sample: 1C-W-7-112112	Lab ID: 10213827001	Collected: 11/21/12 10:10	Received: 11/28/12 17:00	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 Fuel Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 19:45		
Motor Oil Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 19:45		
Surrogates								
n-Pentacosane (S)	82 %		50-150	1	12/04/12 13:31	12/10/12 19:45	629-99-2	

ANALYTICAL RESULTS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 1C-W-70-112112								
Lab ID: 10213827002								
Collected: 11/21/12 17:00								
Received: 11/28/12 17:00								
Matrix: Water								
NWTPH-Dx GCS								
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510								
Diesel Fuel Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 20:06		
Motor Oil Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 20:06		
Surrogates								
n-Pentacosane (S)	84 %		50-150	1	12/04/12 13:31	12/10/12 20:06	629-99-2	

ANALYTICAL RESULTS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Sample: 1C-W-8-112112	Lab ID: 10213827003	Collected: 11/21/12 11:15	Received: 11/28/12 17:00	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 Fuel Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 20:28		
Motor Oil Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 20:28		
Surrogates								
n-Pentacosane (S)	80 %		50-150	1	12/04/12 13:31	12/10/12 20:28	629-99-2	

ANALYTICAL RESULTS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Sample: 1C-W-1-112112	Lab ID: 10213827004	Collected: 11/21/12 11:42	Received: 11/28/12 17:00	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 Fuel Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 19:01		
Motor Oil Range	ND mg/L		0.40	1	12/04/12 13:31	12/10/12 19:01		
Surrogates								
n-Pentacosane (S)	78 %		50-150	1	12/04/12 13:31	12/10/12 19:01	629-99-2	

QUALITY CONTROL DATA

Project: 683-04B BNSF SKYKOMISH
Pace Project No.: 10213827

QC Batch: OEXT/20425 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 10213827001, 10213827002, 10213827003, 10213827004

METHOD BLANK: 1344388 Matrix: Water
Associated Lab Samples: 10213827001, 10213827002, 10213827003, 10213827004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	ND	0.40	12/05/12 14:39	
Motor Oil Range	mg/L	ND	0.40	12/05/12 14:39	
n-Pentacosane (S)	%	67	50-150	12/05/12 14:39	

LABORATORY CONTROL SAMPLE & LCSD: 1344389 1344390

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range	mg/L	2	1.1	1.5	57	73	50-150	26	20	D6
n-Pentacosane (S)	%				57	73	50-150			

QUALIFIERS

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 683-04B BNSF SKYKOMISH

Pace Project No.: 10213827

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10213827001	1C-W-7-112112	EPA 3510	OEXT/20425	NWTPH-Dx	GCSV/10543
10213827002	1C-W-70-112112	EPA 3510	OEXT/20425	NWTPH-Dx	GCSV/10543
10213827003	1C-W-8-112112	EPA 3510	OEXT/20425	NWTPH-Dx	GCSV/10543
10213827004	1C-W-1-112112	EPA 3510	OEXT/20425	NWTPH-Dx	GCSV/10543

1126

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10213867

Section A Required Client Information: Company: Foxlon Consulting Address: 975 5th Ave NW Phone: 772 295 0800 Fax: 772 295 0850 Requested Due Date/AT: 5/21/12

Section B Required Project Information: Report To: Ted Clark Copy To: Terry Portola Purchase Order No.: 10100-1146 Project Name: BLST Skidmore Project Number: 683-043

Section C Invoice Information: Attention: Bruce Steward Company Name: BLST Address: 1491735 Pace Quote Reference: 1491735 Pace Project Manager: WJ 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	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	Methanol				
1	AC-W-7-12/12	DW WT WW P SL OL WP AR TS OT	WT 6	WT 6	11/21/12 1015	11/21/12 1015	9	2	X	X	X	X	X	X	X	X	X	001	
2	AC-W-7-12/12		WT 6	WT 6	11/21/12 1200	11/21/12 1155	9	2	X	X	X	X	X	X	X	X	X	002	
3	AC-W-8-11/21/12		WT 6	WT 6	11/21/12 1115	11/21/12 1110	10	2	X	X	X	X	X	X	X	X	X	003	
4	AC-W-1-11/21/12		WT 6	WT 6	11/21/12 1420	11/21/12 1420	10	2	X	X	X	X	X	X	X	X	X	004	
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Foxlon	11/21/12	1531	Bruce Steward	11/21/12	0918	Y Y Y Y
	Foxlon	11/21/12	1700	Bruce Steward	11/21/12	0918	Y Y Y Y
	John Stry	11/21/12	1200	John Stry	11/21/12	0918	Y Y Y Y

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Diana Keyhan
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed (MM/DD/YY): 11/21/12

Temp in °C: 28
 Received on Ice (Y/N): Y
 Custody Sealed Cooler (Y/N): Y
 Samples Intact (Y/N): Y



Sample Condition Upon Receipt **Client Name:** Trellon **Project #:** _____

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: 7941 7902 9535

WO# : 10213827



10213827

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: B88A912167504 80512447 **Type of Ice:** Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read (°C): 4.6 **Cooler Temp Corrected (°C):** 4.8 **Biological Tissue Frozen?** Yes No

Temp should be above freezing to 6°C **Date and Initials of Person Examining Contents:** 11/30/12 SB

						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 and/or 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 (<72 hr)?	<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 acid/base preservation have been checked? Noncompliances are noted in 13.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO ₃	<input type="checkbox"/> H ₂ SO ₄	<input type="checkbox"/> NaOH	<input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A		Sample #			
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No			Initial when completed: _____			
					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					
Pace Trip Blank Lot # (if purchased):								

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: CMO **Date:** 11-30-12

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)

March 18, 2013

Tad Cline
Farallon Consulting LLC
975 5th Avenue NW
Issaquah, WA 98027

RE: Project: 683-045 Skykomish REV
Pace Project No.: 10216650

Dear Tad Cline:

Enclosed are the analytical results for sample(s) received by the laboratory on December 28, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised at the client's request to a different format on 3/18/13 to show detection limits.

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

Sincerely,



Carol Davy

carol.davy@pacelabs.com
Project Manager

Enclosures

cc: Desiree Clement, Farallon
Kristin Darnell, BNSF_Farallon - WA
Emerald Erickson-Mulanax, Farallon
Jerry Portele, Farallon
Javan Ruark, Farallon Consulting LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10216650001	1C-W-8-122712	Water	12/27/12 09:50	12/28/12 00:00
10216650002	1C-W-1-122712	Water	12/27/12 10:30	12/28/12 00:00
10216650003	5-W-19-122712	Water	12/27/12 11:15	12/28/12 00:00
10216650004	1C-W-7-122712	Water	12/27/12 11:15	12/28/12 00:00
10216650005	1C-WO-7-122712	Water	12/27/12 11:20	12/28/12 00:00
10216650006	5W-16-122712	Water	12/27/12 11:18	12/28/12 00:00
10216650007	5W-16D-122712	Water	12/27/12 11:18	12/28/12 00:00
10216650008	5W-15-122712	Water	12/27/12 12:05	12/28/12 00:00
10216650009	5-W-17-122712	Water	12/27/12 12:10	12/28/12 00:00
10216650010	GW-4-122712	Water	12/27/12 12:15	12/28/12 00:00
10216650011	2A-W-42-122712	Water	12/27/12 13:10	12/28/12 00:00
10216650012	5-W-18-122712	Water	12/27/12 13:30	12/28/12 00:00
10216650013	5-W-14-122712	Water	12/27/12 13:40	12/28/12 00:00
10216650014	GW-3-122712	Water	12/27/12 13:50	12/28/12 00:00
10216650015	2A-W-9-122712	Water	12/27/12 13:55	12/28/12 00:00
10216650016	GW-2-122712	Water	12/27/12 14:30	12/28/12 00:00
10216650017	GW-1-122712	Water	12/27/12 14:35	12/28/12 00:00
10216650018	1B-W-23-122712	Water	12/27/12 14:45	12/28/12 00:00
10216650019	2A-W-41-122712	Water	12/27/12 15:30	12/28/12 00:00
10216650020	2A-W-10-122712	Water	12/27/12 15:50	12/28/12 00:00
10216650021	2A-W-100-122712	Water	12/27/12 17:05	12/28/12 00:00
10216650022	2B-W-4-122712	Water	12/27/12 16:42	12/28/12 00:00
10216650023	MW-3-122712	Water	12/27/12 16:55	12/28/12 00:00
10216650024	MW-4-122712	Water	12/27/12 16:55	12/28/12 00:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10216650001	1C-W-8-122712	NWTPH-Dx	JLR	3	PASI-M
10216650002	1C-W-1-122712	NWTPH-Dx	JLR	3	PASI-M
10216650003	5-W-19-122712	NWTPH-Dx	JLR	3	PASI-M
10216650004	1C-W-7-122712	NWTPH-Dx	JLR	3	PASI-M
10216650005	1C-WO-7-122712	NWTPH-Dx	JLR	3	PASI-M
10216650006	5W-16-122712	NWTPH-Dx	JLR	3	PASI-M
10216650007	5W-16D-122712	NWTPH-Dx	JLR	3	PASI-M
10216650008	5W-15-122712	NWTPH-Dx	JLR	3	PASI-M
10216650009	5-W-17-122712	NWTPH-Dx	JLR	3	PASI-M
10216650010	GW-4-122712	NWTPH-Dx	JLR	3	PASI-M
10216650011	2A-W-42-122712	NWTPH-Dx	JLR	3	PASI-M
10216650012	5-W-18-122712	NWTPH-Dx	JLR	3	PASI-M
10216650013	5-W-14-122712	NWTPH-Dx	JLR	3	PASI-M
10216650014	GW-3-122712	NWTPH-Dx	JLR	3	PASI-M
10216650015	2A-W-9-122712	NWTPH-Dx	JLR	3	PASI-M
10216650016	GW-2-122712	NWTPH-Dx	JLR	3	PASI-M
10216650017	GW-1-122712	NWTPH-Dx	JLR	3	PASI-M
10216650018	1B-W-23-122712	NWTPH-Dx	JLR	3	PASI-M
10216650019	2A-W-41-122712	NWTPH-Dx	JLR	3	PASI-M
10216650020	2A-W-10-122712	NWTPH-Dx	JLR	3	PASI-M
10216650021	2A-W-100-122712	NWTPH-Dx	JLR	3	PASI-M
10216650022	2B-W-4-122712	NWTPH-Dx	JLR	3	PASI-M
10216650023	MW-3-122712	NWTPH-Dx	JLR	3	PASI-M
10216650024	MW-4-122712	NWTPH-Dx	JLR	3	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Method: NWTPH-Dx

Description: NWTPH-Dx GCS

Client: Farallon - WA BNSF

Date: March 18, 2013

General Information:

24 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV
Pace Project No.: 10216650

Sample: 1C-W-8-122712 Lab ID: 10216650001 Collected: 12/27/12 09:50 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	0.16	mg/L	0.10	0.021	1	01/03/13 07:09	01/07/13 21:43		
Motor Oil Range	0.20	mg/L	0.10	0.030	1	01/03/13 07:09	01/07/13 21:43		
Surrogates									
n-Pentacosane (S)	87 %		50-150		1	01/03/13 07:09	01/07/13 21:43	629-99-2	

Sample: 1C-W-1-122712 Lab ID: 10216650002 Collected: 12/27/12 10:30 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/03/13 07:09	01/07/13 22:05		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/03/13 07:09	01/07/13 22:05		
Surrogates									
n-Pentacosane (S)	82 %		50-150		1	01/03/13 07:09	01/07/13 22:05	629-99-2	

Sample: 5-W-19-122712 Lab ID: 10216650003 Collected: 12/27/12 11:15 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/03/13 07:09	01/07/13 22:27		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/03/13 07:09	01/07/13 22:27		
Surrogates									
n-Pentacosane (S)	84 %		50-150		1	01/03/13 07:09	01/07/13 22:27	629-99-2	

Sample: 1C-W-7-122712 Lab ID: 10216650004 Collected: 12/27/12 11:15 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/03/13 07:09	01/07/13 23:11		
Motor Oil Range	0.12	mg/L	0.10	0.030	1	01/03/13 07:09	01/07/13 23:11		
Surrogates									
n-Pentacosane (S)	82 %		50-150		1	01/03/13 07:09	01/07/13 23:11	629-99-2	

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Sample: 1C-WO-7-122712 Lab ID: 10216650005 Collected: 12/27/12 11:20 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/07/13 23:55		
Motor Oil Range	0.13	mg/L	0.10	0.030	1	01/04/13 07:08	01/07/13 23:55		
Surrogates									
n-Pentacosane (S)	91 %		50-150		1	01/04/13 07:08	01/07/13 23:55	629-99-2	

Sample: 5W-16-122712 Lab ID: 10216650006 Collected: 12/27/12 11:18 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 00:17		
Motor Oil Range	ND	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 00:17		
Surrogates									
n-Pentacosane (S)	94 %		50-150		1	01/04/13 07:08	01/08/13 00:17	629-99-2	

Sample: 5W-16D-122712 Lab ID: 10216650007 Collected: 12/27/12 11:18 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.11	0.023	1	01/04/13 07:08	01/08/13 00:39		
Motor Oil Range	ND	mg/L	0.11	0.033	1	01/04/13 07:08	01/08/13 00:39		
Surrogates									
n-Pentacosane (S)	97 %		50-150		1	01/04/13 07:08	01/08/13 00:39	629-99-2	

Sample: 5W-15-122712 Lab ID: 10216650008 Collected: 12/27/12 12:05 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	0.21	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 08:11		
Motor Oil Range	0.29	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 08:11		
Surrogates									
n-Pentacosane (S)	95 %		50-150		1	01/04/13 07:08	01/08/13 08:11	629-99-2	

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Sample: 5-W-17-122712 Lab ID: 10216650009 Collected: 12/27/12 12:10 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 03:04		
Motor Oil Range	ND	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 03:04		
Surrogates									
n-Pentacosane (S)	96 %		50-150		1	01/04/13 07:08	01/08/13 03:04	629-99-2	

Sample: GW-4-122712 Lab ID: 10216650010 Collected: 12/27/12 12:15 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 03:26		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 03:26		
Surrogates									
n-Pentacosane (S)	95 %		50-150		1	01/04/13 07:08	01/08/13 03:26	629-99-2	

Sample: 2A-W-42-122712 Lab ID: 10216650011 Collected: 12/27/12 13:10 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 06:21		
Motor Oil Range	0.21	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 06:21		
Surrogates									
n-Pentacosane (S)	91 %		50-150		1	01/04/13 07:08	01/08/13 06:21	629-99-2	

Sample: 5-W-18-122712 Lab ID: 10216650012 Collected: 12/27/12 13:30 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 04:32		
Motor Oil Range	0.16	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 04:32		
Surrogates									
n-Pentacosane (S)	92 %		50-150		1	01/04/13 07:08	01/08/13 04:32	629-99-2	

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Sample: 5-W-14-122712 Lab ID: 10216650013 Collected: 12/27/12 13:40 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 07:49		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 07:49		
Surrogates									
n-Pentacosane (S)	99 %		50-150		1	01/04/13 07:08	01/08/13 07:49	629-99-2	

Sample: GW-3-122712 Lab ID: 10216650014 Collected: 12/27/12 13:50 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.11	0.022	1	01/04/13 07:08	01/08/13 04:53		
Motor Oil Range	ND	mg/L	0.11	0.032	1	01/04/13 07:08	01/08/13 04:53		
Surrogates									
n-Pentacosane (S)	101 %		50-150		1	01/04/13 07:08	01/08/13 04:53	629-99-2	

Sample: 2A-W-9-122712 Lab ID: 10216650015 Collected: 12/27/12 13:55 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	2.7	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 07:27		
Motor Oil Range	1.6	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 07:27		
Surrogates									
n-Pentacosane (S)	92 %		50-150		1	01/04/13 07:08	01/08/13 07:27	629-99-2	

Sample: GW-2-122712 Lab ID: 10216650016 Collected: 12/27/12 14:30 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 05:15		
Motor Oil Range	ND	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 05:15		
Surrogates									
n-Pentacosane (S)	92 %		50-150		1	01/04/13 07:08	01/08/13 05:15	629-99-2	

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Sample: GW-1-122712 Lab ID: 10216650017 Collected: 12/27/12 14:35 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 08:33		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 08:33		
Surrogates									
n-Pentacosane (S)	94 %		50-150		1	01/04/13 07:08	01/08/13 08:33	629-99-2	

Sample: 1B-W-23-122712 Lab ID: 10216650018 Collected: 12/27/12 14:45 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.11	0.022	1	01/04/13 07:08	01/08/13 05:37		
Motor Oil Range	ND	mg/L	0.11	0.032	1	01/04/13 07:08	01/08/13 05:37		
Surrogates									
n-Pentacosane (S)	97 %		50-150		1	01/04/13 07:08	01/08/13 05:37	629-99-2	

Sample: 2A-W-41-122712 Lab ID: 10216650019 Collected: 12/27/12 15:30 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 03:48		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 03:48		
Surrogates									
n-Pentacosane (S)	92 %		50-150		1	01/04/13 07:08	01/08/13 03:48	629-99-2	

Sample: 2A-W-10-122712 Lab ID: 10216650020 Collected: 12/27/12 15:50 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	0.13	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 08:54		
Motor Oil Range	0.25	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 08:54		
Surrogates									
n-Pentacosane (S)	94 %		50-150		1	01/04/13 07:08	01/08/13 08:54	629-99-2	

ANALYTICAL RESULTS

Project: 683-045 Skykomish REV
Pace Project No.: 10216650

Sample: 2A-W-100-122712 Lab ID: 10216650021 Collected: 12/27/12 17:05 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	0.14	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 07:05		
Motor Oil Range	0.27	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 07:05		
Surrogates									
n-Pentacosane (S)	90 %		50-150		1	01/04/13 07:08	01/08/13 07:05	629-99-2	

Sample: 2B-W-4-122712 Lab ID: 10216650022 Collected: 12/27/12 16:42 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 06:43		
Motor Oil Range	ND	mg/L	0.10	0.030	1	01/04/13 07:08	01/08/13 06:43		
Surrogates									
n-Pentacosane (S)	95 %		50-150		1	01/04/13 07:08	01/08/13 06:43	629-99-2	

Sample: MW-3-122712 Lab ID: 10216650023 Collected: 12/27/12 16:55 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.022	1	01/04/13 07:08	01/08/13 04:10		
Motor Oil Range	ND	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 04:10		
Surrogates									
n-Pentacosane (S)	95 %		50-150		1	01/04/13 07:08	01/08/13 04:10	629-99-2	

Sample: MW-4-122712 Lab ID: 10216650024 Collected: 12/27/12 16:55 Received: 12/28/12 00:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Analytical Method: NWTPH-Dx Preparation Method: EPA 3510									
Diesel Fuel Range	ND	mg/L	0.10	0.021	1	01/04/13 07:08	01/08/13 05:59		
Motor Oil Range	ND	mg/L	0.10	0.031	1	01/04/13 07:08	01/08/13 05:59		
Surrogates									
n-Pentacosane (S)	95 %		50-150		1	01/04/13 07:08	01/08/13 05:59	629-99-2	

QUALITY CONTROL DATA

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

QC Batch: OEXT/20620

Analysis Method: NWTPH-Dx

QC Batch Method: EPA 3510

Analysis Description: NWTPH-Dx GCS

Associated Lab Samples: 10216650001, 10216650002, 10216650003, 10216650004

METHOD BLANK: 1359174

Matrix: Water

Associated Lab Samples: 10216650001, 10216650002, 10216650003, 10216650004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	ND	0.10	01/07/13 17:43	
Motor Oil Range	mg/L	ND	0.10	01/07/13 17:43	
n-Pentacosane (S)	%	96	50-150	01/07/13 17:43	

LABORATORY CONTROL SAMPLE & LCSD: 1359175

1359176

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range	mg/L	2	1.7	1.8	85	90	50-150	6	20	
n-Pentacosane (S)	%				93	98	50-150			

QUALIFIERS

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

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.

PRL - Pace Reporting Limit.

RL - Reporting 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

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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 TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 683-045 Skykomish REV

Pace Project No.: 10216650

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10216650001	1C-W-8-122712	EPA 3510	OEXT/20620	NWTPH-Dx	GCSV/10680
10216650002	1C-W-1-122712	EPA 3510	OEXT/20620	NWTPH-Dx	GCSV/10680
10216650003	5-W-19-122712	EPA 3510	OEXT/20620	NWTPH-Dx	GCSV/10680
10216650004	1C-W-7-122712	EPA 3510	OEXT/20620	NWTPH-Dx	GCSV/10680
10216650005	1C-WO-7-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650006	5W-16-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650007	5W-16D-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650008	5W-15-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650009	5-W-17-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650010	GW-4-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650011	2A-W-42-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650012	5-W-18-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650013	5-W-14-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650014	GW-3-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650015	2A-W-9-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650016	GW-2-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650017	GW-1-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650018	1B-W-23-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650019	2A-W-41-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650020	2A-W-10-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650021	2A-W-100-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650022	2B-W-4-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650023	MW-3-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681
10216650024	MW-4-122712	EPA 3510	OEXT/20629	NWTPH-Dx	GCSV/10681

Section A
Required Client Information:

Company: **EMULSION CONSULTING**
Address: **975 5TH AVE NW**
ISSUANCE BY: **98027**
Email to: **TIM CLINE @ EMULSION CONSULTING**
Phone: **425 295 4800** Fax: **425 295 2030**
Requested Date Data/TAT: **3TD**

Section B
Required Project Information:

Report To: **TIM CLINE**
Copy To: **JEAN PATRICE**
Purchase Order No.: **TR600-MOC**
Project Name: **SIC-KOIMISH**
Project Number: **683-015**
Attention: **OLUCI SHENKHO**
Company Name: **OLUCI**
Address: **6085**
Pace Project Manager:
Pace Quote Reference:
Pace Profile #:

Section C
Invoice Information:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
SITE GA IL IN MI NC
LOCATION OH SC WI OTHER
Requested Analysis: **PAH-M-DX**
Filtered (Y/N) **K**
Residual Chlorine (Y/N)
Pace Project No. Lab ID:

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						DATE	TIME	SAMPLER CONDITIONS				
				DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃			Methanol	Other	Temp in °C	Received on Ice	Custody Sealed Cooler
1	SEW-14-122712			WTG	12/27/12	1350	2									6.9	N	N	N	013
2	GWS-3-12-2312					1355										6.2	N	N	N	014
3	ZP-W-9-122712					1430										6.0	N	N	N	015
4	GWS-2-122712					1435										6.5	N	N	N	016
5	GWS-1-22712					1445										6.5	N	N	N	017
6	AR-W-23-122712					1530										6.2	N	N	N	018
7	ZP-W-41-122712					1705										6.0	N	N	N	019
8	ZP-W-10-122712					1642										6.2	N	N	N	020
9	ZP-W-100-122712					1655										6.2	N	N	N	021
10	ZP-W-4-122712					1655										6.2	N	N	N	022
11	MUS-3-122712					1655										6.2	N	N	N	023
12	MUS-4-122712					1655										6.2	N	N	N	024

Additional Comments:

REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
<i>[Signature]</i> FARA-LON	12/27/12	1230	<i>[Signature]</i> OLUCI	12-29-12	0:25

SAMPLER NAME AND SIGNATURE
PRINT Name of Sampler: **DINOR LATHAN**
Signature of Sampler: *[Signature]*
DATE Signed (MM/DD/YY): **12/28/12**

Fatallou
Samples
Rec'd 12/28/12
1450
TENT.

711

 Pace Analytical®
CUSTODY SEAL

SIGNATURE _____
DATE 12/28/12

6.8C

 Pace Analytical®
CUSTODY SEAL

SIGNATURE _____
DATE 12/28/12

cus
Pace

All
Sampled
12/28/12
COC
follo

5.7C

 Pace Analytical®
CUSTODY SEAL

SIGNATURE _____
DATE 12/28/12

7.7C

 Pace Analytical®
CUSTODY SEAL

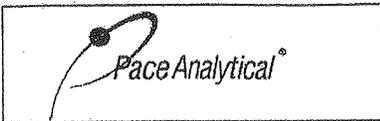
SIGNATURE _____
DATE 12/28/12

7.7C

8.3C

 Pace Analytical®
CUSTODY SEAL

SIGNATURE _____
DATE 12/28/12



Document Name:
Sample Condition Upon Receipt Form
 Document No.:
F-MN-L-213-rev.05

Document Revised: 13Nov2012
 Page 1 of 1
 Issuing Authority:
 Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: _____ Project #: _____

WO# : 10216650

10216650

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: 794412897789, 7929, 7804, 7790, 7918

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: _____

Temp Blank? Yes No

Thermometer Used: 888A912167504 80512447 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.2, 1.1, 1.0, 0.9, 1.6 Cooler Temp Corrected (°C): 0.4, 1.3, 1.2, 1.0, 1.8 Biological Tissue Frozen? Yes No

Temp should be above freezing to 6°C Date and Initials of Person Examining Contents: CS 12-29-12

Comments: a-25

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	<u>NO COC - Received COC on later date</u>
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	<u>date</u>
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name and/or 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 (<72 hr)?	<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>WTF</u>			
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Sample #	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed:	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		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: Samples received 12/28 with no COC at left lab. Some lab COC received later and was filled.

Project Manager Review:

PMO Date: 1-3-13

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)

**APPENDIX C
DATA VALIDATION REPORTS**

2011/2012 SITE-WIDE
GROUNDWATER MONITORING REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-043



Environment

Submitted to:
BNSF Skykomish

Submitted by:
AECOM
Pittsburgh PA
60191113-0545
December 2011

December 1, 2011

Organic
Limited Data Validation Report

BNSF Skykomish
Groundwater Samples
Pace Analytical Services, Inc. Data
October 2010 – September 2011

Prepared By Gregory A. Malzone
Project Chemist

Overview

The samples analyzed for the BNSF Skykomish groundwater sampling effort from October 2010 through September 2011 are listed in the Table of Samples Analyzed (pages 2-7). Limited data validation was performed on a total of one hundred ninety-five 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 (with and/or without Silica Gel Cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 8-16. 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 RPDs
Field duplicate data (calculated RPDs)
Electronic data deliverable (EDD) query

Data Validation Qualifiers Assigned During this Review

J: The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 17).

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 points 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)
October 2010 - September 2011**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	1C-W-1-1010		10/26/2010	10:55	255465	255465001
Groundwater	1C-W-8-1010		10/26/2010	11:40	252906	255465002
Groundwater	1C-W-80-1010	1C-W-8-1010 Dup	10/26/2010	12:20	252906	255465003
Groundwater	1C-W-7-1010		10/26/2010	12:45	252906	255465004
Groundwater	1C-W-1-1110		11/30/2010	11:55	255839	255839001
Groundwater	1C-W-8-1110		11/30/2010	12:40	255839	255839002
Groundwater	1C-W-80-1110	1C-W-8-1110 Dup	11/30/2010	13:00	255839	255839003
Groundwater	1C-W-7-1110		11/30/2010	14:15	255839	255839004
Groundwater	1C-W-7-1210		12/14/2010	14:20	256063	256063001
Groundwater	1C-W-1-1210		12/14/2010	14:15	256063	256063002
Groundwater	1C-W-8-1210		12/14/2010	14:45	256063	256063003
Groundwater	2B-W-4-1210		12/14/2010	15:25	256063	256063004
Groundwater	2A-W-40-1210		12/14/2010	16:20	256063	256063005
Groundwater	5-W-43-1210		12/14/2010	16:30	256063	256063006
Groundwater	2A-W-9-1210		12/15/2010	8:50	256063	256063007
Groundwater	2A-W-10-1210		12/15/2010	9:35	256063	256063008
Groundwater	MW-4-1210		12/15/2010	10:15	256063	256063009
Groundwater	MW-3-1210		12/15/2010	11:00	256063	256063010
Groundwater	MW-30-1210	MW-3-1210 Dup	12/15/2010	11:15	256063	256063011
Groundwater	GW-1-1210		12/15/2010	12:50	256063	256063012
Groundwater	2A-W-42-1210		12/15/2010	14:00	256063	256063013
Groundwater	5-W-20-1210		12/15/2010	14:35	256063	256063014
Groundwater	5-W-42-1210		12/15/2010	15:30	256063	256063015
Groundwater	5-W-18-1210		12/15/2010	16:10	256063	256063016
Groundwater	EW-1-1210		12/15/2010	9:35	256063	256063017
Groundwater	GW-2-1210		12/15/2010	11:15	256063	256063018
Groundwater	GW-20-1210	GW-2-1210 Dup	12/15/2010	10:15	256063	256063019
Groundwater	2A-W-41-1210		12/15/2010	13:00	256063	256063020
Groundwater	GW-3-1210		12/15/2010	13:55	256063	256063021
Groundwater	1B-W-23-1210		12/15/2010	15:20	256063	256063022
Groundwater	GW-4-1210		12/15/2010	16:15	256063	256063023
Groundwater	5-W-19-1210		12/16/2010	8:50	256063	256063024
Groundwater	5-W-16-1210		12/16/2010	9:30	256063	256063025
Groundwater	5-W-14-1210		12/16/2010	9:45	256063	256063026
Groundwater	5-W-17-1210		12/16/2010	8:40	256063	256063027
Groundwater	5-W-15-1210		12/16/2010	10:35	256063	256063028
Groundwater	5-W-150-1210	5-W-15-1210 Dup	12/16/2010	9:35	256063	256063029
Groundwater	1C-W-7-0111		1/26/2011	9:05	256372	256372001
Groundwater	1C-W-70-0111	1C-W-7-0111 Dup	1/26/2011	9:20	256372	256372002
Groundwater	1C-W-1-0111		1/26/2011	10:00	256372	256372003
Groundwater	1C-W-8-0111		1/26/2011	10:50	256372	256372004
Groundwater	1C-W-1-0211		2/21/2011	11:40	256702	256702001
Groundwater	1C-W-7-0211		2/21/2011	9:50	256702	256702002
Groundwater	1C-W-8-0211		2/21/2011	10:50	256702	256702003
Groundwater	1C-W-100-0211	1C-W-1-0211 Dup	2/21/2011	10:40	256702	256702004

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
October 2010 - September 2011**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	S1-AU-030111		3/1/2011	11:40	256796	256796001
Groundwater	S1-AD-030111		3/1/2011	11:50	256796	256796002
Groundwater	S1-BU-030111		3/1/2011	12:15	256796	256796003
Groundwater	S10-BU-030111	S1-BU-030111 Dup	3/1/2011	12:30	256796	256796004
Groundwater	S1-BD-030111		3/1/2011	12:20	256796	256796005
Groundwater	S2-AU-030111		3/1/2011	12:50	256796	256796006
Groundwater	S2-AD-030111		3/1/2011	12:55	256796	256796007
Groundwater	S2-BU-030111		3/1/2011	13:25	256796	256796008
Groundwater	S2-BD-030111		3/1/2011	13:30	256796	256796009
Groundwater	S3-AU-030111	S3-AU-030111 Dup	3/1/2011	14:25	256796	256796010
Groundwater	S30-AU-030111		3/1/2011	14:30	256796	256796011
Groundwater	S3-AD-030111		3/1/2011	14:35	256796	256796012
Groundwater	S3-BU-030111		3/1/2011	16:40	256796	256796013
Groundwater	S3-BD-030111		3/1/2011	16:50	256796	256796014
Groundwater	S3-CU-030111		3/1/2011	17:15	256796	256796015
Groundwater	S3-CD-030111		3/1/2011	17:10	256796	256796016
Groundwater	S4-AU-030111		3/1/2011	17:45	256796	256796017
Groundwater	S4-AD-030111		3/1/2011	17:50	256796	256796018
Groundwater	S4-BU-030111		3/1/2011	18:10	256796	256796019
Groundwater	S4-BD-030111		3/1/2011	18:15	256796	256796020
Groundwater	S4-CU-030111		3/1/2011	18:40	256796	256796021
Groundwater	S4-CD-030111		3/1/2011	18:45	256796	256796022
Groundwater	2B-W-4-0311		3/21/2011	9:30	257035	257035001
Groundwater	5-W-43-0311		3/21/2011	14:00	257035	257035002
Groundwater	GW-1-0311		3/21/2011	14:40	257035	257035003
Groundwater	GW-2-0311		3/21/2011	15:55	257035	257035004
Groundwater	MW-35R-0311		3/21/2011	15:15	257035	257035005
Groundwater	GW-3-0311		3/21/2011	16:40	257035	257035006
Groundwater	GW-30-0311	GW-3-0311 Dup	3/21/2011	16:55	257035	257035007
Groundwater	5-W-18-0311		3/21/2011	9:10	257035	257035008
Groundwater	5-W-19-0311		3/22/2011	9:50	257035	257035009
Groundwater	5-W-20-0311		3/22/2011	10:55	257035	257035010
Groundwater	5-W-42-0311		3/22/2011	11:35	257035	257035011
Groundwater	5-W-14-0311		3/22/2011	9:15	257035	257035012
Groundwater	5-W-15-0311		3/22/2011	11:20	257035	257035013
Groundwater	5-W-16-0311		3/22/2011	10:15	257035	257035014
Groundwater	1C-W-3-0311		3/22/2011	11:25	257035	257035015
Groundwater	1C-W-1-0311		3/22/2011	10:20	257035	257035016
Groundwater	1C-W-8-0311		3/22/2011	9:40	257035	257035017
Groundwater	1C-W-17-0311		3/22/2011	13:05	257035	257035018
Groundwater	1C-W-170-0311	1C-W-17-0311 Dup	3/22/2011	12:05	257035	257035019
Groundwater	5-W-50-0311		3/22/2011	13:15	257035	257035020
Groundwater	5-W-54-0311		3/22/2011	14:35	257035	257035021
Groundwater	EW-1-0311		3/22/2011	14:10	257035	257035022
Groundwater	5-W-540-0311	5-W-54-0311 Dup	3/22/2011	14:00	257035	257035023

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
October 2010 - September 2011**

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	1C-W-4-0311		3/22/2011	13:30	257035	257035024
Groundwater	1C-W-7-0311		3/22/2011	14:35	257035	257035025
Groundwater	1B-W-3-0311		3/22/2011	15:35	257035	257035026
Groundwater	GW-16-0311		3/22/2011	16:15	257056	257056001
Groundwater	GW-160-0311	GW-16-0311 Dup	3/22/2011	16:30	257056	257056002
Groundwater	5-W-51-0311		3/22/2011	16:55	257056	257056003
Groundwater	1B-W-2-0311		3/22/2011	17:20	257056	257056004
Groundwater	2A-W-42-0311		3/22/2011	16:35	257056	257056005
Groundwater	5-W-55-0311		3/23/2011	10:05	257056	257056006
Groundwater	5-W-56-0311		3/23/2011	9:10	257056	257056007
Groundwater	2A-W-41-0311		3/23/2011	11:00	257056	257056008
Groundwater	GW-4-0311		3/23/2011	8:50	257056	257056009
Groundwater	MW-3-0311		3/23/2011	9:50	257056	257056010
Groundwater	MW-4-0311		3/23/2011	10:35	257056	257056011
Groundwater	2A-W-10-0311		3/23/2011	11:00	257056	257056012
Groundwater	2A-W-9-0311		3/23/2011	12:05	257056	257056013
Groundwater	1B-W-23-0311		3/23/2011	12:35	257056	257056014
Groundwater	1A-W-4-0311		3/23/2011	13:20	257056	257056015
Groundwater	2A-W-40-0311		3/23/2011	14:00	257056	257056016
Groundwater	2A-W-400-0311	2A-W-40-0311 Dup	3/23/2011	13:00	257056	257056017
Groundwater	1C-W-7-0411		4/27/2011	11:37	257465	257465001
Groundwater	1C-W-8-0411		4/27/2011	14:00	257465	257465002
Groundwater	1C-W-1-0411		4/27/2011	13:20	257465	257465003
Groundwater	1C-W-70-0411	1C-W-7-0411 Dup	4/27/2011	10:35	257465	257465004
Groundwater	1C-W-1-0511		5/19/2011	10:50	257749	257749001
Groundwater	1C-W-8-0511		5/19/2011	11:25	257749	257749002
Groundwater	1C-W-7-0511		5/19/2011	12:35	257749	257749003
Groundwater	1C-W-70-0511	1C-W-7-0511 Dup	5/19/2011	12:45	257749	257749004
Groundwater	S1-AU-0511		5/27/2011	9:50	257895	257895001
Groundwater	S1-AD-0511		5/27/2011	9:55	257895	257895002
Groundwater	S1-BU-0511		5/27/2011	10:15	257895	257895003
Groundwater	S1-BD-0511		5/27/2011	10:20	257895	257895004
Groundwater	S2-AU-0511		5/27/2011	11:00	257895	257895005
Groundwater	S2-AD-0511		5/27/2011	11:10	257895	257895006
Groundwater	S2-BU-0511		5/27/2011	11:20	257895	257895007
Groundwater	S20-BU-0511	S2-BU-0511 Dup	5/27/2011	11:25	257895	257895008
Groundwater	S2-BD-0511		5/27/2011	11:30	257895	257895009
Groundwater	S3-AU-0511		5/27/2011	11:55	257895	257895010
Groundwater	S3-AD-0511		5/27/2011	12:05	257895	257895011
Groundwater	S3-BU-0511		5/27/2011	12:15	257895	257895012
Groundwater	S3-BD-0511		5/27/2011	12:25	257895	257895013
Groundwater	S3-CU-0511		5/27/2011	12:40	257895	257895014
Groundwater	S30-CU-0511	S3-CU-0511 Dup	5/27/2011	12:45	257895	257895015
Groundwater	S3-CD-0511		5/27/2011	12:55	257895	257895016
Groundwater	S4-AU-0511		5/27/2011	13:20	257895	257895017

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
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Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	S4-AD-0511		5/27/2011	13:10	257895	257895018
Groundwater	S4-BU-0511		5/27/2011	13:30	257895	257895019
Groundwater	S4-BD-0511		5/27/2011	13:35	257895	257895020
Groundwater	S4-CU-0511		5/27/2011	13:45	257895	257895021
Groundwater	S4-CD-0511		5/27/2011	13:50	257895	257895022
Groundwater	2B-W-4-0611		6/21/2011	12:25	258246	258246001
Groundwater	GW-1-0611		6/21/2011	13:20	258246	258246002
Groundwater	5-W-43-0611		6/21/2011	14:05	258246	258246003
Groundwater	GW-2-0611		6/21/2011	14:45	258246	258246004
Groundwater	GW-3-0611		6/21/2011	15:45	258246	258246005
Groundwater	2A-W-41-0611		6/21/2011	16:30	258246	258246006
Groundwater	2A-W-42-0611		6/21/2011	15:35	258246	258246007
Groundwater	GW-4-0611		6/21/2011	16:20	258246	258246008
Groundwater	EW-2A-0611		6/21/2011	17:10	258246	258246009
Groundwater	1C-W-1-0611		6/22/2011	9:15	258246	258246010
Groundwater	1C-W-7-0611		6/22/2011	10:50	258246	258246011
Groundwater	1C-W-8-0611		6/22/2011	9:55	258246	258246012
Groundwater	5-W-14-0611		6/22/2011	8:20	258246	258246013
Groundwater	5-W-17-0611		6/22/2011	10:00	258246	258246014
Groundwater	5-W-15-0611		6/22/2011	10:35	258246	258246015
Groundwater	5-W-150-0611	5-W-15-0611 Dup	6/22/2011	10:50	258246	258246016
Groundwater	5-W-19-0611		6/22/2011	12:35	258246	258246017
Groundwater	5-W-18-0611		6/22/2011	13:15	258246	258246018
Groundwater	5-W-16-0611		6/22/2011	13:50	258246	258246019
Groundwater	2A-W-9-0611		6/22/2011	15:05	258246	258246020
Groundwater	2A-W-10-0611		6/22/2011	15:25	258246	258246021
Groundwater	2A-W-100-0611	2A-W-10-0611 Dup	6/22/2011	15:40	258246	258246022
Groundwater	1B-W-23-0611		6/22/2011	12:00	258246	258246023
Groundwater	2A-W-40-0611		6/22/2011	14:00	258246	258246024
Groundwater	2A-W-400-0611	2A-W-40-0611 Dup	6/22/2011	14:30	258246	258246025
Groundwater	EW-1-0611		6/22/2011	15:05	258246	258246026
Groundwater	MW-3-0611		6/22/2011	16:00	258246	258246027
Groundwater	MW-4-0611		6/22/2011	16:00	258246	258246028
Groundwater	1C-W-1-0711		7/28/2011	13:40	258667	258667001
Groundwater	1C-W-7-0711		7/28/2011	11:35	258667	258667002
Groundwater	1C-W-8-0711		7/28/2011	12:40	258667	258667003
Groundwater	1C-W-80-0711	1C-W-8-0711 Dup	7/28/2011	13:00	258667	258667004
Groundwater	1C-W-1-0811		8/30/2011	12:45	259039	259039001
Groundwater	1C-W-7-0811		8/30/2011	14:25	259039	259039002
Groundwater	1C-W-80-0811	1C-W-8-0811 Dup	8/30/2011	14:00	259039	259039003
Groundwater	1C-W-8-0811		8/30/2011	13:25	259039	259039004
Groundwater	MW-4-0911		9/19/2011	10:05	259304	259304001
Groundwater	MW-40-0911	MW-4-0911 Dup	9/19/2011	8:45	259304	259304002
Groundwater	ZA-W-10-0911		9/19/2011	10:45	259304	259304003
Groundwater	ZA-W-09-0911		9/19/2011	11:15	259304	259304004

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
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Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	ZA-W-4-0911		9/19/2011	13:10	259304	259304005
Groundwater	MW-3-0911		9/19/2011	13:55	259304	259304006
Groundwater	5-W-43-0911		9/19/2011	14:50	259304	259304007
Groundwater	GW-1-0911		9/19/2011	15:45	259304	259304008
Groundwater	1C-W-1-0911		9/20/2011	10:20	259304	259304009
Groundwater	1C-W-8-0911		9/20/2011	11:10	259304	259304010
Groundwater	1C-W-3-0911		9/20/2011	12:00	259304	259304011
Groundwater	1C-W-4-0911		9/20/2011	14:40	259304	259304012
Groundwater	1C-W-7-0911		9/20/2011	15:35	259304	259304013
Groundwater	1B-W-2-0911		9/20/2011	16:35	259304	259304014
Groundwater	1B-W-3-0911		9/20/2011	17:50	259304	259304015
Groundwater	MW-36R-0911		9/20/2011	10:20	259304	259304016
Groundwater	EW-1-0911		9/20/2011	11:10	259304	259304017
Groundwater	ZA-W-41-0911		9/20/2011	12:10	259304	259304018
Groundwater	ZA-W-40-0911		9/20/2011	14:30	259304	259304019
Groundwater	ZA-W-400-0911	ZA-W-40-0911 Dup	9/20/2011	13:30	259304	259304020
Groundwater	GW-3-0911		9/20/2011	15:40	259304	259304021
Groundwater	GW-30-0911	GW-3-0911 Dup	9/20/2011	14:40	259304	259304022
Groundwater	ZA-W-42-0911		9/20/2011	16:40	259304	259304023
Groundwater	GW-4-0911		9/20/2011	17:30	259304	259304024
Groundwater	S1-AU-0911		9/20/2011	15:20	259311	259311001
Groundwater	S1-AD-0911		9/20/2011	15:25	259311	259311002
Groundwater	S1-BU-0911		9/20/2011	15:30	259311	259311003
Groundwater	S1-BD-0911		9/20/2011	15:35	259311	259311004
Groundwater	S2-AU-0911		9/20/2011	16:00	259311	259311005
Groundwater	S2-AD-0911		9/20/2011	16:05	259311	259311006
Groundwater	S2-BU-0911		9/20/2011	16:20	259311	259311007
Groundwater	S2-BD-0911		9/20/2011	16:25	259311	259311008
Groundwater	S3-AU-0911		9/20/2011	16:40	259311	259311009
Groundwater	S30-AU-0911	S3-AU-0911 Dup	9/20/2011	16:45	259311	259311010
Groundwater	S3-AD-0911		9/20/2011	17:10	259311	259311011
Groundwater	S3-BU-0911		9/20/2011	17:15	259311	259311012
Groundwater	S3-CU-0911		9/20/2011	17:35	259311	259311013
Groundwater	S3-CD-0911		9/20/2011	17:40	259311	259311014
Groundwater	S4-AU-0911		9/20/2011	18:10	259311	259311015
Groundwater	S40-AU-0911	S4-AU-0911 Dup	9/20/2011	18:15	259311	259311016
Groundwater	S4-AD-0911		9/20/2011	18:20	259311	259311017
Groundwater	S4-BD-0911		9/20/2011	18:25	259311	259311018
Groundwater	S4-BU-0911		9/20/2011	18:30	259311	259311019
Groundwater	S4-CD-0911		9/20/2011	18:40	259311	259311020
Groundwater	S4-CU-0911		9/20/2011	18:45	259311	259311021
Groundwater	S3-BD-0911		9/20/2011	17:15	259311	259311022
Groundwater	5-W-14-0911		9/21/2011	9:10	259314	259314001
Groundwater	5-W-50-0911		9/21/2011	10:00	259314	259314002
Groundwater	5-W-15-0911		9/21/2011	10:30	259314	259314003

**Table of Samples Analyzed
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
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Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Groundwater	5-W-19-0911	5-W-17-0911 Dup	9/21/2011	11:10	259314	259314004
Groundwater	5-W-18-0911		9/21/2011	11:45	259314	259314005
Groundwater	5-W-17-0911		9/21/2011	13:40	259314	259314006
Groundwater	5-W-170-0911		9/21/2011	13:55	259314	259314007
Groundwater	5-W-16-0911		9/21/2011	14:40	259314	259314008
Groundwater	1A-W-4-0911		9/21/2011	15:35	259314	259314009
Groundwater	5-W-55-0911		9/21/2011	9:40	259314	259314010
Groundwater	5-W-56-0911		9/21/2011	10:30	259314	259314011
Groundwater	GW-2-0911		9/21/2011	11:45	259314	259314012
Groundwater	EW-2A-0911		9/21/2011	12:40	259314	259314013
Groundwater	5-W-51-0911		9/21/2011	14:15	259314	259314014
Groundwater	5-W-54-0911		9/21/2011	15:10	259314	259314015
Groundwater	MW-16-0911		9/21/2011	16:05	259314	259314016
Groundwater	1B-W-23-0911		9/21/2011	17:05	259314	259314017

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: 60191113-0545		Sample Start Date: 10/26/2010				
Validator/Date Validated: Greg Malzone 12/01/2011 (completed)		Sample End Date: 09/21/2011				
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish, Groundwater Samples, October 2010 - September 2011 (pages 2-7).						
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): 255465, 255839, 256063, 256372, 256702, 256796, 257035, 257056, 257465, 257149, 257895, 258246, 258667, 259039, 259304, 259311, 259314						
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	GAM	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. Four data points required qualification based on lab duplicate RPDs (see item 17). Two data points required qualification based on field duplicate results (see item 21). Overall field and laboratory precision was acceptable because a majority of the data points were unqualified and no data points were rejected. Precision measurements are reviewed in items 17 and 21.						
Accuracy:	X	Acceptable		Unacceptable	GAM	Initials
Comments: Accuracy, a measure of the analytical bias, was determined by reviewing method blank results for evidence of contamination stemming from the analytical process. In addition, laboratory accuracy 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. The %Rs were compared to EPA published and/or laboratory control-charted QC limits. Some data required qualification based on method blank contamination (see item 11), surrogate recovery (see item 14), and LCS recovery (see item 15). Overall field and laboratory accuracy were acceptable because a majority of the data points were unqualified and no data were rejected. Accuracy measurements are reviewed in items 11, 12, 14, 15, 16, and 20.						
Method Compliance:	X	Acceptable		Unacceptable	GAM	Initials
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, and reporting limits against method specified requirements. Four data points required qualifications because the holding time was exceeded (see item 8). Overall method compliance was acceptable based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 13, 18, 19, 20, and 22.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Completeness:	X	Acceptable		Unacceptable	GAM	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. All of the data received were useable, with some qualification. No data points were missing or rejected. Completeness of the data set was 100%.</p>						
VALIDATION CRITERIA CHECK						
<p>The following data qualifiers were used in this review:</p> <p>J: The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.</p> <p>UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.</p> <p>The following comments requiring qualification are in bold type. The other comments are of interest, but qualification of the samples was not necessary.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).</p>						
1. Did the laboratory identify any non-conformances related to the analytical results?		Yes	X	No	GAM	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	GAM	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	GAM	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	GAM	Initials
<p>Comments: All samples were received intact and in good condition with cooler temperatures of 0.2° C to 7.4° 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, no other preservation issues were noted, and samples were kept in cold storage </=4° C 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	GAM	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?		Yes	X	No	GAM	Initials
Comments: The reporting limits (RLs) are achievable by the quoted method. Note that the laboratory did not report any analyte concentrations \geq method detection limit (MDL) but $<$ practical quantitation limit/reporting limit (PQL/RL) for any data sets except the July 2011 samples (SDG 258667). The July 2011 samples were inadvertently submitted for the routine instead of the low level organic extraction method as required. In order to compensate, the data for samples 1C-W-1-0711, 1C-W-7-0711, 1C-W-8-0711, and 1C-W-80-0711 were reported to the MDLs to achieve the lowest detection limits possible. The PQLs are elevated for samples 1C-W-1-0711, 1C-W-7-0711, 1C-W-8-0711, and 1C-W-80-0711.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	GAM	Initials
Comments: Only analytes applicable to the requested method were reported.						
8. Were all sample holding times met?		Yes	X	No	GAM	Initials
Comments: The required holding time periods for <u>chemically preserved groundwater samples</u> was: 14 days from sample collection to extraction, and 40 days from extraction to analysis for NWTPH-Dx. The method-required sample extraction and analytical holding times were met for all samples with the following exceptions. SDG 259314: NWTPH-Dx analysis was assigned to samples 5-W-56-0911 and GW-2-0911 per project manager request on 10/14/11. The NWTPH-Dx analyses were performed 12 days beyond the 14-day holding time for chemically preserved aqueous samples. The positive and non-detect diesel range organics and motor oil range organics results for samples 5-W-56-0911 and GW-2-0911 were qualified "J" and "UJ," as estimates, because of low bias due to the holding time being exceeded. Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).						
9. Were correct concentration units reported?	X	Yes		No	GAM	Initials
Comments: All results were reported as mg/L (ppm).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	GAM	Initials
Comments: All assigned laboratory flags were reviewed and evaluated during the limited validation process. Data validation qualifiers supersede any assigned laboratory data flags.						
11. Were laboratory blank samples free of target analyte contamination?		Yes	X	No	GAM	Initials
Comments: The method blank samples were free of target analyte contamination with the following exceptions. SDG 259304: Diesel range organics were detected in method blank 87649 at a concentration of 0.024 mg/L. The positive diesel range organics result for associated sample EW-1-0911 was greater than the reporting limit, but less than five times the method blank level and was qualified "U," as undetected, because of laboratory contamination. Non-detect results were not qualified on this basis.						

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

Continued from Item 11 above.

SDG 259314: Diesel range organics were detected in method blank 88090 at a concentration of 0.024 mg/L. The positive diesel range organics result for associated sample 5-W-50-0911 was greater than five times the method blank level and did not require qualification.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).

12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	NA	Yes	NA	No	GAM	Initials
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Comments: No field, equipment, or trip blank samples were submitted/required for this data set.

13. Were instrument calibrations within method or data validation control limits?	NA	Yes	NA	No	GAM	Initials
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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.*

14. Were surrogate recoveries within control limits?		Yes	X	No	GAM	Initials
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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, because extraction/analytical efficiency was demonstrated in associated blank and LCS, LCSD, and surrogate %Rs.

SDG 255839: The o-terphenyl surrogate recovery for sample 1C-W-1-1110 was low (50%) and less than the lower laboratory quality control limit. The diesel range organics and motor oil range organics results for sample 1C-W-1-1110 were qualified “J” and “UJ,” as estimates, possibly biased low, due to suspected matrix interference.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).

15. Were laboratory control sample recoveries within control limits?		Yes	X	No	GAM	Initials
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Comments: Reported LCS, LCSD recoveries were within data validation QC limits (70-130% for organics) for all target analytes, and/or were within laboratory control-charted QC limits as allowed for organic methods with the following exception.

SDG 255839: The LCS 51446 recovery for diesel range organics was low (40%) and less than the lower laboratory quality control limit. The positive diesel range result for associated sample 1C-W-1-1110 was qualified “J,” as an estimated concentration, because of low method bias.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).

16. Were matrix spike recoveries within control limits?	NA	Yes	NA	No	GAM	Initials
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Comments: MS/MSD quality control checks were not prepared and analyzed for this project. Sample duplicate and LCS QC checks were analyzed to evaluate accuracy and precision.

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

17. Were all duplicate RPDs within control limits?		Yes	X	No	GAM	Initials
<p>Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific laboratory replicate samples were within laboratory QC limits of 50% with the following exceptions.</p> <p>SDG 256796: The RPD between the original and replicate analysis for sample S4-AD-030111 was greater than the maximum quality control limit (76%) for diesel range organics. The positive diesel range result for sample S4-AD-030111 was qualified “J,” as an estimated concentration, because of method imprecision and/or sample heterogeneity.</p> <p>SDG 257895: The RPD between the original and replicate analysis for sample S4-CU-0511 was greater than the maximum quality control limit (101%) for diesel range organics. The positive diesel range result for sample S4-CU-0511 was qualified “J,” as an estimated concentration, because of method imprecision and/or sample heterogeneity.</p> <p>SDG 257895: The diesel range result for sample S3-AD-0511 was non-detect at the reporting limit. The laboratory duplicate was positive and greater than the reporting limit. The RPD could not be calculated. The non-detect diesel range result for sample S3-AD-0511 was qualified “UJ,” as an estimate, because of method imprecision and/or sample heterogeneity.</p> <p>SDG 259314: The RPD between the original and replicate analysis for sample 5-W-51-0911 was greater than the maximum quality control limit (52%) for diesel range organics. The positive diesel range result for sample 5-W-51-0911 was qualified “J,” as an estimated concentration, because of method imprecision and/or sample heterogeneity.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).</p>						
18. Were organic system performance criteria met?	NA	Yes	NA	No	GAM	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?	NA	Yes	NA	No	GAM	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?	NA	Yes	NA	No	GAM	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	GAM	Initials
Duplicate Sample No.	IC-W-80-1010			Primary Sample No.	IC-W-8-1010		
Duplicate Sample No.	IC-W-80-1110			Primary Sample No.	IC-W-8-1110		
Duplicate Sample No.	MW-30-1210			Primary Sample No.	MW-3-1210		
Duplicate Sample No.	GW-20-1210			Primary Sample No.	GW-2-1210		
Duplicate Sample No.	5-W-150-1210			Primary Sample No.	5-W-15-1210		
Duplicate Sample No.	1C-W-70-0111			Primary Sample No.	1C-W-7-0111		
Duplicate Sample No.	1C-W-100-0211			Primary Sample No.	1C-W-1-0211		
Duplicate Sample No.	S10-BU-030111			Primary Sample No.	S1-BU-030111		
Duplicate Sample No.	S30-AU-030111			Primary Sample No.	S3-AU-030111		
Duplicate Sample No.	GW-30-0311			Primary Sample No.	GW-3-0311		
Duplicate Sample No.	1C-W-170-0311			Primary Sample No.	1C-W-17-0311		
Duplicate Sample No.	5-W-540-0311			Primary Sample No.	5-W-54-0311		
Duplicate Sample No.	GW-160-0311			Primary Sample No.	GW-16-0311		
Duplicate Sample No.	2A-W-400-0311			Primary Sample No.	2A-W-40-0311		
Duplicate Sample No.	1C-W-70-0411			Primary Sample No.	1C-W-7-0411		
Duplicate Sample No.	1C-W-70-0511			Primary Sample No.	1C-W-7-0511		
Duplicate Sample No.	S20-BU-0511			Primary Sample No.	S2-BU-0511		
Duplicate Sample No.	S30-CU-0511			Primary Sample No.	S3-CU-0511		
Duplicate Sample No.	5-W-150-0611			Primary Sample No.	5-W-15-0611		
Duplicate Sample No.	2A-W-100-0611			Primary Sample No.	2A-W-10-0611		
Duplicate Sample No.	2A-W-400-0611			Primary Sample No.	2A-W-40-0611		
Duplicate Sample No.	1C-W-80-0711			Primary Sample No.	1C-W-8-0711		
Duplicate Sample No.	1C-W-80-0811			Primary Sample No.	1C-W-8-0811		
Duplicate Sample No.	MW-40-0911			Primary Sample No.	MW-4-0911		
Duplicate Sample No.	ZA-W-400-0911			Primary Sample No.	ZA-W-40-0911		
Duplicate Sample No.	GW-30-0911			Primary Sample No.	GW-3-0911		
Duplicate Sample No.	S40-AU-0911			Primary Sample No.	S4-AU-0911		
Duplicate Sample No.	5-W-170-0911			Primary Sample No.	5-W-17-0911		
<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 reporting limit or were non-detect in both samples with one exception. Qualifications (i.e., "J/UJ") were required for the diesel range organics results for samples S3-AU-030111 and S30-AU-030111 because of laboratory/field sampling imprecision and/or sample heterogeneity.</p>							

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

The following RPDs were calculated:

SDG	Method	Units	Analyte	1C-W-8-1010	1C-W-80-1010	RPD	Qualifiers
255465	NWTPH-Dx	mg/L	Diesel Range	2.2	2.1	5	
255465	NWTPH-Dx	mg/L	Motor Oil Range	0.84	0.83	1	
SDG	Method	Units	Analyte	1C-W-8-1110	1C-W-80-1110	RPD	Qualifiers
255839	NWTPH-Dx	mg/L	Diesel Range	0.28	0.26	7	
255839	NWTPH-Dx	mg/L	Motor Oil Range	0.13	0.14	7	
SDG	Method	Units	Analyte	MW-3-1210	MW-30-1210	RPD	Qualifiers
256063	NWTPH-Dx	mg/L	Diesel Range	0.049	0.057	15	
SDG	Method	Units	Analyte	GW-2-1210	GW-20-1210	RPD	Qualifiers
256063	NWTPH-Dx	mg/L	Diesel Range	0.045	0.049	9	
SDG	Method	Units	Analyte	5-W-15-1210	5-W-150-1210	RPD	Qualifiers
256063	NWTPH-Dx	mg/L	Diesel Range	0.49	0.47	4	
256063	NWTPH-Dx	mg/L	Diesel Range SG	0.065	0.059	10	
256063	NWTPH-Dx	mg/L	Motor Oil Range	0.34	0.35	3	
SDG	Method	Units	Analyte	1C-W-7-0111	1C-W-70-0111	RPD	Qualifiers
256372	NWTPH-Dx	mg/L	Diesel Range	0.082	0.067	20	
SDG	Method	Units	Analyte	1C-W-1-0211	1C-W-100-0211	RPD	Qualifiers
256702	NWTPH-Dx	mg/L	Diesel Range	0.069	0.076	10	
SDG	Method	Units	Analyte	S1-BU-030111	S10-BU-030111	RPD	Qualifiers
256796	All results were non-detect.						
SDG	Method	Units	Analyte	S3-AU-030111	S30-AU-030111	RPD	Qualifiers
256796	NWTPH-Dx	mg/L	Diesel Range	0.027	0.019 U	NC	J/UJ
SDG	Method	Units	Analyte	GW-3-0311	GW-30-0311	RPD	Qualifiers
257035	NWTPH-Dx	mg/L	Diesel Range	0.030	0.027	11	
SDG	Method	Units	Analyte	5-W-17-0311	5-W-170-0311	RPD	Qualifiers
257035	All results were non-detect.						
SDG	Method	Units	Analyte	5-W-54-0311	5-W-540-0311	RPD	Qualifiers
257035	NWTPH-Dx	mg/L	Diesel Range	0.023	0.024	4	
SDG	Method	Units	Analyte	MW-16-0311	MW-160-0311	RPD	Qualifiers
257056	All results were non-detect.						
SDG	Method	Units	Analyte	2A-W-40-0311	2A-W-400-0311	RPD	Qualifiers
257056	All results were non-detect.						
SDG	Method	Units	Analyte	1C-W-7-0411	1C-W-70-0411	RPD	Qualifiers
257465	NWTPH-Dx	mg/L	Diesel Range	0.060	0.070	15	
SDG	Method	Units	Analyte	1C-W-7-0511	1C-W-70-0511	RPD	Qualifiers
257749	NWTPH-Dx	mg/L	Diesel Range	0.086	0.072	18	
SDG	Method	Units	Analyte	S2-BU-0511	S20-BU-0511	RPD	Qualifiers
257895	NWTPH-Dx	mg/L	Diesel Range	0.039	0.030	26	
SDG	Method	Units	Analyte	S3-CU-0511	S30-CU-0511	RPD	Qualifiers
257895	All results were non-detect.						

Continued on next page

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

The following RPDs were calculated:

SDG	Method	Units	Analyte	5-W-15-0611	5-W-150-0611	RPD	Qualifiers
258246	NWTPH-Dx	mg/L	Diesel Range	0.28	0.27	4	
258246	NWTPH-Dx	mg/L	Diesel Range SG	0.053	0.061	14	
258246	NWTPH-Dx	mg/L	Motor Oil Range	0.19	0.19	0	
SDG	Method	Units	Analyte	2A-W-10-0611	2A-W-100-0611	RPD	Qualifiers
258246	NWTPH-Dx	mg/L	Diesel Range	0.14	0.15	7	
258246	NWTPH-Dx	mg/L	Motor Oil Range	0.32	0.36	12	
SDG	Method	Units	Analyte	2A-W-40-0611	2A-W-400-0611	RPD	Qualifiers
258246	All results were non-detect.						
SDG	Method	Units	Analyte	1C-W-8-0711	1C-W-80-0711	RPD	Qualifiers
258667	NWTPH-Dx	mg/L	Diesel Range	0.14	0.16	13	
SDG	Method	Units	Analyte	1C-W-8-0811	1C-W-80-0811	RPD	Qualifiers
259039	NWTPH-Dx	mg/L	Diesel Range	0.14	0.12	15	
SDG	Method	Units	Analyte	MW-4-0911	MW-40-0911	RPD	Qualifiers
259304	NWTPH-Dx	mg/L	Diesel Range	0.025	0.025	0	
SDG	Method	Units	Analyte	ZA-W-40-0911	ZA-W-400-0911	RPD	Qualifiers
259304	All results were non-detect.						
SDG	Method	Units	Analyte	GW-3-0911	GW-30-0911	RPD	Qualifiers
259304	All results were non-detect.						
SDG	Method	Units	Analyte	S4-AU-0911	S40-AU-0911	RPD	Qualifiers
259311	All results were non-detect.						
SDG	Method	Units	Analyte	5-W-17-0911	5-W-170-0911	RPD	Qualifiers
259314	All results were non-detect.						

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 17).

22. Were qualitative criteria for organic target analyte identification met?	NA	Yes	NA	No	GAM	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	GAM	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 and data validation qualifiers and reason codes added was returned to the database manager in Seattle, WA on 12/08/11.

ANALYTICAL LIMITED DATA VALIDATION CHECKLIST

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 17).

**Table of Qualified Analytical Results
BNSF Skykomish
Groundwater Samples
Pace Analytical (Pace-Seattle) Laboratory Reports (as listed)
October 2010 - September 2011**

Sample ID	Lab ID	Method	Dilution	Analyte	Concentration	Qualifier	Reason Code
Qualified Reportable Data:							
1C-W-1-0110	255839001	NWTPH-Dx	1	Diesel Range	0.044 mg/L	J	LCS, SUR
1C-W-1-0110	255839001	NWTPH-Dx	1	Motor Oil Range	< 0.094 mg/L	UJ	SUR
S3-AU-030111	256796010	NWTPH-Dx	1	Diesel Range	0.027 mg/L	J	FD
S30-AU-030111	256796011	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	UJ	FD
S4-AD-030111	256796018	NWTPH-Dx	1	Diesel Range	0.062 mg/L	J	RPD
S3-AD-0511	257895011	NWTPH-Dx	1	Diesel Range	< 0.019 mg/L	UJ	RPD
S4-CU-0511	257895021	NWTPH-Dx	1	Diesel Range	0.021 mg/L	J	RPD
EW-1-0911	259304017	NWTPH-Dx	1	Diesel Range	0.024 mg/L	U	MB
5-W-56-0911	259314011	NWTPH-Dx	1	Diesel Range	0.95 mg/L	J	HT
5-W-56-0911	259314011	NWTPH-Dx	1	Motor Oil Range	0.57 mg/L	J	HT
GW-2-0911	259314012	NWTPH-Dx	1	Diesel Range	0.043 mg/L	J	HT
GW-2-0911	259314012	NWTPH-Dx	1	Motor Oil Range	< 0.094 mg/L	UJ	HT
5-W-51-0911	259314014	NWTPH-Dx	1	Diesel Range	2.1 mg/L	J	RPD

(1): Data Validation Qualifiers:

J: The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

(2): Reason Codes:

FD: Field duplicate RPD (or difference) exceeded the advisory limits.

HT: The method-specified holding time was exceeded.

MB: Contamination was detected in the method blank.

RPD: Lab duplicate RPD (or difference) exceeded the quality control limits.

SUR: Surrogate recovery was outside the quality control limits.

Sayer Data Solutions, Inc.

DATA VALIDATION REPORT



Skykomish Groundwater Monitoring July – September 2012 Data

Prepared for:
Farallon Consulting, LLC
975 5th Avenue NW
Issaquah, Washington 98027

November 26, 2012

1.0 Introduction

The following water samples were validated:

Sample ID	Sample Date/Time	LabID	Matrix	Analyses
072612-JR	07/26/12	L1213607-01	Air	TO-15, APH
082012-DK	08/20/12	L1215203-01	Air	TO-15, APH
092012-DK	09/20/12	L1217135-01	Air	TO-15, APH
1C-W-7-0712	7/26/12 10:45 AM	2513117001	Water	NWTPH-Dx
1C-W-70-0712	7/26/12 12:00 PM	2513117002	Water	NWTPH-Dx
1C-W-8-0712	7/26/12 11:36 AM	2513117003	Water	NWTPH-Dx
1C-W-1-0712	7/26/12 12:16 PM	2513117004	Water	NWTPH-Dx
1C-W-7-082012	8/20/12 12:20 PM	2513365001	Water	NWTPH-Dx
1C-W-70-082012	8/20/12 6:00 PM	2513365002	Water	NWTPH-Dx
1C-W-8-082012	8/20/12 1:13 PM	2513365003	Water	NWTPH-Dx
1C-W-1-082012	8/20/12 1:59 PM	2513365004	Water	NWTPH-Dx
5-W-14-091812	9/18/12 9:50 AM	2513615001	Water	NWTPH-Dx with silica gel
5-W-15-091812	9/18/12 10:25 AM	2513615002	Water	NWTPH-Dx, NWTPH-Dx with silica gel
5-W-16-091812	9/18/12 11:15 AM	2513615003	Water	NWTPH-Dx, NWTPH-Dx with silica gel
5-W-17-091812	9/18/12 12:15 PM	2513615004	Water	NWTPH-Dx, NWTPH-Dx with silica gel
5-W-18-091812	9/18/12 12:55 PM	2513615005	Water	NWTPH-Dx, NWTPH-Dx with silica gel
5-W-19-091812	9/18/12 1:30 PM	2513615006	Water	NWTPH-Dx, NWTPH-Dx with silica gel
5-W-54-091812	9/18/12 2:20 PM	2513615007	Water	NWTPH-Dx
5-W-55-091812	9/18/12 2:50 PM	2513615008	Water	NWTPH-Dx
5-W-550-091812	9/18/12 2:55 PM	2513615009	Water	NWTPH-Dx
5-W-56-091812	9/18/12 3:45 PM	2513615010	Water	NWTPH-Dx
S4-BD-091812	9/18/12 2:54 PM	2513615011	Water	NWTPH-Dx
S4-CD-091812	9/18/12 3:14 PM	2513615012	Water	NWTPH-Dx
S4-BU-091812	9/18/12 3:28 PM	2513615013	Water	NWTPH-Dx
S4-CU-091812	9/18/12 3:30 PM	2513615014	Water	NWTPH-Dx

Sample ID	Sample Date/Time	LabID	Matrix	Analyses
S4-AU-091812	9/18/12 3:52 PM	2513615015	Water	NWTPH-Dx
S4-AD-091812	9/18/12 3:56 PM	2513615016	Water	NWTPH-Dx
S3-BD-091812	9/18/12 4:50 PM	2513615017	Water	NWTPH-Dx
S3-CD-091812	9/18/12 4:50 PM	2513615018	Water	NWTPH-Dx
S3-CU-091812	9/18/12 5:10 PM	2513615019	Water	NWTPH-Dx
S3-AD-091812	9/18/12 5:36 PM	2513615020	Water	NWTPH-Dx
S30-AD-091812	9/18/12 4:00 PM	2513615021	Water	NWTPH-Dx
2A-W-9-091912	9/19/12 10:45 AM	2513621001	Water	NWTPH-Dx
2A-W-10-091912	9/19/12 11:30 AM	2513621002	Water	NWTPH-Dx
MW-4-091912	9/19/12 12:05 PM	2513621003	Water	NWTPH-Dx
MW-3-091912	9/19/12 12:40 PM	2513621004	Water	NWTPH-Dx
2B-W-4-091912	9/19/12 1:10 PM	2513621005	Water	NWTPH-Dx
MW-16-091912	9/19/12 1:45 PM	2513621006	Water	NWTPH-Dx
EW-43-091912	9/19/12 2:35 PM	2513621007	Water	NWTPH-Dx
EW-1-091912	9/19/12 2:55 PM	2513621008	Water	NWTPH-Dx
MW-38R-091912	9/19/12 3:25 PM	2513621009	Water	NWTPH-Dx
5-W-50-091912	9/19/12 4:00 PM	2513621010	Water	NWTPH-Dx
GW-4-091912	9/19/12 11:12 AM	2513621011	Water	NWTPH-Dx
EW-2A-091912	9/19/12 11:25 AM	2513621012	Water	NWTPH-Dx
2A-W-42-091912	9/19/12 12:12 PM	2513621013	Water	NWTPH-Dx
1B-W-3-091912	9/19/12 12:20 PM	2513621014	Water	NWTPH-Dx
GW-3-091912	9/19/12 12:55 PM	2513621015	Water	NWTPH-Dx
1B-W-2-091912	9/19/12 1:58 PM	2513621016	Water	NWTPH-Dx
1B-W-23-091912	9/19/12 1:45 PM	2513621017	Water	NWTPH-Dx
2A-W-41-091912	9/19/12 2:55 PM	2513621018	Water	NWTPH-Dx
1A-W-4-091912	9/19/12 3:20 PM	2513621019	Water	NWTPH-Dx
1A-W-40-091912	9/19/12 8:00 PM	2513621020	Water	NWTPH-Dx
2A-W-40-091912	9/19/12 3:40 PM	2513621021	Water	NWTPH-Dx
S3-BU-091912	9/19/12 4:22 PM	2513621022	Water	NWTPH-Dx
S30-BU-091912	9/19/12 11:59 PM	2513621023	Water	NWTPH-Dx
S3-AU-091912	9/19/12 4:25 PM	2513621024	Water	NWTPH-Dx
S2-AU-091912	9/19/12 4:56 PM	2513621025	Water	NWTPH-Dx
S2-BD-091912	9/19/12 4:55 PM	2513621026	Water	NWTPH-Dx
S2-AD-091912	9/19/12 5:10 PM	2513621027	Water	NWTPH-Dx
S2-BU-091912	9/19/12 5:15 PM	2513621028	Water	NWTPH-Dx
S20-BU-091912	9/19/12 5:00 PM	2513621029	Water	NWTPH-Dx
S1-BD-091912	9/19/12 5:41 PM	2513621030	Water	NWTPH-Dx
S1-AD-091912	9/19/12 5:42 PM	2513621031	Water	NWTPH-Dx
S1-AU-091912	9/19/12 5:55 PM	2513621032	Water	NWTPH-Dx
S1-BU-091912	9/19/12 5:55 PM	2513621033	Water	NWTPH-Dx
IC-W-8-092012	9/20/12 9:30 AM	2513629001	Water	NWTPH-Dx
IC-WO-8-092012	9/20/12 9:40 AM	2513629002	Water	NWTPH-Dx
IC-W-7-092012	9/20/12 10:30 AM	2513629003	Water	NWTPH-Dx
W-1-092012	9/20/12 11:15 AM	2513629004	Water	NWTPH-Dx
IC-W-3-092012	9/20/12 12:00 PM	2513629005	Water	NWTPH-Dx
IC-W-4-092012	9/20/12 1:00 PM	2513629006	Water	NWTPH-Dx
GW-2-092012	9/20/12 1:50 PM	2513629007	Water	NWTPH-Dx
GW-1-092012	9/20/12 2:40 PM	2513629008	Water	NWTPH-Dx

A stage 2A summary validation was performed on the analytical results including both the hardcopy (portable document format) and electronic data deliverable, earning EPA OSWER validation label code S2AVEM. Validation was performed by Cari Saylor.

Data qualifiers are assigned based only on the criteria reviewed and do not include calibration or instrument performance issues unless noted in the laboratory narrative. Data qualifiers are listed in section 6.0 below.

2.0 Precision, Accuracy, Representativeness, Comparability, and Completeness

Sample analysis frequencies: Monthly sampling currently includes samples from three water sample locations and one air sample location. Quarterly sampling includes 22 additional water sample locations, and semi-annual sampling includes 32 additional water samples. However, no sample was required at location 5-W-43 due to the presence of product.

All intended samples were collected except for samples 5-W-43, and 5-W-51. The required analysis was completed by the laboratory for each collected sample except for the TPH without silica gel analysis on sample 5-W-14-091812.

Analysis methods: Water samples were analyzed by method NWTPH-Dx and prepared by methods SW3510. Six water samples were also analyzed for NWTPH-Dx with silica gel cleanup. Air samples were analyzed by EPA method TO-15SIM and MA-DEP method APH. These methods are approved EPA methods and therefore meet comparability requirements.

Precision, accuracy and completeness: Except for replaced results, no data were rejected and no qualifiers were assigned. Precision and accuracy were considered acceptable based on the available quality control samples. Data completeness was tabulated as follows:

Analysis	# Intended Samples	# Completed Samples	% Completeness
NWTPH-Dx	62	59	95.2%
NWTPH-DX with silica gel	6	6	100%
TO-15SIM	3	3	100%
APH	3	3	100%
Total, all analyses	74	71	95.9%

The overall data completeness of 95.9% meets the project goal of 90%.

3.0 Diesel Range Petroleum Hydrocarbon Analysis - Water

Quality control analysis frequencies: The method specifies that a method blank must be analyzed one per analytical batch or one per twenty samples, whichever is more frequent and a laboratory duplicate must be analyzed one per ten samples. In addition, surrogate compounds must be measured in each field and quality control sample.

Each batch included a method blank, LCS, and laboratory duplicate, as well as appropriate surrogates.

Holding times: Unpreserved water samples must be extracted within 7 days of collection. Preserved water samples must be extracted within 14 days of collection. Extracts must be analyzed within 40 days of extraction. All samples were extracted and analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. No target analytes were detected in the method blanks.

Surrogate recoveries: Laboratory control limits ranged were 50-150%. Surrogate recoveries were within limits.

LCS recoveries: Laboratory control limits ranged from 51-114 to 69-124%. LCS recoveries were within limits.

Laboratory duplicate RPDs: The laboratory control limit for RPDs ranged from 36 to 42%. Laboratory duplicate RPDs were within limits with one exception:

QC ID	Analyte	RPD	Lab Control Limit
1C-W-7-0712DUP LR	Diesel Range	46	36

The duplicate concentrations are below five times the reporting limit, and within +/- two times the reporting limit of the sample concentration, and variability is considered acceptable. No qualifiers are assigned.

Field duplicate RPDs: For concentrations below five times the reporting limits, concentrations were within +/- two times the reporting limit. For concentrations above five times the reporting limit, RPDs were below 50%.

Reporting limits: The reporting limit goals are 0.1 mg/L for both diesel range hydrocarbons and oil range hydrocarbons. These goals were met for diesel range hydrocarbons. Reporting limits for motor oil range hydrocarbons ranged from 0.95 to 0.28 with the reporting limit exceeding 0.1 mg/L in all but six of the samples. No qualifiers are assigned on the basis of elevated reporting limits.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Diesel range petroleum hydrocarbon data are acceptable for use as reported.

4.0 Petroleum Hydrocarbon Analysis - Air

Quality control analysis frequencies: The method specifies that a method blank, a laboratory control sample, and a laboratory duplicate must be analyzed once per 24 hour batch.

Each batch included a method blank, LCS, and laboratory duplicate.

Holding times: Air samples must be analyzed within 30 days of sampling. All analyses were analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. Naphthalene and C12 hydrocarbons can be < 2 times the PQL. No target analytes were detected in the method blanks.

LCS recoveries: LCS recoveries were within the method specified range of 50-150% for naphthalene and 70-130% limits for all other compounds.

Laboratory duplicate RPDs: Duplicate RPDs were the method specified limit of <30%.

Multiple analysis results: Three analytes, 1,3-Butadiene, Benzene, and Naphthalene, were re-analyzed by method TO-15 in order to achieve lower reporting limits. None of these three analytes were detected in either analysis of any sample. The higher reporting limit result has been qualified "R2", replaced by another result.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Air petroleum hydrocarbon data are qualified for use as reported.

5.0 Volatile Organic Analysis - Air

Quality control analysis frequencies: The method specifies that a method blank, a laboratory control sample, and a laboratory duplicate must be analyzed once per 24 hour batch.

Each batch included a method blank, LCS, and laboratory duplicate.

Holding times: Air samples must be analyzed within 30 days of sampling. All analyses were analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. No target analytes were detected in the method blanks.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. Naphthalene and C12 hydrocarbons can be < 2 times the PQL. No target analytes were detected in the method blanks.

LCS recoveries: LCS recoveries were within the method specified range of 50-150% for naphthalene and 70-130% limits for all other compounds.

Laboratory duplicate RPDs: Duplicate RPDs were the method specified limit of <30%.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Air volatile organic data are acceptable for use as reported.

6.0 Validation Qualifiers

Sample ID	Analyte(s)	Qualifier	Reason
Petroleum Hydrocarbon Analysis - Air			
072612-JR	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method
082012-DK	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method
092012-DK	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method

7.0 Abbreviations and Definitions

<u>DV Qualifier</u>	<u>Definition</u>
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample reporting limit or the amount of contaminant detected in the sample.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.
R1	The sample result has been replaced by a more reliable or more conservative result.
R2	The sample result has been replaced by a result from a different analysis method.

<u>Abbreviation</u>	<u>Definition</u>
DV	Data Validation
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RL	Reporting limit
RPD	Relative percent difference
RSD	Relative standard deviation

8.0 References

USEPA Contract Laboratory Program National Functional Guidelines For Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-008-01.

USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, January 2009, EPA 540-R-08-005.

Sayler Data Solutions, Inc.

DATA VALIDATION REPORT



Skykomish Groundwater Monitoring October – December 2012 Data

Prepared for:
Farallon Consulting, LLC
975 5th Avenue NW
Issaquah, Washington 98027

March 21, 2012

1.0 Introduction

The following samples were validated:

Sample ID	Sample Date/Time	Lab ID	Matrix	Analyses
101012-DK	10/10/12 3:48 PM	L1218555-01	Air	APH, TO-15
112112-DK	11/21/12 4:23 PM	L1221557-01	Air	APH, TO-15
122712-DK	12/27/12 4:52 PM	L1300286-01	Air	APH, TO-15
1C-W-7-101012	10/10/12 1:56 PM	2513834001	Water	NWTPH-Dx
1C-W-8-101012	10/10/12 2:46 PM	2513834002	Water	NWTPH-Dx
1C-W-1-101012	10/10/12 3:10 PM	2513834003	Water	NWTPH-Dx
1C-W-70-101012	10/10/12 5:00 PM	2513834004	Water	NWTPH-Dx
1C-W-7-112112	11/21/12 10:10 AM	10213827001	Water	NWTPH-Dx
1C-W-8-112112	11/21/12 11:15 AM	10213827003	Water	NWTPH-Dx
1C-W-1-112112	11/21/12 11:42 AM	10213827004	Water	NWTPH-Dx
1C-W-70-112112	11/21/12 5:00 PM	10213827002	Water	NWTPH-Dx
1C-W-8-122712	12/27/12 9:50 AM	10216650001	Water	NWTPH-Dx
1C-W-1-122712	12/27/12 10:30 AM	10216650002	Water	NWTPH-Dx
1C-W-7-122712	12/27/12 11:15 AM	10216650004	Water	NWTPH-Dx
5-W-19-122712	12/27/12 11:15 AM	10216650003	Water	NWTPH-Dx
5W-16-122712	12/27/12 11:18 AM	10216650006	Water	NWTPH-Dx
5W-16D-122712	12/27/12 11:18 AM	10216650007	Water	NWTPH-Dx
1C-WO-7-122712	12/27/12 11:20 AM	10216650005	Water	NWTPH-Dx
5W-15-122712	12/27/12 12:05 PM	10216650008	Water	NWTPH-Dx
5-W-17-122712	12/27/12 12:10 PM	10216650009	Water	NWTPH-Dx
GW-4-122712	12/27/12 12:15 PM	10216650010	Water	NWTPH-Dx
2A-W-42-122712	12/27/12 1:10 PM	10216650011	Water	NWTPH-Dx
5-W-18-122712	12/27/12 1:30 PM	10216650012	Water	NWTPH-Dx
5-W-14-122712	12/27/12 1:40 PM	10216650013	Water	NWTPH-Dx
GW-3-122712	12/27/12 1:50 PM	10216650014	Water	NWTPH-Dx
2A-W-9-122712	12/27/12 1:55 PM	10216650015	Water	NWTPH-Dx
GW-2-122712	12/27/12 2:30 PM	10216650016	Water	NWTPH-Dx
GW-1-122712	12/27/12 2:35 PM	10216650017	Water	NWTPH-Dx
1B-W-23-122712	12/27/12 2:45 PM	10216650018	Water	NWTPH-Dx

Sample ID	Sample Date/Time	Lab ID	Matrix	Analyses
2A-W-41-122712	12/27/12 3:30 PM	10216650019	Water	NWTPH-Dx
2A-W-10-122712	12/27/12 3:50 PM	10216650020	Water	NWTPH-Dx
2B-W-4-122712	12/27/12 4:42 PM	10216650022	Water	NWTPH-Dx
MW-3-122712	12/27/12 4:55 PM	10216650023	Water	NWTPH-Dx
MW-4-122712	12/27/12 4:55 PM	10216650024	Water	NWTPH-Dx
2A-W-100-122712	12/27/12 5:05 PM	10216650021	Water	NWTPH-Dx

A stage 2A summary validation was performed on the analytical results including both the hardcopy (portable document format) and electronic data deliverable, earning EPA OSWER validation label code S2AVEM. Validation was performed by Cari Saylor.

Data qualifiers are assigned based only on the criteria reviewed and do not include calibration or instrument performance issues unless noted in the laboratory narrative. Data qualifiers are listed in section 6.0 below.

2.0 Precision, Accuracy, Representativeness, Comparability, and Completeness

Sample analysis frequencies: Monthly sampling currently includes samples from three water sample locations and one air sample location. Quarterly sampling includes 22 additional water sample locations, and semi-annual sampling includes 32 additional water samples. This event did not include the semi-annual samples.

Intended samples were collected with 4 exceptions: Field notes indicate samples 2A-W-40, 5-W-43, EW-1 and EW-2A were unable to be collected due to snow. The required analyses were completed by the laboratory for each collected sample.

Analysis methods: Water samples were analyzed by method NWTPH-Dx and prepared by methods SW3510. Air samples were analyzed by EPA method TO-15SIM and MA-DEP method APH. These methods are approved EPA methods and therefore meet comparability requirements.

Precision, accuracy and completeness: Except for replaced results, no data were rejected and no qualifiers were assigned. Precision and accuracy were considered acceptable based on the available quality control samples. Data completeness was tabulated as follows:

Analysis	# Intended Samples	# Completed Samples	% Completeness
NWTPH-Dx	31	27	87.1%
TO-15SIM	3	3	100%
APH	3	3	100%
Total, all analyses	37	33	89.2%

The overall data completeness of 89.2% is slightly under the project goal of 90%.

3.0 Diesel Range Petroleum Hydrocarbon Analysis - Water

Quality control analysis frequencies: The method specifies that a method blank must be analyzed one per analytical batch or one per twenty samples, whichever is more

frequent and a laboratory duplicate must be analyzed one per ten samples. In addition, surrogate compounds must be measured in each field and quality control sample.

Each batch included a method blank, LCS, as well as appropriate surrogates. One batch included a non-project laboratory duplicate and the remaining three batches included a LCSD. No qualifiers are added on the basis of the missing laboratory duplicates.

Holding times: Unpreserved water samples must be extracted within 7 days of collection. Preserved water samples must be extracted within 14 days of collection. Extracts must be analyzed within 40 days of extraction. All samples were extracted and analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. No target analytes were detected in the method blanks.

Surrogate recoveries: Laboratory control limits ranged were 50-150%. Surrogate recoveries were within limits.

LCS recoveries: Laboratory control limits ranged from 50-150 to 62-120%. LCS recoveries were within limits.

LCS/LCSD RPDs: The laboratory control limit for RPDs was 20%. RPDs were within limits with one exception:

QC ID	Analyte	RPD	Lab Control Limit
1344390-LCS/LCSD	Diesel Range	26	20

Diesel range hydrocarbons were not detected in the associated samples, and no qualifiers were required.

Laboratory duplicate RPDs: The non-project laboratory duplicate demonstrated acceptable laboratory precision.

Field duplicate RPDs: For concentrations below five times the reporting limits, concentrations were within +/- two times the reporting limit. For concentrations above five times the reporting limit, RPDs were below 50%.

Reporting limits: The reporting limit goals are 0.1 mg/L for both diesel range hydrocarbons and oil range hydrocarbons. These limits were exceeded in the following samples:

Sample ID	Analyte	Reporting Limit (mg/L)
1B-W-23-122712	Diesel Range Hydrocarbons	0.11
1B-W-23-122712	Oil Range Hydrocarbons	0.11
1C-W-1-101012	Diesel Range Hydrocarbons	0.15
1C-W-1-101012	Oil Range Hydrocarbons	0.75
1C-W-1-112112	Diesel Range Hydrocarbons	0.4
1C-W-1-112112	Oil Range Hydrocarbons	0.4

Sample ID	Analyte	Reporting Limit (mg/L)
1C-W-7-101012	Diesel Range Hydrocarbons	0.15
1C-W-7-101012	Oil Range Hydrocarbons	0.75
1C-W-7-112112	Diesel Range Hydrocarbons	0.4
1C-W-7-112112	Oil Range Hydrocarbons	0.4
1C-W-8-101012	Oil Range Hydrocarbons	0.75
1C-W-8-112112	Diesel Range Hydrocarbons	0.4
1C-W-8-112112	Oil Range Hydrocarbons	0.4
5W-16-122712	Oil Range Hydrocarbons	0.41
GW-3-122712	Diesel Range Hydrocarbons	0.11
GW-3-122712	Oil Range Hydrocarbons	0.11

No qualifiers are assigned on the basis of elevated reporting limits.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Diesel range petroleum hydrocarbon data are acceptable for use as reported.

4.0 Petroleum Hydrocarbon Analysis - Air

Quality control analysis frequencies: The method specifies that a method blank, a laboratory control sample, and a laboratory duplicate must be analyzed once per 24 hour batch.

Each batch included a method blank and LCS. Two of the three batches included a laboratory duplicate. No qualifiers are added based on the absence of the lab duplicate.

Holding times: Air samples must be analyzed within 30 days of sampling. All analyses were analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. Naphthalene and C12 hydrocarbons can be < 2 times the PQL. No target analytes were detected in the method blanks.

LCS recoveries: LCS recoveries were within the method specified range of 50-150% for naphthalene and 70-130% limits for all other compounds.

Laboratory duplicate RPDs: Duplicate RPDs were the method specified limit of <30%.

Multiple analysis results: Three analytes, 1,3-Butadiene, Benzene, and Naphthalene, were re-analyzed by method TO-15 in order to achieve lower reporting limits. Naphthalene was not detected in the either analysis of any sample. Benzene and 1,3-butadiene was detected in the TO-15 analysis at levels below the APH reporting limit. The higher reporting limit result has been qualified "R2", replaced by another result.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Air petroleum hydrocarbon data are qualified for use as qualified.

5.0 Volatile Organic Analysis - Air

Quality control analysis frequencies: The method specifies that a method blank, a laboratory control sample, and a laboratory duplicate must be analyzed once per 24 hour batch.

Each batch included a method blank and LCS. One of the three batches included a laboratory duplicate. No qualifiers are added based on the absence of the lab duplicate.

Holding times: Air samples must be analyzed within 30 days of sampling. All analyses were analyzed within holding time.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. No target analytes were detected in the method blanks.

LCS recoveries: LCS recoveries were within the method specified range of 50-150% for naphthalene and 70-130% limits for all other compounds.

Laboratory duplicate RPDs: Duplicate RPDs were the method specified limit of <30%.

Laboratory narrative and flags: No additional qualifiers were assigned based on a review of the laboratory narrative or data flags.

Air volatile organic data are acceptable for use as reported.

6.0 Validation Qualifiers

Sample ID	Analyte(s)	Qualifier	Reason
Petroleum Hydrocarbon Analysis - Air			
101012-DK	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method
112112-DK	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method
122712-DK	1,3-Butadiene, Benzene, Naphthalene	R2	Result available from another method

7.0 Abbreviations and Definitions

DV Qualifier

U

Definition

The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample reporting limit or the amount of contaminant detected in the sample.

J

The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

<u>DV Qualifier</u>	<u>Definition</u>
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.
R1	The sample result has been replaced by a more reliable or more conservative result.
R2	The sample result has been replaced by a result from a different analysis method.

<u>Abbreviation</u>	<u>Definition</u>
DV	Data Validation
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RL	Reporting limit
RPD	Relative percent difference
RSD	Relative standard deviation

8.0 References

USEPA Contract Laboratory Program National Functional Guidelines For Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-008-01.

USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, January 2009, EPA 540-R-08-005.