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# 2008 – 2009 Annual Site-Wide Groundwater **Monitoring Report**

BNSF Former Fueling and Maintenance Facility -Skykomish, Washington





BNSF Former Fueling and Maintenance Facility – Skykomish, Washington

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## **Contents**

1.0	Introd	luction	1-1
	1.1	Groundwater Monitoring Objectives	1-1
	1.2	Background	1-1
	1.3	Report Organization	1-2
2.0	Groui	ndwater Monitoring Network	2-1
	2.1	Changes to the Monitoring Network	2-1
		2.1.1 Air Sparging System	2-1
		2.1.2 HCC System	2-1
		2.1.3 Backfill and Downgradient of the HCC System Barrier Wall	2-2
		2.1.4 FMCZ – East Wetland and Surrounding Areas	
		2.1.5 FMCZ – West Wetland	
		2.1.6 Levee Zone	
		2.1.7 Schoolyard	
		2.1.8 Site-Wide	
	2.2	2008 to 2009 Groundwater Monitoring Network	2-3
3.0	Gaug	ing and Sampling Procedures	3-1
	3.1	Fluid Level Measurements	3-1
		3.1.1 Groundwater Levels and Product Thickness Measurements	3-1
		3.1.2 Surface Water Level Measurements	3-1
	3.2	Sampling Methods	3-2
		3.2.1 Well Purging and Field Parameter Measurement	
		3.2.2 Sample Preservation and Handling	3-2
		3.2.3 Investigation-Derived Waste	3-3
4.0	Labor	ratory Analysis and Reporting	4-1
	4.1	Analytical Methods	4-1
	4.2	Data Management and Validation	4-1
	4.3	Applicable Groundwater Cleanup Levels and Remediation Levels	4-2
5.0	Resul	ts and Discussionts	5-1
	5.1	Fluid Levels	
	5.2	Field Parameters	
	٥.٢	5.2.1 pH	
		5.2.2 Conductivity	
		5.2.3 Temperature	
		0.2.0 Temperature	2

AECOM Environment ji

		5.2.4	Dissolved Oxygen	5-2
		5.2.5	Oxidation-Reduction Potential	5-2
		5.2.6	Turbidity	5-2
	5.3	Total P	etroleum Hydrocarbons	5-2
		5.3.1	Site-Wide	5-3
		5.3.2	Air Sparging System Monitoring	5-4
		5.3.3	Hydraulic Control and Containment System	
		5.3.4	Schoolyard Perimeter Zone Monitoring	5-5
		5.3.5	Levee Zone	5-6
		5.3.6	Former Maloney Creek Zone - East Wetland and Surrounding Area	5-6
		5.3.7	Former Maloney Creek Zone – West Wetland	5-7
6.0	Summ	nary and	I Recommendations	6-1
_ ^	<b>-</b> .			
7.0	Refere	ences		7-1

## **List of Tables**

Table 2-1	Modifications to the Groundwater Monitoring Network
Table 2-2	Well Completion Details
Table 2-3	Groundwater Monitoring Event Dates
Table 2-4	Groundwater Sampling Event Details
Table 2-5	Fluid Gauging Events Summary
Table 5-1	Fluid Level Elevations and Product Thicknesses October 2008 through September 2009
Table 5-2	Stabilized Groundwater Field Parameter Measurements
Table 5-3	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater ( $\mu g/L$ ) Analytical Results
Table 5-4	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater ( $\mu g/L$ ) Semi-Annual Site-Wide Analytical Results

AECOM Environment iii

## **List of Figures**

Figure 1-1	Regional Location Map
Figure 1-2	Site Layout and Site Zones
Figure 2-1	Groundwater Monitoring Network
Figure 5-1	October 2008 Groundwater Elevation Map
Figure 5-2	November 2008 Groundwater Elevation Map
Figure 5-3	December 2008 Groundwater Elevation Map
Figure 5-4	January 2009 Groundwater Elevation Map
Figure 5-5	February 2009 Groundwater Elevation Map
Figure 5-6	March 2009 Groundwater Elevation Map
Figure 5-7	April 2009 Groundwater Elevation Map
Figure 5-8	May 2009 Groundwater Elevation Map
Figure 5-9	June 2009 Groundwater Elevation Map
Figure 5-10	July 2009 Groundwater Elevation Map
Figure 5-11	August 2009 Groundwater Elevation Map
Figure 5-12	September 2009 Groundwater Elevation Map
Figure 5-13	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater – December 2008
Figure 5-14	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater – March 2009
Figure 5-15	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater – June 2009
Figure 5-16	Total Petroleum Hydrocarbons (NWTPH-Dx) in Groundwater – September 2009

## **List of Appendices**

Appendix A 2009 Groundwater Report Scope Memo

Appendix B Well Logs and 5-W-42 Installation Memo

Appendix C Field Forms

Appendix D Laboratory and Data Validation Reports

### 1.0 Introduction

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

### 1.1 Groundwater Monitoring Objectives

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

- Monitor any changes in contaminant distribution during and after implementation of the cleanup actions throughout the site;
- Provide monitoring data for the groundwater in the levee zone to assess the effect of the 2006 interim cleanup on groundwater quality;
- Provide monitoring data for the 2008 remediation area groundwater to assess the impacts on groundwater quality;
- Provide monitoring data for the 2009 remediation area groundwater to assess the impacts on groundwater quality; and
- Provide gauging data to assess the groundwater flow direction in the area of Former Maloney Creek Zone (FMCZ).

Information obtained during the 2008 to 2009 groundwater monitoring activities was collected in order to meet these groundwater monitoring objectives and are presented in this report. Some figures and data analysis which represent temporal and spatial trends and which were included in previous annual groundwater reports are discussed in detail in the 2008 to 2009 Annual Site-Wide Groundwater Monitoring Report Scope memo as Appendix A to this report. With Ecology concurrence, these figures and data analysis have not been included in this report and will not be included in future reports, unless requested by Ecology.

### 1.2 Background

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

The Former Railway Maintenance and Fueling Facility in Skykomish is owned and operated by BNSF. Historical activities since the facility opened in the late 1890s included refueling and maintaining

locomotives and operating an electrical substation for electric engines. BNSF stored Bunker C and diesel fuel at the site in aboveground storage tanks (ASTs) and underground storage tanks (USTs) until 1974, when BNSF discontinued most fuel handling activities at the site.

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

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

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

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

In October 2007, Ecology issued a Cleanup Action Plan (CAP) (Ecology 2007; Exhibit B of the CD) and BNSF and Ecology signed a Consent Decree (CD, No. 07-2-33672-9 SEA). Any remaining work required by the 2006 Agreed Order was incorporated into the CD. For example, Section VI.A.6 of the CD required BNSF to conduct groundwater monitoring consistent with the then-current *Groundwater Monitoring Plan* (RETEC 2005a), as amended. The most recent revision, *Groundwater Monitoring Plan* (AECOM 2009a), was approved by Ecology pursuant to the CD and became effective in March 2009.

Since 1993, investigations performed by BNSF, in cooperation with Ecology, have revealed petroleum residuals in soil, groundwater, sediments, and surface water. Detailed information about the scope of prior investigations and the results appear in the 1996 Remedial Investigation Report (RETEC 1996), the 2002 Supplemental Remedial Investigation Report (RETEC 2002), the 2005 Feasibility Study (RETEC 2005b), the 2008 and 2009 Remedial Design Investigation Reports (RDI Reports, ENSR 2008b; AECOM 2010), and the 2008 Addendum to the Remedial Design Investigation Report (AECOM 2009b). Annual groundwater monitoring reports were submitted by BNSF and approved by Ecology under various Agreed Orders and the CD in 2005 (RETEC 2005a), 2007 (RETEC 2007), 2008 (ENSR 2008a), and 2009 (AECOM 2009a).

### 1.3 Report Organization

Section 1 of this report provides an introduction, background information, and the objectives of the sitewide groundwater monitoring. Section 2 describes the monitoring well network, changes made to the

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

## 2.0 Groundwater Monitoring Network

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

### 2.1 Changes to the Monitoring Network

This section describes monitoring network changes since the 2007 to 2008 monitoring period, including new well installation, well abandonment, and planned (but not completed) modifications. Modifications to the groundwater monitoring network and the rationale for the abandoned or destroyed wells are summarized in Table 2-1. These modifications were planned and completed with Ecology's concurrence. Modification plans and construction and/or abandonment details for the completed modifications were presented in multiple site documents. Newly installed wells and piezometers were added to the groundwater monitoring network in the 2009 GWMP (AECOM 2009a) and the 2009 *Remedial Design Investigation Work Plan* (AECOM 2009c). Construction details and well logs for newly installed wells that have not been referenced in previous reports are included in this report (Table 2-2 and Appendix B).

This report provides a summary of the monitoring functions (by site area or remediation system) and abandonment/destruction rationale for locations added to or removed from the groundwater monitoring network since October 1, 2008. Note that some monitoring locations are monitored for multiple assessments purposes. Locations added to or removed from the groundwater monitoring network and their respective monitoring functions or abandonment/destruction rationale follow:

### 2.1.1 Air Sparging System

**New wells and piezometers.** Two additional wells (1C-W-7 and 1C-W-8) were installed in March and April 2009 in the vicinity of the air sparging system to aid in system optimization and performance monitoring.

### 2.1.2 HCC System

**New wells and piezometers.** A total of 45 wells were installed between October 2008 through April 2009 as operational components of the HCC system, to monitor performance of the HCC system, or to evaluate groundwater quality downgradient of the HCC wall or within the backfill emplaced during HCC wall construction. These wells include 1 end well (EW), 4 gate wells (GWs), 2 injection wells (IWs), 4 recovery wells (RWs), 20 gate vault sentry wells (Ss), and 14 monitoring wells and 14 piezometers (PZs).

**Planned but deferred.** Planned wells EW-2 and EW-2A were intended to assess groundwater quality and gradients at the east end of the HCC wall, but were deferred due to observations of blebs of product and sheen during the attempted well installations. A well will be installed at the east end of the HCC wall after the 2010 remediation activities are completed and will be sampled during the 2009 - 2010 monitoring period. Monitoring results will be reported in the next annual report.

**Abandoned.** Temporary pumping wells PW-01, PW-02, and PW-03 were abandoned when the permanent recovery wells (RWs) were brought on-line.

**Installed and/or abandoned outside the reporting period.** Temporary pumping wells PW-01 through PW-04 were installed in September 2008 to provide temporary hydraulic gradient information and act as temporary recovery wells prior to the recovery wells (RW-01 through RW-08) coming on-line. PW-01,

PW-02, and PW-03 were abandoned in October 2009. PW-04 was retained to provide additional groundwater gradient information on the south side of the East Gate of the HCC wall. Although the PW wells were abandoned outside of the current reporting period, their status is listed as abandoned in this report to provide the most up-to-date monitoring network conditions.

Four gate vaults were constructed as components of the HCC wall: the far west vault (FWV [S1]), west vault (WV [S2]), central vault (CV [S3]), and east vault (EV [S4]). These vaults were installed prior to the reporting period during the HCC system construction in 2008. Construction details for the vaults are presented in the 2008 As-Built Completion Report (AECOM 2009i). Fluid gauging and groundwater sampling conducted at these locations will be used to assess HCC system performance. Gate vault sentry wells (Ss) were installed within these vaults during this reporting period, as discussed above.

#### 2.1.3 Backfill and Downgradient of the HCC System Barrier Wall

**Planned but deferred.** Planned monitoring wells 1A-W-36, 1A-W-37, 5-W-44, and 5-W-45 were intended to monitor groundwater quality and gradients along the boundary between the clean backfill emplaced during HCC wall construction and the planned 2009 excavation area. The decision was made with Ecology concurrence (personal communication with Ronald Timm of Ecology) to defer installation of these wells during the 2008 to 2009 monitoring period since the planned well locations were within the 2009 excavation area; at the time the installations were scheduled, the 2009 excavation activities had not yet been completed. These four wells will be installed and will be sampled during the 2009 - 2010 monitoring period. Monitoring results will be reported in the next annual report.

### 2.1.4 FMCZ - East Wetland and Surrounding Areas

**New Wells.** Two wells (2B-W-45 and 2B-W-46) were installed south of the Former Maloney Creek Zone – East Wetland, within the South Development Zone, to monitor groundwater quality and groundwater gradients in the vicinity of the East Wetland.

### 2.1.5 FMCZ - West Wetland

**New Wells.** Three wells (3-W-41, 3-W-42, and 3-W-43) were installed along the northern boundary of Former Maloney Creek Zone – West Wetland in order to monitor groundwater quality and gradients along the northern buffer zone of the west wetland.

### 2.1.6 Levee Zone

**New Wells.** One well (5-W-42) was installed at the west end of the Levee Zone to monitor groundwater quality and gradients along the west end of the 2006 Interim Action Cleanup excavation area.

### 2.1.7 Schoolyard

No changes were made to the monitoring network in the schoolyard and vicinity.

### 2.1.8 Site-Wide

**New Well (Replacement).** One well installation (MW-38R) was completed by the Town as a replacement well for site-wide monitoring well MW-38, which was inadvertently destroyed by the Town sub-contractor during excavation activities associated with a sewer line replacement. Note that the Town sub-contractor incorrectly labeled this well as MW-38A on the well log. AECOM has corrected this error in the records for archival purposes.

**Planned but deferred**. Planned monitoring well 1A-W-38 was intended as a compliance monitoring well, which will replace abandoned well 1A-W-3 and 1A-W-5. The two wells will be abandoned in preparation

for the 2010 bridge excavation activities. 1A-W-38 was deferred because the excavation in this area is not yet complete. It will be installed after the 2010 excavation activities are completed.

**Abandoned/Destroyed.** Five wells (1A-W-2, 1A-W-3, 5-W-1, MW-26, and MW-36) located within the 2009 cleanup action area were located within the 2009 excavation area and were abandoned prior to excavation activities. In addition, MW-35 and 1A-W-1 were inadvertently destroyed during the 2008 and 2009 excavation activities.

### 2.2 2008 to 2009 Groundwater Monitoring Network

The current groundwater monitoring network, including locations utilized for the October 2008 to September 2009 monitoring period (as defined in the 2009 GWMP [AECOM 2009a]), as well as locations abandoned or destroyed since October 1, 2008, is shown in Figure 2-1. Note that some, but not all, of the locations that were abandoned or destroyed were utilized prior to abandonment or destruction. Locations that were not utilized for fluid gauging or groundwater monitoring during the 2008 to 2009 period are indicated on the figure. The 2008 to 2009 groundwater monitoring network consists of the following locations, as categorized by the monitoring frequency:

- Semi-weekly gauging On January 15, 2009 the HCC system commenced operation. Since the permanent system, which includes continuous monitoring by water level transducers, was not online at that time, the temporary system was gauged manually twice a week. Gauging locations included the 4 gate vaults (FWV, WV, CV, and EV), 14 HCC system piezometers (PZs), 4 temporary pumping wells (PWs), 2 recovery wells (RW-1 and RW-6), and the 2 injection wells (IWs) (note that the HCC gate vault sentry wells [Ss] were not gauged at any time as planned in the GWMP [AECOM 2009a]). The transducers began collecting data on August 31, 2009. At that time, manual gauging continued, but the frequency was decreased to weekly gauging and some locations were dropped. Only data from semi-weekly gauging events that coincided with monthly gauging events are presented in this report. Data from the semi-weekly gauging events will be presented in the annual HCC system operations report for 2009.
- Weekly gauging The HCC system water level transducers went on-line on August 31, 2009. From that date through the rest of the reporting period, manual gauging was continued in the 4 gate vaults, 1 pumping well (PW-4), and the 4 gate wells (GWs). Only data from weekly gauging events that coincided with monthly gauging events are presented in this report. Data from the weekly gauging events will be presented in the annual HCC system operations report for 2009.
- Daily gauging Water level transducers were installed in the HCC system piezometers (PZs) and 2 of the recovery wells (RW-2 and RW-5) in order to collect water level measurements for HCC system performance monitoring. The water level transducers located in these wells may be accessed at anytime and data recorded approximately every 4 hours using the on-site Programmable Logic Controller (PLC). The transducers came online August 31, 2009. Transducer data are not presented in this report. All water levels presented herein were gauged manually.
- Monthly Monitoring 39 site-wide and Former Maloney Creek East Wetland locations are gauged monthly;
- Quarterly Monitoring 42 site-wide, air sparging system, HCC backfill or downgradient, HCC system, Levee Zone, and schoolyard perimeter zone locations are gauged quarterly; 27 of these locations are sampled for Total Petroleum Hydrocarbons (TPH) analysis by NWTPH-Dx.

### Semi-Annual Monitoring –

Semi-annual gauging events include gauging locations from all site areas that are gauged on a monthly, quarterly, or semi-annual basis (122 total); 49 site-wide, Former Maloney Creek Zone – West Wetland, Former Maloney Creek Zone – East Wetland and surrounding area, schoolyard perimeter zone, and HCC system locations are sampled semi-annually for TPH analysis by NWTPH-Dx.

18 locations for surface water level gauging.

The 2008 to 2009 sampling event dates are summarized in Table 2-3. Sampling details and gauging frequencies for wells utilized in the groundwater monitoring network are summarized in Tables 2-4 and 2-5, respectively. Well installation and abandonment dates, where applicable, are included in Tables 2-4 and 2-5 to provide a rationale for monitoring start or end dates. Note that groundwater samples were collected during additional monthly sampling events (in addition to the regularly scheduled quarterly and semi-annual monitoring) from the air sparging system wells, from newly installed wells (in order to obtain initial baseline results), and from wells designated to monitor the operational performance of the HCC system until TPH concentrations are below the groundwater RL in accordance with the 2009 Compliance Monitoring Plan Update (AECOM 2009d).

The conditional points of compliance (CPOCs) for groundwater are generally described in Section 3.4 and Figure 6 of the CAP (Ecology 2007). The monitoring network described above was established, in part, before the CAP was issued by Ecology in October 2007; however, all of the wells in the network are inside the groundwater compliance boundary and the locations and designations as interim compliance wells were approved by Ecology in the 2009 Compliance Monitoring Plan Update (AECOM 2009d). Compliance boundary wells will be identified in a Long-Term Confirmational Monitoring Plan to be developed at the conclusion of active remediation pursuant to the CD (Ecology 2007; Exhibit C).

## 3.0 Gauging and Sampling Procedures

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

### 3.1 Fluid Level Measurements

#### 3.1.1 Groundwater Levels and Product Thickness Measurements

Fluid level measurements were performed to collect groundwater elevation and free product thickness data. Fluid levels were measured and recorded at each well location prior to purging or sample collection activities. One of two methods was used to measure fluid levels in a well. The method selected depended upon on whether or not the well contained light non-aqueous phase liquid (LNAPL).

If LNAPL was observed as a light trace (0.01 feet thick) then the depth to the top and the thickness of the LNAPL was measured using tape and paste. In this method, a measuring tape was coated with a water-reactive paste. The tape was then lowered into the well until it was below the water level. The paste reacted to the water by changing color and the LNAPL thickness was be estimated by the tape interval that was coated with the petroleum product. The groundwater elevation was then derived from the length of measuring tape that had not changed color. The LNAPL thickness was added to the groundwater elevation to derive the LNAPL top elevation.

If the LNAPL was observed at a greater thickness (0.02 feet or more thick), then, in addition to the tape and paste method, the thickness was verified using a site-specific method that employs a peristaltic pump. First, the top of fluid was measured. Then, polyethylene tubing was lowered into the well to a depth below the water table. Water was pumped while the tubing was gradually raised. Once the pump began to pump LNAPL instead of water, the remaining tubing was pulled from the well and its length was measured to derive elevation.

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

All measurements were collected in accordance with the GWMP (AECOM 2009a). Measurement equipment was decontaminated between wells in accordance with Standard Operating Procedure (SOP) 7600 and fluid level data were recorded on appropriate field forms (provided in Appendix A of the GWMP). The field form includes fields for date and time of the measurement, depth to water (in feet), depth to LNAPL (in feet), LNAPL thickness (in feet) and measurement method. In addition, the well condition (including the condition of the lock, monument integrity, and legibility of well labels) was recorded for each location.

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

#### 3.1.2 Surface Water Level Measurements

River stage measurements were collected at five locations (SK1 to SK5) along the South Fork Skykomish River during the site-wide gauging events. Two of the locations are at known permanent landmarks (a storm outfall and a bridge abutment). The other three locations are set equidistant from the two landmarks.

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

Surface water level measurements were taken at four piezometer locations within the FMCZ -East Wetland (2B-W-11 to 2B-W-15 and 2B-W-33). The piezometers, which are also used to measure groundwater elevations beneath the wetlands, were constructed with blank casing tops finished well above the surface water. The top-of-casing elevations have been surveyed allowing for surface water level elevations to be calculated relative to the top-of-casing elevation. Surface water elevations were measured relative to the top-of-casing by placing a water level meter along the outside of the piezometers and measuring from the top of the casing to the surface of the water.

Surface water level measurements were collected from seven staff gauges located along the Former Maloney Creek Channel in the FMCZ-East Wetland (ML1 to ML4) and FMCZ-west wetland (WW1 to WW3) investigation areas.

### 3.2 Sampling Methods

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

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

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

#### 3.2.1 Well Purging and Field Parameter Measurement

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

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

#### 3.2.2 Sample Preservation and Handling

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

### 3.2.3 Investigation-Derived Waste

All decontamination water and purge water was drummed and labeled. Investigation-derived waste (IDW) water collected during monitoring events from October 2008 through July 2009 was disposed of at a licensed disposal facility in accordance with applicable regulations and the GWMP. IDW water collected during the August and September 2009 monitoring events was disposed of in the HCC water treatment system.

## 4.0 Laboratory Analysis and Reporting

This section summarizes the laboratory analysis and reporting procedures, and the subsequent data management and validation. Groundwater samples were analyzed by Test America Analytical Laboratories (TestAmerica). Test America was formerly located in Bothell, Washington. On July 1, 2009, the laboratory completed their move to Tacoma Washington; therefore, the December 2008 through June 2009 samples were analyzed by the Bothell lab, whereas the July 2009 through September 2009 samples were analyzed in Tacoma. TestAmerica is a Washington State-certified laboratory.

### 4.1 Analytical Methods

Groundwater samples were analyzed for TPH using method NWTPH-Dx both with (TPH-SG) and without (TPH) the silica gel cleanup method.

The laboratory was instructed to report sample concentrations to the method detection limit (MDL) rather than the higher method reporting limit (MRL). It was recognized that reported concentrations above the MDL but below the MRL have a greater degree of uncertainty. Accordingly, these results were qualified as estimated (J-flagged). Reporting of results to the MDL has the advantage of reporting detected concentrations at a lower level. This also minimizes the chances that a non-detected result will be reported with a detection limit greater than the cleanup level (CUL).

### 4.2 Data Management and Validation

The analytical laboratory provided both electronic data deliverables that could be directly imported into the environmental data management system and text data reports. The text data reports were provided as hard copies (Appendix D) and in electronic (.pdf) files.

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

The report also contained the details and results of laboratory QA/QC procedures that were performed on the samples.

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

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

 USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA540/R-99/008, October 1999.

- USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-07-003, July 2007.
- Analytical Methods for Petroleum Hydrocarbons, ECY 97-602, June 1997.
- Field duplicate relative percent difference review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Data validation reports are presented in Appendix D.

### 4.3 Applicable Groundwater Cleanup Levels and Remediation Levels

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

### 5.0 Results and Discussion

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

### 5.1 Fluid Levels

This section presents data and conclusions drawn from the fluid level gauging that occurred from October 2008 through September 2009 during the monthly, quarterly, and semi-annual monitoring events. Table 5-1 presents the groundwater elevation, surface water elevation, and product thickness measurements made during this reporting period. Variations in groundwater elevations and product thickness, and changes in groundwater gradients in relation to seasonal variations and remedial activities are discussed below.

Monthly groundwater surface elevation maps (October 2008 to September 2009) are shown in Figures 5-1 through 5-12. As shown in these figures, the groundwater flow direction is consistent, regardless of the season. To the south of the HCC wall, groundwater flow is predominantly towards the northwest or north. The HCC wall acts as a barrier to groundwater flow. Localized groundwater depressions are present near the HCC gates due to the pumping of the recovery wells on the south side of the wall, thus demonstrating that groundwater is being captured in the recovery trench. On the north side of the wall, groundwater typically flows towards the northwest in the direction of the Skykomish River with some east to west flow and a significant gradient reduction within the 2008 and 2009 excavation areas.

The groundwater surface elevation maps also show that groundwater elevations are lower in the levee remediation area due, at least in part, to the impermeable liner, which is shown on the figures and is described in the Levee Zone Interim Action for Cleanup 2007- As Built Completion Report (ENSR 2007).

The September 2009 groundwater elevation map (Figure 5-12) is one exception to the seasonal continuity in groundwater flow patterns. During the September gauging event, construction dewatering was occurring in the excavation area. Construction dewatering occurred between September 11 and September 22, 2009; the September gauging event occurred on September 21, 2009. Therefore, groundwater surface gradients and flow directions on the north side of the HCC wall were affected by construction dewatering. In addition, water sprayed from fire hoses was used to consolidate LNAPL on the water surface within the excavation. Consequently, a large volume of water was added to the excavation areas. The most notable difference in the groundwater gradient from previous months is observed at the west end of the wall. In this area, groundwater flow directions trend more towards the 2009 excavation area, and less towards the River (as observed during other months). There is also evidence of intermittent localized groundwater mounding and depressions occurring around the HCC vaults and piezometers on the north side of the wall. These localized anomalies are attributed to excavation watering and dewatering activities.

During site-wide gauging events, anomalous groundwater elevations were observed at the following locations: HCC vault locations EV on February 24, 2009 and 2B-W-21 on March 23, 2009. The anomalous groundwater elevation at EV is attributed to a recording error. Piezometer 2B-W-21 was buried under surface material prior to the March sampling event and needed to be dug out prior to sampling. This situation may have resulted in the anomalous water level gauged at this location in March. These anomalies were single event occurrences. The anomalous water levels were omitted from contouring.

#### 5.2 Field Parameters

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

### 5.2.1 pH

The mean pH of groundwater across the site during the reporting period was 6.06. The minimum pH was 4.91 at 1C-W-1 on August 25, 2009 and the maximum pH was 7.04 at GW-4 on April 1, 2009. The median, minimum and maximum pH measurements were consistent with past measurements at the site.

### 5.2.2 Conductivity

The mean conductivity (in µmhos/cm) of groundwater across the site during the reporting period was 82. The minimum was 12 at 5-W-43 on April 2, 2009 and the maximum was 417 at 5-W-56 on September 22, 2009, although this maximum value is attributed to a potential field measurement error. These measurements were consistent with historical values.

### 5.2.3 Temperature

The mean temperature (°C) in groundwater during the reporting period was 9.38. The minimum temperature was 0.5 at 5-W-16 on December 17, 2008, and a maximum temperature was 20.73 at 1C-W-3 on September 22, 2009. The temperature varied seasonally.

### 5.2.4 Dissolved Oxygen

The mean dissolved oxygen (DO) concentration (mg/L) in groundwater across the site during the reporting period was 3.24. DO ranged from non-detect to a maximum of 12.0 measured at 5-W-16 on December 17, 2008. In general, the wells outside the areas of known contamination had higher concentrations of DO than the wells within the dissolved plume area. The lowest concentrations of DO were typically measured in areas within and downgradient from the areas of known contamination and in areas having higher concentrations of groundwater contamination. These measurements are consistent with historical values.

#### 5.2.5 Oxidation-Reduction Potential

The mean oxidation-reduction potential (ORP in mV) in groundwater across the site during the reporting period was 67. The minimum ORP value was -225.9 at 1C-W-7 on April 21, 2009 and a maximum was 254.1 at 1C-W-1 on July 28, 2009. ORP in groundwater at the site is most commonly positive. These measurements were consistent with historical values.

### 5.2.6 Turbidity

The mean turbidity (NTU) in groundwater across the site during the reporting period was 5.82. Turbidity ranged from non-detect (1C-W-1 on April 21, 20092 and at 2B-W-4 on September 21, 2009), to a maximum of 178 measured at 5-W-15 on December 17, 2008. Turbidity measurements were generally less than 10 (91% of the recorded values) during the reporting period and are consistent with historic measurements.

### 5.3 Total Petroleum Hydrocarbons

TPH in groundwater was analyzed using method NWTPH-Dx without silica gel cleanup (all samples) and with silica gel cleanup (in select samples collected mainly from the Levee Zone area). NWTPH-Dx measures diesel range (TPH-D, C12–C25) and oil range (TPH-O, C25-C36) hydrocarbons.

Total TPH and TPH-SG concentrations were calculated by adding the analytical results for the diesel and oil range components. These total concentrations are referred to as TPH (calc) and TPH-SG (calc), respectively. If either the diesel or the oil TPH fraction was not detected, half of the MDL was used for the non-detected component to calculate the total TPH concentration. If both components were not detected, the TPH calculated value is provided, but it is followed by the qualifier (ND). Figures 5-13 through 5-16 show the extent of TPH (calc) and TPH-SG (calc) concentrations detected in groundwater during the quarterly and semi-annual groundwater monitoring events; groundwater data from monthly sampling events are not displayed on the figures. Table 5-3 presents all groundwater TPH data collected during the reporting period, including monthly events.

TPH (calc) and TPH-SG (calc) concentrations were compared to the CUL (208  $\mu$ g/L) and RL (477  $\mu$ g/L). As described in the CAP, the CUL for TPH in groundwater is intended to protect sediments from recontamination by groundwater (e.g., near the South Fork Skykomish River and Former Maloney Creek) and the RL for TPH in groundwater is intended to protect drinking water. The approximate CPOC boundary shown on figures 5-13 through 5-16 is adapted from CAP Figure 6 (Ecology 2007).

#### 5.3.1 Site-Wide

Groundwater samples were collected from site-wide monitoring locations during the semi-annual groundwater monitoring events in March and September 2009. All groundwater sampling locations from all site areas are included in the site-wide TPH analysis, except the HCC gate vaults and sentry wells (discussed below). TPH results from these semi-annual events are displayed on Figures 5-14 and 5-16 and in Tables 5-3 and 5-4.

During the March 23 to 25, 2009 semi-annual groundwater monitoring event, 41 groundwater samples were collected from 37 site-wide monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 19 of the 41 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 208 to 7740  $\mu$ g/L with an average concentration of 1671.7  $\mu$ g/L. Thirteen of the 19 samples with detected TPH had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 502 to 7740  $\mu$ g/L. The RL exceedances were detected in samples from the following eleven locations: 1A-W-3, 1C-W-4, 2A-W-11, 2A-W-9, 5-W-18, 5-W-20, 5-W-4, 5-W-50, 5-W-51, 5-W-52, and MW-39. The RL exceedances occurred in wells located primarily within or adjacent to the residual NAPL plume, with only a few exceptions (1C-W-4, 2A-W-9, and MW-39) (Figure 5-14). Trace product was observed in the samples collected from locations 2A-W-11, MW-39, and 5-W-51, all of which had TPH (calc) concentrations exceeding the RL.

During the March 2009 groundwater monitoring event, nine groundwater samples, collected from 8 site-wide monitoring locations (all within the Levee Zone), were analyzed for TPH-SG by NWTPH-Dx. All results were non-detect.

During the September 21 to 24, 2009, semi-annual groundwater monitoring event, 56 groundwater samples were collected from 50 site-wide monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 36 of the 56 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 63 to 3490 µg/L with an average concentration of 663.9 µg/L. Seventeen of the 36 samples with detected TPH had TPH (calc) concentrations exceeding the RL (477 µg/L) with concentrations ranging from 490 to 3490 µg/L. The RL exceedances were detected at the following 16 locations: 1B-W-23, 1C-W-8, 2A-W-11, 2A-W-9, 3-W-42, 5-W-20, 5-W-4, 5-W-42, 5-W-50, 5-W-51, 5-W-52, 5-W-53, 5-W-55, 5-W-56, MW-3, and MW-39. The RL exceedances occurred in wells located primarily within or adjacent to the residual NAPL plume, with only a few exceptions (1C-W-8, 2A-W-9, MW-3, and MW-39) (Figure 5-14). Trace product was observed in the samples collected from locations 2A-W-11, MW-39, and 5-W-51, all of which had TPH (calc) concentrations exceeding the RL.

During the September 2009 groundwater monitoring event nine groundwater samples, collected from 8 site-wide monitoring locations (all within the Levee Zone), were also analyzed for TPH-SG by NWTPH-Dx. TPH-SG was detected in 3 of the 9 samples. TPH-SG (calc) concentrations in the samples with detected TPH-SG ranged from 62 to 640  $\mu$ g/L with an average concentration of 263  $\mu$ g/L. One of the 3 samples with detected TPH-SG had a TPH-SG (calc) concentration exceeding the RL (5-W-42, 640  $\mu$ g/L). Well 5-W-42 is located within the Levee Zone, but outside and to the west of the 2006 interim cleanup action area (Figure 5-16).

### 5.3.2 Air Sparging System Monitoring

Groundwater samples were collected from air sparging system monitoring locations (1C-W-1, 1C-W-7, and 1C-W-8) on a monthly basis from March (system start-up) to September 2009. TPH results from these events are displayed on Figures 5-14 to 5-16 and in Tables 5-3 and 5-4. All results from the air sparging system well monitoring events will be analyzed as part of the annual AS system operations report for 2009. Monitoring well 1C-W-1 was sampled prior to the system start-up, but 1C-W-7 and 1C-W-8 were not sampled until after start-up because 1C-W-7 was not yet developed and 1C-W-8 was not yet installed (2009 *Annual Air Sparging System Report* [AECOM 2009e]). Twenty-one groundwater samples were collected from these three locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 18 of the 21 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 85.1 to 3924  $\mu$ g/L with an average concentration of 670.3  $\mu$ g/L. Of the 18 samples with detected TPH, 5 had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 530 to 3924  $\mu$ g/L. The RL exceedances were detected in samples from wells 1C-W-7 and 1C-W-8, which are located upgradient and downgradient, respectively, of the air sparging system.

### 5.3.3 Hydraulic Control and Containment System

The following sections summarize groundwater analytical results from wells that characterize the HCC and adjacent areas. A quarterly monitoring frequency was planned for HCC system monitoring locations located in the backfill and downgradient of the HCC and for the HCC system performance monitoring end well and gate wells, but these locations were not sampled during the December 2008 and March 2009 quarterly monitoring events. Installation of these monitoring locations was completed in late March; therefore, the first sampling event for these locations was conducted in early April and is presented as a monthly monitoring event in this report. Quarterly monitoring proceeded as planned during the June and September 2009 monitoring events. TPH results from these events are displayed on Figures 5-15 and 5-16 and in Tables 5-3 and 5-4. All results from the HCC well monitoring events will be analyzed as part of the annual HCC system operations report for 2009.

#### 5.3.3.1 Backfill and Downgradient of the HCC

Groundwater samples were collected from monitoring locations within the clean backfill emplaced during the HCC wall construction and downgradient of the HCC wall (1B-W-23, 1C-W-7, 2A-W-40, 2A-W-41, 2A-W-42, and 5-W-43) in April 2009 (after initial installation), quarterly during the June and September 2009 events, and monthly (1C-W-7 only, which is sampled on a monthly basis because it is also used to monitor the air sparging system). Twenty-six groundwater samples were collected from these six backfill/downgradient locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 17 of the 26 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 222 to 1677  $\mu$ g/L with an average concentration of 473.8  $\mu$ g/L. Five of the 17 samples with detected TPH had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 510 to 1677  $\mu$ g/L. The RL exceedances were detected in samples from the following 4 locations: 1B-W-23, 1C-W-7, 2A-W-41, and 5-W-43. These four wells are all located in the clean backfill on the north side of the HCC wall. Monthly follow-up groundwater samples were collected from these wells from April to

September 2009. Results from the backfill/downgradient wells will be analyzed as part of the annual HCC system operations report for 2009.

Note that during the September 23, 2009 sampling of well 1B-W-23, groundwater was turbid and drew down quickly and the field parameters did not stabilize. This is most likely attributable to the 2009 construction dewatering activities that were active from September 11 to September 22, 2009. Based on the field notes the data are not representative of normal steady state groundwater conditions and may have been affected by increased turbidity/solids due to construction activities.

### 5.3.3.2 HCC System Performance

### **End Well**

Groundwater samples were collected from EW-1, located at the west end of the HCC wall, in April 2009 (after initial installation) and quarterly during the June and September 2009 events. Note that two attempts were made to install an additional end well (EW-2 and EW-2A), which was planned for a location near the east end of the HCC wall, but it was not installed due to the observation of free product. The EW-1 samples were analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was not detected in any of the three samples.

#### Gate Wells

Groundwater samples were collected from the four gate wells (GW-1 to GW-4) quarterly during the June and September 2009 events and on a monthly basis from April to September 2009 (after initial installation and for wells that exhibited RL exceedances). The samples were analyzed for TPH by NWTPH-Dx without silica gel cleanup. Eighteen groundwater samples were collected from these four locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 13 of the 18 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 63 to 1060  $\mu$ g/L with an average concentration of 520  $\mu$ g/L. Of the 13 samples with detected TPH, 6 had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 660 to 1060  $\mu$ g/L. The RL exceedances were all detected in samples from HCC gate well GW-2, located to the north of the west vault.

#### Gate Vaults and Sentry Wells

Groundwater samples were collected from the HCC system vaults during the December 2008 quarterly monitoring event and from sentry wells located within the vaults during the semi-annual groundwater monitoring events in March and September 2009. These locations are intended to monitor TPH concentrations in the reactive material in each gate in order to evaluate treatment capacity and exhaustion rates (AECOM 2009d). TPH in groundwater collected from these locations is affected by the reactive media; therefore, these results are not representative of site groundwater conditions and are not analyzed in this report. The groundwater results are presented in Table 5-3 for reference, but are not presented on the report figures.

### 5.3.4 Schoolyard Perimeter Zone Monitoring

Groundwater samples were collected from monitoring locations around the perimeter of the schoolyard (5-W-50 to 5-W-56) during the semi-annual groundwater monitoring events in March and September 2009. TPH results from these semi-annual events are displayed on Figures 5-14 and 5-16. Sixteen groundwater samples were collected from these six schoolyard perimeter zone monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 11 of the 16 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 263 to 7740  $\mu$ g/L with an average concentration of 2250  $\mu$ g/L. Of the 11 samples with detected TPH, 10 had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 490 to 7740  $\mu$ g/L. The RL exceedances were detected in samples from all schoolyard perimeter wells, with the exception of 5-W-

54. Trace product was observed in both samples collected from 5-W-51, one of which had the highest observed TPH (calc) concentration (7740 µg/L); both detected concentrations exceeded the RL.

#### 5.3.5 Levee Zone

Groundwater samples were collected from levee zone monitoring locations (5-W-14 to 5-W-20 and 5-W-42) quarterly during the March, June, and September 2009 events. TPH results from these events are displayed on Figures 5-13 to 5-16. Thirty-seven groundwater samples were collected from these eight levee zone monitoring locations and analyzed for TPH by NWTPH-Dx with and without silica gel cleanup. TPH was detected in 16 of the 37 samples; TPH-SG was detected in 3 of the 37 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 254 to 2057  $\mu$ g/L with an average concentration of 1006.8  $\mu$ g/L. TPH-SG (calc) concentrations in the samples with detected TPH ranged from 62 to 640  $\mu$ g/L with an average concentration of 263  $\mu$ g/L. Of the 16 samples with detected TPH, 11 had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 530 to 2057  $\mu$ g/L. The TPH (calc) RL exceedances were detected in samples from wells 5-W-18, 5-W-20, and 5-W-42. One of the three samples with detected TPH-SG had a TPH-SG (calc) concentration exceeding the RL (5-W-42, 640  $\mu$ g/L). Wells 5-W-18 and 5-W-20, which exhibited TPH (calc) RL exceedances, are located within the 2006 interim cleanup action area and downgradient of the excavation liner. Well 5-W-42, which exhibited both TPH (calc) and TPH-SG (calc) RL exceedances, is located outside (west) of the 2006 interim cleanup action area.

During the 2007 to 2008 groundwater monitoring period, a groundwater sample was collected from a seep observed on the bank of the South Fork Skykomish River (in addition to the groundwater monitoring network locations) per Ecology's request. The 2007 to 2008 *Annual Site-Wide Groundwater Monitoring Report* (AECOM 2009f) recommended additional seep sampling during the 2008 to 2009 monitoring period due to the elevated TPH (calc) concentration (in excess of the CUL, but below the RL) observed in the seep sample. In August 2009, a soil investigation was conducted at the west end of the levee zone as part of the 2009 remedial design investigation activities (AECOM 2010) in order to delineate the extent of TPH in this area. The investigation results identified soil RL (3,400 mg/kg) exceedances in the area west of the levee. The extent of soil with TPH above the RL is well constrained by the August 2009 investigation results; therefore, AECOM did not conduct additional seep sampling during the 2008 to 2009 monitoring period.

### 5.3.6 Former Maloney Creek Zone - East Wetland and Surrounding Area

Groundwater samples were collected from monitoring locations surrounding the FMCZ – East Wetland (2A-W-9, 2A-W-10, 2A-W-11, 2B-W-4, 2B-W-45, 2B-W-46, MW-3, MW-4, and MW-39) quarterly during the December, March, June, and September 2009 events. TPH results from these events are displayed on Figures 5-13 to 5-16. Twenty-five groundwater samples were collected from these nine monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in 12 of the 25 samples. TPH (calc) concentrations in the samples with detected TPH ranged from 86 to 2024  $\mu$ g/L with an average concentration of 957.2  $\mu$ g/L. Of the 12 samples with detected TPH, 8 had TPH (calc) concentrations exceeding the RL (477  $\mu$ g/L) with concentrations ranging from 600 to 2024  $\mu$ g/L. The RL exceedances were detected in samples from the following four locations: 2A-W-9, 2A-W-11, MW-3, and MW-39. Trace product was observed in all four samples collected from 2A-W-9 and MW-39, one of which had the highest observed TPH (calc) concentration (2024  $\mu$ g/L); all samples that were observed to contain product had TPH(calc) concentrations exceeding the RL.

Two groundwater samples collected from two locations south of the FMCZ- East Wetland (2B-W-45 and 2B-W-46) were also analyzed for TPH-SG by NWTPH-Dx with silica gel cleanup. TPH-SG was non-detect in both samples.

### 5.3.7 Former Maloney Creek Zone – West Wetland

Groundwater samples were collected from monitoring locations along the northern boundary of the FMCZ – west wetland (3-W-41, 3-W-42, and 3-W-43) on August 25 and September 23, 2009. TPH results from the September event are displayed on Figures 5-16. Seven groundwater samples were collected from these three monitoring locations and analyzed for TPH by NWTPH-Dx without silica gel cleanup. TPH was detected in four of the seven samples. TPH (calc) concentrations in the samples with detected TPH ranged from 65 to 930  $\mu$ g/L with an average concentration of 292  $\mu$ g/L. One of the four samples with detected TPH had a TPH (calc) concentration exceeding the RL (3-W-42, 930  $\mu$ g/L). Well 3-W-42 is located in the 25-foot buffer zone boundary just north of the north-reaching neck of the west wetland, which extends along the Former Maloney Creek channel (Figure 5-16).

The sampling protocol for the newly installed FMCZ – west wetland wells (3-W-41, 3-W-42, and 3-W-43) was identified in the 2009 *Remedial Design Investigation Work Plan* (AECOM 2009c). The work plan specified collection of TOC and TPH with and without silica gel from three well/boring locations (3-W-41, 3-W-42, and 3-W-43) located in the west wetland buffer area. However, because this area is not subject to OC-normalization (since it is above the ordinary high water mark), there was no reason to collect TOC data. Similarly, since the initial dissolved TPH without silica gel concentrations were below the cleanup level, we believed it was not necessary to analyze for TPH with silica gel analysis. Elevated TPH was detected at 3-W-43 (in exceedance of the RL) in September 2009; therefore, these locations were sampled again in October and November 2009 for NWTPH-Dx with and without silica gel cleanup. The October and November 2009 groundwater analytical results from these locations will be included in the next annual groundwater monitoring report (2009 to 2010).

## 6.0 Summary and Recommendations

This report presents the results of groundwater monitoring performed from October 14, 2008 to September 24, 2009. Approximately 217 groundwater samples were collected during the reporting period.

The fluid level and analytical data collected throughout the reporting period were compared to previous monitoring data. These data indicate groundwater flow gradients are relatively consistent throughout the year and similar to gradients observed during the previous monitoring periods. The exception is September 2009, which coincided with construction dewatering activities. Mounding on the upgradient side of the HCC wall is being adequately controlled by pumping the groundwater from recovery wells into the on-site treatment system.

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

TPH concentrations during the monitoring events exceeded the CUL (208  $\mu$ g/L) and RL (477  $\mu$ g/L) at locations downgradient and immediately adjacent to areas containing free and residual product.

Groundwater monitoring should continue pursuant to the 2009 *Groundwater Monitoring Plan* (AECOM 2009a) and the 2009 *Compliance Monitoring Plan Update* (AECOM 2009d), and future plans, including the 2010 Compliance Monitoring Plan Update and 2010 Groundwater Monitoring Plan, pending completion of all cleanup actions specified in the CAP, as amended, and approval of a Final Long-term Conformational Monitoring Plan in 2012 in accordance with Exhibit C to the CD.

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**Table 2-1 Modifications to the Groundwater Monitoring Network** 

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function	Rationale for Abandoned/Destroyed or Not Installed Locations  *Reference for Planned Activity		*Reference for Completed Activity
Abandoned	3/24/2009	1A-W-2	Monitoring Well	Site-wide	located within 2009 excavation extent		2009 As-Built Completion Report (AECOM, 2009i [in review])
Abandoned	0/24/2003	171 VV Z	Worldoning Won	One wide	located within 2000 excavation extent		2009 As-Built Completion Report (AECOM, 2009i
Abandoned	3/26/2009	1A-W-3	Monitoring Well	Site-wide	located within 2009 excavation extent	2009h)	[in review])
Abandoned	3/26/2009	5-W-1	Monitoring Well	Site-wide	located within 2009 excavation extent	2009h)	2009 As-Built Completion Report (AECOM, 2009i [in review])
Abandoned	3/26/2009	MW-26	Monitoring Well	Site-wide	located within 2009 excavation extent	2009h)	2009 As-Built Completion Report (AECOM, 2009i [in review])
Abandoned	3/26/2009	MW-36	Monitoring Well	Site-wide	located within 2009 excavation extent		2008 As-Built Completion Report (AECOM, 2009j)
Abandanad	10/6/2009	PW-01	Dumping Wall	HCC System	temporary location; abandoned when RW wells came on-line	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	2009 As-Built Completion Report (AECOM, 2009i [in review])
Abandoned	10/6/2009	F VV-U I	Pumping Well	HCC System	temporary location; abandoned when		2009 As-Built Completion Report (AECOM, 2009i
Abandoned	10/6/2009	PW-02	Pumping Well	HCC System	RW wells came on-line	Special Design Report (ENSR, 2008c)	[in review])
Abandoned	10/0/2003	1 44-02	r uniping wen	1100 Gystern	temporary location; abandoned when	Hydraulic Control and Containment System	2009 As-Built Completion Report (AECOM, 2009i
Abandoned	10/6/2009	PW-03	Pumping Well	HCC System	RW wells came on-line	Special Design Report (ENSR, 2008c)	[in review])
7 Ibandonoa	Between 7/20 and	1 11 00	r amping won	1100 Gyelein	inadvertently destroyed during 2009	Special Bedign Nepert (Entert, 2000)	2009 As-Built Completion Report (AECOM, 2009i
Destroyed	7/24/2009	1A-W-1	Monitoring Well	Site-wide	excavation activities	NA	[in review])
	1, 2, 2, 2, 3				inadvertently destroyed during 2008	1 2 2	2008 As-Built Completion Report (AECOM,
Destroyed	10/13/2008	MW-35	Monitoring Well	Site-wide	excavation activities	NA	2009j)
,			<u> </u>		inadvertently destroyed by Town sub-		2008 As-Built Completion Report (AECOM,
Destroyed	10/1/2008 (approximately)	MW-38	Monitoring Well	Site-wide	contractor	NA	2009j)
•				Backfill and Downgradient of the		2008 Groundwater Monitoring Plan (ENSR,	·
Installed	3/18/2009	1B-W-23	Monitoring Well	HCC	NA	2008a)	Table 2-2 and Appendix B
Installed	3/20/2009	1C-W-7	Monitoring Well	Air Sparging System/Downgradient of the HCC	NA	2008 Groundwater Monitoring Plan (ENSR, 2008a)	2009 Annual Air Sparging System Report (AECOM, 2009f)
Installed	4/2/2009	1C-W-8	Monitoring Well	Air Sparging System	NA	2008 Groundwater Monitoring Plan (ENSR, 2008a)	2009 Annual Air Sparging System Report (AECOM, 2009f)
Installed	3/23/2009	2A-W-40	Monitoring Well	Downgradient of the HCC	NA	2008 Groundwater Monitoring Plan (ENSR, 2008a)	Table 2-2 and Appendix B
Installed	3/24/2009	2A-W-41	Monitoring Well	Downgradient of the HCC	NA	2008 Groundwater Monitoring Plan (ENSR, 2008a)	Table 2-2 and Appendix B
Installed	2/24/2000	24 14/ 42	Monitoring Wall	Downgradient of the UCC	NIA	2008 Groundwater Monitoring Plan (ENSR,	Toble 2.2 and Asserdiv B
Installed	3/24/2009	2A-W-42	Monitoring Well	Downgradient of the HCC	NA NA	2008a) Addendum 4 to the BNSF Skykomish Remedial	Table 2-2 and Appendix B 2008 Addendum to the Remedial Design
Installed	11/11/2008	2B-W-45	Monitoring Well	FMCZ-EW and Surrounding Area	NA	Design Investigation Work Plan (ENSR, 2008d)	Investigation (AECOM, 2009c)
Installed	11/11/2008	2B-W-46	Monitoring Well	FMCZ-EW and Surrounding Area	NA NA	Addendum 4 to the BNSF Skykomish Remedial Design Investigation Work Plan (ENSR, 2008d)	2008 Addendum to the Remedial Design Investigation (AECOM, 2009c)
Installed	8/19/2009	3-W-41	Monitoring Well	FMCZ-WW	NA NA	2009 Remedial Design Investigation Work Plan (AECOM, 2009d)	2009 Remedial Design Investigation (AECOM, 2009b [in review])
Installed	8/14/2009	3-W-41	Monitoring Well	FMCZ-WW	NA NA	2009 Remedial Design Investigation Work Plan (AECOM, 2009d)	2009 Remedial Design Investigation (AECOM, 2009b [in review])
Installed	8/18/2009	3-W-43	Monitoring Well	FMCZ-WW	NA	2009 Remedial Design Investigation Work Plan (AECOM, 2009d)	2009 Remedial Design Investigation (AECOM, 2009b [in review])

**Table 2-1 Modifications to the Groundwater Monitoring Network** 

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function	Rationale for Abandoned/Destroyed or Not Installed Locations	*Reference for Planned Activity	*Reference for Completed Activity
						2008 Groundwater Monitoring Plan (ENSR,	
Installed	11/13/2008	5-W-42	Monitoring Well	Levee Zone	NA	2008a)	Table 2-2 and Appendix B
	0 (07 (00 00	- 14/ 40		Backfill and Downgradient of the		2008 Groundwater Monitoring Plan (ENSR,	T
Installed	3/27/2009	5-W-43	Monitoring Well	HCC	NA	2008a)	Table 2-2 and Appendix B
1 ( . 1) 1	0/00/0000	E\A/ 4	1100 5 . 134/. !!	1100 0	NIA	2008 Groundwater Monitoring Plan (ENSR,	A
Installed	3/26/2009	EW-1	HCC End Well	HCC System	NA	2008a)	Annual HCC Operations Report (AECOM, 2009k)
Installed	3/33/3000	GW-1	HCC Coto Woll	LICC System	NA	2008 Groundwater Monitoring Plan (ENSR,	Annual HCC Operations Banart (AECOM 2000k)
Installed	3/23/2009	GW-1	HCC Gate Well	HCC System	NA NA	2008a) 2008 Groundwater Monitoring Plan (ENSR,	Annual HCC Operations Report (AECOM, 2009k)
Installed	3/20/2009	GW-2	HCC Gate Well	HCC System	NA	2008 Groundwater Monitoring Flair (ENSK,	Annual HCC Operations Report (AECOM, 2009k)
IIIStalleu	3/20/2009	GVV-2	ncc Gate Well	HCC System	INA	2008 Groundwater Monitoring Plan (ENSR,	Allitual HCC Operations Report (AECOM, 2009k)
Installed	3/17/2009	GW-3	HCC Gate Well	HCC System	NA	2008a)	Annual HCC Operations Report (AECOM, 2009k)
Ilistalieu	3/11/2009	GW-3	TICC Gate Well	TICC System	INA	2008 Groundwater Monitoring Plan (ENSR,	Annual Fice Operations Report (ALCOM, 2009K)
Installed	3/19/2009	GW-4	HCC Gate Well	HCC System	NA	2008a)	Annual HCC Operations Report (AECOM, 2009k)
motanea	During HCC system	OW 4	1100 Gate Well	Tiee dystein	14/1	2008 Groundwater Monitoring Plan (ENSR,	/ Tillidai Fide Operations Report (RECOM, 2005K)
Installed	installation	IW-01	HCC Injection Well	HCC System	NA	2008a)	Annual HCC Operations Report (AECOM, 2009k)
	During HCC system		i i e e i i je e i e i e i e i e i e i e	Cycle		2008 Groundwater Monitoring Plan (ENSR,	rumaan roo operanene ropen (ruzoem, zecen,
Installed	installation	IW-02	HCC Injection Well	HCC System	NA	2008a)	Annual HCC Operations Report (AECOM, 2009k)
Installed	3/2/2009	MW-38R	Monitoring Well	Site-wide	NA	NA ´	Table 2-2 and Appendix B
			Ĭ			Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/7/2008	PZ-1	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
						Hydraulic Control and Containment System	2009 As-Built Completion Report Addendum
Installed	11/4/2008	PZ-2N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	(AECOM, Pending)
						Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/7/2008	PZ-2S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
						Hydraulic Control and Containment System	2009 As-Built Completion Report Addendum
Installed	11/3/2008	PZ-3N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	(AECOM, Pending)
						Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/8/2008	PZ-3S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
						Hydraulic Control and Containment System	2009 As-Built Completion Report Addendum
Installed	11/3/2008	PZ-4N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	(AECOM, Pending)
	40/0/000	57.40	1100 B;	1100.0	<b>N</b> 10	Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/8/2008	PZ-4S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
ا مالمعددا	44/0/0000	D7 5N	LICC Diameter	LICC Contain	NIA	Hydraulic Control and Containment System	2009 As-Built Completion Report Addendum
Installed	11/3/2008	PZ-5N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	(AECOM, Pending) 2008 As-Built Completion Report (AECOM,
Installed	10/7/2008	PZ-5S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009i)
IIIStalleu	10/1/2008	FZ-33	TICO FIEZOITIELEI	TICC System	IVA	Hydraulic Control and Containment System	2009) 2009 As-Built Completion Report Addendum
Installed	11/4/2008	PZ-6N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	(AECOM, Pending)
Installed	11/4/2000	1 2-011	1100 1 lezofficter	1100 Gystein	INA	Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/8/2008	PZ-6S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
motanoa	10/0/2000	1200	110011020110101	Tiee cyclem	107	Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/10/2008	PZ-7N	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
				-,		Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/16/2008	PZ-7S	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
						Hydraulic Control and Containment System	2008 As-Built Completion Report (AECOM,
Installed	10/15/2008	PZ-8	HCC Piezometer	HCC System	NA	Special Design Report (ENSR, 2008c)	2009j)
						Hydraulic Control and Containment System	
Installed	10/28/2008	RW-03	HCC Recovery Well	HCC System	NA	Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
						Hydraulic Control and Containment System	
Installed	10/28/2008	RW-04	HCC Recovery Well	HCC System	NA	Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)

**Table 2-1 Modifications to the Groundwater Monitoring Network** 

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function	Rationale for Abandoned/Destroyed or Not Installed Locations	*Reference for Planned Activity	*Reference for Completed Activity
Installed	4/24/2009	RW-07	HCC Recovery Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	4/24/2009	RW-08	HCC Recovery Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S1-AD	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S1-AU	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S1-BD	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S1-BU	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S2-AD	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S2-AU	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S2-BD	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation	S2-BU	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c)	Annual HCC Operations Report (AECOM, 2009k)
Installed	During HCC system installation During HCC system	S3-AD	Sentry Well	HCC System	NA	Hydraulic Control and Containment System Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation  During HCC system	S3-AU	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c)  Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation  During HCC system	S3-BD	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c)  Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation  During HCC system	S3-BU	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c)  Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation  During HCC system	S3-CD	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c)  Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation  During HCC system	S3-CU	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c)  Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation During HCC system	S4-AD	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation During HCC system	S4-AU	Sentry Well	HCC System	NA		Annual HCC Operations Report (AECOM, 2009k)
Installed	installation During HCC system	S4-BD	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation During HCC system	S4-BU	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation During HCC system	S4-CD	Sentry Well	HCC System	NA	Special Design Report (ENSR, 2008c) Hydraulic Control and Containment System	Annual HCC Operations Report (AECOM, 2009k)
Installed	installation	S4-CU	Sentry Well	HCC System  Backfill and Downgradient of the	NA	Special Design Report (ENSR, 2008c) 2009 Groundwater Monitoring Plan (AECOM,	Annual HCC Operations Report (AECOM, 2009k)
Deferred	NA	1A-W-36	Monitoring Well	HCC Backfill and Downgradient of the	2009 Excavation activities	2009a) 2009 Groundwater Monitoring Plan (AECOM,	NA
Deferred	NA	1A-W-37	Monitoring Well	нсс	2009 Excavation activities	2009a) 2009 Groundwater Monitoring Plan (AECOM,	NA NA
Deferred	NA	1A-W-38	Monitoring Well	Site-wide  Backfill and Downgradient of the	2009 Excavation activities	2009a) 2009 Groundwater Monitoring Plan (AECOM,	NA
Deferred	NA	5-W-44	Monitoring Well	HCC	2009 Excavation activities	2009a)	NA

**Table 2-1 Modifications to the Groundwater Monitoring Network** 

Activity	Activity Date	Location ID	Location Type	Location Monitoring Function  Abandoned/Destroyed or Not Installed Locations		*Reference for Planned Activity	*Reference for Completed Activity
				Backfill and Downgradient of the		2009 Groundwater Monitoring Plan (AECOM,	
Deferred	NA	5-W-45	Monitoring Well	HCC	2009 Excavation activities	2009a)	NA
Deferred	NA	EW-2	HCC End Well	HCC System	Blebs of product and sheen observed 2 HCC System during attempted well installation		NA
				1100 0,000	January and the same of the sa	2008a)	177
					Blebs of product and sheen observed	2009 Remedial Design Investigation Work Plan	
Deferred	NA	EW-2A	HCC End Well	HCC System	during attempted well installation	(AECOM, 2009d)	NA

<sup>\*</sup>Complete references are included in references section of the report.

HCC = Hydraulic Control and Containment

FMCZ - EW = Former Maloney Creek Zone - East Wetland

FMCZ - WW = Former Maloney Creek Zone - West Wetland

**Table 2-2 Well Completion Details** 

Well ID	Date Installed	MP Elevation	Ground Surface Elevation (NAVD 88)	Total Well Depth (ft – bgs)	Surface Completion	Well Diameter (inches)	Well Material	Screen Slot Size (inch)
1B-W-23	3/18/2009	935.81	936.10	22	Flush Mount	2	Schedule 40 PVC	0.010
2A-W-40	3/23/2009	933.32	933.66	40.5	Flush Mount	2	Schedule 40 PVC	0.010
2A-W-41	3/24/2009	935.05	935.39	21	Flush Mount	2	Schedule 40 PVC	0.020
2A-W-42	3/24/2009	934.92	935.14	21	Flush Mount	2	Schedule 40 PVC	0.020
5-W-42	11/13/2008	923.45	923.84	20.0	Flush Mount	2	Schedule 40 PVC	0.020
5-W-43	3/23/2009	925.77	926.04	40.5	Flush Mount	2	Schedule 40 PVC	0.010
MW-38R	3/2/2009	922.39	922.59	20.0	Flush Mount	2	Schedule 40 PVC	0.010

Well ID	Screen Interval (ft – bgs)	Concrete Interval (ft – bgs)	Seal Material	Surface Seal Interval	Sand Pack Material	Sand Pack Interval during Installation	DTW during Installation (ft.)
1B-W-23	5 - 19.75	0 – 1	Bentonite	1 – 3	#10/20 silica sand	3 – 20	9
2A-W-40	30.5 - 40	0 – 1.5	Bentonite	1.5 - 29.5	#10/20 silica sand	29.5 - 41	11
2A-W-41	6 – 21	0 – 1	Bentonite	1 – 5	#2/12 silica sand	5 – 21	10
2A-W-42	6 – 21	0 – 1	Bentonite	1 – 5	#2/12 silica sand	5 – 21	10
5-W-42	5 – 20	0 – 1	Bentonite	1 – 3	#10/20 silica sand	3 – 20.2	9
5-W-43	30.5 - 40.5	0 – 1.5	Bentonite	1.5 - 29.5	#10/20 silica sand	29.5 - 41	11
MW-38R	5 – 20	0 – 1	Bentonite	1 – 4	#10/20 silica sand	4 – 20	4

### Notes:

ID = identification

MP = Measuring Point

ft - bgs = feet below ground surface

DTW = depth to water

**Table 2-3 Groundwater Monitoring Event Dates** 

Event	Start Date	End Date
Monthly Fluid Gauging Event	10/14/2008	10/14/2008
Monthly Fluid Gauging Event	11/10/2008	11/10/2008
Quarterly Fluid Gauging Event	12/16/2008	12/16/2008
Quarterly Groundwater Sampling Event	12/17/2008	12/17/2008
Monthly Fluid Gauging Event	1/22/2009	1/22/2009
Monthly Fluid Gauging Event	2/24/2009	2/24/2009
Monthly Groundwater Sampling Event	3/5/2009	3/5/2009
Semi-Annual Fluid Gauging Event	3/23/2009	3/23/2009
Semi-Annual Groundwater Sampling Event	3/23/2009	3/25/2009
Monthly Groundwater Sampling Event	4/1/2009	4/2/2009
Air Sparge System Monthly Groundwater Sampling Event	4/7/2009	4/7/2009
Monthly Fluid Gauging Event	4/21/2009	4/21/2009
Air Sparge System Monthly Groundwater Sampling Event	5/12/2009	5/12/2009
Monthly Fluid Gauging Event	5/12/2009	5/12/2009
Quarterly Fluid Gauging Event	6/9/2009	6/9/2009
Quarterly Groundwater Sampling Event	6/9/2009	6/11/2009
Monthly Groundwater Sampling Event	7/7/2009	7/7/2009
Air Sparge System Monthly Groundwater Sampling Event	7/28/2009	7/28/2009
Monthly Fluid Gauging Event	7/28/2009	7/28/2009
Monthly Fluid Gauging Event	8/24/2009	8/25/2009
Monthly Groundwater Sampling Event	8/25/2009	8/25/2009
Air Sparge System Monthly Groundwater Sampling Event	8/25/2009	8/25/2009
Semi-Annual Fluid Gauging Event	9/21/2009	9/21/2009
Semi-Annual Groundwater Sampling Event	9/21/2009	9/24/2009

### Note:

Sampling details for each monitoring event are included in Table 2-4.

**Table 2-4 Groundwater Sampling Event Details** 

			l				
Site Area	Location ID	Quarterly (12/17/08)	Semi-Annual (3/23/09 to 3/25/09)	Quarterly (6/9/09 to 6/11/09)	Semi-Annual (9/21/09 to 9/24/09)	Monthly sampling event(s)	Analyte
gr E	1C-W-7*	Installed	3/20/2009	Х	Х	Х	NWTPH-Dx
Air Sparging System	1C-W-8	Installed	4/2/2009	Х	Х	Х	NWTPH-Dx
ે જે જે	1C-W-1	-	Х	Х	Х	Х	NWTPH-Dx
	1A-W-36			Not installed			NA
a t	1A-W-37			Not installed			NA
adji	1B-W-23	Installed 3/18/2009		Х	Х	Х	NWTPH-Dx
န်ာ့ပ	1C-W-7*	Installed	3/20/2009	Х	Х	Х	NWTPH-Dx
d Downg the HCC	2A-W-40		3/23/2009	Х	Х	Χ	NWTPH-Dx
g g	2A-W-41		3/24/2009	X	Х	X	NWTPH-Dx
a a	2A-W-42		3/24/2009	X	X	X	NWTPH-Dx
量	5-W-43	Installed	3/27/2009	X Not installed	Х	Х	NWTPH-Dx
Backfill and Downgradient of the HCC	5-W-44 5-W-45			Not installed Not installed			NA NA
	3-W-41	ı	nstalled 8/19/2009		Х	Х	NWTPH-Dx
FMCZ -	3-W-42		nstalled 8/14/2009		X	X	NWTPH-Dx
₹ >	3-W-43		nstalled 8/18/2009		X	X	NWTPH-Dx
÷ b	2B-W-45	X	X	Х	Х	-	NWTPH-Dx
Former Maloney Creek Zone - East Wetland and Surrounding Areas	2B-W-46	X	Х	Х	Х	-	NWTPH-Dx
Are Are	2A-W-10	-	X	-	X	-	NWTPH-Dx
ormer Maloney Cree ne - East Wetland a Surrounding Areas	2A-W-11	-	X	-	X	-	NWTPH-Dx
Mal st \ indi	2A-W-9 2B-W-4	-	X	-	X	<u>-</u>	NWTPH-Dx NWTPH-Dx
P E D	∠B-vv-4 MW-3	-	X	<u> </u>	X	<u> </u>	NWTPH-Dx
ne - Sur	MW-39	_	X		X	<u> </u>	NWTPH-Dx
Z S	MW-4	-	X	-	X	-	NWTPH-Dx
	CV (S3)	X	-	-	-	-	NWTPH-Dx
	EV (S4)	-	-	-	-	-	NWTPH-Dx
	EW-1	Installed	3/26/2009	X	X	X	NWTPH-Dx
	EW-2			Not installed			NA
	EW-2A FWV (S1)	Х	1	Not installed			NA NWTPH-Dx
	GW-1		3/23/2009	X	- X	X	NWTPH-DX NWTPH-Dx
	GW-2		3/20/2009	X	X	X	NWTPH-Dx
	GW-3		3/17/2009	X	X	X	NWTPH-Dx
	GW-4	Installed	3/19/2009	Х	Х	Х	NWTPH-Dx
	S1-AD	-	X	-	Х	-	NWTPH-Dx
	S1-AU	-	X	-	Х	-	NWTPH-Dx
	S1-BD	-	X	-	X	-	NWTPH-Dx
Eem	S1-BU	-	X	<u> </u>	X	-	NWTPH-Dx
HCC System	S2-AD S2-AU	-	X		X	-	NWTPH-Dx NWTPH-Dx
Ş	\$2-A0 \$2-BD	-	X	-	X	-	NWTPH-Dx
오	S2-BU	-	X	-	X	-	NWTPH-Dx
	S3-AD	-	X	-	X	-	NWTPH-Dx
ĺ	S3-AU	-	X	-	Х	-	NWTPH-Dx
	S3-BD	-	Х	-	Х	-	NWTPH-Dx
	S3-BU	-	X	-	X	-	NWTPH-Dx
ĺ	S3-CD	-	X	-	X	-	NWTPH-Dx
ĺ	S3-CU S4-AD	-	X	-	X	-	NWTPH-Dx NWTPH-Dx
	S4-AU	-	X		X	-	NWTPH-Dx
	S4-BD	-	X	-	X	-	NWTPH-Dx
	S4-BU	-	X	-	X	-	NWTPH-Dx
1	S4-CD	-	X	-	X	-	NWTPH-Dx
	S4-CU	-	X	-	Х	-	NWTPH-Dx
	WV (S2)	X	-	-	-	-	NWTPH-Dx

**Table 2-4 Groundwater Sampling Event Details** 

Site Area	Location ID						
		Quarterly (12/17/08)	Semi-Annual (3/23/09 to 3/25/09)	Quarterly (6/9/09 to 6/11/09)	Semi-Annual (9/21/09 to 9/24/09)	Monthly sampling event(s)	Analyte
Levee Zone	5-W-14	X	X	Χ	X	-	NWTPH-Dx
	5-W-15	Х	X	X	X	-	NWTPH-Dx
	5-W-16	Х	X	Х	X	-	NWTPH-Dx
	5-W-17	Х	X	X	X	-	NWTPH-Dx
	5-W-18	Х	X	X	X	-	NWTPH-Dx
	5-W-19	Х	X	X	X	-	NWTPH-Dx
	5-W-20	Х	Х	X	X	-	NWTPH-Dx
	5-W-42	Х	Х	X	X	-	NWTPH-Dx
Schoolyard Perimeter Zone	5-W-50	-	X	-	X	-	NWTPH-Dx
	5-W-51	-	X	-	X	-	NWTPH-Dx
	5-W-52	-	X	-	X	-	NWTPH-Dx
	5-W-53	-	Х	-	X	-	NWTPH-Dx
	5-W-54	-	Х	-	X	-	NWTPH-Dx
S P	5-W-55	-	X	•	X	-	NWTPH-Dx
	5-W-56	-	X	•	X	-	NWTPH-Dx
	1A-W-1	-	X		between 7/20 and	NWTPH-Dx	
	1A-W-3	-	X	Ab	oandoned 3/26/20	NWTPH-Dx	
	1A-W-4	-	X	-	X	-	NWTPH-Dx
	1A-W-5	-	X	-	X	-	NWTPH-Dx
	1A-W-38		NA				
ž	1B-W-2	-	X	•	X	-	NWTPH-Dx
∞epiW-eis	1B-W-3	-	X	•	X	X	NWTPH-Dx
	1C-W-2	-	X	-	X	-	NWTPH-Dx
	1C-W-3	-	Х	-	Х	-	NWTPH-Dx
	1C-W-4	-	Х	-	Х	-	NWTPH-Dx
	5-W-4	-	Х	ı	Х	-	NWTPH-Dx
	MW-16	-	Х	-	Х	-	NWTPH-Dx
	MW-35		NA				
	MW-38	_	NA				
	MW-38R		X	-	Х	-	NWTPH-Dx

Notes:

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

Where the sampling frequency differs from the planned frequency presented in the 2009 Groundwater Monitoring Plan (AECOM, 2009), a rationale is provided.

FMCZ - WW = Former Maloney Creek Zone - West Wetland

HCC = Hydraulic Control and Containment

TPH = Total Petroleum Hydrocarbons

<sup>\*</sup> Location is being monitored for multiple assessments.

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

<sup>-</sup> Not sampled

**Table 2-5 Fluid Gauging Events Summary** 

Area	Well	G	auging Monit	Well			
		Continuous^	Monthly	Quarterly	Semi-annual	Installation Date^^	Well Abandonment/ Destruction Date
Air Spargi ng Syste m	1C-W-1			X		NA	NA
	1C-W-7*			X		3/20/2009	NA
	1C-W-8			X		4/2/2009	NA
Backfill and Downgradient of the HCC	1B-W-23			X		3/18/2009	NA
	1C-W-7*			X		3/20/2009	NA
	2A-W-40			X		3/23/2009	NA
	2A-W-41			X		3/24/2009	NA
	2A-W-42			X		3/24/2009	NA
	5-W-43			Х		3/27/2009	NA
	5-W-44		Not i	NA	NA		
	5-W-45		Not i	NA	NA		
FMCZ -	3-W-41				X	8/19/2009	NA
	3-W-42				X	8/14/2009	NA
	3-W-43				Х	8/18/2009	NA
	2A-W-10		X		X	NA	NA
	2A-W-11		X		X	NA	NA
	2A-W-3		X		X	NA	NA
	2A-W-4		Х		Х	NA	NA
	2A-W-5		Х			NA	NA
	2A-W-7		Х			NA	NA
as	2A-W-9		X		Х	NA	NA
۸re	2B-B-21		X			NA	NA
) b	2B-B-33		X			NA	NA
undin	2B-W-11		X			NA	NA
	2B-W-12		X			NA	NA NA
rro	2B-W-13		X			NA	NA NA
Sul	2B-W-14		X			NA	NA NA
p p	2B-W-15		X			NA NA	NA NA
a	2B-W-19 2B-W-21		X			NA NA	NA NA
pui	2B-W-21 2B-W-30		X			NA NA	NA NA
etta	2B-W-32		X			NA NA	NA NA
×	2B-W-4		X		Х	NA NA	NA NA
st	2B-W-45		X		^	11/11/2008	NA NA
E	2B-W-46		X			11/11/2008	NA NA
Former Maloney Creek Zone - East Wetland and Surrounding Areas	MW-1		X		Х	NA	NA NA
	MW-10		X			NA NA	NA NA
	MW-11		X			NA NA	NA NA
	MW-12		X		Х	NA NA	NA NA
	MW-13		X			NA NA	NA NA
	MW-14		X		Х	NA NA	NA NA
	MW-15		X			NA NA	NA NA
	MW-17		X			NA NA	NA NA
	MW-18		X		Х	NA	NA
	MW-2		X		X	NA	NA
	MW-3		X		X	NA	NA
	MW-39		Х		Х	NA	NA
	MW-4		Х		Х	NA	NA
	MW-40		Х			NA	NA
	MW-5		X			NA	NA
	MW-7		Х			NA	NA
	MW-9		Х			NA	NA

**Table 2-5 Fluid Gauging Events Summary** 

		G	auging Monit	тсу	Well	Well Abandonment/	
Area	Well	Continuous^	Monthly	Quarterly	Semi-annual	Installation Date^^	Destruction Date
	CV (S3)	Х				NA	NA
	EV (S4)	Х				NA	NA
	EW-1			Χ		3/26/2009	NA
	EW-2			nstalled		NA	NA
	EW-2A		Not i	nstalled		NA	NA
	FWV (S1)	X				NA	NA
	GW-1			X		3/23/2009	NA
	GW-2			X		3/20/2009	NA
	GW-3			X		3/17/2009	NA
	GW-4			Х		3/19/2009	NA
				.,		During HCC	
	1144 04			X		system	N1A
	IW-01					installation	NA
				V		During HCC	
	114/ 00			X		system	NIA
	IW-02		V			installation	NA 40/0/2020
	PW-01		X			NA	10/6/2009
	PW-03		X			NA	10/6/2009
Ε	PW-04		Х			NA 40/7/0000	10/6/2009
ste	PZ-1	X				10/7/2008	NA
Š	PZ-2N	X				11/4/2008	NA
HCC System	PZ-2S	X				10/7/2008	NA NA
오	PZ-3N	X				11/3/2008	NA NA
	PZ-3S	X				10/8/2008	NA NA
	PZ-4N	X				11/3/2008	NA NA
	PZ-4S	X				10/8/2008	NA NA
	PZ-5N PZ-5S	X				11/3/2008	NA NA
	PZ-5S PZ-6N	X				10/7/2008 11/4/2008	NA NA
		X					NA NA
	PZ-6S PZ-7N	X				10/8/2008 10/10/2008	NA NA
	PZ-7N PZ-7S	X				10/16/2008	NA NA
	PZ-73	X				10/15/2008	NA NA
	RW-01	^		Х		NA	NA NA
	RW-02			X		NA NA	NA NA
	RW-03			X		10/28/2008	NA NA
	RW-04			X		10/28/2008	NA NA
	RW-05			X		NA	NA NA
	RW-06			X		NA NA	NA NA
	RW-07			X		4/24/2009	NA NA
	RW-08			X		4/24/2009	NA NA
	WV (S2)	Х				NA	NA NA
	5-W-14	,		Χ		NA	NA NA
	5-W-15			X		NA	NA NA
ne	5-W-16			X		NA NA	NA NA
Zoi	5-W-17			X		NA	NA NA
Levee Zone	5-W-17			X		NA NA	NA NA
ě	5-W-19			X		NA	NA NA
_	5-W-20			X		NA	NA
	5-W-42			X		11/13/2008	NA
	5-W-50			X		NA	NA
g g	5-W-51			X		NA	NA NA
ar Zo	5-W-52			X		NA NA	NA NA
Schoolyard Perimeter Zone	5-W-53			X		NA NA	NA NA
net ne	5-W-54			X		NA	NA NA
Sc rir	5-W-55			X		NA	NA NA
	J 11 JJ	1		^	Ī	1	1 17/1

**Table 2-5 Fluid Gauging Events Summary** 

		Ga	auging Monit	toring Frequer	ісу	Well	
Area	Well	Continuous^	Monthly	Quarterly	Semi-annual	Installation Date^^	Well Abandonment/ Destruction Date
	1A-W-1				X	NA	NA
	1A-W-2		X			NA	3/24/2009
	1A-W-3				X	NA	3/26/2009
	1A-W-4				X	NA	NA
	1A-W-38		Not i	nstalled		NA	NA
	1B-W-2				X	NA	NA
	1B-W-3				X	NA	NA
	1C-W-2				Х	NA	NA
	1C-W-3				X	NA	NA
	1C-W-4				X	NA	NA
Site-Wide**	2A-W-8				X	NA	NA
/id	5-W-2				X	NA	NA
ş	5-W-3			Х		NA	NA
Site	5-W-4				X	NA	NA
0,	MW-16				X	NA	NA
	MW-22			X		NA	NA
	MW-26			X		NA	3/26/2009
	MW-28				X	NA	NA
	MW-32				Х	NA	NA
	MW-35				Х	NA	10/13/2008
	MW-36			Х		NA	3/26/2009
	MW-38				Х	NA	10/1/2008 (approximately)
	MW-38R				Х	3/2/2009	NA NA

FMCZ - WW = Former Maloney Creek Zone - West Wetland

HCC = Hydraulic Control and Containment

TPH = Total Petroleum Hydrocarbons

<sup>\*</sup> Location is being monitored for multiple assessments.

<sup>\*\*</sup>Location is being monitored for the site-wide assessment only. Locations gauged semi-annually from all site areas are included in the site-wide assessment.

<sup>^</sup>Water level transducers began collecting continuous water level measurements at these locations on August 31, 2009.

<sup>^</sup>Installation dates for wells installed during the 2008 to 2009 monitoring period.

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		10/14/2008			11/10/2008		
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
1A-W-1	NM	-	-	NM	-	1	
1A-W-2	NM	=	-	NM	-	ı	
1A-W-3	NM	-	-	NM	-	1	
1A-W-4	NM	-	-	NM	-	-	
1A-W-5	NM	-	-	NM	-	-	
1B-W-2	NM	-	-	NM	-	-	
1B-W-3	NM	-	-	NM	-	-	
1B-W-23		Well Not Installed		We	ll Not Installed		
1C-W-1	NM	-	-	NM	-	-	
1C-W-2	NM	-	-	NM	-	-	
1C-W-3	NM	-	-	NM	-	-	
1C-W-4	NM	-	-	NM	-	1	
1C-W-7		Well Not Installed		We	ll Not Installed		
1C-W-8		Well Not Installed		Well Not Installed			
2A-W-3	NM	-	-	926.48	-	-	
2A-W-4	923.56	-	-	927.22	-	trace	
2A-W-5	926.02	-	-	929.22	-	-	
2A-W-7	925.93	-	-	927.84	-	-	
2A-W-8	NM	-	-	NM	-	-	
2A-W-9	926.30	-	-	928.99	-	-	
2A-W-10	927.47	=	-	930.02	-	-	
2A-W-11	925.49	-	trace	928.60	-	-	
2A-W-40		Well Not Installed			Il Not Installed		
2A-W-41		Well Not Installed		We	Il Not Installed		
2A-W-42		Well Not Installed		We	Il Not Installed		
2B-B-21	924.49	_	_	927.48	_	_	
2B-W-4	927.52	-	_	930.12	_	_	
2B-W-11	927.91	Dry	_	930.35	930.35	_	
2B-W-12 <sup>1</sup>	927.66	Dry	_	930.11	930.11	_	
2B-W-13	926.84	Dry	_	929.30	929.62		
2B-W-13	926.62	Dry	-	929.30	929.28	-	
2B-W-14	925.25			928.32	_		
2B-W-19	925.25	Dry -	-	931.09	Dry -		
		-	-		-	-	
2B-W-21	926.56	-	-	929.24	-	-	
2B-W-30	925.04	-	-	928.07	-	-	
2B-W-32	927.51	-	-	930.30	-	-	
2B-W-33 2B-W-45 <sup>2</sup>	927.97	-	-	931.11	-	-	
		Well Not Installed			nstalled 11/11/09		
2B-W-46 <sup>3</sup>		Well Not Installed			nstalled 11/11/09		
3-W-41		Well Not Installed		We	ll Not Installed		
3-W-42		Well Not Installed			ll Not Installed		
3-W-43		Well Not Installed		We	ll Not Installed		
5-W-1	NM	-	-	NM	-	-	
5-W-2	NM	-	-	NM	-	·	
5-W-3	NM	-	-	NM	-	-	
5-W-4	NM	-	-	NM	-	-	
5-W-14	NM	-	-	NM	-	-	
5-W-15	NM	-	-	NM	-	-	
5-W-16	NM	-	-	NM	-	-	
5-W-17	NM	-	-	NM	-	-	
5-W-18	NM	-	-	NM	-	-	
5-W-19	NM	-	-	NM	-	-	
5-W-20	NM	-	-	NM	-	-	
		1					

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		10/14/2008			11/10/2008	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
5-W-43		Well Not Installed		We	ll Not Installed	
5-W-50	NM	-	-	NM	-	-
5-W-51	NM	-	-	NM	-	-
5-W-52	NM	-	-	NM	-	-
5-W-53	NM	=	=	NM	-	-
5-W-54	NM	-	-	NM	-	-
5-W-55	NM	-	-	NM	-	-
5-W-56	NM	-	-	NM	-	-
EW-1		Well Not Installed		We	ll Not Installed	
GW-1		Well Not Installed		We	ll Not Installed	
GW-2		Well Not Installed		We	Il Not Installed	
GW-3		Well Not Installed		We	Il Not Installed	
GW-4		Well Not Installed		We	ll Not Installed	
IW-01	NM	-	-	NM	-	-
IW-02	NM	-	-	NM	-	-
MW-1	926.25	-	-	928.76	-	-
MW-2	926.64	-	-	929.58	-	-
MW-3	928.40	-	-	931.33	-	-
MW-4	927.57	-	-	930.33	-	-
MW-5	926.11	=	=	928.89	-	-
MW-7	923.98	=	-	926.79	-	-
MW-9	924.75	=	-	927.71	-	-
MW-10	925.41	-	-	928.60	-	-
MW-11	925.40	-	-	928.70	-	-
MW-12	925.20	-	-	928.39	-	-
MW-13	924.65	-	-	927.40	-	-
MW-14	924.34	-	-	926.99	-	-
MW-15	923.61	-	-	926.20	-	-
MW-16	NM	-	-	NM	-	-
MW-17	NM	=	-	NM	-	-
MW-18	925.78	-	-	928.89	-	-
MW-22	NM	-	-	NM	-	-
MW-26	NM	=	-	NM	-	-
MW-28	NM	=	-	NM	-	-
MW-32	NM	-	-	NM	-	-
MW-35	NM	-	-		ed during Constru	ction
MW-36	NM	=	-	NM		
MW-38	NM	=	-	Well Destroy	ed during Constru	ction
MW-38R		Not Installed	•		Not Installed	
MW-39	926.60	-	-	929.32	-	_
MW-40	923.80	-	-	926.37	-	-
PW-01	NM	-	-	NM	-	-
PW-03	NM	-	-	NM	-	-
PW-04	NM	-	-	NM	-	-
PZ-1	NM	-	-	NM	-	_
PZ-2N	NM	-	-	NM	-	-
PZ-2S	NM	-	-	NM	-	-
PZ-3N	NM	-	-	NM	-	_
PZ-3S	NM	-	-	NM	-	_
PZ-4N	NM	_	-	NM	_	-
PZ-4S	NM	_	-	NM	_	_
PZ-5N	NM	_	-	NM	_	_
PZ-5S	NM	-	_	NM	_	_
PZ-6N	NM	-	-	NM	-	_
PZ-6S	NM	-	-	NM	-	-
1 4-00	INIVI	<u> </u>		INIVI		_

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		10/14/2008			11/10/2008		
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
PZ-7N	NM	-	-	NM	-	-	
PZ-7S	NM	-	-	NM	-	-	
PZ-8	NM	-	-	NM	-	-	
RW-01		Well Not Installed		Well Not Installed			
RW-02		Well Not Installed		We	ll Not Installed		
RW-03		Well Not Installed		We	ll Not Installed		
RW-04		Well Not Installed		We	ll Not Installed		
RW-05		Well Not Installed		We	ll Not Installed		
RW-06		Well Not Installed		We	ll Not Installed		
CV	NM	-	-	NM	-	-	
EV	NM	-	-	NM	-	-	
FWV	NM	-	-	NM	-	1	
WV	NM	-	-	NM	-	-	
SK1**	NM	-	-	NM	-	-	
SK2**	NM	-	-	NM	-	-	
SK3**	NM	-	-	NM	-	-	
SK4**	NM	-	-	NM	-	1	
SK5**	NM	-	-	NM	-	-	
ML1	NM	-	-	NM	-	1	
ML2	NM	-	-	NM	-	-	
ML3	NM	-	-	NM	-	-	
ML4	NM	-	-	NM	-	-	
WW1	NM	-	-	NM	-	-	
WW2	NM	-	-	NM	-	-	
WW3	NM	-	-	NM	-	-	

NM - Not Measured

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations

916.40 Surface Water Elevation

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

 $2B-W-45^2-was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical.\\$ 

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

<sup>\*</sup> Groundwater elevation collected on August 24, 2009

\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attributed to sampling conditions or recording errors

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		12/16/2008	1/22/2009			
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
1A-W-1	NM	-		NM	-	-
1A-W-2	922.14	-	Heavy Trace	NM	-	-
1A-W-3	NM	-	-	NM	-	-
1A-W-4	NM	-	-	NM	-	-
1A-W-5	918.94	-	-	NM	-	-
1B-W-2	922.28	-	-	922.41	-	-
1B-W-3	921.74	-	-	NM	-	-
1B-W-23	W	ell Not Installed	•	W	ell Not Installed	
1C-W-1	NM	-	-	NM	-	-
1C-W-2	925.81	-	-	926.28	-	-
1C-W-3	NM	-	_	NM	-	_
1C-W-4	NM	-	_	NM	-	_
1C-W-7		ell Not Installed			ell Not Installed	
1C-W-8	W	ell Not Installed		W	ell Not Installed	
2A-W-3	925.60	_	Trace	NM	_	Trace
2A-W-4	924.99	_	Heavy Trace	NM	_	Heavy Trace
2A-W-5	927.55		Tieavy Trace	927.92		- Ileavy Ilace
2A-W-7	927.55 NM		_	NM	_	
2A-W-8	NM	_	_	NM	_	
2A-W-9	928.01	-	_	928.36	-	
		-	-		-	-
2A-W-10 2A-W-11	929.27	-	- Tross	929.57	-	- Trans
	927.30	l	Trace	927.82	ell Not Installed	Trace
2A-W-40						
2A-W-41		ell Not Installed			ell Not Installed	
2A-W-42		ell Not Installed			ell Not Installed	
2B-B-21	926.39	-	-	NM	-	-
2B-W-4	929.10	-	-	NM	-	-
2B-W-11	NM	929.92	-	927.35	930.28	-
2B-W-12 <sup>1</sup>	929.40	930.04	-	929.63	929.98	-
2B-W-13	NM	929.30	-	926.98	929.39	-
2B-W-14	NM	929.05	-	927.93	929.23	-
2B-W-15	NM	929.14	-	NM	NM	-
2B-W-19	929.62	-	-	NM	-	-
2B-W-21	928.10	-	-	NM	-	-
2B-W-30	926.75	-	-	926.93	-	-
2B-W-32	929.08	-	-	929.24	-	-
2B-W-33	930.22	-	-	928.60	-	-
2B-W-45 <sup>2</sup>	926.39	-	-	926.62	-	-
2B-W-46 <sup>3</sup>	926.73	-	-	NM	-	-
3-W-41	W	ell Not Installed	-	W	ell Not Installed	
3-W-42		ell Not Installed			ell Not Installed	
3-W-43		ell Not Installed			ell Not Installed	
5-W-1	920.61	-	Trace	NM	-	_
5-W-2	919.45	-	-	NM	-	-
5-W-3	918.26	-	-	NM	-	-
5-W-4	NM	-	_	NM	-	-
5-W-14	917.38	-	-	NM	-	-
5-W-15	917.45	-	-	NM	-	_
5-W-16	917.20	-	-	NM	-	-
5-W-17	917.22	-	-	NM	-	-
		-	-		-	-
5-W-18 5-W-19	917.12		-	NM NM	-	-
5-VV-19	916.90	-	-	IVIVI	-	-
5-W-20	916.81	-	-	NM	-	-

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		12/16/2008		1/22/2009			
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
5-W-43	W	ell Not Installed		W	ell Not Installed		
5-W-50	NM	=	-	NM	-	-	
5-W-51	NM	-	-	NM	-	-	
5-W-52	NM	-	-	NM	-	-	
5-W-53	NM	-	-	NM	-	-	
5-W-54	NM	-	-	NM	-	-	
5-W-55	NM	=	-	NM	-	-	
5-W-56	NM	=	-	NM	-	-	
EW-1	W	ell Not Installed		W	ell Not Installed		
GW-1	W	ell Not Installed		W	ell Not Installed		
GW-2	W	ell Not Installed		W	ell Not Installed		
GW-3	Well Not Installed			W	ell Not Installed		
GW-4	W	ell Not Installed		W	ell Not Installed		
IW-01	924.096	-	-	924.136	-	-	
IW-02	925.715	-	-	925.925	-	-	
MW-1	927.13	-	-	927.47	-	-	
MW-2	927.61	-	-	NM	-	-	
MW-3	928.88	-	-	NM	-	-	
MW-4	929.51	-	-	929.95	-	-	
MW-5	927.75	=	-	NM	-	-	
MW-7	925.84	-	Trace	NM	-	-	
MW-9	NM	-	-	926.52	-	-	
MW-10	NM	-	_	927.23	-	_	
MW-11	NM	-	_	NM	-	_	
MW-12	927.16	-	_	927.74	_	-	
MW-13	926.42	-	_	NM	_	_	
MW-14	926.06	-	_	NM	_	-	
MW-15	925.36	_	_	925.67	_	-	
MW-16	NM	-	_	NM	_	-	
MW-17	928.22	_	Trace	NM	_	-	
MW-18	927.15	-	-	927.49	_	-	
MW-22	919.79	-	Heavy Trace	NM	_	-	
MW-26	NM	_	-	NM	_		
MW-28	NM	_	_	NM	_		
MW-32	NM	_	_	NM	_		
MW-35		yed during Constru	ıction		oyed during Cons	struction	
MW-36	921.03			NM	yea aaning con	30.000.011	
MW-38		yed during Constru	ıction		oyed during Cons	struction	
MW-38R	Well Besti	Not Installed	John	Won Dootie	Not Installed	Struction	
MW-39	928.48	-	Trace	928.79	-	Trace	
MW-40	925.50	-	-	925.84	-	-	
PW-01	921.78	-	_	921.01	_	_	
PW-03	922.01	_	-	921.24	-	_	
PW-04	924.13	-	_	923.56	-	_	
PZ-1	924.771	_	-	924.941	-	_	
PZ-2N	921.955	-	_	921.935	-	_	
PZ-2S	926.888	-	-	927.108	-	_	
PZ-3N	921.98	-	_	921.78	-	_	
PZ-3S	927.04	-	-	927.28	-	-	
PZ-4N	921.96	-	_	921.77	-	_	
PZ-4N	925.57	-	<u>-</u>	925.73	-		
PZ-5N	921.83	-	_	921.64	_		
PZ-5N	925.56	-	_	925.76	-		
PZ-55	923.30	-	<u>-</u>	921.76	-		
0.1	521.52	1	ı	521.70			

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		12/16/2008			1/22/2009		
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
PZ-7N	921.57	-	-	921.35	-	-	
PZ-7S	924.57	=	-	924.78	-	-	
PZ-8	920.86	-	-	920.92	-	-	
RW-01	921.99	-	-	921.76	-	-	
RW-02	We	ell Not Installed		W	ell Not Installed		
RW-03	We	ell Not Installed		W	ell Not Installed		
RW-04	We	ell Not Installed		W	ell Not Installed		
RW-05	We	ell Not Installed		Well Not Installed			
RW-06	921.93	-	-	921.74	-	-	
CV	921.98	=	-	921.78	-	-	
EV	924.08	=	-	924.13	-	-	
FWV	921.55	-	-	921.58	-	-	
WV	921.89	=	-	921.71	-	-	
SK1**	924.59	-	-	NM	-	-	
SK2**	919.22	=	-	NM	-	-	
SK3**	918.71	=	-	NM	-	-	
SK4**	918.3	-	-	NM	-	-	
SK5**	916.4	=	-	NM	-	-	
ML1	dry	=	-	NM	-	-	
ML2	dry	-	-	NM	-	-	
ML3	dry	-	-	NM	-	-	
ML4	dry	-	-	NM	-	-	
WW1	NM	-	-	927.04	-	-	
WW2	NM	-	-	927.36	-	-	
WW3	NM	-	-	926.73	-	-	

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations

916.40 916.40 Surface Water Elevation

2B-W-12<sup>1</sup> - was install¢2B-W-12<sup>1</sup> - was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-45<sup>2</sup> - was installe2B-W-45<sup>2</sup> - was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-46<sup>3</sup> - was install¢2B-W-46<sup>3</sup> - was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

<sup>\*</sup>Groundwater elevatic\* Groundwater elevation collected on August 24, 2009
\*\*Survey elevation is s:\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attr^Suspect elevation attributed to sampling conditions or recording errors NM - Not Measured NM - Not Measured NM - Not Measured

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		2/24/2009		3/23/2009			
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
1A-W-1	NM	-	-	921.74	-	-	
1A-W-2	NM	-	-	922.20	-	Heavy Trace	
1A-W-3	NM	-	-	919.96	-	Trace	
1A-W-4	NM	-	-	920.56	-	-	
1A-W-5	NM	-	-	919.38	-	-	
1B-W-2	923.09	-	-	922.70	-	-	
1B-W-3	922.06	-	-	921.98	-	-	
1B-W-23	W	ell Not Installed	•	922.00	-	-	
1C-W-1	NM	-	-	923.25	-	-	
1C-W-2	925.54	-	-	925.68	-	-	
1C-W-3	NM	_	_	922.86	_	_	
1C-W-4	NM	_	_	922.50	_	_	
1C-W-7		ell Not Installed		923.35	_	_	
1C-W-8		ell Not Installed			/ell Not Installed		
2A-W-3	NM	-	-	NM	Tell 140t Illistalled	I -	
			-		-		
2A-W-4	NM	-	-	926.31	-	Heavy Trace	
2A-W-5	926.82	-	-	927.55	-	-	
2A-W-7	926.22	-	-	926.49	-	-	
2A-W-8	NM	-	-	928.02	-	-	
2A-W-9	927.57	-	-	928.02	-	-	
2A-W-10	928.88	-	-	929.16	-	-	
2A-W-11	927.47	-	Heavy Trace	927.50	-	-	
2A-W-40	W	ell Not Installed			Il Installed 3/23/09		
2A-W-41	W	ell Not Installed		V	/ell Not Installed		
2A-W-42	W	ell Not Installed	_		/ell Not Installed		
2B-B-21	NM	-	-	922.75**	-	-	
2B-W-4	928.58	-	-	928.92	-	-	
2B-W-11	927.47	930.25	-	929.69	930.14	-	
2B-W-12 <sup>1</sup>	929.07	929.65	-	929.28	NM	-	
2B-W-13	928.79	929.32	-	928.90	NM	-	
2B-W-14	928.85	929.15	-	928.94	NM	-	
2B-W-15	927.03	Dry	-	NM	929.19	-	
2B-W-19	NM	-	-	929.19	-	-	
2B-W-21	927.52	-	-	932.00^	-	-	
2B-W-30	925.93	-	-	926.83	-	-	
2B-W-32	NM	_	-	928.78	-	_	
2B-W-33	929.89	_	-	930.41	_	_	
2B-W-45 <sup>2</sup>	926.12	_	_	926.37	_	_	
2B-W-46 <sup>3</sup>			_		_	_	
	926.50	all Not leasts II all	-	927.14	/oll Not Installed	-	
3-W-41		ell Not Installed			/ell Not Installed		
3-W-42		ell Not Installed			/ell Not Installed		
3-W-43		ell Not Installed	1		/ell Not Installed	T	
5-W-1	NM	-	-	NM	-	-	
5-W-2	NM	-	-	919.50	-	Heavy Trace	
5-W-3	NM	-	-	918.34	-	Trace	
5-W-4	NM	-	-	920.01	-	-	
5-W-14	NM	-	-	917.33	-	-	
5-W-15	NM	-	-	917.40	-	-	
5-W-16	NM	-	-	917.07	-	-	
5-W-17	NM	-	-	917.15	-	-	
5-W-18	NM	-	-	917.03	-	-	
5-W-19	NM	-	-	916.82	-	-	
5-W-20	NM	-	-	916.70	-	-	
		1		2.50	T .	i .	

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		2/24/2009			3/23/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
5-W-43	W	ell Not Installed		We	Il Installed 3/27/09	•
5-W-50	NM	-	-	918.14	-	-
5-W-51	NM	-	-	918.23	-	Heavy Trace
5-W-52	NM	-	-	919.77	-	-
5-W-53	NM	-	-	918.94	-	-
5-W-54	NM	-	-	918.35	-	-
5-W-55	NM	-	-	917.83	-	-
5-W-56	NM	-	-	918.04	-	-
EW-1	W	ell Not Installed		We	Il Installed 3/26/09	
GW-1	W	ell Not Installed		We	ll Installed 3/23/09	
GW-2	Well	Installed 3/20/09		921.72	-	-
GW-3	Well	Installed 3/17/09		922.01	-	-
GW-4	Well	Installed 3/19/09		923.86	-	-
IW-01	924.216	-	-	923.756	-	-
IW-02	925.665	-	-	926.065	-	-
MW-1	926.53	-	-	926.96	-	-
MW-2	926.89	-	-	927.35	-	-
MW-3	929.52	-	-	929.56	-	-
MW-4	929.70	-	-	929.63	-	-
MW-5	NM	-	-	927.83	-	-
MW-7	925.71	-	-	926.14	-	-
MW-9	925.63	-	-	926.48	-	-
MW-10	926.26	-	-	927	-	-
MW-11	NM	-	-	NM	-	-
MW-12	927.05	-	-	927.45	-	-
MW-13	926.34	-	-	926.74	-	-
MW-14	925.80	-	-	926.37	-	-
MW-15	924.85	-	-	925.65	-	-
MW-16	920.42	-	-	920.86	-	-
MW-17	NM	-	-	928.46	-	Heavy Trace
MW-18	926.52	-	-	927.19	-	-
MW-22	NM	-	-	917.77	-	Heavy Trace
MW-26	920.87	-	-	NM	-	-
MW-28	NM	-	-	927.46	-	-
MW-32	NM	_	-	920.24	_	_
MW-35		yed during Constr	uction		oyed during Constr	uction
MW-36	NM			921.09	 	Heavy Trace
MW-38		yed during Constr	uction		oyed during Constr	
MW-38R		Il Installed 3/2/09		918.30		-
MW-39	928.56	-	-	928.64	-	_
MW-40	925.07	_	_	925.82	_	_
PW-01	921.26	-	-	921.82	-	-
PW-03	921.35	-	-	922.05	-	-
PW-04	924.06	-	-	923.66	-	-
PZ-1	925.5	-	_	925.74	-	_
PZ-2N	923.39	-	_	923.42	-	_
PZ-2S	927.096	-	-	927.286	-	-
PZ-3N	921.45	-	_	922.14	-	-
PZ-3S	925.74	-	_	926.38	-	_
PZ-4N	921.457	-	-	922.147	-	-
PZ-4S	925.35	_	-	925.98	-	-
PZ-5N	921.26	-	-	919.98**	-	_
PZ-5S	925.35	-	<u> </u>	925.89	-	-
PZ-53	923.33	-	<u> </u>	922.057	<u>-</u>	-
1 4 011	02 1.70 <i>1</i>	_		022.001	_	_

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		2/24/2009			3/23/2009			
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)		
PZ-7N	921.50	-	-	921.87	-	-		
PZ-7S	923.76	-	-	924.65	-	-		
PZ-8	920.70	-	-	921.005	-	-		
RW-01	NM	-	-	922.08	-	-		
RW-02	We	ell Not Installed		922.06	-	-		
RW-03	We	ell Not Installed		922.11	-	-		
RW-04	We	ell Not Installed		NM	-	-		
RW-05	We	ell Not Installed		921.97	-	-		
RW-06	921.38	=	-	922.03	-	-		
CV	921.36	-	-	922.10	-	-		
EV	922.67^	=	-	923.75	-	-		
FWV	NM	-	-	921.65	-	-		
WV	921.34	-	-	922.03	-	-		
SK1**	NM	-	-	923.94	-	-		
SK2**	NM	-	-	919.13	-	-		
SK3**	NM	=	-	918.35	-	•		
SK4**	NM	-	ı	917.96	-	ı		
SK5**	NM	-	1	916.53	-	1		
ML1	NM	-	-	dry	-	-		
ML2	NM	-	-	dry	-	ı		
ML3	NM	-	-	dry	-	ı		
ML4	NM	-	-	dry	-	ı		
WW1	NM	-	-	926.95	-	ı		
WW2	NM	=	=	927.25	-	ı		
WW3	NM	-	-	926.65	-	-		

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations

916.40 916.40 Surface Water Elevation

2B-W-12<sup>1</sup> - was install¢2B-W-12<sup>1</sup> - was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-45<sup>2</sup> - was installe2B-W-45<sup>2</sup> - was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-46<sup>3</sup> - was install¢2B-W-46<sup>3</sup> - was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

<sup>\*</sup>Groundwater elevatic\* Groundwater elevation collected on August 24, 2009
\*\*Survey elevation is s:\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attr^Suspect elevation attributed to sampling conditions or recording errors NM - Not Measured NM - Not Measured NM - Not Measured

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		4/21/2009		5/12/2009			
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	
1A-W-1	NM	-	-	NM	-	-	
1A-W-2	Well A	Abandoned 3/24/0	9	Well A	bandoned 3/24/09		
1A-W-3	Well A	Abandoned 3/26/0	9	Well A	bandoned 3/26/09	1	
1A-W-4	NM	-	-	NM	-	-	
1A-W-5	NM	-	-	NM	-	-	
1B-W-2	922.21	-	-	922.89	-	-	
1B-W-3	921.91	-	-	922.51	-	-	
1B-W-23	NM	_	_	NM	_	_	
1C-W-1	923.42	-	-	923.86	-	-	
1C-W-2	926.71	_	_	927.09	_	_	
1C-W-3	NM	_	_	NM	-	_	
1C-W-4	NM	_	_	NM	_		
1C-W-7	923.28	_		923.75	_		
1C-W-7	923.28	<del>                                     </del>	-	923.75		-	
2A-W-3	921.69	-	- Hoogy Troop	922.18	-	- Trans	
			Heavy Trace		-	Trace	
2A-W-4	926.84	-	0.91	926.62	-	0.22	
2A-W-5	927.68	-	-	927.84	-	-	
2A-W-7	927.15	-	-	927.47	-	-	
2A-W-8	NM	-	-	NM	-	-	
2A-W-9	927.93	-	-	928.05	-	-	
2A-W-10	929.22	-	-	929.45	-	-	
2A-W-11	927.31	-	Trace	927.51		Light Trace	
2A-W-40	NM	-	-	NM	-	-	
2A-W-41	NM	-	-	NM	-	-	
2A-W-42	NM	-	-	NM	-	-	
2B-B-21	926.45	-	-	926.7	-	-	
2B-W-4	929.21	-	-	929.41	-	-	
2B-W-11	927.37	929.94	-	927.39	930.19	-	
2B-W-12 <sup>1</sup>	929.33	929.43	-	929.53	929.64	-	
2B-W-13	927.00	929.22	_	927.02	929.31	_	
2B-W-14	928.82	Dry	_	928.97	929.15	_	
2B-W-15	NM	Dry	_	927.29	Dry	_	
2B-W-19	929.75	- Diy	_	930.05	- Diy		
2B-W-21	928.25	_		928.43	_		
2B-W-30	926.72			926.94			
2B-W-32	920.72	-	-	929.41	-	-	
			-			•	
2B-W-33	929.91	-	-	930.23	-	-	
2B-W-45 <sup>2</sup>	926.44	-	-	926.59	-	-	
2B-W-46 <sup>3</sup>	926.82	-	-	926.99	-	=	
3-W-41	W	ell Not Installed		We	ell Not Installed		
3-W-42	W	ell Not Installed		We	ell Not Installed		
3-W-43	W	ell Not Installed		We	ell Not Installed		
5-W-1	Well	Abanoned 3/26/09	)	Well	Abanoned 3/26/09		
5-W-2	920.07	-	Heavy Trace	920.48		Heavy Trac	
5-W-3	919.35	-	Trace	919.76		Light Trace	
5-W-4	NM	-	-	NM	-	-	
5-W-14	NM	-	-	NM	-	_	
5-W-15	NM	-	_	NM	-		
5-W-16	NM	-	-	NM	-		
5-W-16 5-W-17	NM	+		NM		-	
		-	-		-	-	
5-W-18	NM	-	-	NM	-	-	
5-W-19	NM	-	-	NM	-	-	
5-W-20	NM		_	NM	-		

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		4/21/2009			5/12/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
5-W-43	NM	-	-	NM	-	-
5-W-50	NM	-	-	NM	-	-
5-W-51	NM	-	-	NM	-	-
5-W-52	NM	-	-	NM	-	-
5-W-53	NM	-	-	NM	-	-
5-W-54	NM	-	-	NM	-	-
5-W-55	NM	-	-	NM	-	-
5-W-56	NM	-	-	NM	-	-
EW-1	NM	-	-	NM	-	-
GW-1	NM	-	-	NM	-	-
GW-2	NM	-	-	NM	-	-
GW-3	NM	-	-	NM	-	-
GW-4	NM	-	-	NM	-	-
IW-01	924.026	-	-	NM	-	-
IW-02	925.675	-	-	NM	-	-
MW-1	927.73	-	-	927.85	-	-
MW-2	928.34	-	-	928.65	-	-
MW-3	929.49	-	-	930.53	-	-
MW-4	929.48	-	-	929.87	-	-
MW-5	927.66	-	-	927.83	-	-
MW-7	925.85	-	Trace	926.23	-	-
MW-9	926.28	-	-	926.78	-	-
MW-10	927.06	-	-	927.39	-	- Haarii Taas
MW-11 MW-12	927.04 927.13	-	Heavy Trace	927.62	-	Heavy Trac
MW-13	927.13	-		927.33	-	
MW-14	926.5	-	-	926.71 926.38	-	-
MW-15	925.45	-	<del>  </del>	925.7	+ -	_
MW-16	923.43	<del>-</del>	_	921.34	<del>                                     </del>	_
MW-17	928.57	_	Heavy Trace	928.95	_	Heavy Trac
MW-18	927.41	-	-	927.68	_	-
MW-22	NM	-	-	NM	_	_
MW-26	* ****	Abandoned 3/26/0	9	NM	_	_
MW-28	NM	-	-	NM	_	_
MW-32	NM	-	-	NM	_	_
MW-35		yed during Const	ruction		yed during Constr	uction
MW-36		Abandoned 3/26/0			bandoned 3/26/09	
MW-38	Well Destro	yed during Const	ruction		yed during Constr	
MW-38R	NM	-	-	NM		-
MW-39	928.62	-	-	928.57	-	-
MW-40	925.63	-	-	925.9	-	-
PW-01	921.74	-	-	NM	-	-
PW-03	922.06	-	-	NM	-	-
PW-04	923.91	-	-	NM	-	-
PZ-1	926.93	-	-	NM	-	-
PZ-2N	925.96	-	-	NM	=	-
PZ-2S	923.22	-	-	NM	-	-
PZ-3N	927.096	-	-	NM	-	-
PZ-3S	922.12	-	-	NM	-	-
PZ-4N	926.20	-	-	NM	-	-
PZ-4S	922.137	-	-	NM	-	=
PZ-5N	925.59	-	-	NM	-	-
PZ-5S	922.11	-	-	NM	-	-
PZ-6N	925.58	-	-	NM	-	-
PZ-6S	922.057	-	-	NM	-	-

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		4/21/2009			5/12/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
PZ-7N	921.90	-	-	NM	-	-
PZ-7S	924.51	-	-	NM	-	-
PZ-8	921.92	-	-	NM	-	-
RW-01	922.09	-	-	NM	-	-
RW-02	922.09	-	-	NM	-	-
RW-03	922.16	-	-	NM	-	-
RW-04	NM	-	-	NM	-	-
RW-05	922.03	-	-	NM	-	-
RW-06	922.06	-	-	NM	-	-
CV	922.10	-	-	NM	-	-
EV	924.02	-	-	NM	-	-
FWV	921.63	-	=	NM	-	-
WV	922.06	-	-	NM	-	-
SK1**	NM	-	=	NM	-	-
SK2**	NM	-	-	NM	-	-
SK3**	NM	-	=	NM	-	-
SK4**	NM	-	-	NM	-	-
SK5**	NM	-	=	NM	-	-
ML1	NM	-	=	NM	-	-
ML2	NM	-	=	NM	-	-
ML3	NM	-	=	NM	-	=
ML4	NM	-	=	NM	-	-
WW1	927.02	-	=	927.09	-	=
WW2	927.36	-	=	927.42	-	-
WW3	926.74	-	=	926.76	-	-

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations

916.40 916.40 Surface Water Elevation

2B-W-12<sup>1</sup> - was installic2B-W-12<sup>1</sup> - was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-45<sup>2</sup> - was installe2B-W-45<sup>2</sup> - was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-46<sup>3</sup> - was install¢2B-W-46<sup>3</sup> - was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

<sup>\*</sup>Groundwater elevatic\* Groundwater elevation collected on August 24, 2009
\*\*Survey elevation is s:\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attr^Suspect elevation attributed to sampling conditions or recording errors NM - Not Measured NM - Not Measured NM - Not Measured

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		6/9/2009			7/28/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
1A-W-1	Well Covered	from Constructio	n Activities	Well Covered fr	om Construction	Activities
1A-W-2	Well	Abandoned 3/24/	09	Well Al	oandoned 3/24/0	9
1A-W-3	Well	Abandoned 3/26/	09	Well Al	oandoned 3/26/0	9
1A-W-4	NM	-	-	NM		
1A-W-5	920.19	-	-	NM		
1B-W-2	922.4	-	-	921.52	-	-
1B-W-3	922.2	-	-	921.22	-	-
1B-W-23	922.19	-	-	NM	-	-
1C-W-1	923.79	-	_	922.47	_	_
1C-W-2	926.81	_	_	924.86	_	_
1C-W-3	NM	-	-	NM	_	_
1C-W-3	NM	_	_	NM	-	_
1C-W-7	NM	_	-	922.18	-	-
		-	-		-	-
1C-W-8	922.18	-	-	920.63	-	
2A-W-3	924.63	-	Trace	922.83	-	Heavy Trace
2A-W-4	925.28	-	0.16	923.30	-	0.35
2A-W-5	927.16	-	-	925.19	-	-
2A-W-7	927.13	-	-	925.49	-	-
2A-W-8	NM	-	-	NM	-	-
2A-W-9	926.82	-	-	925.16	-	-
2A-W-10	928.06	-	-	925.9	-	-
2A-W-11	926.13	-	Trace	924.64	-	Trace
2A-W-40	922.36	-	-	NM	-	-
2A-W-41	922.22	-	-	NM	-	-
2A-W-42	923.43	-	-	NM	-	-
2B-B-21	925.11	_	-	923.73	-	_
2B-W-4	928.33	-	_	926.41	_	-
2B-W-11	928.74	929.70	-	926.29	Dry	_
2B-W-12 <sup>1</sup>	928.22	927.75	_	925.91	Dry	-
2B-W-13	927.33		-	925.38	•	_
2B-W-13		Dry	-		Dry	-
	927.31	Dry		923.49	Dry	-
2B-W-15	925.76	Dry	-	924.52	Dry	-
2B-W-19	928.84	-	-	926.72	-	-
2B-W-21	927.3	-	-	925.71	-	-
2B-W-30	925.91	-	-	924.22	-	-
2B-W-32	928.34	-	-	926.47	-	-
2B-W-33	928.91	-	-	926.38	-	-
2B-W-45 <sup>2</sup>	925.44	-	-	924.22	-	-
2B-W-46 <sup>3</sup>	925.81	-	-	924.58	-	-
3-W-41	W	ell Not Installed		Well I	nstalled 8/19/09	
3-W-42	-	ell Not Installed			nstalled 8/14/09	
3-W-43		ell Not Installed			nstalled 8/18/09	
5-W-1		Abanoned 3/26/0	00		banoned 3/26/09	<u> </u>
					Danoneu 3/26/08	
5-W-2	919.98	-	0.24	918.00	<del>-</del>	Trace
5-W-3	919.34	-	Heavy Trace	917.47	-	Light Trace
5-W-4	NM	-	-	NM	-	-
5-W-14	918.53	-	-	NM	-	-
5-W-15	918.65	-	-	NM	<u> </u>	-
5-W-16	918.38	-	-	NM	-	-
5-W-17	918.44	-	-	NM	-	-
5-W-18	918.38	-	-	NM	-	-
5-W-19	918.21	-	-	NM	-	-
5-W-20	918.12	-	-	NM	-	-
5-W-42	915.65	_	-	NM	I .	_

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

## Flev (NAV)    5-W-43	ation	etland water elevation (NAVD88)	Product Thickness (feet)  Trace	Potentiometric Elevation (NAVD88)  NM	Wetland water elevation (NAVD88)	Product Thickness (feet)
5-W-50 919 5-W-51 919 5-W-52 920 5-W-53 919 5-W-54 918 5-W-55 918 5-W-56 918 EW-1 919 GW-1 922 GW-2 922 GW-3 922 GW-4 922 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 926 MW-7 926 MW-7 926 MW-10 926 MW-11 927 MW-11 927 MW-12 928 MW-14 926 MW-15 926 MW-15 926 MW-15 926 MW-16 920 MW-17 92 MW-16 920 MW-17 92 MW-18 927 MW-29 918 MW-19 926 MW-17 92 MW-19 926 MW-17 926 MW-17 926 MW-17 926 MW-18 927 MW-18 927 MW-28 N MW-36 MW-38 N MW-38 N	0.15 0.38 0.05 0.26 0.63 0.26 0.63 0.94 0.09 0.07 0.12 1.78 0.16 1.49 7.59 0.09 M.09	- - - - - - - - - - - -	- - - - - - - - - - - - -	NM N	- - - - - - - -	
5-W-51 918 5-W-52 920 5-W-53 918 5-W-54 918 5-W-55 918 5-W-56 918 EW-1 919 GW-1 922 GW-2 922 GW-3 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 926 MW-7 926 MW-7 926 MW-10 926 MW-11 927 MW-12 928 MW-13 928 MW-14 922 MW-15 926 MW-15 926 MW-16 920 MW-17 92 MW-18 927 MW-18 927 MW-28 N MW-38 N MW-39	9.38 9.05 9.26 8.63 8.25 8.70 9.94 1.09 2.07 2.12 1.78 5.16 4.9 7.59 8.09 M	- - - - - - - - - - - -	- - - - - - - - - - - - -	NM N	- - - - - - - -	
5-W-52 926 5-W-53 918 5-W-54 918 5-W-55 918 5-W-56 918 EW-1 919 GW-1 929 GW-2 922 GW-3 922 GW-4 922 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 928 MW-7 926 MW-7 926 MW-10 926 MW-10 926 MW-11 927 MW-10 926 MW-11 927 MW-10 926 MW-10 926 MW-10 926 MW-11 927 MW-10 926 MW-10 926 MW-10 926 MW-10 926 MW-11 927 MW-10 926 MW-10 926 MW-10 926 MW-10 926 MW-10 926 MW-10 926 MW-11 927 MW-12 928 MW-14 922 MW-15 926 MW-15 926 MW-16 926 MW-17 92 MW-18 927 MW-18 927 MW-28 N MW-28 N MW-36 MW-38 W MW-38 W MW-38  918 MW-38  927	0.05 0.26 0.26 0.26 0.26 0.26 0.26 0.26 0.370 0.94 0.09 0.07 0.12 1.78 0.16 0.4.9 7.59 0.30 0.94 0.94 0.94 0.94 0.95 0.96 0.96 0.97	- - - - - - - - - - - -	- - - - - - - - - - - - -	NM N	- - - - - - - -	
5-W-53 918 5-W-54 918 5-W-55 918 5-W-56 918 EW-1 919 GW-1 929 GW-2 922 GW-3 922 GW-4 922 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 924 MW-10 925 MW-10 925 MW-11 927 MW-10 926 MW-11 927 MW-10 926 MW-11 927 MW-10 926 MW-11 927 MW-10 926 MW-10 926 MW-11 927 MW-10 926 MW-11 927 MW-12 928 MW-14 922 MW-15 926 MW-15 926 MW-16 920 MW-17 92 MW-16 920 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-38 N MW-39 927	3.26 3.63 3.25 3.70 3.94 1.09 2.07 2.12 1.78 5.16 4.9 7.59 3.09 M	- - - - - - - - - - - -	- - - - - - - - - - -	NM N	- - - - - - - -	
5-W-54 918 5-W-55 918 5-W-56 918 EW-1 919 GW-1 921 GW-2 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 925 MW-3 N MW-4 928 MW-5 926 MW-7 925 MW-10 925 MW-11 927 MW-12 928 MW-14 926 MW-15 926 MW-15 926 MW-16 926 MW-17 92 MW-16 926 MW-17 92 MW-16 926 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-36 MW-38 W MW-38 W MW-38 P MW-38 P MW-38 P MW-39 927	3.63 3.25 3.70 0.94 0.09 2.07 2.12 1.78 5.16 4.9 7.59 3.09 M	- - - - - - - - - -	- - - - - - - - - -	NM	- - - - - - - -	
5-W-55 918 5-W-56 918 EW-1 919 GW-1 921 GW-2 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 925 MW-3 N MW-4 926 MW-5 926 MW-7 924 MW-10 925 MW-10 925 MW-11 927 MW-12 926 MW-14 926 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-16 926 MW-17 92 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-36 MW-38 W MW-38 W MW-38 P MW-39 927	3.25 3.70 0.94 1.09 2.07 2.12 1.78 5.16 4.9 7.59 3.09 M	- - - - - - - - -	- - - - - - - - -	NM	- - - - - -	
5-W-56 918 EW-1 919 GW-1 921 GW-2 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 925 MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 924 MW-10 925 MW-10 926 MW-11 927 MW-12 928 MW-14 924 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-17 92 MW-18 927 MW-28 N MW-36 MW-38 N	3.70 0.94 1.09 2.07 2.12 1.78 5.16 4.9 7.59 8.09 M	- - - - - - - -	- - - - - - - -	NM NM NM NM NM NM NM NM NM	- - - - -	
EW-1 919 GW-1 921 GW-2 922 GW-3 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-5 926 MW-7 924 MW-10 926 MW-11 927 MW-9 926 MW-11 927 MW-12 928 MW-14 924 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-18 927 MW-28 NW-28 NW-36 MW-36 MW-38 WM-38 MW-38 927	0.94 0.09 0.07 0.12 1.78 0.16 4.9 7.59 0.09 0.07 0.12 0.12 0.16 0	- - - - -	- - - - - - -	NM NM NM NM NM NM	- -	- - - -
GW-1 92' GW-2 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 926 MW-5 926 MW-7 924 MW-10 926 MW-10 926 MW-11 927 MW-12 928 MW-14 926 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-32 N MW-36 MW-38 W MW-38	2.07 2.12 1.78 5.16 4.9 7.59 8.09 M	- - - - -	- - - - -	NM NM NM NM NM	- -	-
GW-2 922 GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 924 MW-9 925 MW-10 925 MW-11 927 MW-12 925 MW-13 925 MW-14 926 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-38 N MW-38 N MW-38 N MW-38 N MW-38 N	2.07 2.12 1.78 5.16 4.9 7.59 3.09 M	- - - - -	- - - - -	NM NM NM NM	- -	-
GW-3 922 GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 924 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 922 MW-15 926 MW-15 926 MW-17 92 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-28 N MW-28 N MW-38 N MW-38 W MW-38 N MW-38 N MW-38 P IW-39 927	2.12 1.78 5.16 4.9 7.59 3.09 M	- - - -	- - - -	NM NM NM NM	- -	-
GW-4 924 IW-01 925 IW-02 92 MW-1 927 MW-2 928 MW-3 N MW-4 926 MW-7 926 MW-7 926 MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 926 MW-15 926 MW-15 926 MW-17 92 MW-16 926 MW-17 92 MW-18 927 MW-28 N MW-28 N MW-38 N MW-38 N MW-38 MW-38 MW-38 MW-38 MW-38 MW-39 927	1.78 5.16 4.9 7.59 8.09 M	- - -	- - -	NM NM NM		-
IW-01         926           IW-02         92           MW-1         927           MW-2         928           MW-3         N           MW-4         926           MW-5         926           MW-7         924           MW-9         925           MW-10         926           MW-11         927           MW-12         925           MW-13         925           MW-14         924           MW-15         926           MW-16         920           MW-17         92           MW-18         927           MW-22         918           MW-26         928           MW-38         N           MW-35         N           MW-36         N           MW-38R         918           MW-39         927	5.16 4.9 7.59 3.09 M	- - -	- - -	NM NM		
IW-02         92           MW-1         927           MW-2         928           MW-3         N           MW-4         928           MW-5         926           MW-7         924           MW-9         925           MW-10         926           MW-11         927           MW-12         925           MW-13         925           MW-14         924           MW-15         924           MW-16         920           MW-17         92           MW-18         927           MW-22         918           MW-26         928           MW-32         N           MW-35         N           MW-36         N           MW-38R         918           MW-39         927	4.9 7.59 3.09 M 3.46	- - -	-	NM		-
IW-02         92           MW-1         927           MW-2         928           MW-3         N           MW-4         928           MW-5         926           MW-7         924           MW-9         925           MW-10         926           MW-11         927           MW-12         925           MW-13         925           MW-14         924           MW-15         924           MW-16         920           MW-17         92           MW-18         927           MW-22         918           MW-26         928           MW-32         N           MW-35         N           MW-36         N           MW-38R         918           MW-39         927	7.59 3.09 M 3.46	-	-	NM		
MW-1 927 MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 924 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-14 924 MW-15 926 MW-15 926 MW-16 926 MW-17 92 MW-18 927 MW-22 918 MW-22 918 MW-28 N MW-36 NW-36 MW-38 W MW-38  MW-38  MW-39 927	7.59 3.09 M 3.46	-			_	_
MW-2 928 MW-3 N MW-4 928 MW-5 926 MW-7 922 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-13 926 MW-14 922 MW-15 924 MW-15 924 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-22 918 MW-28 N MW-28 N MW-30 N MW-31 N MW-32 N MW-35 N MW-36 MW-38 N MW-38  MW-38 N MW-38 918 MW-39 927	3.09 M 3.46	-		925.71	_	-
MW-3 N MW-4 928 MW-5 926 MW-7 926 MW-7 926 MW-10 926 MW-11 927 MW-12 928 MW-13 926 MW-14 926 MW-15 926 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-22 918 MW-28 N MW-32 N MW-35 W MW-36 MW-38 N MW-38 927	M 3.46			926.01	-	-
MW-4 928 MW-5 926 MW-7 922 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 922 MW-15 926 MW-17 92 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927	3.46		_	926.4	_	_
MW-5 926 MW-7 924 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 924 MW-15 926 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-32 N MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927			-	926.13	-	
MW-7 924 MW-9 925 MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 924 MW-15 926 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-32 N MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927	0.09	_			-	-
MW-9 926 MW-10 926 MW-11 927 MW-12 926 MW-13 926 MW-14 924 MW-15 926 MW-16 927 MW-18 927 MW-18 927 MW-22 918 MW-26 928 MW-28 MW-32 NW-35 MW-35 MW-36 MW-38 MW-38 MW-38 MW-39 927	70	-	-	925.03	-	-
MW-10 926 MW-11 927 MW-12 925 MW-13 925 MW-14 924 MW-15 926 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927		-	-	923.04	-	-
MW-11 927 MW-12 925 MW-13 925 MW-13 925 MW-14 922 MW-15 926 MW-16 926 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-28 N MW-35 N MW-35 W MW-36 MW-38 W MW-38R 918 MW-39 927		-	-	923.78	-	-
MW-12 926 MW-13 925 MW-14 924 MW-15 924 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38R 918 MW-39 927		-	-	924.74	-	
MW-13 926 MW-14 924 MW-15 924 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-36 MW-36 MW-38 W MW-38 918 MW-39 927		-	Heavy Trace	925.06	-	Trace
MW-14 924 MW-15 924 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-32 N MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927		-	-	924.44	-	-
MW-15 924 MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 918 MW-38 918	5.22	-	-	923.91	-	-
MW-16 920 MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927	1.98	-	-	923.56	-	-
MW-17 92 MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927	1.37	-	-	922.69	-	-
MW-18 927 MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-35 W MW-36 MW-38 W MW-38R 918 MW-39 927	).67	-	-	919.52	-	-
MW-22 918 MW-26 928 MW-28 N MW-32 N MW-35 W MW-36 MW-36 MW-38 W MW-38R 918 MW-39 927	8.2	-	Heavy Trace	NM	-	-
MW-26 928 MW-28 N MW-32 N MW-35 W MW-36 MW-38 W MW-38 918 MW-39 927	7.08	-	-	925.14	-	-
MW-28 N MW-32 N MW-35 W MW-36 NW-38 W MW-38 918 MW-39 927	3.83	-	Trace	NM	-	-
MW-32 N MW-35 W MW-36 W MW-38 W MW-38R 918 MW-39 927	3.62	-	-	NM	-	-
MW-35 W MW-36 MW-38 W MW-38R 918 MW-39 927	M	-	-	NM	-	-
MW-36 MW-38 W MW-38R 918 MW-39 927	M	-	-	NM	-	-
MW-36 MW-38 W MW-38R 918 MW-39 927	ell Destroyed	d during Cons	struction	Well Destroy	ed during Const	ruction
MW-38R 918 MW-39 927		ndoned 3/26/			pandoned 3/26/0	
MW-38R 918 MW-39 927	ell Destroyed	d during Cons	struction	Well Destroy	ed during Const	ruction
MW-39 927		-	-	917.34	-	-
	7.32	_	-	925.71	-	-
MW-40 924	1.54	_	-	922.88	-	-
	2.1	-	-	NM	-	-
	2.29	_	-	NM	-	_
	5.08	_	-	NM	-	_
	5.27		-	NM	_	_
	3.76	-	-	NM	-	-
	.826			NM		-
		-	-	NM	-	-
	30				-	
	2.30	-	-	NM	-	-
	5.62	-	-	NM	-	-
	5.62 .307	-	-	NM	-	-
	.307 I.95	-	-	NM	-	-
	5.62 .307 4.95 2.25	_	-	NM	-	-
PZ-6N 922 PZ-6S 924	5.62 .307 1.95 2.25 1.63		-	NM NM	-	-

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		6/9/2009			7/28/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
PZ-7N	922.05	-	-	NM	-	-
PZ-7S	923.63	-	-	NM	-	-
PZ-8	920.815	-	-	NM	-	-
RW-01	922.31	-	-	NM	-	-
RW-02	NM	-	-	NM	-	-
RW-03	NM	-	-	NM	-	-
RW-04	NM	-	-	NM	-	-
RW-05	NM	-	-	NM	-	-
RW-06	922.19	-	-	NM	-	-
CV	921.30	-	-	NM	-	-
EV	925.14	-	-	NM	-	-
FWV	921.61	-	-	NM	-	-
WV	922.17	-	-	NM	-	-
SK1**	NM	-	-	NM	-	-
SK2**	NM	-	-	NM	-	-
SK3**	NM	-	-	NM	-	-
SK4**	NM	-	-	NM	-	-
SK5**	NM	-	-	NM	-	-
ML1	NM	-	-	NM	-	-
ML2	NM	-	-	NM	-	-
ML3	NM	-	-	NM	-	-
ML4	NM	-	-	NM	-	-
WW1	926.89	-	-	926.48	-	-
WW2	927.23	-	-	926.85	-	-
WW3	926.65	-	-	926.3	-	-

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations 916.40 916.40 Surface Water Elevation

2B-W-12<sup>1</sup> - was installic2B-W-12<sup>1</sup> - was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-45<sup>2</sup> - was installe2B-W-45<sup>2</sup> - was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-46<sup>3</sup> - was install¢2B-W-46<sup>3</sup> - was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

<sup>\*</sup>Groundwater elevatic\* Groundwater elevation collected on August 24, 2009
\*\*Survey elevation is s:\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attr^Suspect elevation attributed to sampling conditions or recording errors NM - Not Measured NM - Not Measured NM - Not Measured

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		8/25/2009			9/21/2009		
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	elevation Thickness		Wetland water elevation (NAVD88)	Product Thickness (feet)	
1A-W-1		from Construction		Well Covered	from Construction	on Activities	
1A-W-2	Well	Abandoned 3/24/	′09	Well	Abandoned 3/24	/09	
1A-W-3	Well	Abandoned 3/26/	09	Well	Abandoned 3/26	/09	
1A-W-4	NM			918.64			
1A-W-5	NM			917.50			
1B-W-2	921.54	-	-	921.56	-	-	
1B-W-3	921.14	-	-	921.11	-	-	
1B-W-23	NM	-	-	918.38	-	-	
1C-W-1	922.22	-	-	922.25	-	-	
1C-W-2	924.27	-	-	924.18	-	-	
1C-W-3	NM	-	-	921.78	-	-	
1C-W-4	NM	-	-	921.85	-	-	
1C-W-7	922.06	-	_	922.18	-	-	
1C-W-8	920.47	_	-	920.6	_	-	
2A-W-3	922.07	-	Heavy Trace	921.36	-	Heavy trace	
2A-W-4	922.67	-	0.31	NM	_	2.47	
2A-W-5	924.46	-	-	924.51	-	-	
2A-W-7	924.9	_	_	924.94	_	_	
2A-W-8	324.3	_		926.17		_	
2A-W-9	924.35	_	-	924.39		-	
2A-W-10	925.04	-	-	924.39			
		-	Hoove, Troop		-	troco	
2A-W-11	923.97	-	Heavy Trace	924.02	-	trace	
2A-W-40	NM	-	-	919.61	-	-	
2A-W-41	NM	-	-	916.37	-	-	
2A-W-42	NM	-	-	921.98	-	-	
2B-B-21	923.12	-	- 923.16 -			-	
2B-W-4	925.45	-	-	925.79		-	
2B-W-11	925.39	Dry	-	925.68	Dry	-	
2B-W-12 <sup>1</sup>	925.06	Dry	-	925.28	Dry	-	
2B-W-13	924.47	Dry	-	924.57	Dry	-	
2B-W-14	924.65	Dry	-	924.81	Dry	-	
2B-W-15	924.52	Dry	-	NM	NM	-	
2B-W-19	925.67	-	-	926.05	-	-	
2B-W-21	924.86	-	-	925.15	-	-	
2B-W-30	923.5	-	-	923.43	-	-	
2B-W-32	925.5	-	-	925.85	-	-	
2B-W-33	925.44	-	-	925.7	-	1	
2B-W-45 <sup>2</sup>	923.61	-	-	923.71	-	-	
2B-W-46 <sup>3</sup>	923.94	_	-	924.07	-	-	
3-W-41	919.54	-	_	920.09	-	-	
3-W-42	920.36	_	_	920.58	_	_	
3-W-42 3-W-43	922.74	_	-	923.06	_	_	
		Abananad 2/26//			-   Abananad 2/26/	-	
5-W-1 5-W-2		Abanoned 3/26/0			Abanoned 3/26/		
	NM NM	-	-	916.33		Heavy Trac	
5-W-3	NM	-	-	916.36	-	0.88	
5-W-4	NM	-	-	916.75	-	-	
5-W-14	NM	-	-	916.27	-	-	
5-W-15	NM	-	1	916.35	-	-	
5-W-16	NM	-	-	916.2	-	-	
5-W-17	NM	-	-	916.21	-	-	
5-W-18	NM	-	-	916.18	-	-	
5-W-19	NM	-	-	916.07	-	-	
5-W-20	NM	-	-	916.04	-	-	
5-W-42	NM		-	915.87	-	-	

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		8/25/2009			9/21/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
5-W-43	NM	-	-	917.54	-	-
5-W-50	NM	-	-	916.69	-	=
5-W-51	NM	-	-	916.6	-	Trace
5-W-52	NM	-	-	917.02	-	-
5-W-53	NM	-	-	917.00	-	-
5-W-54	NM	-	-	916.77	-	-
5-W-55	NM	-	-	916.36	-	-
5-W-56	NM	-	-	916.35	-	-
EW-1	NM	-	-	917.67	-	-
GW-1	NM	-	-	917.06	-	-
GW-2	NM	-	-	916.42	-	-
GW-3	NM	-	-	919.51	-	-
GW-4	NM	-	-	923.52	-	-
IW-01	923.54*	-	-	NM	-	-
IW-02	922.44*	-	-	NM	-	-
MW-1	NM	-	-	925.10	-	-
MW-2	NM	-	-	925.35	-	-
MW-3	NM	-	-	925.73	-	-
MW-4	925.32	-	-	925.55	-	-
MW-5	924.23	-	-	924.29	-	-
MW-7	922.38	-	-	922.01	-	-
MW-9	923.02	-	-	922.75	-	-
MW-10	NM	-	-	924.07	-	-
MW-11	NM	-	-	924.46	-	-
MW-12	NM	-	-	923.87	_	-
MW-13	NM	-	-	923.42	-	-
MW-14	NM	-	-	923.03	-	-
MW-15	NM	-	-	921.6	-	-
MW-16	NM	-	-	918.78	_	-
MW-17	NM	-	-	NM	_	-
MW-18	NM	-	-	924.49	_	-
MW-22	NM	-	-	916.12	_	Trace
MW-26	NM	-	-	NM	_	-
MW-28	NM	-	-	924.97	_	_
MW-32	NM	_		915.78	_	_
MW-35		oyed during Cons	struction		royed during Cons	struction
MW-36		Abandoned 3/26/		+	Abandoned 3/26/	
MW-38		oyed during Cons			royed during Cons	
MW-38R	916.68	-	-	916.57	-	-
MW-39	925.02	-	Trace	925.17	-	-
MW-40	922.17	-	-	921.87	-	-
PW-01	919.72*	-	-	NM	-	-
PW-03	919.97*	-	_	NM	-	-
PW-04	923.46*	-	-	NM	-	-
PZ-1	924.1*	-	_	924.12	-	-
PZ-2N	922.13*	-	_	922.18	-	-
PZ-2S	924.17*	-	-	924.116	-	-
PZ-3N	920.44*	-	-	920.39	-	=
PZ-3S	923.98*	-	-	922.72	-	-
PZ-4N	920.67*	-	-	920.627	-	_
PZ-4S	922.40*	_	-	921.96	-	_
PZ-5N	919.91*	-	-	917.56	_	_
PZ-5S	922.17*	-	-	921.31	-	
PZ-6N	919.91*	-	-	916.687	-	
PZ-6S	NM	-	-	919.54	-	<u> </u>

**Table 5-1 Fluid Level Elevations and Product Thicknesses** 

		8/25/2009			9/21/2009	
Well Number	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)	Potentiometric Elevation (NAVD88)	Wetland water elevation (NAVD88)	Product Thickness (feet)
PZ-7N	919.68*	-	-	916.945	-	-
PZ-7S	920.67*	-	-	919.27	-	-
PZ-8	919.08*	-	-	918.315	-	-
RW-01	919.99*	-	-	NM	-	-
RW-02	NM	-	-	919.58	-	-
RW-03	NM	-	-	919.8	-	-
RW-04	NM	-	-	NM	-	-
RW-05	NM	-	-	916.6	-	-
RW-06	919.86*	-	-	NM	-	-
CV	918.96*	-	-	918.65	-	-
EV	923.5*	-	-	923.55	-	-
FWV	920.12*	-	-	918.96	-	-
WV	919.86*	-	-	916.65	-	-
SK1**	NM	-	-	923.31	-	-
SK2**	NM	-	-	917.73	-	-
SK3**	NM	-	-	917.57	-	-
SK4**	NM	-	-	916.87	-	-
SK5**	NM	-	-	916.06	-	-
ML1	NM	-	-	dry	-	-
ML2	NM	-	-	dry	-	-
ML3	NM	-	-	dry	-	-
ML4	NM	-	-	dry	-	-
WW1	Dry	-	-	Dry	-	-
WW2	Dry	-	-	Dry	-	-
WW3	Dry	-	-	Dry	-	-

Piezometer and Surface Water Staff Gauge Location

Surface Water Staff Gauge Locations

916.40 916.40 Surface Water Elevation

2B-W-12<sup>1</sup> - was installic2B-W-12<sup>1</sup> - was installed at an angle of 14 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-45<sup>2</sup> - was installe2B-W-45<sup>2</sup> - was installed at an angle of 20 degrees from vertical. All potentiometric elevations have been corrected to vertical. 2B-W-46<sup>3</sup> - was install¢2B-W-46<sup>3</sup> - was installed at an angle of 30 degrees from vertical. All potentiometric elevations have been corrected to vertical.

<sup>\*</sup>Groundwater elevatic\* Groundwater elevation collected on August 24, 2009
\*\*Survey elevation is s:\*\*Survey elevation is suspect; location will be re-surveyed.

<sup>^</sup>Suspect elevation attr^Suspect elevation attributed to sampling conditions or recording errors NM - Not Measured NM - Not Measured NM - Not Measured

**Table 5-2 Stabilized Groundwater Field Parameter Measurements** 

					Field Par	ameters		
Well	Sample Date	Time	рН	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity
	Units:			(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)
1A-W-1	24-Mar-09	1152	5.69	81	6.21	157.4	4.21	2.98
	21-Sep-09		W	ell was within cons	truction area and ur	nable to be samp	led.	
1A-W-3	23-Mar-09	1722	6.16	94	6.03	93.4	2.47	17.96
	23-Sep-08			Well Aba	indoned on March 2	26, 2009.		
1A-W-4	24-Mar-09	1051	6.40	62	5.9	136.8	6.07	1.39
	23-Sep-09	1735	6.44	66	11.73	-140.7	6.53	0.51
1A-W-5	24-Mar-09	959	6.39	58	3.56	143.8	6.10	1.42
	24-Sep-09	1115	6.47	59	8.68	140.3	7.56	1.43
1B-W-2	24-Mar-09	1400	5.25	376	5.44	179.1	4.93	1.98
	23-Sep-09	1552	5.82	342	16.26	-150.9	0.37	5.26
1B-W-3	24-Mar-09	1256	6.25	83	5.89	112.5	3.05	3.01
	23-Sep-09	1437	6.37	88	13.39	-161.8	1.17	2.35
1B-W-23	1-Apr-09	1039	6.35	159	5.20	170.0	7.76	1.71
	11-Jun-09	1029	6.00	68	9.27	114.3	4.31	1.97
	23-Sep-09		Ī	Parameters not sta	bilized. Water drew	down during purg	je.	
1C-W-1	25-Mar-09	1243	5.69	43	4.71	178.8	7.23	2.59
	21-Apr-09	1600	5.20	63	9.69	178.2	5.67	ND
	12-May-09	1618	5.30	56	6.71	-44.6	6.74	0.96
	9-Jun-09	1634	5.67	53	11.17	164.4	6.80	2.59
	28-Jul-09	1045	5.27	48	11.10	254.1	6.46	1.41
	25-Aug-09	959	4.91	44	10.50	204.0	5.82	4.91
	22-Sep-09	914	5.74	54	11.57	-112.1	5.22	0.95
1C-W-2	25-Mar-09	1138	5.55	47	3.83	172.9	6.27	2.09
	22-Sep-09	1630	5.67	71	12.56	-127.0	3.67	0.04
1C-W-3	24-Mar-09	1055	5.62	49	4.89	214.8	7.6	38.0
	22-Sep-09	1142	5.94	72	20.73	-88.8	4.96	71.4
1C-W-4	24-Mar-09	1144	5.49	86	6.02	218.7	0.72	2.80
	22-Sep-09	1354	5.70	54	11.40	-145.5	0.50	1.03
1C-W-7	21-Apr-09	1455	5.71	70	11.50	-225.9	0.15	0.06
	12-May-09	1518	5.56	70	7.94	-104.8	0.52	0.85
	10-Jun-09	1536	5.94	83	13.10	-1	ND	3.51
	28-Jul-09	1229	6.89	90	15.44	24.2	6.30	5.65
	25-Aug-09	1156	6.51	83	11.81	157.0	7.70	2.35
	22-Sep-09	1455	6.88	114	14.57	-120.1	7.73	1.80

**Table 5-2 Stabilized Groundwater Field Parameter Measurements** 

					Field Para	ameters		
Well	Sample Date	Time	рН	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity
	Units:			(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)
1C-W-8	21-Apr-09	1651	5.36	90	14.70	-210.3	0.50	1.43
	12-May-09	1703	5.31	40	6.86	-120.7	1.84	2.31
	9-Jun-09	1656	5.26	74	16.30	90.0	2.59	1.06
	28-Jul-09	1140	5.49	46	10.37	43.9	0.29	NM
	25-Aug-09	1055	5.31	63	12.05	179.0	0.67	1.34
	22-Sep-09	954	5.93	60	14.49	-129.2	0.42	0.95
2A-W-9	25-Mar-09	904	5.65	111	1.76	126.7	0.50	2.31
	23-Sep-09	1125	5.66	88	12.3	17.0	0.03	3.39
2A-W-10	24-Mar-09	1252	5.31	38	2.66	246.7	6.06	1.41
	21-Sep-09	1624	5.10	42	11.40	157.4	0.50	3.44
2A-W-11	24-Mar-09			Draduat in diach	arge line. No param	atora callacted		
	22-Sep-09			Product in disch	arge iine. No param	eters collected.		
2A-W-40	1-Apr-09	1728	6.95	122	3.8	64	4.52	5.31
	10-Jun-09	1429	6.5	66	13.02	119	3.8	1.84
	24-Sep-09	913	6.48	43	9.35	224.9	4.77	1.04
2A-W-41	1-Apr-09	944	5.95	111	5.7	183	6.24	3.18
	10-Jun-09	1656	6.24	79	11.7	87.4	4.14	0.96
	24-Sep-09	1021	6.33	103	9.54	169.2	6.38	1.11
2A-W-42	1-Apr-09	1256	6.55	132	5.4	119	8.89	2.23
	10-Jun-09	1254	6.22	117	11.19	103.5	2.04	1.78
	23-Sep-09	856	5.91	102	10.39	-143.2	1.07	0.33
2B-W-4	23-Mar-09	1617	5.98	24	3.50	153.0	0.61	0.85
	21-Sep-09	1622	5.76	66	12.53	-27.3	1.60	ND
2B-W-45	17-Dec-08	808	5.71	34	6.9	162	2.98	2.01
	24-Mar-09	1511	5.45	46	3.69	239.8	8.5	0.98
	11-Jun-09	926	5.61	54	9.2	179	1.02	5.94
	23-Sep-09	1011	5.63	61	10.9	148	1.67	2.49
2B-W-46	17-Dec-08	852	5.83	39	8.7	175	3.6	1.44
	24-Mar-09	1432	5.68	40	5.41	220.3	3.42	0.72
	11-Jun-09	1006	5.7	52	8.4	182	1.23	3.97
	23-Sep-09	930	5.58	69	10.6	193	2.5	1.00
3-W-41	25-Aug-09	1328	6.17	102	11.55	43.2	0.64	1.75
	23-Sep-09	1503	6.19	99	15.4	-27	ND	8.03
3-W-42	25-Aug-09	1432	6.13	52	13.81	52.3	3.62	0.86
-	23-Sep-09	1557	6.7	108	15.8	-15	0.89	4.14
3-W-43	25-Aug-09	1520	6.06	91	14.09	75.6	1.81	1.72
<b>5 5</b>	23-Sep-09	1642	6.4	67	15	23	0.6	1.72
5-W-4	25-Mar-09	1344	6.33	93	4.7	146.4	2.04	1.25
· · ·	23-Sep-09	1802	6.28	117	14.0	29.1	0.19	1.00

**Table 5-2 Stabilized Groundwater Field Parameter Measurements** 

		Field Parameters								
Well	Sample Date	Time	рН	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity		
	Units:			(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)		
5-W-14	17-Dec-08	1244	6.17	89	4.99	104.6	5.44	2.70		
	24-Mar-09	0917	6.21	53	6.26	185.1	5.46	1.11		
	10-Jun-09	922	6.09	100	10.7	122.0	1.73	0.79		
	23-Sep-09	1116	6.50	60	9.32	71.1	5.89	0.88		
5-W-15	17-Dec-08	1437	6.53	72	6.8	-34	0.43	178.0		
	25-Mar-09	1205	6.61	72	5.87	4.90	0.18	17.00		
	10-Jun-09	1104	6.28	114	11.7	-34	ND	49.70		
	23-Sep-09	1333	6.76	100	12.7	42.5	0.21	10.8		
5-W-16	17-Dec-08	1406	6.31	56	0.5	137.2	12.0	3.90		
	25-Mar-09	1002	6.75	35	3.29	183.9	10.33	7.65		
	10-Jun-09	1012	6.32	61	11.3	112.0	3.47	3.83		
	23-Sep-09	1023	6.90	53	12.8	52.7	5.69	1.00		
5-W-17	17-Dec-08	1320	6.14	45	4.8	108.0	2.91	NM		
	25-Mar-09	1619	6.14	48	6.62	102.7	4.87	NM		
	10-Jun-09	1319	6.11	76	11.30	40.0	1.18	4.47		
	23-Sep-09	922	6.30	56	9.2	69.8	5.64	0.71		
5-W-18	17-Dec-08	1540	6.15	168	4.7	47.0	0.69	NM		
	25-Mar-09	1301	6.27	92	5.29	-1.4	0.32	7.45		
	10-Jun-09	1445	5.97	92	12.50	17.0	ND	12.40		
	22-Sep-09	1452	6.56	74	13.9	42.5	0.17	3.29		
5-W-19	17-Dec-08	1119	6.09	65	4.6	62.1	5.08	2.90		
	25-Mar-09	1401	6.24	41	5.96	40.4	6.36	0.45		
	10-Jun-09	1627	6.09	68	12.30	62.0	1.41	5.01		
	23-Sep-09	1517	6.47	50	10.8	32.3	5.71	0.39		
5-W-20	17-Dec-08	1021	6.15	161	6.5	25.2	0.50	5.20		
	25-Mar-09	1516	6.36	107	5.86	78.8	0.28	2.31		
	10-Jun-09	1745	6.14	153	11.50	36.0	ND	5.31		
	23-Sep-09	1609	6.69	88	13.1	14.1	0.22	0.93		
5-W-42	17-Dec-08	851	6.18	83	6.10	61.5	3.01	4.00		
-	25-Mar-09	1625	6.33	54	5.40	80.7	4.63	1.95		
	10-Jun-09	1756	6.30	105	10.32	-47.1	1.35	1.72		
	23-Sep-09	1431	6.49	109	13.24	23.0	0.36	5.00		

**Table 5-2 Stabilized Groundwater Field Parameter Measurements** 

		Field Parameters								
Well	Sample Date	Time	рН	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity		
	Units:			(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)		
5-W-43	2-Apr-09	937	6.47	12	3.30	130.0	6.18	3.81		
	10-Jun-09	1040	6.29	101	11.05	168.1	0.96	1.61		
	7-Jul-09	1219	6.07	72	9.11	17.6	0.31	2.67		
	23-Sep-09	1725	5.96	49	11.05	48.8	1.27	6.81		
5-W-50	25-Mar-09	1539	5.46	32	3.81	106.0	0.44	3.09		
	23-Sep-09	845	5.86	88	12.69	79.3	0.21	2.57		
5-W-51	24-Mar-09			Draduat in diach	arge line. No param	otoro collected				
	22-Sep-09			Product in disch	arge line. No param	ieters collected.				
5-W-52	24-Mar-09	1602	6.22	109	4.66	-16.3	3.17	1.00		
	22-Sep-09	1002	6.38	94	12.96	108.5	0.41	2.21		
5-W-53	24-Mar-09	947	5.89	78	4.70	213.6	5.89	8.24		
	22-Sep-09	1052	6.33	93	17.23	83.7	0.34	2.69		
5-W-54	25-Mar-09	1447	6.06	56	4.43	98.9	9.33	2.08		
	22-Sep-09	1147	6.08	60	14.22	91.9	0.41	2.64		
5-W-55	24-Mar-09	914	5.82	44	5.48	209.1	8.65	0.94		
	22-Sep-09	1636	5.99	64	14.22	40.0	0.22	3.46		
5-W-56	24-Mar-09	1656	6.06	14	4.33	33.6	10.06	3.92		
	22-Sep-09	1545	6.29	417*	19.63	34.9	0.21	2.53		
EW-1	2-Apr-09	1026	6.33	40	3.10	152.0	6.72	0.04		
	10-Jun-09	957	5.70	47	11.71	190.1	1.46	1.20		
	23-Sep-09	1839	5.85	31	9.22	73.3	0.56	0.67		
GW-1	2-Apr-09	840	6.19	140	3.30	148.0	4.21	1.09		
I	10-Jun-09	1550	6.64	106	11.00	-33.1	0.66	1.61		
	24-Sep-09	1021	6.22	118	12.22	-185.1	0.24	1.54		
GW-2	1-Apr-09	1609	6.77	180	4.20	40.0	4.25	2.73		
]	10-Jun-09	1344	6.18	108	12.51	120.8	1.17	1.63		
	7-Jul-09	1110	5.80	70	10.46	70.2	0.62	2.91		
	28-Jul-09	1427	5.58	71	12.88	129.7	0.21	0.84		
	25-Aug-09	1639	6.30	180	14.01	53.8	0.45	0.77		
	24-Sep-09	915	6.23	78	10.88	-165.6	1.09	0.73		
GW-3	1-Apr-09	1151	6.45	96	6.70	103.0	6.03	1.28		
] 5	11-Jun-09	929	5.97	66	8.72	45.4	3.80	1.87		
	23-Sep-09	1254	6.26	82	13.20	-169.7	0.08	35.70		
GW-4	1-Apr-09	1418	7.04	194	6.60	-47	4.41	11.76		
]	10-Jun-09	1203	6.87	147	11.88	58.6	1.03	1.90		
	22-Sep-09	1713	6.13	95	12.60	-137.4	0.82	2.46		
MW-3	24-Mar-09	1557	5.67	23	1.8	171.6	8.36	0.94		
10100-3	23-Sep-09	1318	6.64	17	17.3	69.0	0.05	37.0		

**Table 5-2 Stabilized Groundwater Field Parameter Measurements** 

					Field Para	ameters		
Well	Sample Date	Time	рН	Conductivity	Temperature	ORP	Dissolved Oxygen	Turbidity
	Units:			(µmhos/cm)	(°C)	(mV)	(mg/L)	(NTU)
MW-4	24-Mar-09	1702	5.65	20	1.82	177.40	7.15	2.19
	23-Sep-09	1355	5.80	53	15.9	-4	0.10	9.50
MW-16	25-Mar-09	1041	5.48	43	2.46	158.2	6.89	1.31
	23-Sep-09	1741	5.68	67	15.00	105.0	0.81	15.30
MW-38R	24-Mar-09	854	6.12	49	5.09	148.0	1.22	1.65
	22-Sep-09	1342	6.20	58	10.31	84.6	1.14	0.91
MW-39	26-Mar-08		-	Draduat in disah	arga lina. Na naram	otoro pollogtad		
1	22-Sep-09			Product in discri	arge line. No param	ieters collected.		

2A-W-6 was removed from the sampling network in May 2008 as approved by the Department of Ecology and explained in the 2008 GW Monitoring Plan.

ND = not detected

<sup>\*</sup>Potential field error

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

	Chemical Name			Oil Rang	e		wit	Oil Range h Silica Gel Cleanu	ıp		Diesel Rar	nge		witl	Diesel Rar h Silica Gel	•	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier MDL	L MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MRL		
	<u> </u>							Air Sparging Syst	tem									
1C-W-1	1C-W-1-0309	3/5/2009	159	J	142	472	NA	<u> </u>		120	J	94.3	236	NA			279	NA
1C-W-1	1C-W-1-032509	3/25/2009	162	J	142	472	NA			273	J	94.3	236	NA			435	NA
1C-W-1	IC-W-1-040709	4/7/2009	ND		142	472	NA			141	J	94.3	236	NA			212	NA
1C-W-1	1C-W-1-051209	5/12/2009	ND		40.6	118	NA			64.8	J	15.1	47.2	NA			85.1	NA
1C-W-1	IC-W-1-0609	6/9/2009	ND		40.6	118	NA			ND		15.1	47.2	NA			27.9 (ND)	NA
1C-W-1	1C-W-1-0709	7/28/2009	ND		18	95	NA			ND		23	48	NA			21 (ND)	NA
1C-W-1	1C-W-1-0809	8/25/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
1C-W-1	1C-W-1-0909	9/22/2009	110		18	94	NA			86		23	47	NA			196	NA
1C-W-7*	IC-W-7-040709	4/7/2009	227	J	142	472	NA			1450	J	94.3	236	NA			1677	NA
1C-W-7*	1C-W-7-051209	5/12/2009	186		40.6	118	NA			578	J	15.1	47.2	NA			764	NA
1C-W-7*	IC-W-7-0609	6/9/2009	ND		40.6	118	NA			287	J	15.1	47.2	NA			307.3	NA
1C-W-7*	1C-W-7-0709	7/28/2009	ND		18	95	NA			250		23	48	NA			259	NA
1C-W-7*	1C-W-7-0809	8/25/2009	ND		18	94	NA			300		23	47	NA			309	NA
1C-W-7*	1C-W-7-0909	9/22/2009	130		18	94	NA			240		23	47	NA			370	NA
1C-W-7* (FD)	1C-W-70-0909	9/22/2009	110		18	94	NA			250		23	47	NA			360	NA
1C-W-8	IC-W-8-040709	4/7/2009	424	J	142	472	NA			3500	J	94.3	236	NA			3924	NA
1C-W-8	1C-W-8-051209	5/12/2009	275		40.6	118	NA			901	J	15.1	47.2	NA			1176	NA
1C-W-8	IC-W-8-0609	6/9/2009	ND		40.6	118	NA			434	J	15.1	47.2	NA			454.3	NA
1C-W-8	1C-W-8-0709	7/28/2009	ND		18	95	NA			330		23	48	NA			339	NA
1C-W-8	1C-W-8-0809	8/25/2009	ND		18	94	NA			380		23	47	NA			389	NA
1C-W-8	1C-W-8-0909	9/22/2009	130		18	94	NA			400		23	47	NA			530	NA
Maximum			424				NA			3500				NA			3924	NA
Minimum			ND				NA			ND				NA			ND <b>670.3</b> **	NA NA
Average				Pag	lefill and	l Daw	naradiant	of the Hydraulic C	Control o	nd Cantain	mont Custo						670.3	IVA
1B-W-23	1B-W-23-0409	4/1/2009	ND	Dat	142	472	NA	or the Hydraulic C	Jontroi a	ND	ment syste	94.3	236	NA			118.2 (ND)	NA
1B-W-23	1B-W-23-0609	6/11/2009	ND ND			118	NA NA			ND ND		15.1	47.2	NA NA			27.9 (ND)	NA NA
1B-W-23	1B-W-23-0909	9/23/2009	310			94	NA NA			490		23	47.2	NA			800	NA NA
1B-W-23 (FD)	1B-W-123-0409	4/1/2009	ND			472	NA			ND		94.3	236	NA			118.2 (ND)	NA NA
1C-W-7*	IC-W-7-040709	4/7/2009	227	1	142	472	NA			1450	J	94.3	236	NA			1677	NA NA
1C-W-7*	1C-W-7-051209	5/12/2009	186			118	NA			578		15.1	47.2	NA			764	NA NA
1C-W-7*	IC-W-7-0609	6/9/2009	ND			118	NA			287		15.1	47.2	NA			307.3	NA
1C-W-7*	1C-W-7-0709	7/28/2009	ND		18	95	NA			250		23	48	NA			259	NA
1C-W-7*	1C-W-7-0809	8/25/2009	ND		18	94	NA			300		23	47	NA			309	NA
1C-W-7*	1C-W-7-0909	9/22/2009	130		18	94	NA			240		23	47	NA			370	NA
1C-W-7* (FD)	1C-W-70-0909	9/22/2009	110		18	94	NA			250		23	47	NA			360	NA
2A-W-40	2A-W-40-0409	4/1/2009	ND		142	472	NA			220	J	94.3	236	NA			291	NA
2A-W-40	2A-W-40-0609	6/10/2009	ND			118	NA			ND		15.1	47.2	NA			27.9 (ND)	NA
2A-W-40	2A-W-40-0909	9/24/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
2A-W-40 (FD)	2A-W-400-0409	4/1/2009	ND		142	472	NA			191	J	94.3	236	NA			262	NA
2A-W-40 (FD)	2A-W-400-0609	6/10/2009	ND			118	NA			ND		15.1	47.2	NA			27.9 (ND)	NA
2A-W-41	2A-W-41-0409	4/1/2009	183	J	142	472	NA			438	J	94.3	236	NA			621	NA

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

	Chemical Name			Oil Range		w	Oil Range ith Silica Gel Cle	eanup		Diesel Ran	ge		wit	Diesel Rar h Silica Gel	•	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier MD	L MR	L Resul	t Qualifier	MDL MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MRL		
2A-W-41	2A-W-41-0609	6/10/2009	ND	40	6 11	3 NA			ND		15.1	47.2	NA			27.9 (ND)	NA
2A-W-41	2A-W-41-0909	9/24/2009	120	18	94	NA			280		23	47	NA			400	NA
2A-W-42	2A-W-42-0409	4/1/2009	ND	14	2 47	2 NA			ND		94.3	236	NA			118.2 (ND)	NA
2A-W-42	2A-W-42-0609	6/10/2009	ND	40	6 11	3 NA			202	J	15.1	47.2	NA			222.3	NA
2A-W-42	2A-W-42-0909	9/23/2009	140	18	94	NA			280		23	47	NA			420	NA
5-W-43	5-W-43-0409	4/2/2009	ND	14	2 47	2 NA			151	J	94.3	236	NA			222	NA
5-W-43	5-W-43-0609	6/10/2009	217	40	6 11	3 NA			293	J	15.1	47.2	NA			510	NA
5-W-43	5-W-43-0709	7/7/2009	120	18	94	NA			140		23	47	NA			260	NA
5-W-43	5-W-43-0909	9/23/2009	ND	18	94	NA			ND		23	47	NA			21 (ND)	NA
Maximum			310			NA			1450				NA			1677	NA
Minimum			ND			NA			ND				NA			ND	NA
Average																473.8**	NA
<del>-</del>				Foi	mer M	aloney Cre	ek Zone - East \	<b>Netland</b> an	d Surround	ing Areas							
2A-W-10	2A-W-10-0309	3/24/2009	192	J 14	4 48	1 NA			ND		96.2	240	NA			240.1	NA
2A-W-10	2A-W-10-0909	9/21/2009	190	18					180		23	47	NA			370	NA
2A-W-11	2A-W-11-0309	3/24/2009	727	J 14		2 NA			686	J	94.3	236	NA			1413	NA
2A-W-11	2A-W-11-0909	9/22/2009	930	18	94	NA			630		23	47	NA			1560	NA
2A-W-9	2A-W-9-0309	3/25/2009	799	J 14	2 47	2 NA			927	J	94.3	236	NA			1726	NA
2A-W-9	2A-W-9-0909	9/23/2009	130	18					470		23	47	NA			600	NA
2A-W-9 (FD)	2A-W-90-0309	3/25/2009	772	J 14					902	J	94.3	236	NA			1674	NA
2B-W-4	2B-W-4-0309	3/23/2009	ND	14					ND		94.3	236	NA			118.2 (ND)	NA
2B-W-4	2B-W-4-0909	9/21/2009	ND	18					ND		23	47	NA			21 (ND)	NA
2B-W-45	2B-W-45-1208	12/17/2008	ND	84	9 47	2 ND		151 472	ND		37.7	236	ND		37.7 236	61.3 (ND)	94.4 (ND)
2B-W-45	2B-W-45-0309	3/24/2009	ND	14					ND		94.3	236	NA			118.2 (ND)	NA
2B-W-45	2B-W-45-0609	6/11/2009	ND	40	6 11	3 NA			ND		15.1	47.2	NA			27.9 (ND)	NA
2B-W-45	2B-W-45-0909	9/23/2009	ND	18					ND		23	47	NA			21 (ND)	NA
2B-W-45 (FD)	2B-W-450-0909	9/23/2009	ND	18					ND		23	47	NA			21 (ND)	NA
2B-W-46	2B-W-46-1208	12/17/2008	ND	84				151 472	ND		37.7	236	ND		37.7 236	61.3 (ND)	94.4 (ND)
2B-W-46	2B-W-46-0309	3/24/2009	ND	14	2 47				ND		94.3	236	NA			118.2 (ND)	NA
2B-W-46	2B-W-46-0609	6/11/2009	ND		6 11				ND		15.1	47.2	NA			27.9 (ND)	NA
2B-W-46	2B-W-46-0909	9/23/2009	ND	18					ND		23	47	NA			21 (ND)	NA
MW-3	MW-3-0309	3/24/2009	ND	14					ND		94.3	236	NA			118.2 (ND)	NA
MW-3	MW-3-0909	9/23/2009	290	18					640		23	47	NA			930	NA
MW-39	MW-39-0309	3/24/2009	1130	J 14					894	J	94.3	236	NA			2024	NA
MW-39	MW-39-0909	9/22/2009	250	18					380		23	47	NA			630	NA
MW-4	MW-4-0309	3/24/2009	ND	14					ND		94.3	236	NA			118.2 (ND)	NA
MW-4	MW-41-0909	9/23/2009	ND	18		-			77		23	47	NA			86	NA
MW-4 (FD)	MW-400-0309	3/24/2009	186		2 47				ND		94.3	236	NA			233.2	NA
Maximum		<u> </u>	1130			ND			927				NA			2024	ND
Minimum			ND			ND			ND				NA			ND	ND
Average			. 10			110			.10				. 47 (			957.2**	ND

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

	Chemical Name			Oil Range		witl	Oil Range n Silica Gel Cleanup		Diesel Ran	ge		wit	Diesel Range h Silica Gel Cleanup	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier MDL	MRL	Result	Qualifier MDL MRL	Result	Qualifier	MDL	MRL	Result	Qualifier MDL MRL		
					F	ormer Ma	loney Creek Zone - West \	Wetland							
3-W-41	3-W-41-0809	8/25/2009	ND	18	94	NA		76		23	47	NA		86	NA
3-W-41	3W-41-0909	9/23/2009	ND	18	94	NA		56		23	47	NA		65	NA
3-W-41 (FD)	3-W-410-0809	8/25/2009	ND	18	94	NA		77		23	47	NA		85	NA
3-W-42	3-W-42-0809	8/25/2009	ND	18	94	NA		ND		23	47	NA		21 (ND)	NA
3-W-42	3-W-42-0909	9/23/2009	190	18	94	NA		740		23	47	NA		930	NA
3-W-43	3-W-43-0809	8/25/2009	ND	18	94	NA		ND		23	47	NA		21 (ND)	NA
3-W-43	3-W-43-0909	9/23/2009	ND	18	94	NA		ND		23	47	NA		21 (ND)	NA
Maximum			190			NA		740				NA		930	NA
Minimum			ND			NA		ND				NA		ND	NA
Average														292**	NA
						Hydraulic (	Control and Containment	System							
EW-1	EW-1	4/2/2009	ND	142	472	NA		ND		94.3	236	NA		118.2 (ND)	NA
EW-1	EW-1-0609	6/10/2009	ND	40.6	118	NA		ND		15.1	47.2	NA		27.9 (ND)	NA
EW-1	EW-1-0909	9/23/2009	ND	18	94	NA		ND		23	47	NA		21 (ND)	NA
GW-1	GW-1-0409	4/2/2009	ND	142	472	NA		102	J	94.3	236	NA		173	NA
GW-1	GW-1-0609	6/10/2009	160	40.6	118	NA		254	J	15.1	47.2	NA		414	NA
GW-1	GW-1-0909	9/24/2009	ND	18	94	NA		54		23	47	NA		63	NA
GW-2	GW-2-0409	4/1/2009	363	J 142	472	NA		499	J	94.3	236	NA		862	NA
GW-2	GW-2-0609	6/10/2009	360	40.6	118	NA		688	J	15.1	47.2	NA		1048	NA
GW-2	GW-2-0709	7/7/2009	410	J 18	94	NA		650	J	23	47	NA		1060	NA
GW-2	GW-2-072809	7/28/2009	250	18	95	NA		410		23	48	NA		660	NA
GW-2	GW-2-0809	8/25/2009	320	18	94	NA		710		23	47	NA		1030	NA
GW-2	GW-2-0909	9/24/2009	100	18	94	NA		160		23	47	NA		260	NA
GW-2 (FD)	GW-20-0709	7/28/2009	290	J 18	95	NA		430	J	23	48	NA		720	NA
GW-2 (FD)	GW-20-0909	9/24/2009	100	18	94	NA		150		23	47	NA		250	NA
GW-3	GW-3-0409	4/1/2009	ND	142	472	NA		ND		94.3	236	NA		118.2 (ND)	NA
GW-3	GW-3-0609	6/11/2009	ND	40.6	118	NA		ND		15.1	47.2	NA		27.9 (ND)	NA
GW-3	GW-3-0909	9/23/2009	ND	18	94	NA		110		23	47	NA		119	NA
GW-3 (FD)	GW-30-0609	6/11/2009	ND	40.6	118	NA		ND		15.1	47.2	NA		27.9 (ND)	NA
GW-4	GW-4-0409	4/1/2009	ND	142	472	NA		ND		94.3	236	NA		118.2 (ND)	NA
GW-4	GW-4-0609	6/10/2009	ND	40.6	118	NA		ND		15.1	47.2	NA		27.9 (ND)	NA
GW-4	GW-4-0909	9/22/2009	ND	18	94	NA		97		23	47	NA		106	NA
Maximum			410			ND		710				ND		1060	ND
Minimum			ND			ND		ND				ND		ND	ND
Average														520**	ND

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

	Chemical Name			Oil Range			with	Oil Rang h Silica Gel		)		Diesel Rar	nge		wit	Diesel Ra h Silica Gel	•	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier I	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MI	RL	
				ŀ	lydrau	ılic Co	ntrol and	Containme	nt Syste	m Gate	Vault Sen	try Wells							
CV (S3)	S3-1208	12/17/2008	ND		84.9	472	ND		151	472	913	JN	37.7	236	ND		37.7 23	<b>955.5</b>	94.4 (ND)
FWV (S1)	S1-1208	12/17/2008	ND		84.9	472	ND		151	472	310	JN	37.7	236	ND		37.7 23	<b>352.5</b>	94.4 (ND)
WV (S2)	S2-1208	12/17/2008	ND		84.9	472	ND		151	472	1020	JN	37.7	236	ND		37.7 23	<b>1062.5</b>	94.4 (ND)
S1-AD	S1-AD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S1-AD	S1-AD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S1-AU	S1-AU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S1-AU	S1-AU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S1-BD	S1-BD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S1-BD	S1-BD-0909	9/22/2009	190		18	94	NA				ND		23	47	NA			201.5	NA
S1-BD (FD)	S10-BD-0309	3/24/2009	162	J	142	472	NA				ND		94.3	236	NA			209.2	NA
S1-BU	S1-BU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S1-BU	S1-BU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S2-AD	S2-AD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S2-AD	S2-AD-0909	9/22/2009	ND		18	94	NA				50		23	47	NA			59	NA
S2-AU	S2-AU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S2-AU	S2-AU-0909	9/22/2009	95		18	94	NA				47		23	47	NA			142	NA
S2-BD	S2-BD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S2-BD	S2-BD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S2-BU	S2-BU-0309	3/24/2009	ND	J	142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S2-BU	S2-BU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S2-BU (FD)	S20-BU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S3-AD	S3-AD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-AD	S3-AD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S3-AU	S3-AU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-AU	S3-AU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S3-AU (FD)	S30-AU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-BD	S3-BD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-BD	S3-BD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S3-BU	S3-BU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-BU	S3-BU-0909	9/22/2009	ND		18	94	NA				94		23	47	NA			103	NA
S3-CD	S3-CD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-CD	S3-CD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S3-CU	S3-CU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S3-CU	S3-CU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S4-AD	S4-AD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S4-AD	S4-AD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S4-AD (FD)	S40-AD-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S4-AU	S4-AU-0309	3/24/2009	ND	<u> </u>	142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S4-AU	S4-AU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
S4-BD	S4-BD-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S4-BD	S4-BD-0909	9/22/2009	ND		18	94	NA				54		23	47	NA			63	NA
S4-BU	S4-BU-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
S4-BU	S4-BU-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA

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

	Chemical Name			Oil Range	•		with	Oil Range Silica Gel Clean	up		Diesel Ran	ige		with	Diesel Range Silica Gel Clea		TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier MD	L MRL	Result	Qualifier	MDL	MRL	Result	Qualifier M	DL MRL		
S4-CD	S4-CD-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA			118.2 (ND)	NA
S4-CD	S4-CD-0909	9/22/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
S4-CU	S4-CU-0309	3/24/2009	173	J	142	472	NA			ND		94.3	236	NA			220.2	NA
S4-CU	S4-CU-0909	9/22/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
Maximum			190				ND			1020				ND			1063	ND
Minimum			ND				ND			ND				ND			ND	ND
Average																	336.8**	ND
								Levee Zone	)									
5-W-14	5-W-14-1208	12/17/2008	ND		84.9	472	ND	15		ND		37.7	236	ND		7.7 236	61.3 (ND)	94.4 (ND)
5-W-14	5-W-14-0309	3/24/2009	ND		142	472	ND	14		ND		94.3	236	ND		4.3 236	118.2 (ND)	118.2 (ND)
5-W-14	5-W-14-0609	6/10/2009	ND		40.6	118	ND	40.		ND		15.1	47.2	ND		5.1 47.2	27.9 (ND)	27.9 (ND)
5-W-14	5-W-14-0909	9/23/2009	ND		18	94	ND	18		ND		23	47	ND		23 47	21 (ND)	21 (ND)
5-W-15	5-W-15-1208	12/17/2008	ND		84.9	472	ND	15		ND		37.7	236	ND		7.7 236	61.3 (ND)	94.4 (ND)
5-W-15	5-W-15-0309	3/25/2009	ND		142	472	ND	14		183	J	94.3	236	ND		4.3 236	254	118.2 (ND)
5-W-15	5-W-15-0609	6/10/2009	139		40.6	118	ND	40.		213	J	15.1	47.2	ND		5.1 47.2	338	27.9 (ND)
5-W-15	5-W-15-0909	9/23/2009	110		18	94	ND	18		220		23	47	ND		23 47	330	21 (ND)
5-W-15 (FD)	5-W-150-0609	6/10/2009	135		40.6	118	ND	40.		203	J	15.1	47.2	ND		5.1 47.2	352	27.9 (ND)
5-W-16	5-W-16-1208	12/17/2008	ND		84.9	472	ND	15		ND		37.7	236	ND		7.7 236	61.3 (ND)	94.4 (ND)
5-W-16	5-W-16-0309	3/25/2009	ND ND		142	472	ND	14		ND ND		94.3	236 47.2	ND		4.3 236 5.1 47.2	118.2 (ND)	118.2 (ND)
5-W-16 5-W-16	5-W-16-0609 5-W-16-0909	6/10/2009 9/23/2009	ND ND		40.6 18	118 94	ND ND	40. 18		ND ND		15.1 23	47.2	ND ND		5.1 47.2 23 47	27.9 (ND) 21 (ND)	27.9 (ND) 21 (ND)
5-W-17	5-W-17-1208	12/17/2008	ND ND		84.9	472	ND	15		ND ND		37.7	236	ND		7.7 236	61.3 (ND)	94.4 (ND)
5-W-17	5-W-17-0309	3/25/2009	ND		142	472	ND	14		ND ND		94.3	236	ND		4.3 236	118.2 (ND)	118.2 (ND)
5-W-17	5-W-17-0609	6/10/2009	ND		40.6	118	ND	40.		ND ND		15.1	47.2	ND		5.1 47.2	27.9 (ND)	27.9 (ND)
5-W-17	5-W-17-0909	9/23/2009	ND		18	94	ND	18		ND		23	47	ND		23 47	21 (ND)	21 (ND)
5-W-17 (FD)	5-W-170-0909	9/23/2009	ND		18	94	ND	18		ND		23	47	78		23 47	21 (ND)	87
5-W-18	5-W-18-1208	12/17/2008	ND		84.9	472	ND	15		1940	JN	37.7	236	ND		7.7 236	1982.5	94.4 (ND)
5-W-18	5-W-18-0309	3/25/2009	452	J	142	472	ND	14		1540	J	94.3	236	ND		4.3 236	1992	118.2 (ND)
5-W-18	5-W-18-0609	6/10/2009	223		40.6	118	ND	40.	6 118	669	J	15.1	47.2	ND	1	5.1 47.2	892	27.9 (ND)
5-W-18	5-W-18-0909	9/22/2009	120		18	94	ND	18		250		23	47	ND		23 47	370	21 (ND)
5-W-18 (FD)	5-W-180-1208	12/17/2008	ND		84.9	472	ND	15	1 472	1580	JN	37.7	236	ND	3	7.7 236	1622.5	94.4 (ND)
5-W-18 (FD)	5-W-180-0309	3/25/2009	487	J	142	472	ND	14	2 472	1570	J	94.3	236	ND	9.	4.3 236	2057	118.2 (ND)
5-W-19	5-W-19-1208	12/17/2008	ND		84.9	472	ND	15	1 472	ND		37.7	236	ND	3	7.7 236	61.3 (ND)	94.4 (ND)
5-W-19	5-W-19-0309	3/25/2009	ND		142	472	ND	14	2 472	ND		94.3	236	ND	9	4.3 236	118.2 (ND)	118.2 (ND)
5-W-19	5-W-19-0609	6/10/2009	ND		40.6	118	ND	40.	6 118	ND		15.1	47.2	ND	1	5.1 47.2	27.9 (ND)	27.9 (ND)
5-W-19	5-W-19-0909	9/23/2009	ND		18	94	ND	18	94	ND	-	23	47	ND		23 47	21 (ND)	21 (ND)
5-W-20	5-W-20-1208	12/17/2008	ND		84.9		ND	15	1 472	1580	JN	37.7	236	ND	3	7.7 236	1622.5	94.4 (ND)
5-W-20	5-W-20-0309	3/25/2009	229	J	142	472	ND	14		811	J	94.3	236	ND	9	4.3 236	1040	118.2 (ND)
5-W-20	5-W-20-0609	6/10/2009	233				ND		6 118	637	J	15.1	47.2	ND		5.1 47.2	870	27.9 (ND)
5-W-20	5-W-20-0909	9/23/2009	190		18	94	ND	18		340		23	47	53		23 47	530	62
5-W-42	5-W-42-1208	12/17/2008	ND		84.9		ND		1 472	ND		37.7	236	ND		7.7 236	61.3 (ND)	94.4 (ND)
5-W-42	5-W-42-0309	3/25/2009	ND		142		ND	14		ND		94.3	236	ND		4.3 236	118.2 (ND)	118.2 (ND)
5-W-42	5-W-42-0609	6/10/2009	258		40.6	118	ND	40.	6 118	599	J	15.1	47.2	ND	1	5.1 47.2	857	27.9 (ND)

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

	Chemical Name			Oil Rang	e		witl	Oil Range h Silica Gel Cl		1		Diesel Rar	ige		wit	Diesel Rar h Silica Gel	_	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MRL		
5-W-42	5-W-42-0909	9/23/2009	560		18	94	430		18	94	440		23	47	210		23 47	1000	640
5-W-42 (FD)	5-W-420-1208	12/17/2008	ND		84.9	472	ND		151	472	ND		37.7	236	ND		37.7 236	61.3 (ND)	94.4 (ND)
Maximum			560				430				1940				210			2057	640
Minimum			ND				ND				ND				ND			ND	ND
Average																		1006.8**	263**
							Sc	hoolyard Per	imeter	Zone									
5-W-50	5-W-50-0309	3/25/2009	1510	J	142	472	NA				3570	J	94.3	236	NA			5080	NA
5-W-50	5-W-50-0909	9/23/2009	840		18	94	NA				1800		23	47	NA			2640	NA
5-W-51	5-W-51-0309	3/24/2009	3430	J	142	472	NA				4310	J	94.3	236	NA			7740	NA
5-W-51	5-W-51-0909	9/22/2009	730		18	94	NA				1200		23	47	NA			1930	NA
5-W-52	5-W-52-0309	3/24/2009	455	J	142	472	NA				982	J	94.3	236	NA			1437	NA
5-W-52	5-W-52-0909	9/22/2009	240		18	94	NA				410		23	47	NA			650	NA
5-W-53	5-W-53-0309	3/24/2009	144	J	142	472	NA				119	J	94.3	236	NA			263	NA
5-W-53	5-W-53-0909	9/22/2009	230		18	94	NA				300		23	47	NA			530	NA
5-W-53 (FD)	5-W-530-0909	9/22/2009	220		18	94	NA				270		23	47	NA			490	NA
5-W-54	5-W-54-0309	3/25/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
5-W-54	5-W-54-0909	9/22/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
5-W-55	5-W-55-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
5-W-55	5-W-55-0909	9/22/2009	230		18	94	NA				270		23	47	NA			500	NA
5-W-56	5-W-56-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
5-W-56	5-W-56-0909	9/22/2009	790		18	94	NA				2700		23	47	NA			3490	NA
5-W-56 (FD)	5-W-500-0309	3/24/2009	ND		142	472	NA				ND		94.3	236	NA			118.2 (ND)	NA
Maximum	•		3430				NA				4310				NA			7740	NA
Minimum			ND				NA				ND				NA			ND	NA
Average																		2250**	NA
111011180								Site-wi	ide^										
1A-W-1	1A-W-1-0309	3/24/2009	ND		142	472	NA	5.00 11.			137	J	94.3	236	NA			208	NA
1A-W-3	1A-W-3-0309	3/23/2009	1540	J	142	472	NA				818	J	94.3	236	NA			2358	NA
1A-W-4	1A-W-4-0309	3/24/2009	ND			472	NA				ND	•	94.3	236	NA			118.2 (ND)	NA
1A-W-4	1A-W-4-0909	9/23/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
1A-W-5	1A-W-5-0309	3/24/2009	ND		142		NA				ND		94.3	236	NA			118.2 (ND)	NA
1A-W-5	1A-W-5-0909	9/24/2009	ND		18	94	NA				ND		23	47	NA			21 (ND)	NA
1B-W-2	1B-W-2-0309	3/24/2009	ND		142		NA				ND		94.3	236	NA			118.2 (ND)	NA
1B-W-2	1B-W-2-0909	9/23/2009	120		18	94	NA				170		23	47	NA			290	NA
1B-W-3	1B-W-3-030509	3/5/2009	ND		142		NA NA				ND		94.3	236	NA NA			118.2 (ND)	NA NA
1B-W-3	1B-W-3-0309	3/24/2009	ND ND		142		NA NA				ND		94.3	236	NA NA			118.2 (ND)	NA NA
1B-W-3	1B-W-3-0909	9/23/2009	ND ND		18	94	NA				90		23	47	NA NA			99	NA NA
1C-W-2	1C-W-2-0309	3/25/2009	ND ND		142		NA				ND		94.3	236	NA NA			118.2 (ND)	NA NA
1C-W-2	1C-W-2-0909	9/22/2009	ND ND		18	94	NA NA				ND ND		23	47	NA NA			21 (ND)	NA NA
1C-W-3	1C-W-3-0309	3/24/2009	ND ND		142		NA NA				ND ND		94.3	236	NA NA			118.2 (ND)	NA NA
1C-W-3	1C-W-3-0909	9/22/2009	ND ND		18	94	NA NA				ND ND		23	47	NA NA			21 (ND)	NA NA
1C-W-4	1C-W-4-0309	3/24/2009	143	1	142		NA NA				359		94.3	236	NA NA			502	NA NA
				J								J							
1C-W-4	1C-W-4-0909	9/22/2009	ND		18	94	NA				120		23	47	NA			129	NA

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

	Chemical Name			Oil Range	9		with	Oil Range Silica Gel Clea	nup		Diesel Ran	ge		wit	Diesel Ran h Silica Gel C	•	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier M	DL MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MRL		
5-W-4	5-W-4-0309	3/25/2009	596	J	142	472	NA			485	J	94.3	236	NA			1081	NA
5-W-4	5-W-4-0909	9/23/2009	490		18	94	NA			1300		23	47	NA			1790	NA
MW-16	MW-16-0309	3/25/2009	ND		142	472	NA			ND		94.3	236	NA			118.2 (ND)	NA
MW-16	MW-16-0909	9/23/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
MW-16 (FD)	MW-160-0909	9/23/2009	ND		18	94	NA			ND		23	47	NA			21 (ND)	NA
MW-38R	MW-38R-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA			118.2 (ND)	NA
MW-38R	MW-38R-0909	9/22/2009	ND		18	94	NA			79		23	47	NA			88	NA
Maximum			1540				NA			1300				NA			2358	NA
Minimum			ND				NA			ND				NA			ND	NA
Average																	727.2**	NA
							F	ield Equipmen	t Blanks									
FIELDQC (EB)	MW-500-1208	12/17/2008	ND		84.9	472	ND	1	51 472	ND		37.7	236	ND		37.7 236	61.3 (ND)	94.4 (ND)
FIELDQC (EB)	MW-500-0309	3/24/2009	ND		142	472	ND	1	51 472	ND		94.3	236	ND		37.7 236	118.2 (ND)	94.4 (ND)
FIELDQC (EB)	MW-500-0609	6/10/2009	ND		40.6	118	ND	4	0.6 118	ND	_	15.1	47.2	ND		15.1 47.2	27.9 (ND)	27.9 (ND)
FIELDQC (EB)	MW-500-0909	9/23/2009	ND		18	94	ND	-	.8 94	ND	_	23	47	ND		23 47	21 (ND)	21 (ND)

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

# Units = µg/L

Bold	Exceeds cleanup level (CUL) of 208 ug/L or remediation level (RL) of 477 ug/L
Light Green	Trace LNAPL
MDL	Method Detection Limit; Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
MRL	Method Reporting Limit; Reporting Level at, or above, the lowest level standard of the Calibration Table.
	Results between the MDL and MRL are reported as Estimated Results.
μg/L	micrograms per liter
EB	Equipment Blank
FD	Field Duplicate
HCC	Hydraulic Control and Containment
J	Estimated concentration
JN	Analyte must be considered presumptively present at an estimated concentration
NA	Not Analyzed
ND	Not Detected
(ND)	Both the Oil Range and Diesel Range Hydrocarbons were non-detect, but the TPH (calc) value is shown.
TPH	Total Petroleum Hydrocarbons
TPH (calc)	Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx. 1/2 the MDL was used for all ND's.
TPH-SG (calc)	Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx with Silica Gel Cleanup. 1/2 the MDL was used for all ND's.

<sup>\*</sup> Location is being monitored for multiple assessments.

 $<sup>\</sup>ensuremath{^{\star\star}}\xspace\ensuremath{^{\text{Value}}}\xspace$  based on calculated concentrations, excluding non-detects.

<sup>^</sup>Location is being monitored for the site-wide assessment only. Locations from all site areas, except the HCC gate vault sentry wells, are included in the site-wide assessment (Table 5-4).

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

С	hemical Name			Oil Ranç	ge		wit	Oil Ranç h Silica Gel	•		Diesel Ra	ange		Wi	Diesel R ith Silica Ge	_	ıp	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	i i i (Gaie)	(54.15)
							Marc	h 2009 Semi	-Annual Even	Results				•				•	
2B-W-4	2B-W-4-0309	3/23/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1A-W-3	1A-W-3-0309	3/23/2009	1540	J	142	472	NA			818	J	94.3	236	NA				2358	NA
2A-W-10	2A-W-10-0309	3/24/2009	192	J	144	481	NA			ND		96.2	240	NA				240.1	NA
2A-W-11	2A-W-11-0309	3/24/2009	727	J	142	472	NA			686	J	94.3	236	NA				1413	NA
2B-W-45	2B-W-45-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
2B-W-46	2B-W-46-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
MW-3	MW-3-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
MW-39	MW-39-0309	3/24/2009	1130	J	142	472	NA			894	J	94.3	236	NA				2024	NA
MW-4	MW-4-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
MW-4 (FD)	MW-400-0309	3/24/2009	186	J	142	472	NA			ND		94.3	236	NA				233.2	NA
5-W-14	5-W-14-0309	3/24/2009	ND		142	472	ND		142 472			94.3	236	ND		94.3	236	118.2 (ND)	118.2 (ND)
5-W-51	5-W-51-0309	3/24/2009	3430	J	142	472	NA			4310	J	94.3	236	NA				7740	NA
5-W-52	5-W-52-0309	3/24/2009	455	J	142	472	NA			982	J	94.3	236	NA				1437	NA
5-W-53	5-W-53-0309	3/24/2009	144	J	142	472	NA			119	J	94.3	236	NA				263	NA
5-W-55	5-W-55-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
5-W-56	5-W-56-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
5-W-56 (FD)	5-W-500-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1A-W-1	1A-W-1-0309	3/24/2009	ND		142	472	NA			137	J	94.3	236	NA				208	NA
1A-W-4	1A-W-4-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1A-W-5	1A-W-5-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1B-W-2	1B-W-2-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1B-W-3	1B-W-3-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1C-W-3	1C-W-3-0309	3/24/2009	ND		142	472	NA			ND		94.3	236	NA				118.2 (ND)	NA
1C-W-4	1C-W-4-0309	3/24/2009	143	J	142	472	NA			359	J	94.3	236	NA				502	NA
MW-38R	MW-38R-0309	3/24/2009	ND		142	472	NA			ND 070		94.3	236	NA				118.2 (ND)	NA
1C-W-1	1C-W-1-032509	3/25/2009	162	J	142	472	NA			273	J	94.3	236	NA				435	NA NA
2A-W-9	2A-W-9-0309	3/25/2009	799	J	142	472	NA NA			927	J	94.3	236	NA				1726	NA NA
2A-W-9 (FD)	2A-W-90-0309	3/25/2009	772	J	142	472	NA		440 470	902	J	94.3	236	NA		04.0	220	1674	NA 440.2 (ND)
5-W-15	5-W-15-0309	3/25/2009	ND ND		142 142	472	ND ND		142 472	183 ND	J	94.3 94.3	236 236	ND ND		94.3	236 236	254	118.2 (ND)
5-W-16	5-W-16-0309	3/25/2009				472			142 472							94.3		118.2 (ND)	118.2 (ND)
5-W-17 5-W-18	5-W-17-0309 5-W-18-0309	3/25/2009 3/25/2009	ND <b>452</b>	ı	142 142	472	ND ND		142 472 142 472			94.3 94.3	236 236	ND ND		94.3 94.3	236 236	118.2 (ND) <b>1992</b>	118.2 (ND) 118.2 (ND)
5-W-18 (FD)	5-W-180-0309	3/25/2009	487	J I	142	472 472	ND ND		142 472		J I	94.3	236	ND ND		94.3	236	2057	118.2 (ND) 118.2 (ND)
5-W-18 (FD) 5-W-19	5-W-19-0309	3/25/2009	ND	J	142	472	ND ND		142 472		J	94.3	236	ND ND		94.3	236		\ /
5-W-20	5-W-20-0309	3/25/2009	229	ı	142	472	ND ND		142 472		J	94.3	236	ND ND		94.3	236	118.2 (ND) <b>1040</b>	118.2 (ND) 118.2 (ND)
5-W-42	5-W-42-0309	3/25/2009	ND	J	142	472	ND ND		142 472		J	94.3	236	ND ND			236	118.2 (ND)	118.2 (ND)
5-W-50	5-W-50-0309	3/25/2009	1510	ı	142	472	NA NA		142 4/2	3570		94.3	236	NA NA		94.3	230	5080	118.2 (ND) NA
5-W-54	5-W-54-0309	3/25/2009	ND	J	142	472	NA NA			ND	J	94.3	236	NA NA				118.2 (ND)	NA NA
1C-W-2	1C-W-2-0309	3/25/2009	ND		142	472	NA NA			ND		94.3	236	NA NA				118.2 (ND)	NA NA
5-W-4	5-W-4-0309	3/25/2009	596	J	142	472	NA NA			485	J	94.3	236	NA NA				1081	NA NA
MW-16	MW-16-0309	3/25/2009	ND	J	142	472	NA NA			ND	J	94.3	236	NA				118.2 (ND)	NA NA
Maximum	10100-10-0308	3/23/2008	3430		144	412	ND ND			4310		₹.J	230	ND				7740	ND ND
Minimum			ND				ND			ND				ND				ND	ND ND
Average			שאו				שויו			שוו				שויו				1671.4**	ND ND
Average							J											107 1.4	ND

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

С	hemical Name			Oil Range			wit	Oil Ranç h Silica Gel	•	)		Diesel Rai	nge		wi	Diesel R th Silica Ge	_	р	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier M	DL M	RL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL		(0)
							Septem	ber 2009 Se	mi-Annu	ıal Ever	nt Results									
2A-W-10	2A-W-10-0909	9/21/2009	190	,	8 9	4	NA				180		23	47	NA				370	NA
2B-W-4	2B-W-4-0909	9/21/2009	ND	•	18 9	4	NA				ND		23	47	NA				21 (ND)	NA
1C-W-1	1C-W-1-0909	9/22/2009	110	•	18 9	4	NA				86		23	47	NA				196	NA
1C-W-8	1C-W-8-0909	9/22/2009	130	•	18 9	4	NA				400		23	47	NA				530	NA
1C-W-7	1C-W-7-0909	9/22/2009	130	•		4	NA				240		23	47	NA				370	NA
1C-W-7 (FD)	1C-W-70-0909	9/22/2009	110	•	18 9	4	NA				250		23	47	NA				360	NA
2A-W-11	2A-W-11-0909	9/22/2009	930	•		4	NA				630		23	47	NA				1560	NA
MW-39	MW-39-0909	9/22/2009	250	•	18 9	4	NA				380		23	47	NA				630	NA
GW-4	GW-4-0909	9/22/2009	ND	•	18 9	4	NA				97		23	47	NA				106	NA
5-W-18	5-W-18-0909	9/22/2009	120	•	18 9	4	ND		18	94	250		23	47	ND		23	47	370	21 (ND)
5-W-51	5-W-51-0909	9/22/2009	730	•		4	NA				1200		23	47	NA				1930	NA
5-W-52	5-W-52-0909	9/22/2009	240			4	NA				410		23	47	NA				650	NA
5-W-53	5-W-53-0909	9/22/2009	230		18 9		NA				300		23	47	NA				530	NA
5-W-53 (FD)	5-W-530-0909	9/22/2009	220		18 9		NA				270		23	47	NA				490	NA
5-W-54	5-W-54-0909	9/22/2009	ND		18 9		NA				ND		23	47	NA				21 (ND)	NA
5-W-55	5-W-55-0909	9/22/2009	230		18 9		NA				270		23	47	NA				500	NA
5-W-56	5-W-56-0909	9/22/2009	790		18 9		NA				2700		23	47	NA				3490	NA
1C-W-2	1C-W-2-0909	9/22/2009	ND		18 9		NA				ND		23	47	NA				21 (ND)	NA
1C-W-3	1C-W-3-0909	9/22/2009	ND			4	NA				ND		23	47	NA				21 (ND)	NA
1C-W-4	1C-W-4-0909	9/22/2009	ND			4	NA				120		23	47	NA				129	NA
MW-38R	MW-38R-0909	9/22/2009	ND		18 9		NA				79		23	47	NA				88	NA
1B-W-23	1B-W-23-0909	9/23/2009	310		18 9		NA				490		23	47	NA				800	NA
2A-W-42	2A-W-42-0909	9/23/2009	140			4	NA				280		23	47	NA				420	NA
5-W-43	5-W-43-0909	9/23/2009	ND			4	NA				ND		23	47	NA				21 (ND)	NA
2A-W-9	2A-W-9-0909	9/23/2009	130			4	NA				470		23	47	NA				600	NA
2B-W-45	2B-W-45-0909	9/23/2009	ND			4	NA				ND		23	47	NA				21 (ND)	NA
2B-W-45 (FD)	2B-W-450-0909	9/23/2009	ND			4	NA				ND		23	47	NA				21 (ND)	NA
2B-W-46	2B-W-46-0909	9/23/2009	ND		8 9		NA				ND		23	47	NA				21 (ND)	NA
MW-3	MW-3-0909	9/23/2009	290		8 9		NA				640		23	47	NA				930	NA
MW-4	MW-41-0909	9/23/2009	ND		8 9		NA				77		23	47	NA				86	NA
3-W-41	3W-41-0909	9/23/2009	ND 400		8 9		NA				56		23	47	NA				65	NA NA
3-W-42	3-W-42-0909	9/23/2009	190		18 9		NA				740		23	47	NA				930	NA NA
3-W-43	3-W-43-0909	9/23/2009	ND			4	NA NA				ND		23	47	NA				21 (ND)	NA NA
EW-1	EW-1-0909	9/23/2009	ND		18 9		NA NA				ND 110		23	47	NA NA				21 (ND)	NA NA
GW-3	GW-3-0909 5-W-14-0909	9/23/2009	ND		18 9	_	NA		10	0.4	110		23	47	NA		22	17	119	
5-W-14		9/23/2009	ND 110		8 9		ND ND		18	94	ND 220		23	47 47	ND ND		23	47	21 (ND)	21 (ND)
5-W-15 5-W-16	5-W-15-0909 5-W-16-0909	9/23/2009 9/23/2009	ND			4	ND ND		18	94	<b>220</b> ND		23 23	47	ND ND		23 23	47 47	<b>330</b> 21 (ND)	21 (ND) 21 (ND)
5-W-16 5-W-17	5-W-16-0909 5-W-17-0909	9/23/2009	ND ND			4	ND ND		18	94	ND ND			47	ND ND			47	` ′	` ′
5-W-17 5-W-17 (FD)	5-W-17-0909 5-W-170-0909	9/23/2009	ND ND			4	ND ND		18	94	ND ND		23 23	47	78		23 23	47	21 (ND) 21 (ND)	21 (ND) 87
5-W-17 (FD) 5-W-19	5-W-19-0909 5-W-19-0909	9/23/2009	ND		18 9	4	ND ND		18 18	94	ND ND		23	47	ND		23	47	21 (ND) 21 (ND)	21 (ND)
5-W-20	5-W-20-0909	9/23/2009	190		18 9		ND ND		18	94	340		23	47	53		23	47	530	62
5-W-42	5-W-42-0909	9/23/2009	<b>560</b>		18 9		430		18	94	440		23	47	210		23	47	1000	640
5-W-50	5-W-50-0909	9/23/2009	840		18 9	_	NA		10	54	1800		23	47	NA NA		23	41	2640	NA
1A-W-4	1A-W-4-0909	9/23/2009	ND			4	NA NA				ND		23	47	NA NA				21 (ND)	NA NA
1B-W-2	1B-W-2-0909	9/23/2009	120			4	NA NA				170		23	47	NA				290	NA NA
10-77-2	10-11-71	312312003	120		10 9	+	INA				170		۷٥	41	INA				230	INA

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

CI	hemical Name			Oil Rang	je		wit	Oil Ranç h Silica Gel	•	р		Diesel Ra	ınge		wi	Diesel R th Silica G	_	ıp	TPH (calc)	TPH-SG (calc)
Location ID	Sample ID	Sample Date	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	Result	Qualifier	MDL	MRL	(000)	
1B-W-3	1B-W-3-0909	9/23/2009	ND		18	94	NA				90		23	47	NA				99	NA
5-W-4	5-W-4-0909	9/23/2009	490		18	94	NA				1300		23	47	NA				1790	NA
MW-16	MW-16-0909	9/23/2009	ND		18	94	NA				ND		23	47	NA				21 (ND)	NA
MW-16 (FD)	MW-160-0909	9/23/2009	ND		18	94	NA				ND		23	47	NA				21 (ND)	NA
2A-W-40	2A-W-40-0909	9/24/2009	ND		18	94	NA				ND		23	47	NA				21 (ND)	NA
2A-W-41	2A-W-41-0909	9/24/2009	120		18	94	NA				280		23	47	NA				400	NA
GW-1	GW-1-0909	9/24/2009	ND		18	94	NA				54		23	47	NA				63	NA
GW-2	GW-2-0909	9/24/2009	100		18	94	NA				160		23	47	NA				260	NA
GW-2 (FD)	GW-20-0909	9/24/2009	100		18	94	NA				150		23	47	NA				250	NA
1A-W-5	1A-W-5-0909	9/24/2009	ND		18	94	NA				ND		23	47	NA				21 (ND)	NA
Maximum			930				430				2700				210				3490	640
Minimum			ND				ND				ND				ND				ND	ND
Average																			663.9**	263**
								Field Equ	ipment	Blanks					-				-	
FIELDQC (EB)	MW-500-0309	3/24/2009	ND		142	472	ND		151	472	ND		94.3	236	ND		37.7	236	118.2 (ND)	94.4 (ND)
FIELDQC (EB)	MW-500-0909	9/23/2009	ND		18	94	ND		18	94	ND		23	47	ND		23	47	21 (ND)	21 (ND)

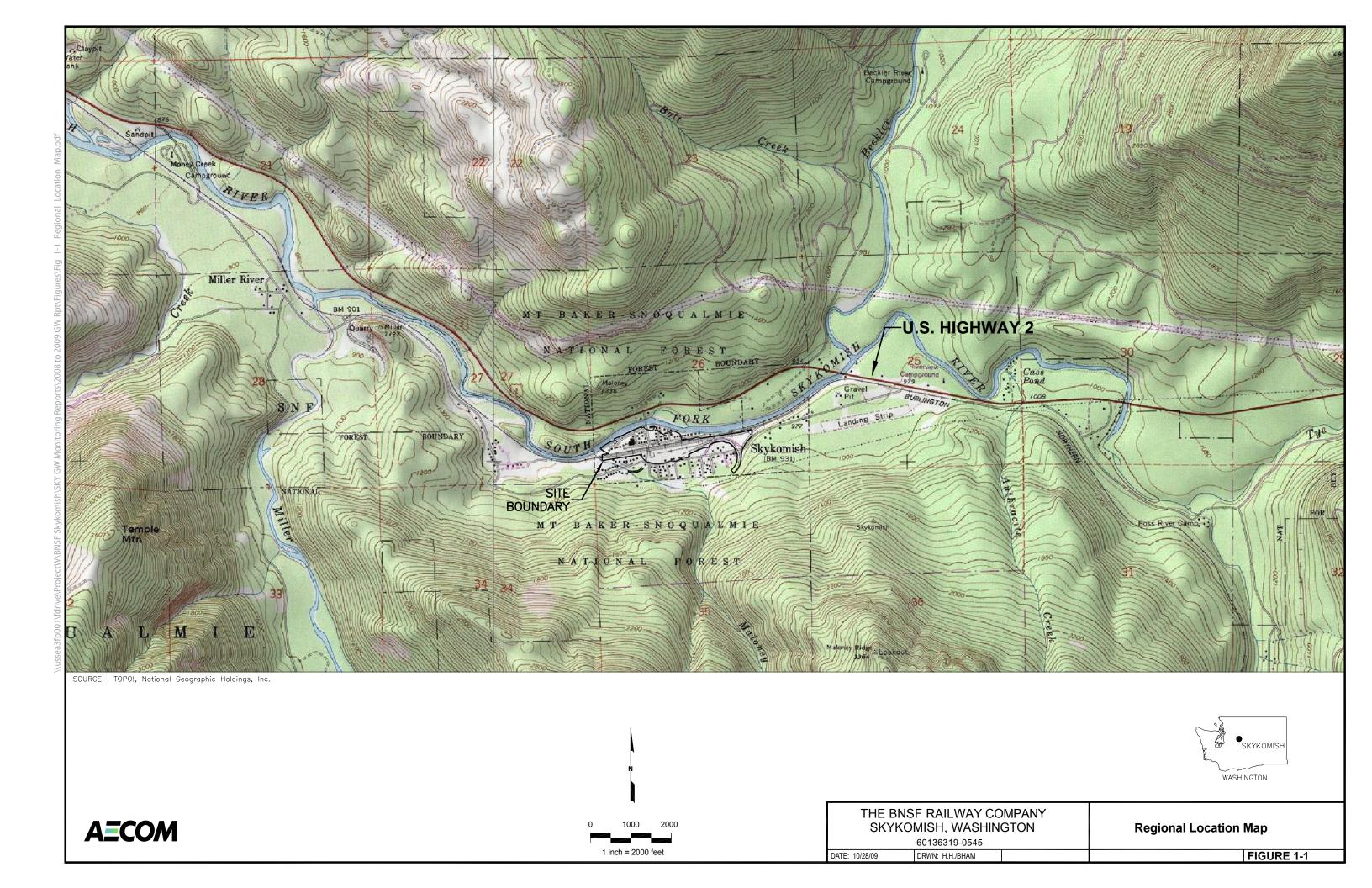
TPH-SG (calc)

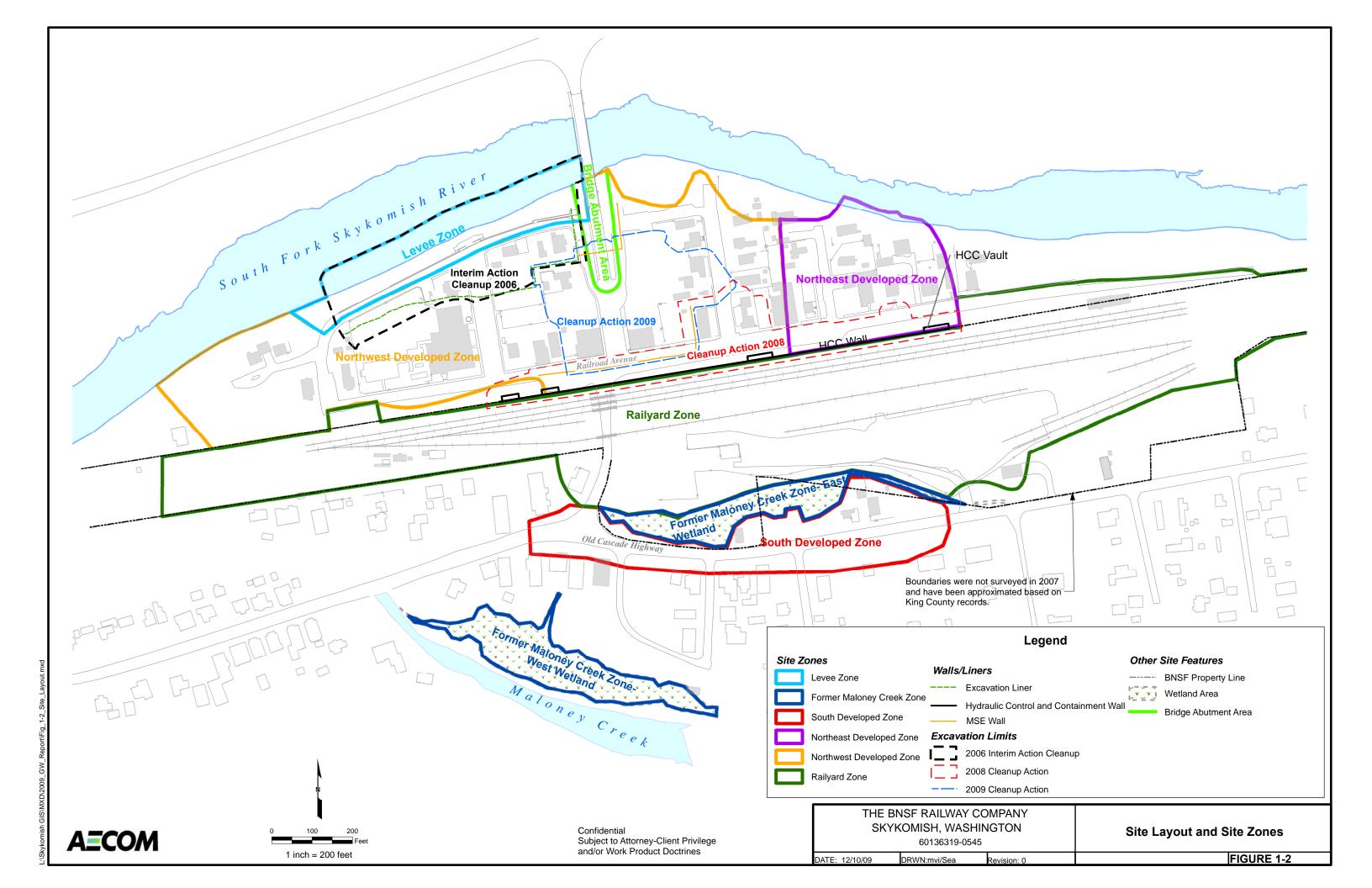
g/L
g/L
d limit based on 40CFR, Part 136, Appendix B.
ard of the Calibration Table.
ration
ne TPH (calc) value is shown.
Dx. 1/2 the MDL was used for all ND's.

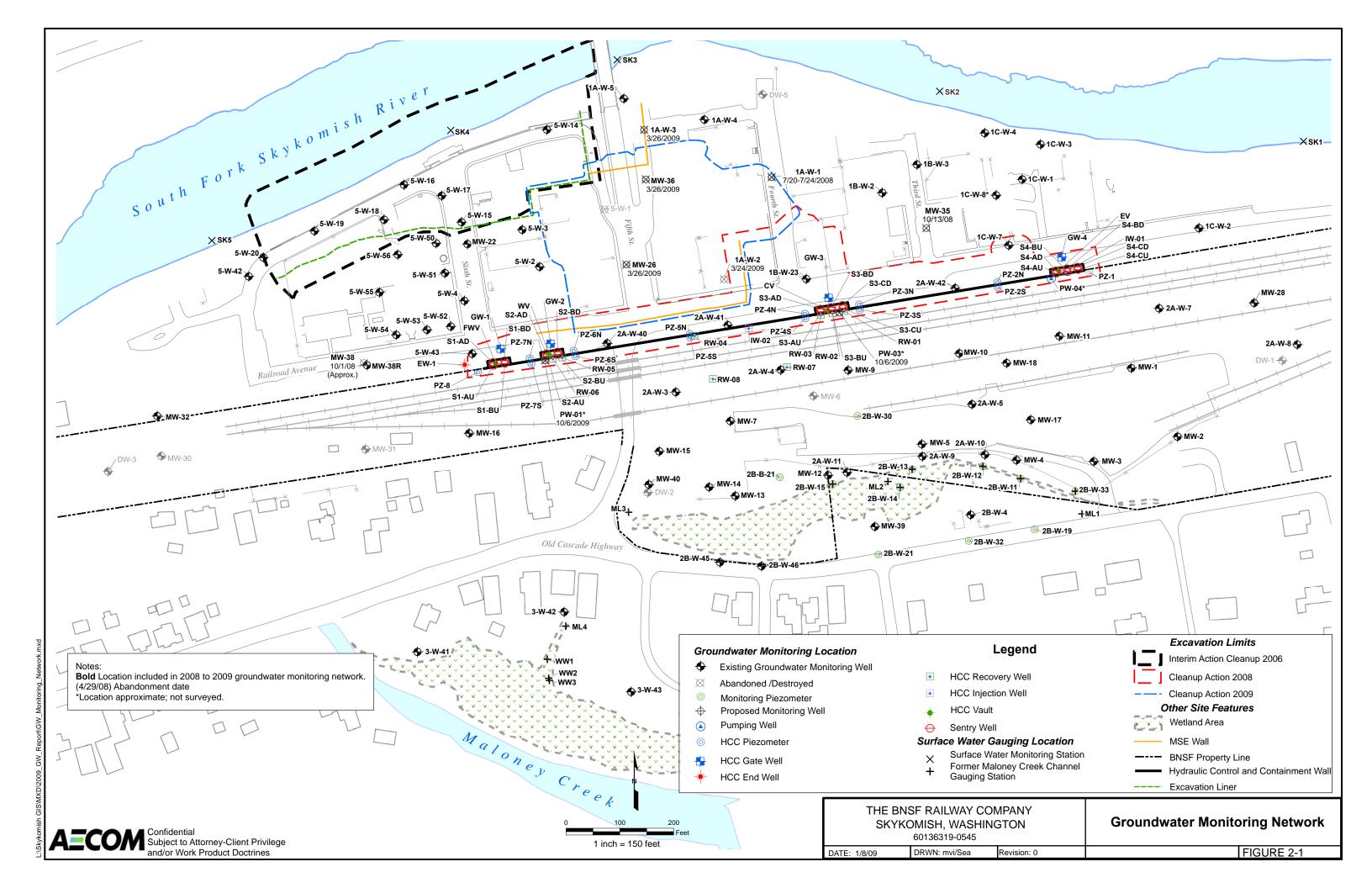
Sum of the Oil Range and Diesel Range Hydrocarbons by Method NWTPH-Dx with Silica Gel Cleanup. 1/2 the MDL was used for all ND's.

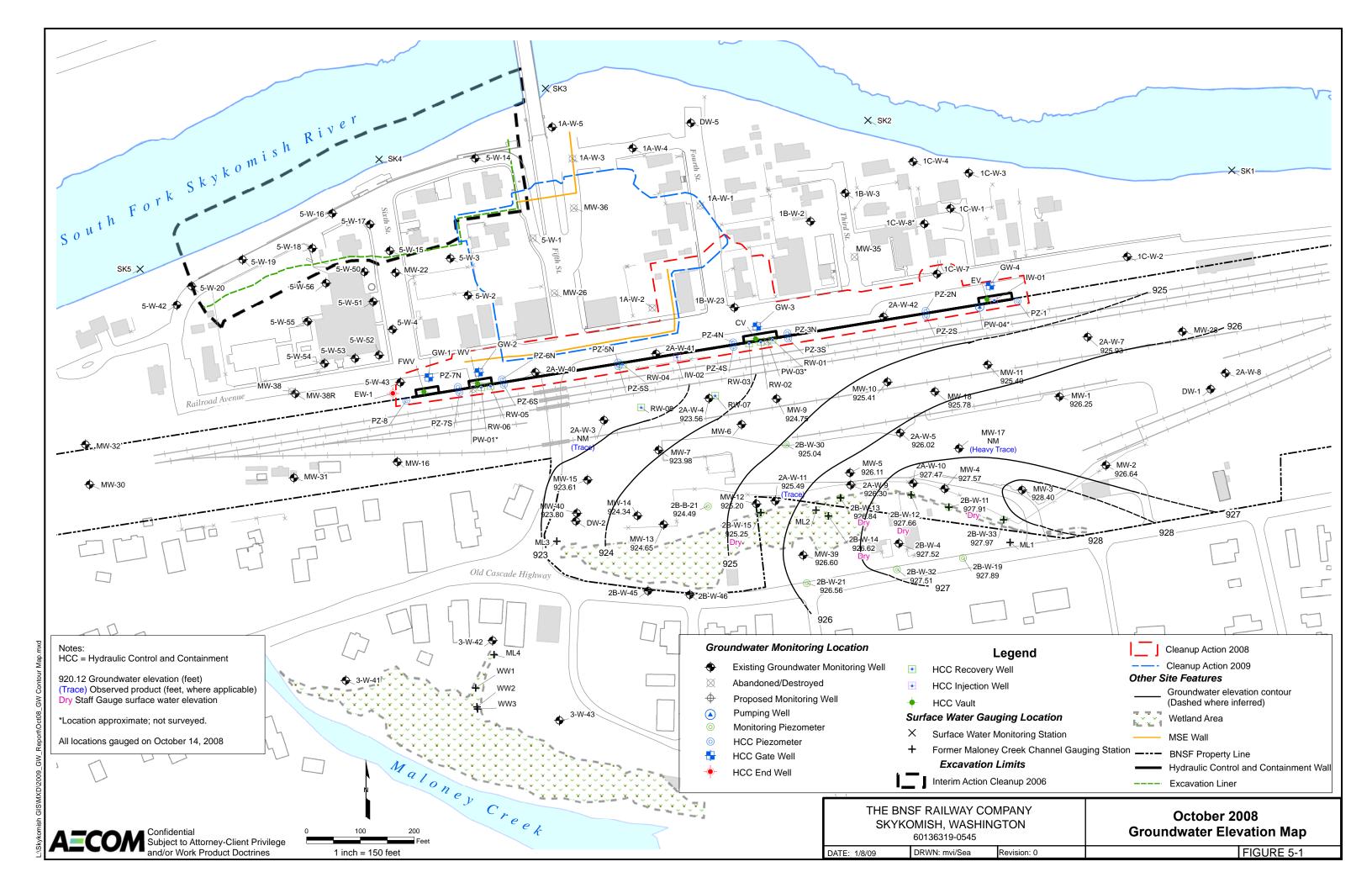
<sup>\*</sup>Locations sampled semi-annually from all site areas are included in the site-wide assessment, except HCC gate vault sentry wells.

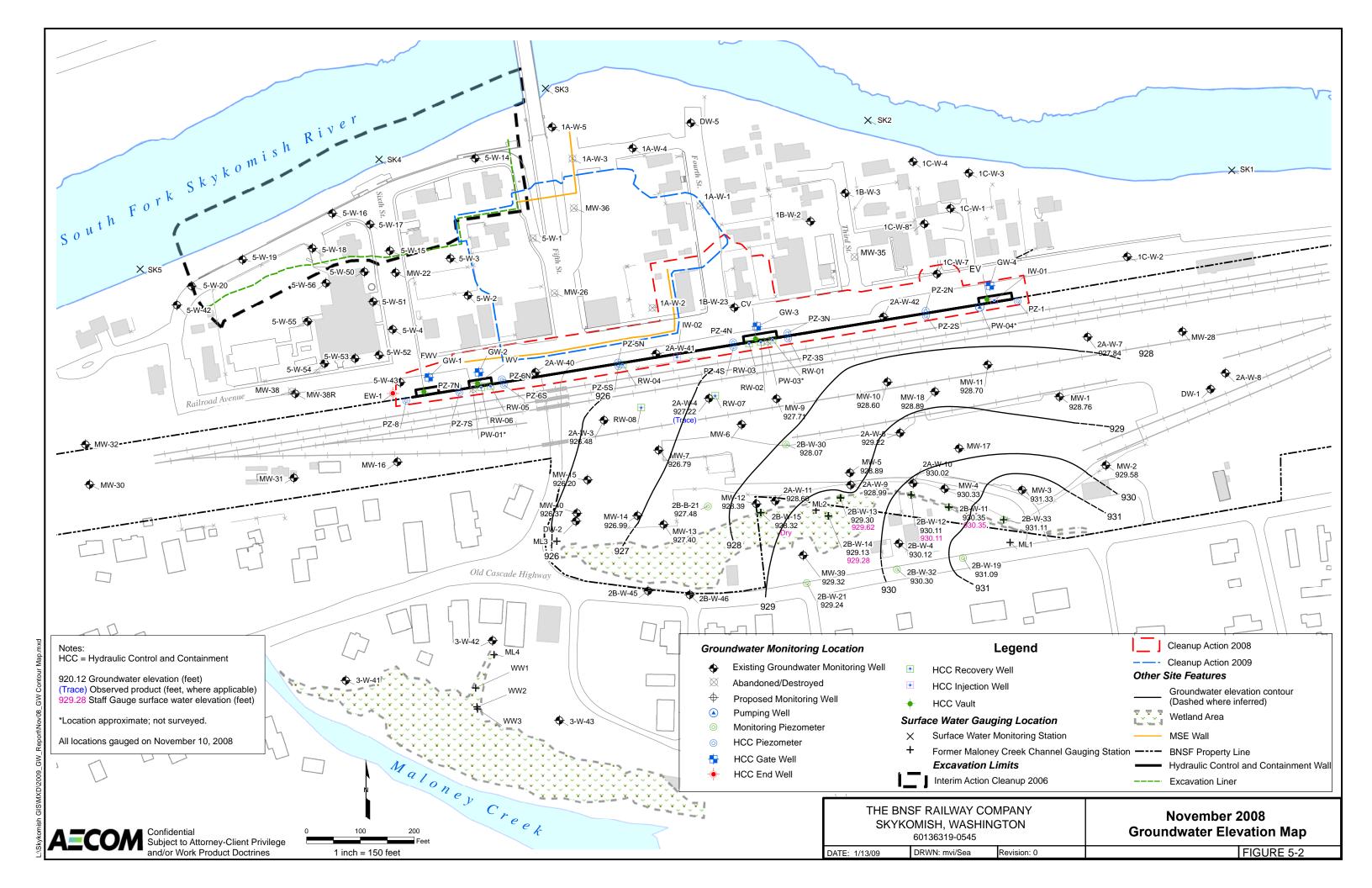
<sup>\*\*</sup>Value based on calculated concentrations, excluding non-detects.

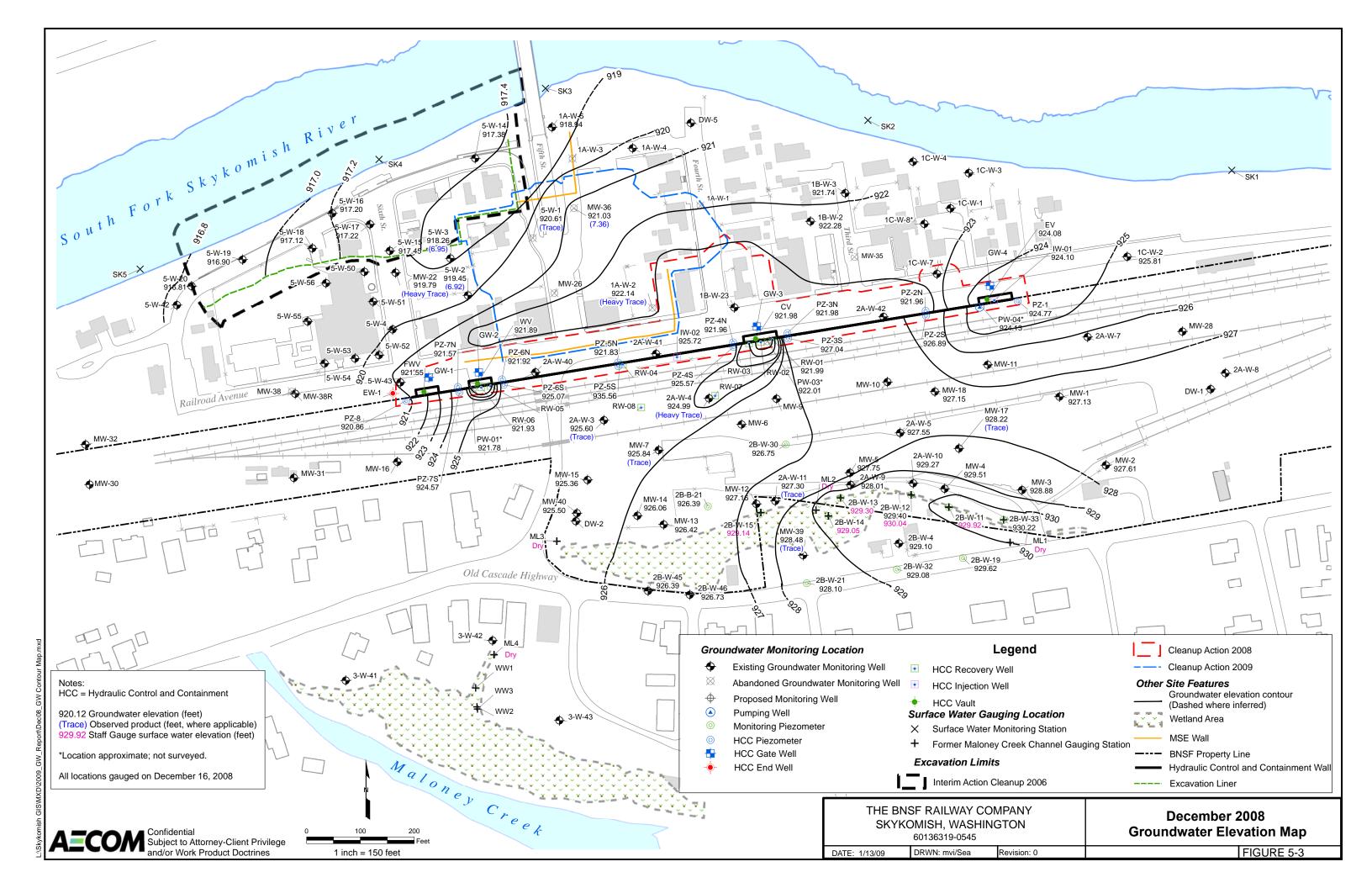


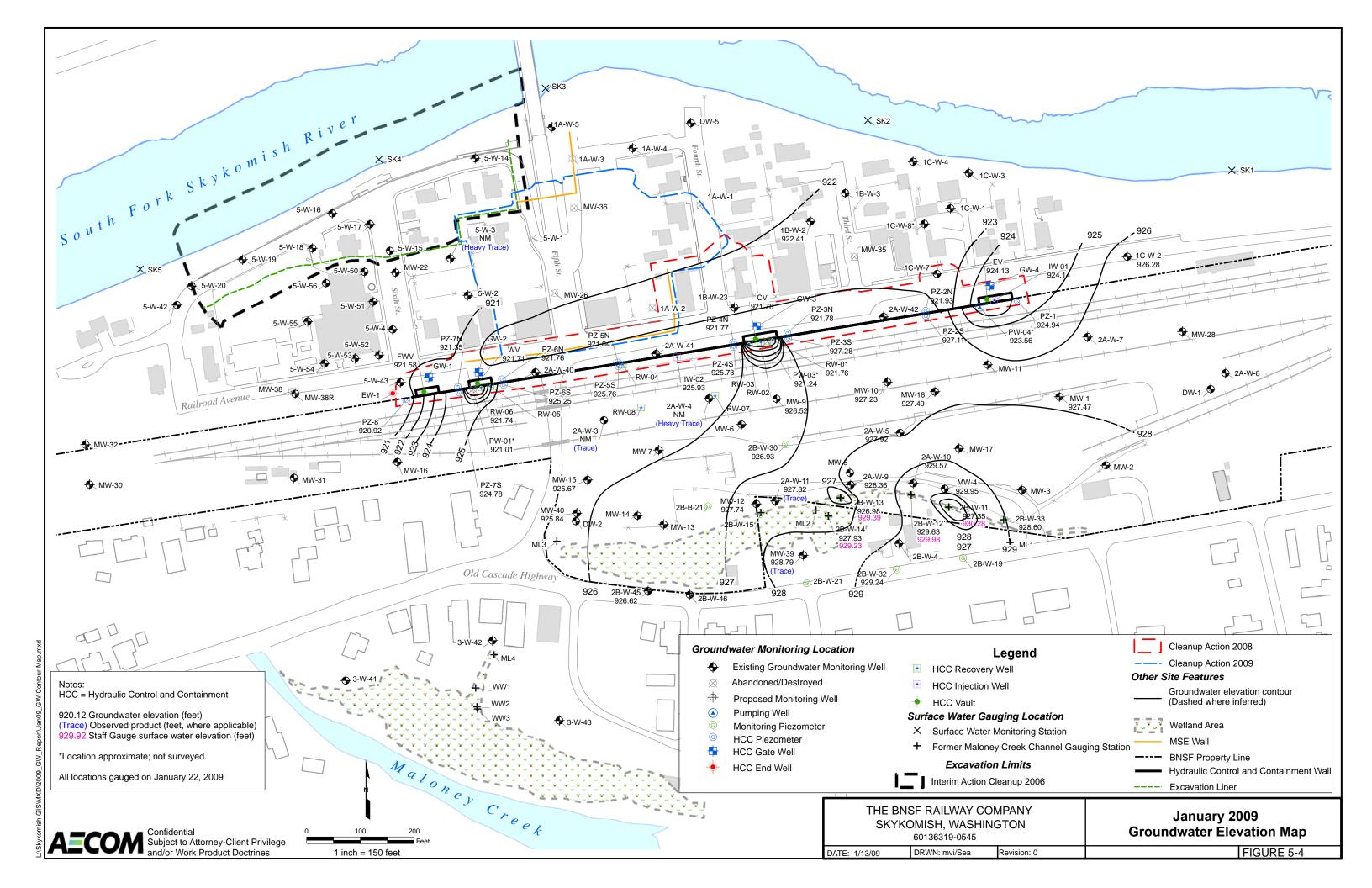


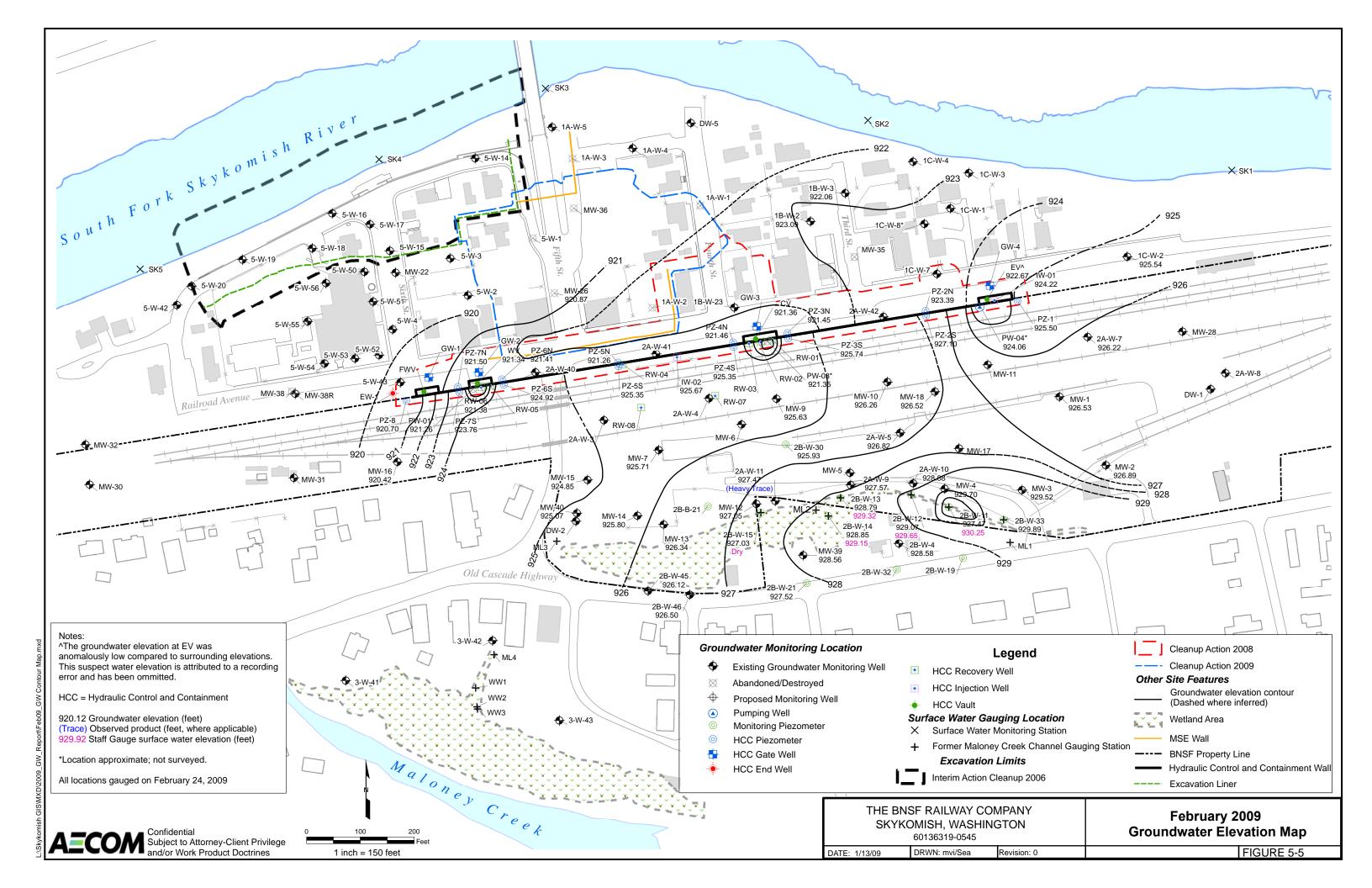


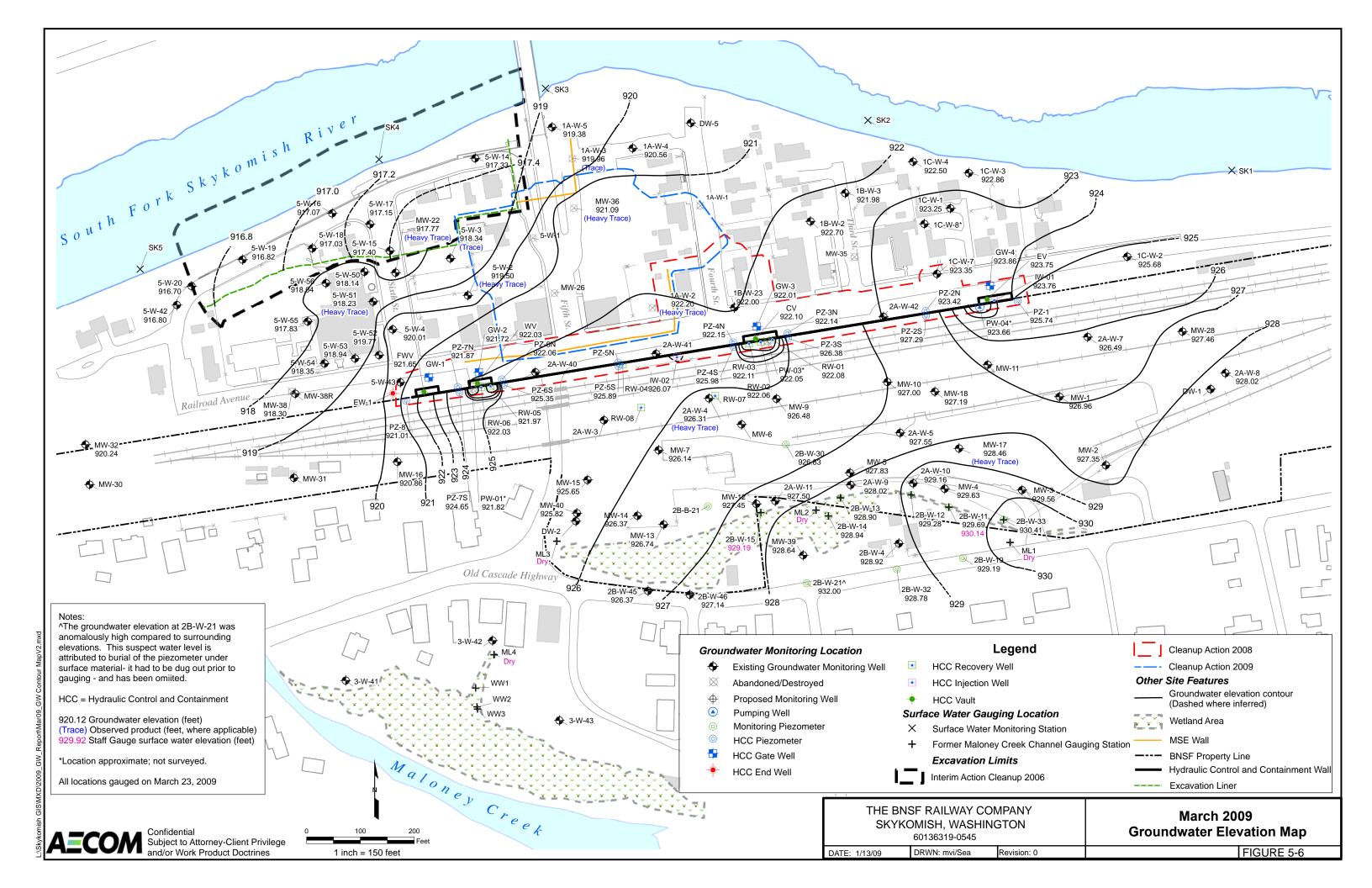


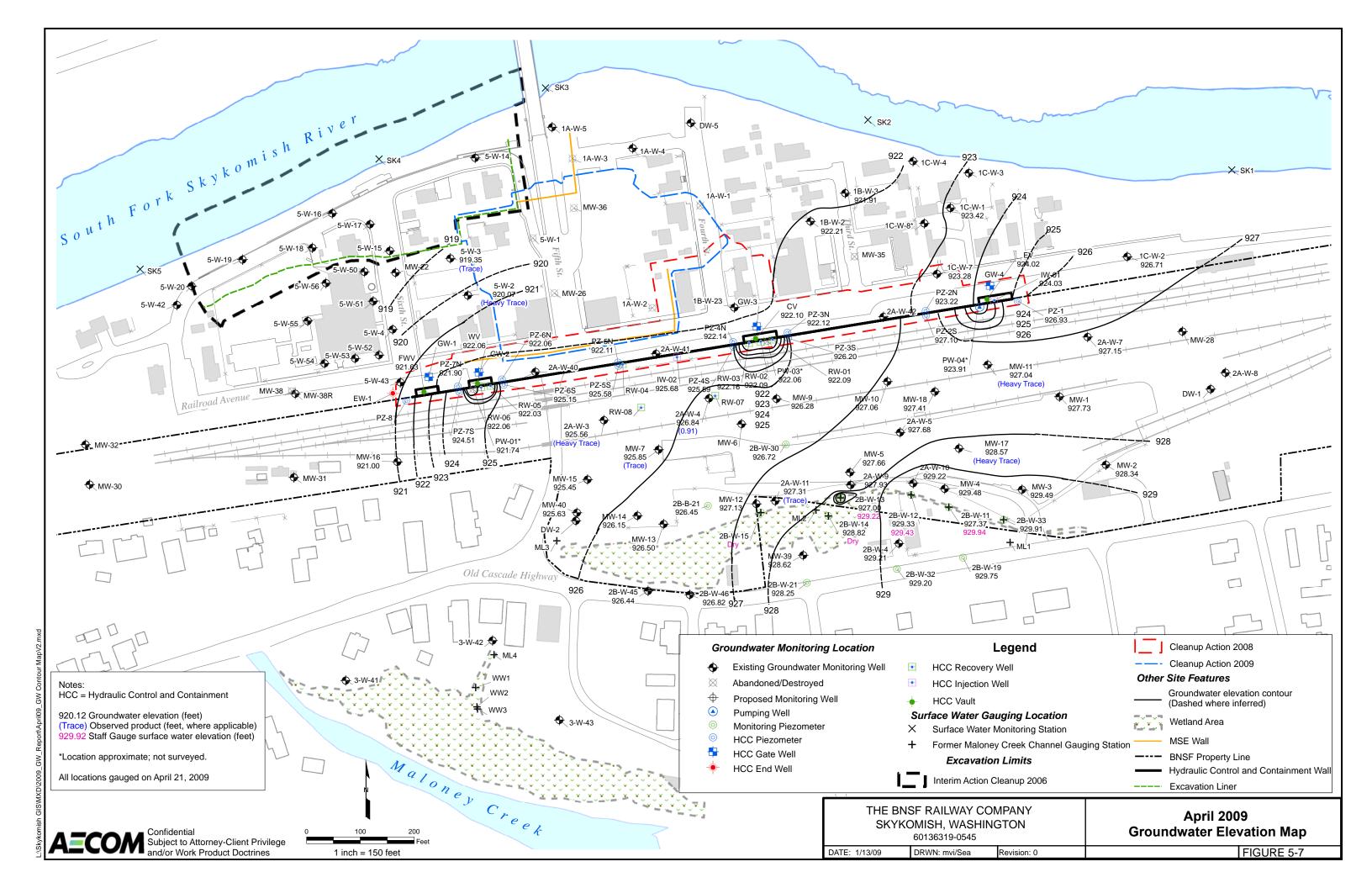


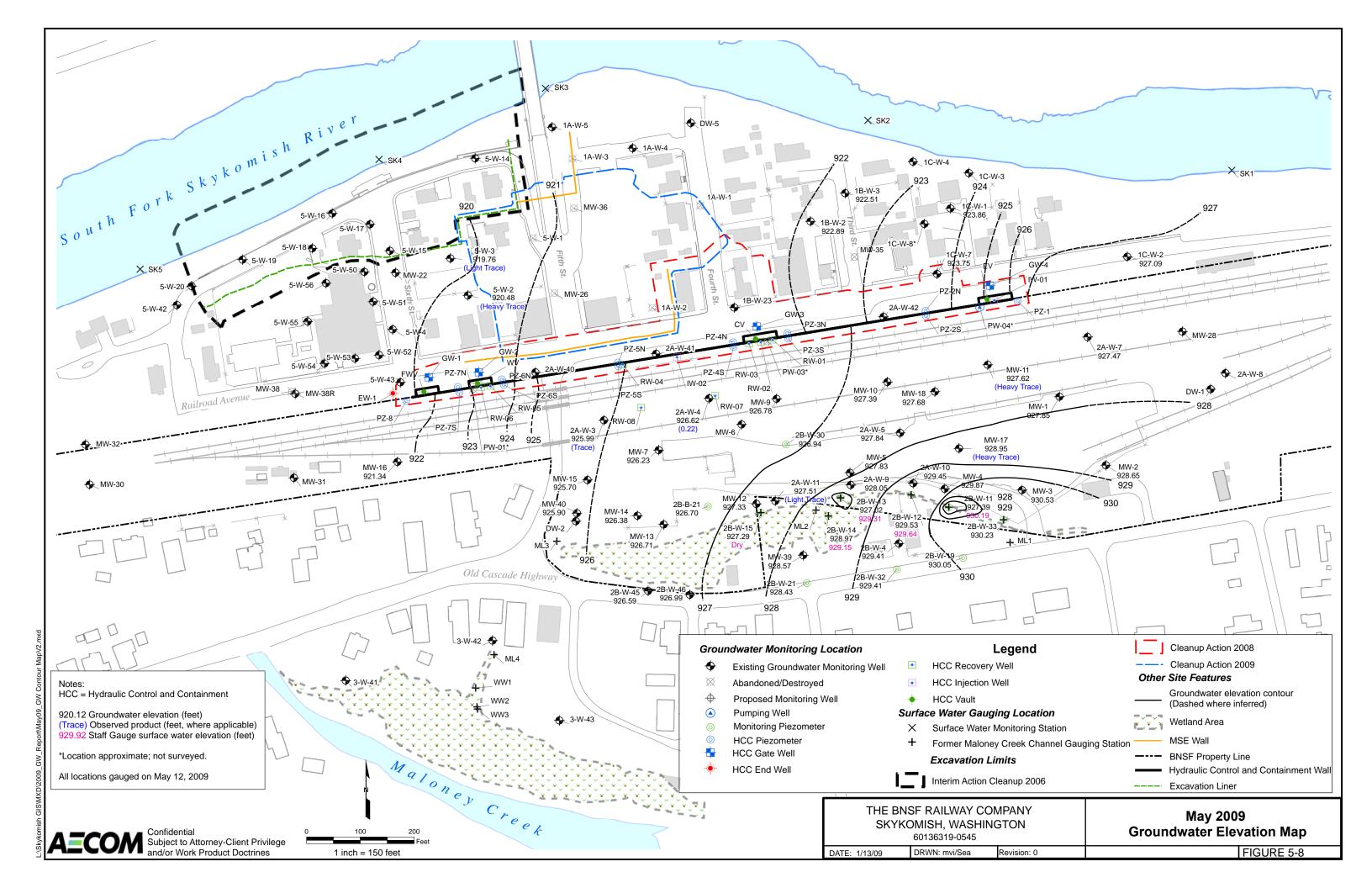


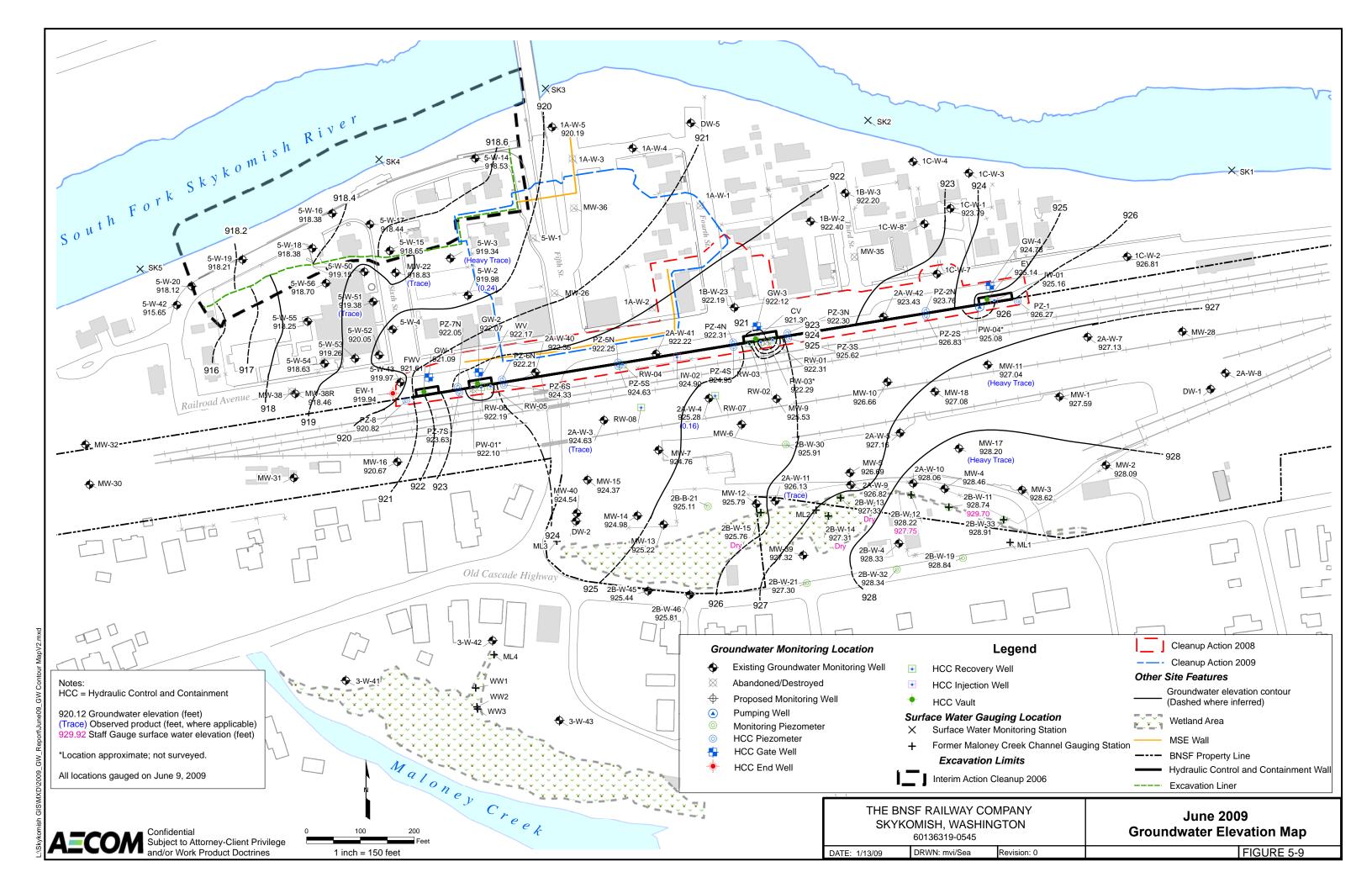


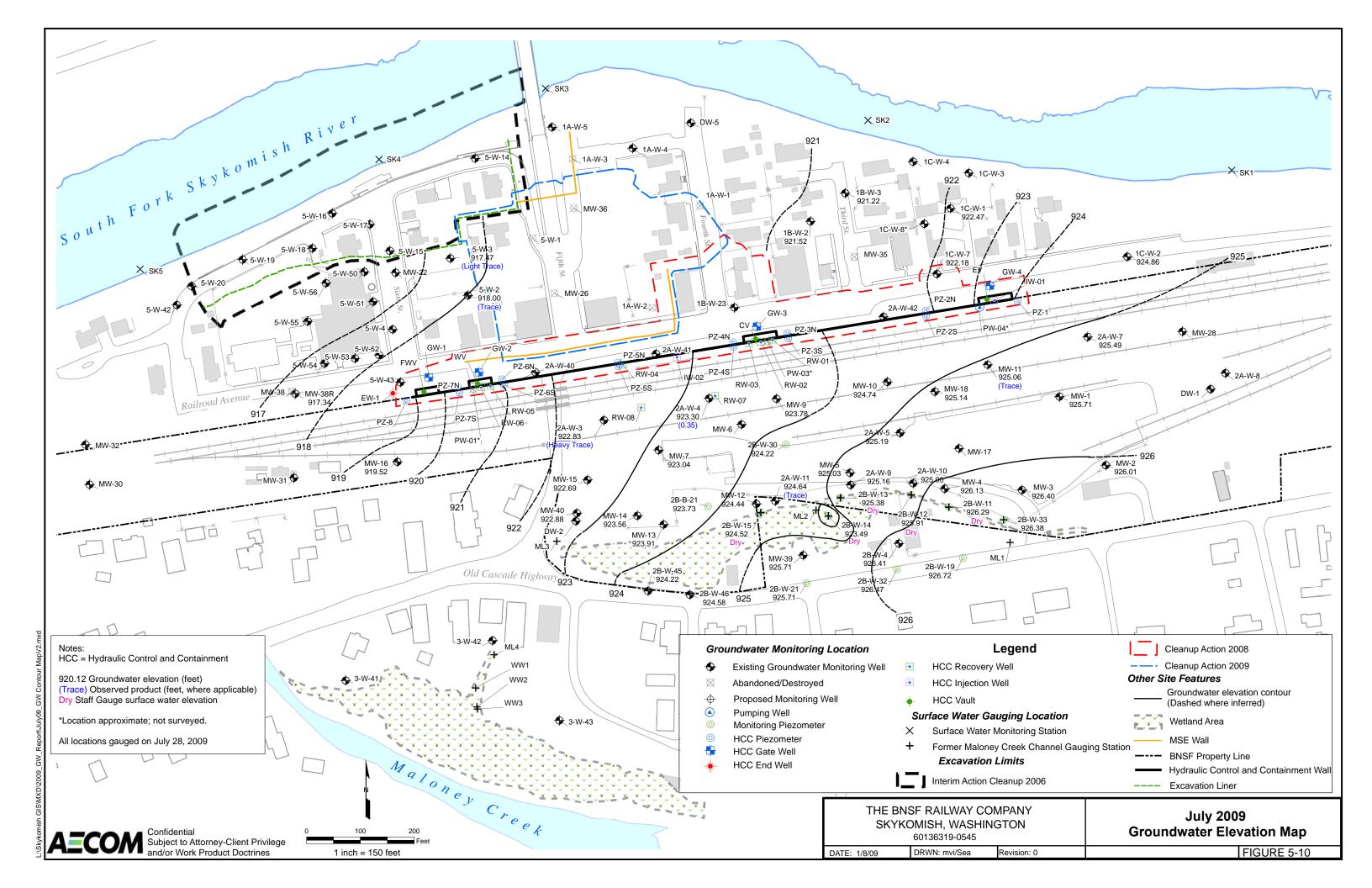


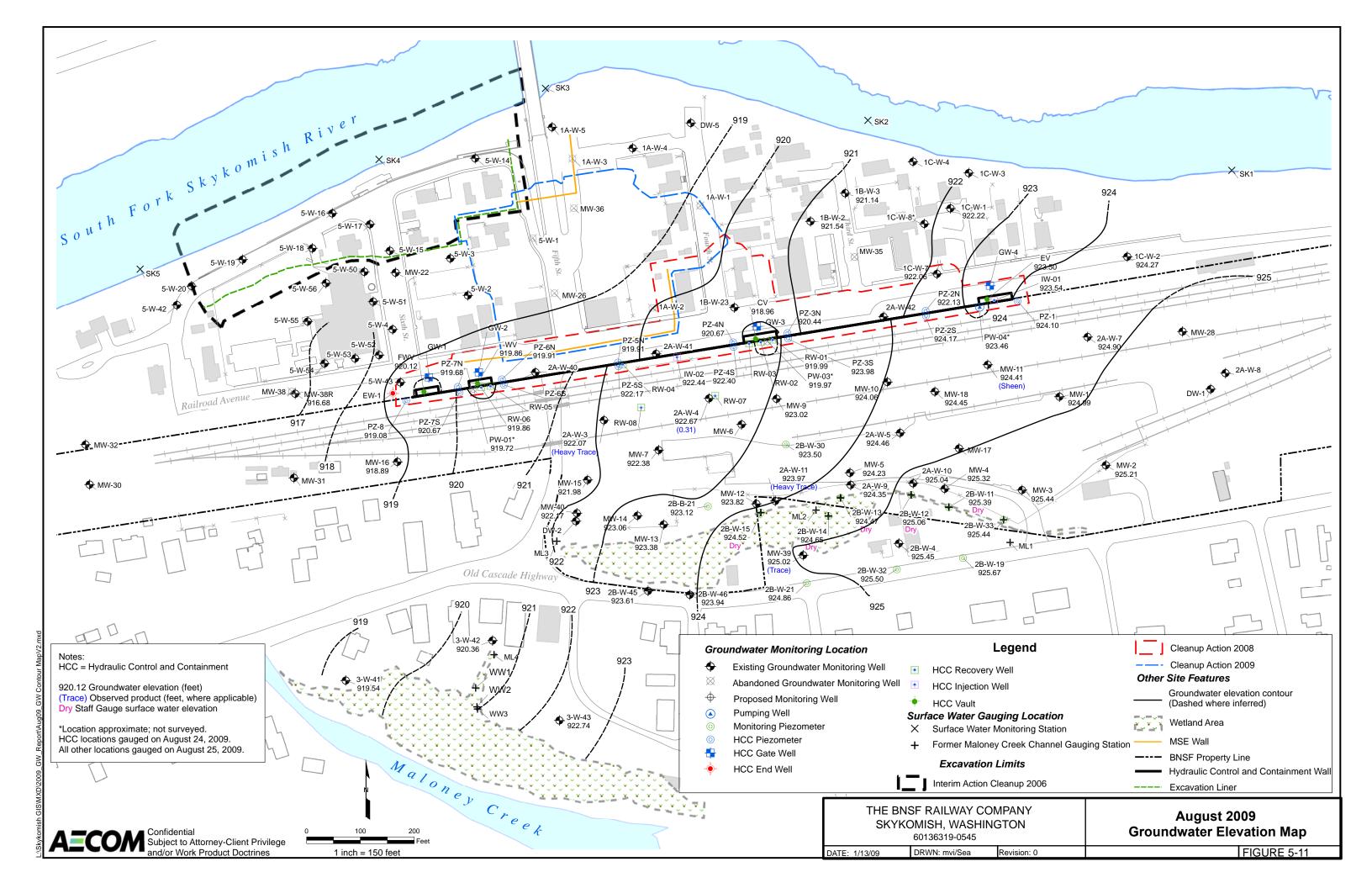


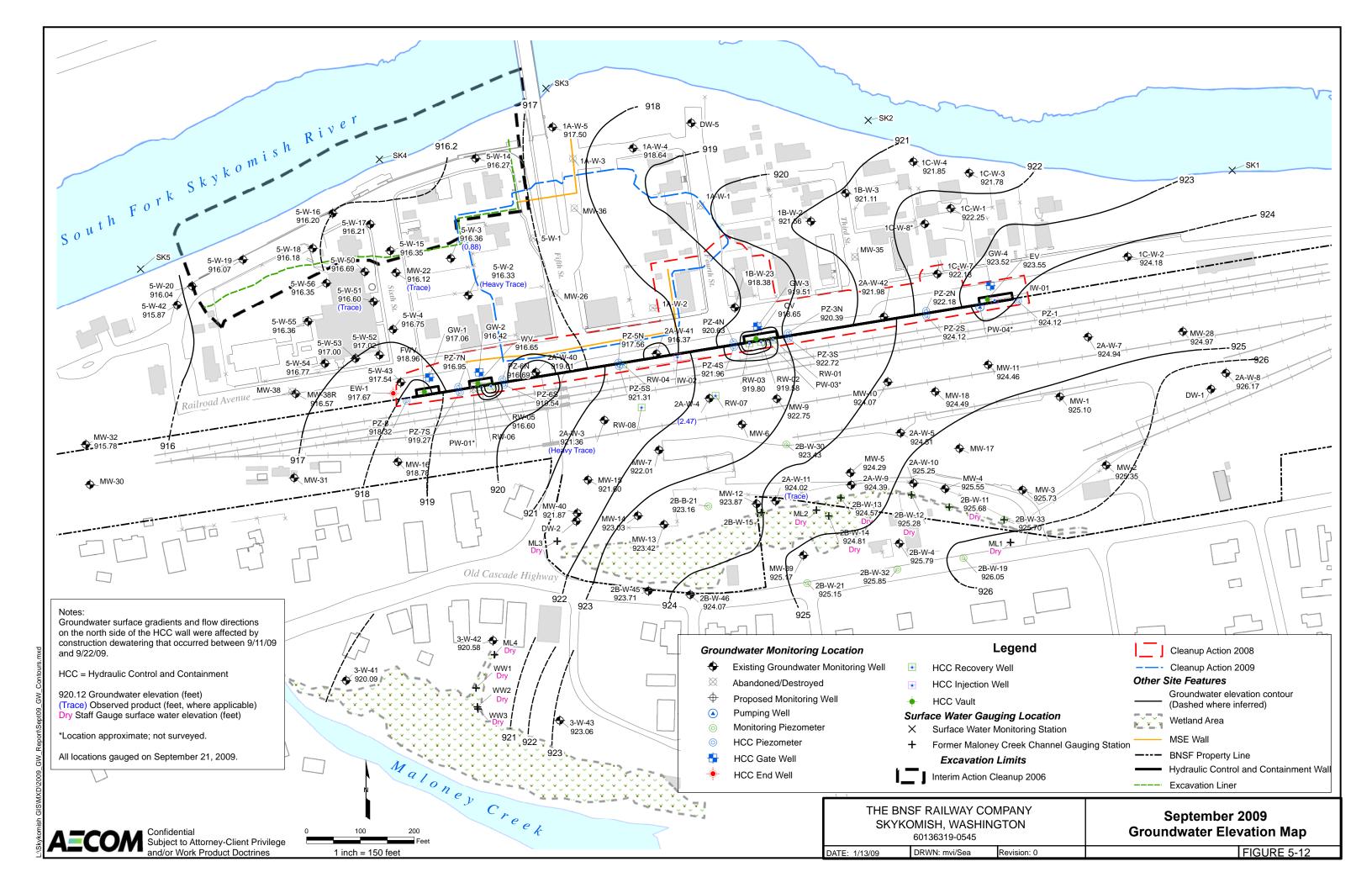


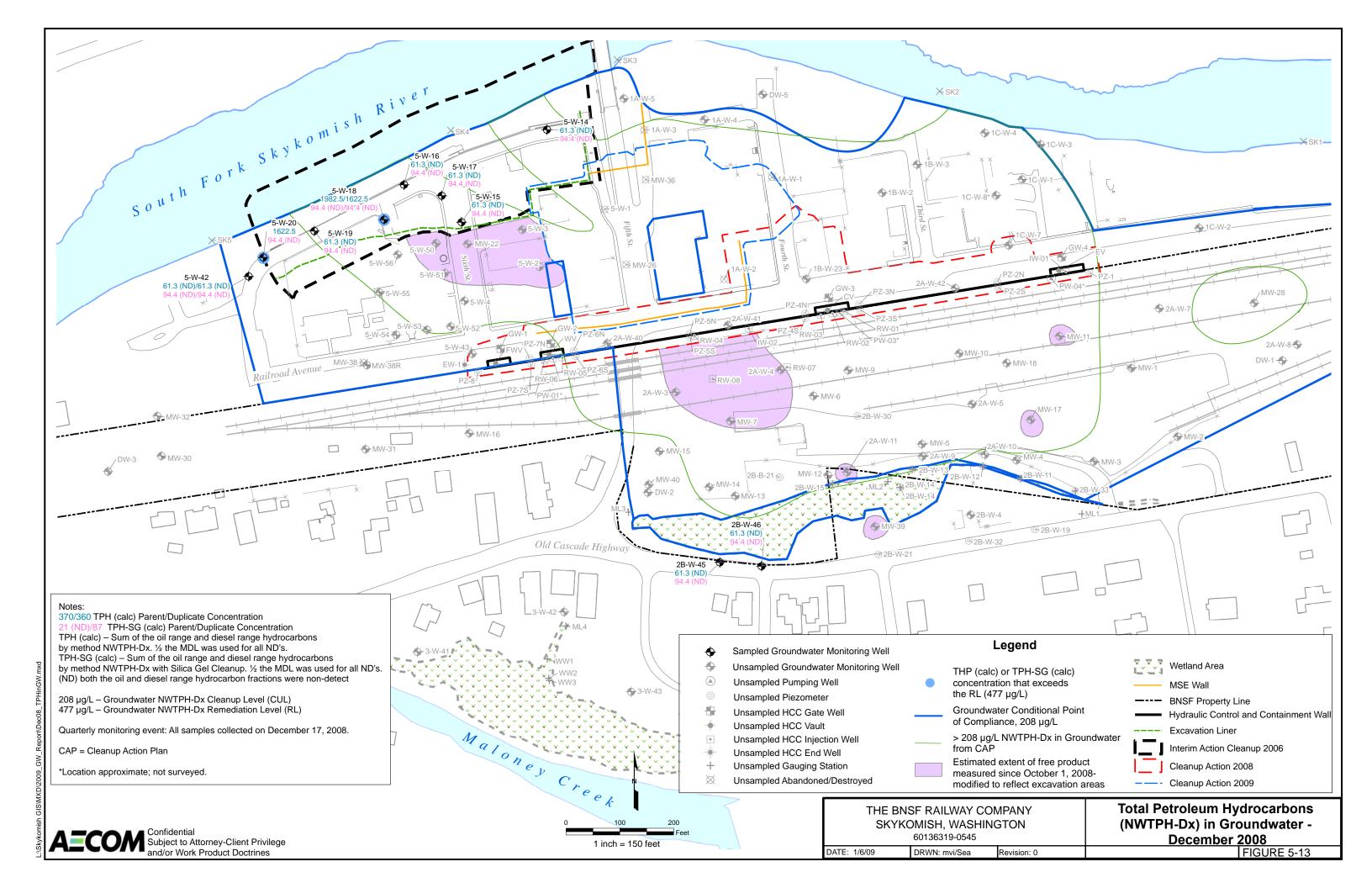


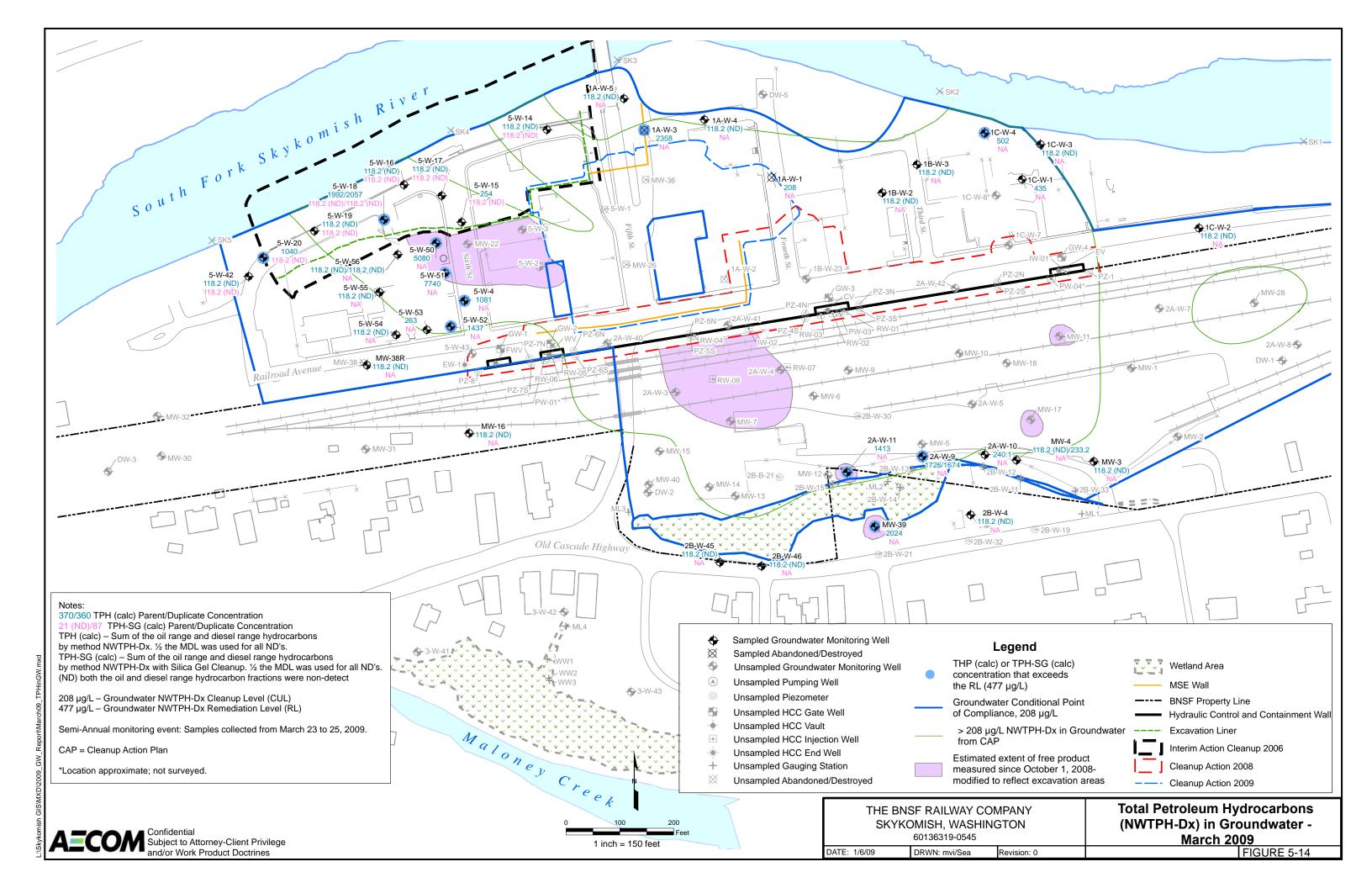


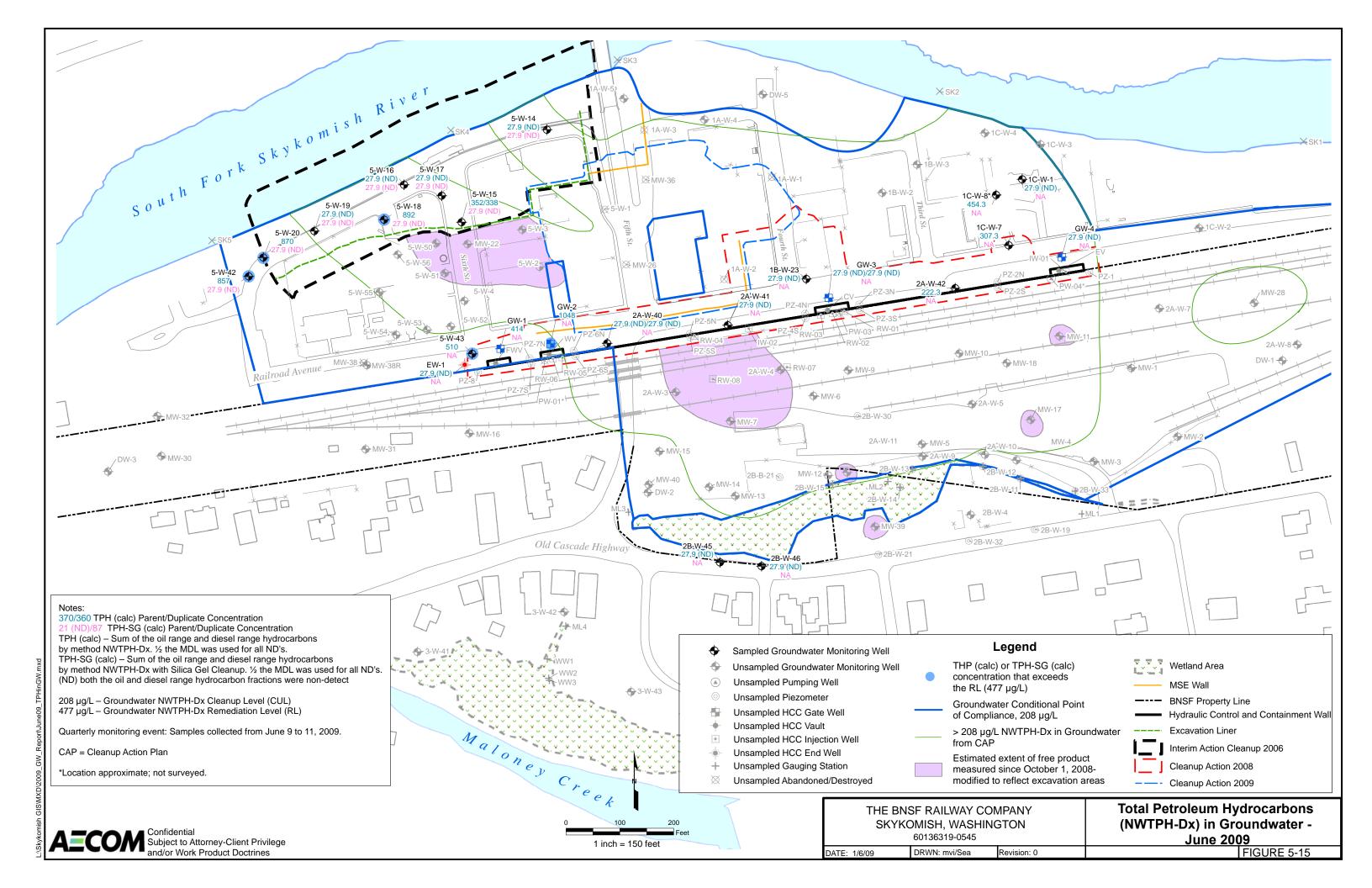


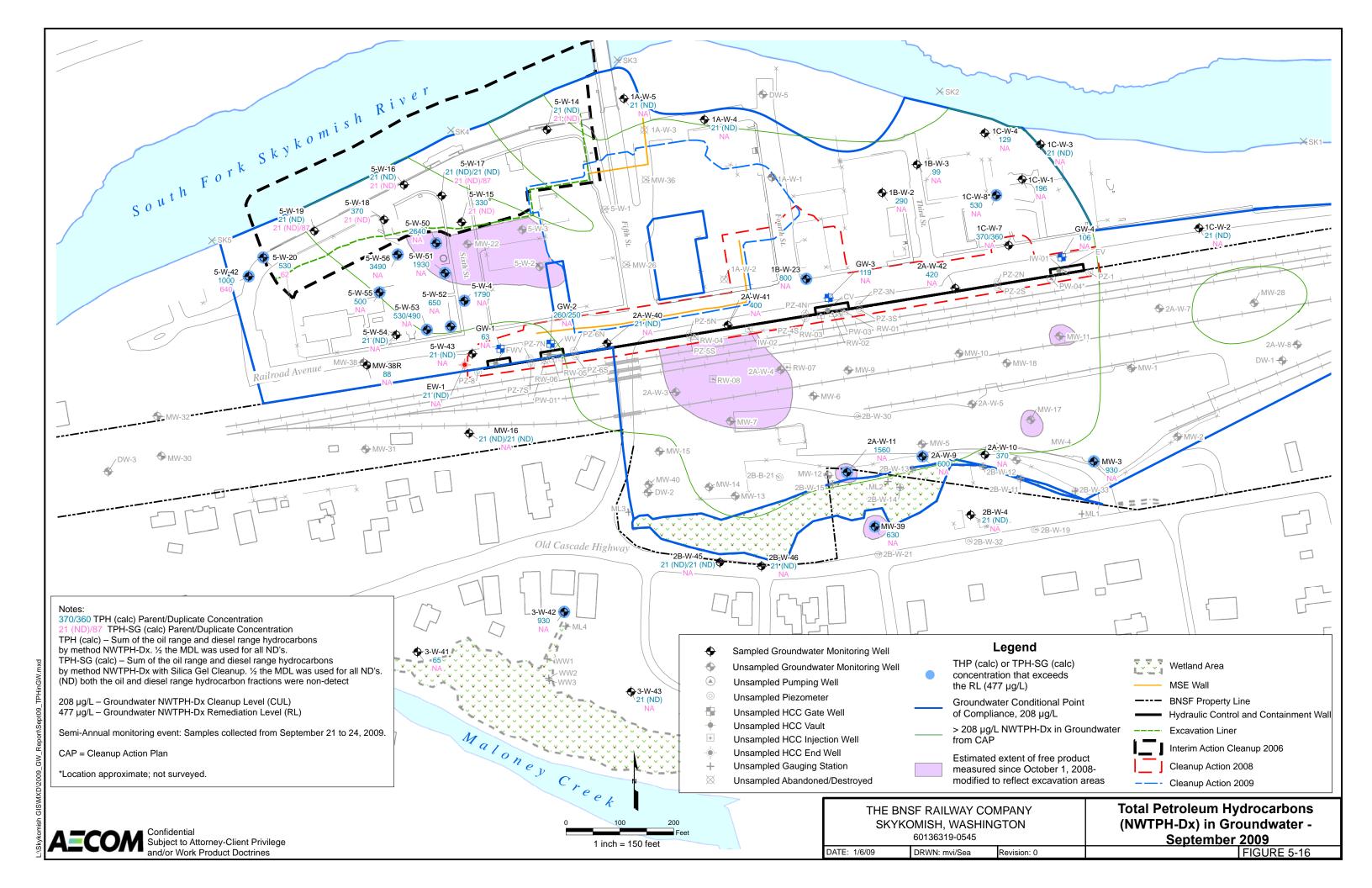












# Appendix A

**2009 Groundwater Report Scope Memo** 



#### **AECOM Environment**

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Date:	Nover	mber 19, 2009			
То:	Washi	d Timm, Site Technical ington State Departmer s Cleanup Program	•		
From:	Heath	er Hirsch, Project Geol	ogist		
Subject	: <u>20</u>	008 to 2009 Annual Site	e-Wide Groundwater N	Monitoring Report Scop	e
Distribu	ıtion:	Brian Sato (Ecology)	Thom Booth (AECOM)	Halah Voges (AECOM)	Renee Knecht (AECOM)
			<u></u>	·	

Dear Mr. Timm,

AECOM is currently preparing the 2008 to 2009 Annual Site-Wide Groundwater Monitoring Report (report) for the Burlington Northern Santa Fe (BNSF) Railway Company Former Maintenance and Fueling Facility Site (Site) in Skykomish, Washington. It has come to our attention that some of the data analyses included in the Site annual groundwater reports, which have been carried over from year to year, are no longer relevant at this time or are outside the scope of the current report objectives. AECOM is proposing to exclude some of these analyses from the 2008 to 2009 report in order to stream-line the data presentation and maintain consistency with the report objectives.

## **Report Objectives**

AECOM identified the following investigation and reporting objectives for the 2008 to 2009 annual sitewide groundwater monitoring (2009 Groundwater Monitoring Plan; AECOM, 2009):

- Monitor any changes in chemical/petroleum distribution pending implementation of the cleanup actions throughout the site;
- Provide monitoring data for the groundwater in the levee zone to assess the effect of the 2006 interim cleanup of the levee zone on groundwater quality;
- Provide monitoring data for the 2008 remediation area groundwater to assess the effects on groundwater quality;
- Provide monitoring data for the 2009 remediation area groundwater to assess the effects on groundwater quality; and
- Provide gauging data to assess the groundwater flow direction for the area of Former Maloney Creek Zone (FMCZ).

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Data collected during the 2008 to 2009 monitoring period will be analyzed in the current report in order to meet these objectives.

## **Analyses Proposed for Removal**

In addition to the groundwater quality monitoring and post-remediation groundwater impact assessments outlined in the objectives, the annual groundwater reports have historically also included additional data analysis, which is no longer relevant and is outside the scope of the report objectives. These analyses include spatial and temporal trend analyses, such as groundwater hydrographs, product thickness vs. groundwater elevation trends, and temporal trends in NWTPH-DX concentrations in groundwater for select wells. These analyses were originally included in order to supplement the conceptual site model and to assess the nature and movement of NAPL at the site.

Groundwater hydrographs were originally developed to identify the smear zone. The product thickness vs. groundwater elevation trends were developed to analyze the affect of water elevation on product mobility. Whereas these analyses contribute to the conceptual model of the site, they are beyond the objectives of this report. In addition, the conceptual site model has been adequately described in other investigation reports.

Temporal NWTPH-Dx trends in groundwater cannot be analyzed accurately presently because the physical and chemical regime is constantly changing as the remedial actions are implemented. Temporal trends will be analyzed after active remediation as part of long-term compliance monitoring. Therefore, these trend analyses are beyond the objectives of this report.

To maintain consistency with the stated report objectives, AECOM proposes to exclude the aforementioned analyses from the 2008 to 2009 report. These analyses were presented in the following figures in the 2007 to 2008 Annual Site-Wide Groundwater Monitoring Report (AECOM, 2009b):

- Figure 5-1: Hydrograph Source Data Locations Plotted on Hydrographs
- Figure 5-2: Groundwater Elevations Selected Wells January 2003 September 2007
- Figure 5-3: Groundwater Elevations Selected Wells August 2007 September 2008
- Figure 5-4: Skykomish River and Select Wells Groundwater Elevations August 2007 September 2008
- Figure 5-5: Product Thickness vs. Groundwater Elevation in Well 5-W-2 (2002-2008)
- Figure 5-6: Product Thickness vs. Groundwater Elevation in Well 5-W-3 (2002-2008)
- Figure 5-7: Product Thickness vs. Groundwater Elevation in Well MW-8 (2002-2008)
- Figure 5-8: Product Thickness vs. Groundwater Elevation in Well MW-20 (2002-2008)
- Figure 5-9: Product Thickness vs. Groundwater Elevation in Well MW-21 (2002-2008)
- Figure 5-10: Product Thickness vs. Groundwater Elevation in Well MW-36 (2002-2008)
- Figure 5-29: TPH Concentrations in Select Wells versus Time August 2007 September 2008
- Figure 5-30: TPH Concentrations in Select Wells versus Time (2003 2008)

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Ronald Timm Page 2

If you would like any additional information or have any questions, please don't hesitate to contact me.

Sincerely yours,

Heather Hirsch

heather.hirsch@aecom.com

#### References

AECOM, 2009. 2009 Groundwater Monitoring Plan, BNSF Former Maintenance and Fueling Facility – Skykomish, Washington. Seattle, Washington: AECOM Environment, March 2009.

AECOM 2009b. 2007-2008 Annual Site-Wide Groundwater Monitoring Report, BNSF Former Maintenance and Fueling Facility – Skykomish, Washington. Seattle, Washington: AECOM Environment, July 2009.

# Hirsch, Heather

From: Timm, Ronald W. (ECY) [rtim461@ECY.WA.GOV]

Sent: Monday, November 30, 2009 10:06 AM
To: Voges, Halah: Sato, Brian (ECY)

Cc: Bruce.Sheppard@BNSF.com; Hirsch, Heather; Booth, Thom; Albano, Sarah; Havighorst,

Mark

**Subject:** RE: proposed changes to annual GW monitoring rpt

Hi, Halah

We concur that Figures 5-1 through 5-10, and Figures 5-29 and 5-30, along with their associated analyzes can be excluded from the next annual groundwater report.

# Sincerely,

Ronald W. Timm, L.Hg., M.S. Senior Hydrogeologist/Site Manager TCP/NWRO (Bellevue, WA) Washington State Department of Ecology 425-649-7185 rtim461@ecy.wa.gov

From: Voges, Halah [mailto:Halah.Voges@aecom.com]

**Sent:** Thursday, November 19, 2009 12:24 PM **To:** Timm, Ronald W. (ECY); Sato, Brian (ECY)

Cc: Bruce.Sheppard@BNSF.com; Hirsch, Heather; Booth, Thom; Albano, Sarah; Havighorst, Mark

Subject: proposed changes to annual GW monitoring rpt

Ron and Brian -

Attached is a memo describing proposed changes to the annual groundwater monitoring report for Skykomish. As we began work on the report, it became apparent that some of the graphs, figures and data analysis that we typically include in the report are not meaningful given the on-going remediation work. Please let us know if you agree with our proposed changes, and we will continue with report preparation. Thanks.

# Halah M. Voges, P.E.

Senior Program Manager Environment D 206.403.4227 C 206.399.2191 halah.voges@aecom.com

## **AECOM**

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Please consider the environment before printing this e-mail.

Appendix B

Well Logs and 5-W-42 Installation Memo

#### Well #: 1B-W-23 **AECOM Boring/Well Log** Sheet 1 of 2 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 22 ft. Start Date & Time: 03/18/09 0810 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/18/09 0925 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Grout: -Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot, Sch. 40 PVC, 5-20 ft-bgs Elevation(ft.) Sample Well Completion Log Soil and Rock Description Graphic Depth (ft. Comments Depth Range Rec & Samples Classification Scheme: USCS/ASTM ~ C-1 0-5 Second (0.0-17.0) Not Sampled. Soil from 2008 backfill. attempt: located 3 ft. NW of original location. Flush mount road box monument. Concrete from 0-1 ft-bgs. C-2 5-10 Bentonite chip seal from 1-3 ft-bgs. 2 in. Sch. 40, PVC riser from 0-5 ft-bgs. - 10 C-3 10-15 0.010-in. slot, 2 in. Sch. 40, PVC screen from 5-19.75 ftbgs. Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time | Depth (ft.) ft-bgs - feet below ground surface **AECOM - Environment** DP = Direct Push 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793 SS = Split Spoon C = Core

#### Well #: 1B-W-23 **AECOM Boring/Well Log** Sheet 2 of 2 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 22 ft. Start Date & Time: 03/18/09 0810 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/18/09 0925 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot, Sch. 40 PVC, 5-20 ft-bgs Elevation(ft.) Sample Well Completion Log **Soil and Rock Description** Graphic Depth (ft. Comments Depth Range % Rec & Samples Classification Scheme: USCS/ASTM 10/20 silica sand pack from 3-20 ft-bgs. - -15 C-4 15-20 95 (17.0-20.0) ML: SILT WITH SAND, brownish gray to gray from 18-20 ft., slow dilatency, low plasticity wet. 35% fine sand. Trace, angular gravel up to 1". Slight petroleum odor, no sheen. 2 in. Sch. 40, PVC end cap from 19.75-20.0 ft-bgs. -20

Remarks and Datum Used:	Sch Schedule	Sample Type		Groundwater	
		N = SPT	Date	Time	Depth (ft.)
AECOM - Environment 710 2nd Ave. Suite 1000	ft-bgs - feet below ground surface	DP = Direct Push			
Seattle, WA 98104		SS = Split Spoon			
Phone: (206) 624-9349 Fax: (206) 623-3793		C = Core			

### Well #: 2A-W-40 **AECOM Boring/Well Log** Sheet 1 of 4 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/23/09 1040 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1520 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Grout: -Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft. Sample Soil and Rock Description Graphic Depth (ft. Comments Depth Range Rec & Samples Classification Scheme: USCS/ASTM ~ Flush mount 0-20 (0.0-20.0) Not Sampled. Soil from 2008 backfill. road box monument. Concrete from 0-1.5 ft-bgs. Bentonite chip seal from 1.5-29.5 ft-bgs. 2 in. Sch. 40, PVC riser from 0-30.5 ft-bgs. -10 10 Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time | Depth (ft.) ft-bgs - feet below ground surface **AECOM - Environment** DP = Direct Push 03/27/09 0805 11.33 ft. 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793 SS = Split Spoon C = Core

# Well #: 2A-W-40 **AECOM Boring/Well Log** Sheet 2 of 4 Stick Up: -Project: Skykomish Monument: Flush Mount Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Method: Rotosonic Client: BNSF Total Depth: 40.5 ft. Start Date & Time: 03/23/09 1040 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1520 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Grout: -Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft.) Sample **Soil and Rock Description** Depth (ft. Graphic Comments % Rec & Samples Classification Scheme: USCS/ASTM 15 - -15 20-25 C-1 (20.0-22.0) GW: WELL GRADED GRAVEL WTIH SAND, brown, fine to coarse, sub angular, elongated, wet. 30% fine to coarse sand, 20% silt. strong bunker-C odor, slight rainbow sheen.

Remarks and Datum Used:	Sch Schedule	Sample Type	Groundwater		
		N = SPT	Date	Time	Depth (ft.)
	ft-bgs - feet below ground surface	DP = Direct Push	03/27/09	0805	11.33 ft.
		SS = Split Spoon			
		C = Core			

#### Well #: 2A-W-40 **AECOM Boring/Well Log** Sheet 3 of 4 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/23/09 1040 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1520 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs levation(ft. Sample Soil and Rock Description Depth (ft. Graphic Comments Rec & Samples Classification Scheme: USCS/ASTM ~ (22.0-24.0) WELL GRADED SAND WITH GRAVEL, brown, fine to coarse, angular to sub rounded, elongated, moist. 20% fine to coarse gravel up to 2". 10% silt. Slight bunker-C odor, no visible contamination. (24.0-25.0) ML: SILT, light brown, medium plasticity, mottled, moist. 20% fine to coarse gravel up to 2 in. 10% silt. Slight bunker-C odor, no visible contamination. 25 -25 C-2 25-30 (25.0-28.0) ML: SILT WITH SAND, grayish brown, medium plasticity, slightly mottled, wet. 30% fine sand. No odor or visible contamination. (28.0-28.5) SM: SILTY SAND, grayish brown, fine to coarse, angular to sub rounded, mottled, moist. 30% silt. Trace gravel up to 1/5 in. No odor or visible contamination. (28.5-29.5) ML: SILT WITH SAND, light brown, high plasticity, iron stained mottles, moist. 30% fine to medium sand. No odor or visible contamination. (29.5-30.0) SM: SILTY SAND, brown, fine to coarse, 30 -30 C-3 30-35 angular to sub angular, elongated, black mottles, moist, 35% silt. No odor or visible contamination. 0.010-in. slot. 2 in. Sch. 40, (30.0-32.5) SM: SILTY SAND WITH GRAVEL, PVC screen brownish gray, fine to coarse, angular to sub from 30.5-40 ftrounded, elongated, wet. 35% silt. 35% fine to bgs. medium gravel up to 1.5". No odor or visible contamination. Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time Depth (ft.) **AECOM - Environment** ft-bgs - feet below ground surface DP = Direct Push 03/27/09 11.33 ft. 710 2nd Ave. Suite 1000 Seattle, WA 98104 SS = Split Spoon Phone: (206) 624-9349 Fax: (206) 623-3793

C = Core

#### Well #: 2A-W-40 **AECOM Boring/Well Log** Sheet 4 of 4 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/23/09 1040 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1520 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft. Sample Soil and Rock Description Depth (ft. Graphic Comments Rec & Samples Classification Scheme: USCS/ASTM ~ (32.5-34.5) ML: SILT WITH SAND, brownish gray, high plasticity, brown ring-like mottles, wet. 25% fine to medium sand. No odor or visible contamination. (34.5-35) SM: SILTY SAND, brownish gray, fine to coarse, angular to sub rounded, elongated, wet. 30% silt. No odor or visible contamination. -35 C-4 35-37 (35.0-36.0) ML: SILT WITH SAND, gray, medium plasticity, mottled, wet. 35% fine to coarse sand. No odor or visible contamination. (36.0-37.0) SM: SILTY SAND, brownish gray, fine to coarse, angular to sub rounded, elongate, wet. 25% silt. 15% fine to coarse gravel up to 2 in. No odor or C-5 37-41 10/20 silica visible contamination. sand pack from 29.5-41 ft-bgs. (37.0-41.0) SW: WELL GRADED SAND, brownish gray, fine to coarse angular to rounded, elongate, wet. 30% fine to coarse gravel up to 3 in. 10% silt. No odor or visible contamination. 2 in. Sch. 40, PVC end cap from 40-40.5 ftbgs.

	Sch Schedule	Sample Type Gro			undwater	
		N = SPT	Date	Time	Depth (ft.)	
	ft-bgs - feet below ground surface	DP = Direct Push	03/27/09	0805	11.33 ft.	
		SS = Split Spoon				
		C = Core				

#### Well #: 2A-W-41 **AECOM Boring/Well Log** Sheet 1 of 2 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 21 ft. Start Date & Time: 03/24/09 Casing ID: 2 in. Filter Pack: #2/12 Silica sand Finish Date & Time: 03/24/09 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Grout: -Operator: Valentino Logged By: R. Knecht, M. Graddon Screen: 0.020-in. slot PVC, 6-21 ft-bgs Elevation(ft. Sample **Soil and Rock Description** Graphic Depth (ft. Comments Depth Range Rec & Samples Classification Scheme: USCS/ASTM ~ 0-21 Flush mount (0.0-21.0) Lithology not logged. Well installed within road box footprint of 2008 excavation backfill. monument. Concrete from 0-1 ft-bgs. Bentonite chip seal from 1-5 ft-bgs. #2/12 silica sand pack from 5-21 ft-bgs. 2 in. Sch. 40, PVC riser from 0-6 ft-bgs. 10 -10 Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time | Depth (ft.) ft-bgs - feet below ground surface **AECOM - Environment** DP = Direct Push 03/24/09 12.57 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793 SS = Split Spoon C = Core

# Well #: 2A-W-41 **AECOM Boring/Well Log** Sheet 2 of 2 Stick Up: -Project: Skykomish Monument: Flush Mount Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Method: Rotosonic Total Depth: 21 ft. Client: BNSF Start Date & Time: 03/24/09 Casing ID: 2 in. Filter Pack: #2/12 Silica sand Finish Date & Time: 03/24/09 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: R. Knecht, M. Graddon Screen: 0.020-in. slot PVC, 6-21 ft-bgs Elevation(ft.) Sample Well Completion Log **Soil and Rock Description** Graphic Depth (ft. Comments Depth Range % Rec & Samples Classification Scheme: USCS/ASTM 0.020-in. slot, 2 in. Sch. 40, PVC screen from 6-21 ftbgs. 2 in. Sch. 40, PVC end cap from 20.7-21.0 - 15 ft-bgs. - 20 -20

Remarks and Datum Used:	Sch Schedule	Sample Type	Gre	ter	
		N = SPT	Date	Time	Depth (ft.)
AECOM - Environment 710 2nd Ave. Suite 1000	ft-bgs - feet below ground surface	DP = Direct Push 03/24/09		12.57	
Seattle, WA 98104		SS = Split Spoon			
Phone: (206) 624-9349 Fax: (206) 623-3793		C = Core			

#### Well #: 2A-W-42 **AECOM Boring/Well Log** Sheet 1 of 1 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 21 ft. Start Date & Time: 03/24/09 Casing ID: 2 in. Filter Pack: #2/12 Silica sand Finish Date & Time: 03/24/09 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: R. Knecht, M. Graddon Screen: 0.020-in. slot PVC, 6-21 ft-bgs Elevation(ft. Sample Well Completion Log Soil and Rock Description Graphic Depth (ft. Comments Depth Range Rec & Samples Classification Scheme: USCS/ASTM ~ 0-21 Flush mount (0.0-21.0) Lithology not logged. Well installed within road box footprint of 2008 excavation backfill. monument. Concrete from 0-1 ft-bgs. Bentonite chip seal from 1-5 ft-bgs. -5 #2/12 silica sand pack from 5-21 ft-bgs. 2 in. Sch. 40, PVC riser from 0-6 ft-bgs. - 10 -10 0.020-in. slot, 2 in. Sch. 40, PVC screen from 6-21 ftbgs. 2 in. Sch. 40, PVC end cap - 15 from 20.7-21.0 ft-bgs. 20 -20 Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule Time Depth (ft.) N = SPTDate ft-bgs - feet below ground surface **AECOM - Environment** DP = Direct Push 03/24/09 11.40 710 2nd Ave. Suite 1000

SS = Split Spoon

C = Core

Seattle, WA 98104

Phone: (206) 624-9349 Fax: (206) 623-3793

#### Well #: 5-W-42 **AECOM Boring/Well Log** Sheet 1 of 2 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-204-0320 Northing: 259235.732 Easting: 1509858.08 Ground Elevation: 923.84 ft. Location: Skykomish, WA Drill Rig Type: Spider Sonic MP Elevation: 923.45 ft. Client: BNSF Method: Rotosonic Total Depth: 20 ft. Start Date & Time: 11/13/2008 0830 Casing ID: 2 in. Filter Pack: 3-20.2 ft. Finish Date & Time: 11/13/2008 0945 Boring ID: 6 in. Seal: Bentonite Contractor: Boart Longyear Bit Type: Carbide Tooth Coring Bit Grout: -Operator: Brian Owens Logged By: Jesse Waknitz Screen: 0.020-in. slot, Sch. 40 PVC, 5-20 ft-bgs evation(ft.) Sample Well Completion Log Depth (ft. Graphic Soil and Rock Description **Comments** Depth Range % Rec USCS/ASTM Classification Scheme: & Samples C-1 0-5 10 Flush mount (0.0-5.0) SP: POORLY GRADED SAND, brown, road box to 1 ftmedium, loose, moist. 5% fine gravel, sub rounded bas. and equant. No odor or visible contamination. Concrete from 0-1 ft-bgs. Bentonite seal from 1-3 ft-bgs. 2 in. Sch. 40 PVC riser from 0-5 ft-bgs. 920 -5 C-2 5-10 100 (5.0-10) SP: POORLY GRADED SAND WITH GRAVEL, brown, coarse, loose, moist. 30% fine gravel, sub rounded and equant. 10% coarse gravel, sub rounded and equant. 10% cobbles sub rounded 10/20 silica sand pack from and equant up to 5 inches. 5% silt. At 9-10 feet, Strong Bunker-C odor, blebs common with heavy 3-20.2 ft-bgs. sheen. 2 in. 0.02 in.slot, Sch. 40 PVC screen, 5-20 ft-bgs. 915 9-10 TPH: 11030 mg/kg. <del>+</del> 10 C-3 10-15 20 (10.0-15.0) SP: POORLY GRADED SAND WITH GRAVEL, brown, coarse, loose, wet. 30% fine

Remarks and Datum Used:		Sample Type	Gr	oundwa	ter
-		N = SPT	Date	Time	Depth (ft.)
AECOM - Environment 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793	Sch. Schedule	DP = Direct Push			
	ft-bgs - feet below ground surface	SS = Split Spoon			
		C = Core			

gravel, subrounded to equant. 10% coarse gravel, sub rounded to equant. Mild bunker-C odor, 1mm

Project: Skykomish Project #: 01140-204-0320 Location: Skykomish, WA Client: BNSF Start Date & Time: 11/13/2 Finish Date & Time: 11/13/2 Contractor: Boart Longye Operator: Brian Owens  Sample  9	2008 0830 /2008 0945	Northin Drill Rig Method Casing Boring Bit Type Logged	nent: Flush Mount ng: 259235.732 Easting: 1509858.08 g Type: Spider Sonic d: Rotosonic ID: 2 in. ID: 6 in. ne: Carbide Tooth Coring Bit d By: Jesse Waknitz  Soil and Rock Des Classification Scheme: U		923.45 ft 20 ft. 20.2 ft. ite	
Location: Skykomish, WA Client: BNSF Start Date & Time: 11/13/2 Finish Date & Time: 11/13/ Contractor: Boart Longye Operator: Brian Owens Sample	2008 0830 /2008 0945 ear	Drill Rig Method Casing Boring Bit Type Logged	g Type: Spider Sonic d: Rotosonic ID: 2 in. ID: 6 in. e: Carbide Tooth Coring Bit d By: Jesse Waknitz  Soil and Rock Des	MP Elevation: 9 Total Depth: 2 Filter Pack: 3-2 Seal: Bentoni Grout: - Screen: 0.020-in	923.45 ft 20 ft. 20.2 ft. ite	h. 40 PVC, 5-20 ft-b
Client: BNSF Start Date & Time: 11/13/2 Finish Date & Time: 11/13/2 Contractor: Boart Longye Operator: Brian Owens Sample	2008 0830 /2008 0945 ear	Method Casing Boring Bit Type Logged	d: Rotosonic  ID: 2 in.  ID: 6 in.  e: Carbide Tooth Coring Bit  d By: Jesse Waknitz  Soil and Rock Des	Total Depth: 2 Filter Pack: 3-2 Seal: Bentoni Grout: - Screen: 0.020-in	20 ft. 20.2 ft. ite	h. 40 PVC, 5-20 ft-b Comments
Start Date & Time: 11/13/2 Finish Date & Time: 11/13/2 Finish Date & Time: 11/13/2 Contractor: Boart Longye Operator: Brian Owens  Sample  9	/2008 0945 ear	Casing Boring Bit Type Logged	ID: 2 in. ID: 6 in. e: Carbide Tooth Coring Bit By: Jesse Waknitz  Soil and Rock Des	Filter Pack: 3-2 Seal: Bentoni Grout: - Screen: 0.020-in	0.2 ft. ite	Comments
Pinish Date & Time: 11/13/ Contractor: Boart Longye Operator: Brian Owens Sample  Sample  2	/2008 0945 ear	Boring Bit Type Logged	ID: 6 in. e: Carbide Tooth Coring Bit d By: Jesse Waknitz  Soil and Rock Des	Seal: Bentoni Grout: - Screen: 0.020-in	ite n. slot, Sc	Comments
Contractor: Boart Longye Operator: Brian Owens  Sample  Boart Longye Operator: Brian Owens  Sample	ear	Bit Type	e: Carbide Tooth Coring Bit By: Jesse Waknitz Soil and Rock Des	Grout: - Screen: 0.020-in	n. slot, Sci	Comments
Operator: Brian Owens  Sample  But a		Logged	By: Jesse Waknitz  Soil and Rock Des	Screen: 0.020-in		Comments
Number Depth Range S	Well Completion Log Graphic	1 _	Soil and Rock Des	cription		Comments
Number Depth Range	Well Completion Log Graphic	Depth (ft.)		•	evation(ft.)	
					Ē	· •
:-4 15-20		+ 15	(15.0-17.0) SP: POORLY GRADED GRAVEL, gray medium, loose, wet. sub rounded to equant. 5% coarse rounded and equant. 10% cobbles, equant, up to 4 inches in diameter. visible contamination.  (17.0-19.0) SP: POORLY GRADED COBBLES, brown, fine, loose, wet. rounded and equant. No odor or viscontamination.  (19.0-20.0) ML: SILT WITH SAND, slow dilatency, no plasticity, wet. 10 sand. No odor or visible contamination.	. 15% fine gravel, gravel, sub sub rounded to No odor or D SAND WITH 5% cobbles, sub sible gray, medium, 9% very fine	910	15-17 TPH: 9.41 mg/kg. 17-19 TPH: 3.32 mg/kg.

Remarks and Datum Used:		Sample Type	Gr	oundwa	ter
		N = SPT	Date	Time	Depth (ft.)
AECOM - Environment 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793	Sch. Schedule	DP = Direct Push			
	ft-bgs - feet below ground surface	SS = Split Spoon			
		C = Core			

#### Well #: 5-W-43 **AECOM Boring/Well Log** Sheet 1 of 4 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/26/09 0840 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1050 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Grout: -Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft. Sample Soil and Rock Description Graphic Depth (ft. Comments Depth Range Rec & Samples Classification Scheme: USCS/ASTM ~ C-1 0-20 Flush mount (0.0-20.0) Not Sampled. Soil from 2008 backfill. road box monument. Concrete from 0-1.5 ft-bgs. Bentonite chip seal from 1.5-29.5 ft-bgs. 2 in. Sch. 40, PVC riser from 0-30.5 ft-bgs. -10 10 Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time Depth (ft.) ft-bgs - feet below ground surface **AECOM - Environment** DP = Direct Push 03/27/09 0805 11.33 ft. 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 623-3793 SS = Split Spoon C = Core

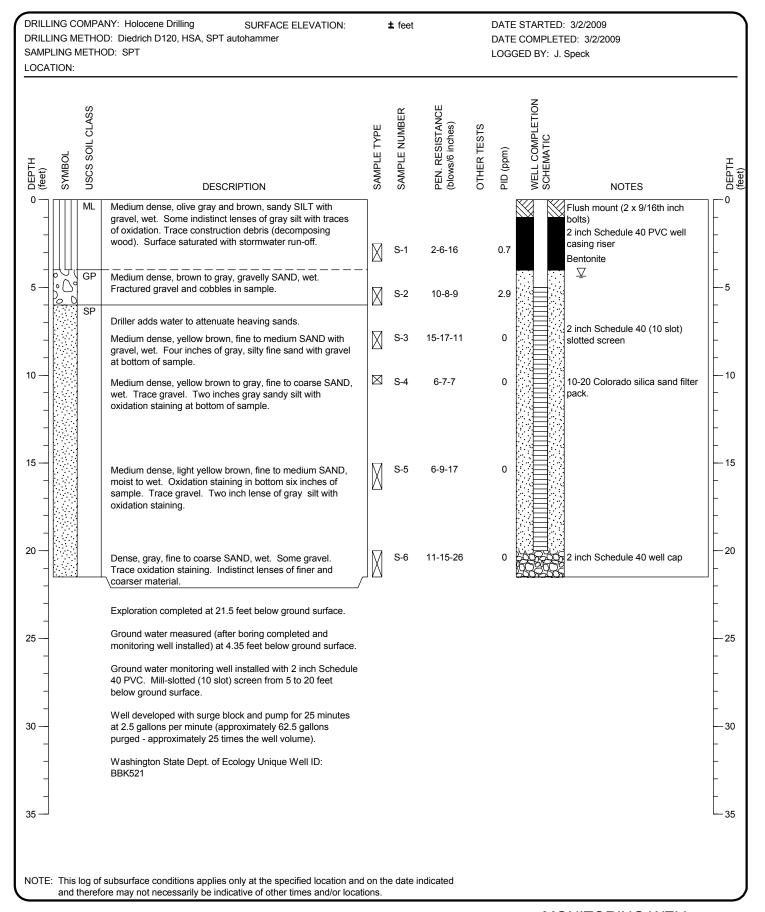
#### Well #: 5-W-43 **AECOM Boring/Well Log** Sheet 2 of 4 Stick Up: -Project: Skykomish Monument: Flush Mount Project #: 01140-222-0300 Northing: -Ground Elevation: -Drill Rig Type: Rotosonic compact 17-C Location: Skykomish, WA MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/26/09 0840 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Seal: Bentonite chips Finish Date & Time: 03/23/09 1050 Boring ID: 6 in. Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft.) Sample **Soil and Rock Description** Graphic Depth (ft. Comments % Rec & Samples Classification Scheme: USCS/ASTM - 15 - -15 20-25 C-2 (20.0-22.0) GW: WELL GRADED GRAVEL WTIH SAND, brown, fine to coarse, sub angular, elongated, wet. 30% fine to coarse sand, 20% silt. strong bunker-C odor, slight rainbow sheen.

Remarks and Datum Used:	Sch Schedule	Sample Type	Gro	oundwa	ter
		N = SPT	Date	Time	Depth (ft.)
AECOM - Environment 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349	ft-bgs - feet below ground surface	DP = Direct Push	03/27/09	0805	11.33 ft.
		SS = Split Spoon			
Fax: (206) 623-3793		C = Core			

#### Well #: 5-W-43 **AECOM Boring/Well Log** Sheet 3 of 4 Monument: Flush Mount Stick Up: -Project: Skykomish Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/26/09 0840 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1050 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs levation(ft. Sample Soil and Rock Description Depth (ft. Graphic Comments Rec & Samples Classification Scheme: USCS/ASTM (22.0-24.0) WELL GRADED SAND WITH GRAVEL, brown, fine to coarse, angular to sub rounded, elongated, moist. 20% fine to coarse gravel up to 2". 10% silt. Slight bunker-C odor, no visible contamination. (24.0-25.0) ML: SILT, light brown, medium plasticity, mottled, moist. 20% fine to coarse gravel up to 2 in. 10% silt. Slight bunker-C odor, no visible contamination. 25 -25 C-3 25-30 (25.0-28.0) ML: SILT WITH SAND, grayish brown, medium plasticity, slightly mottled, wet. 30% fine sand. No odor or visible contamination. (28.0-28.5) SM: SILTY SAND, grayish brown, fine to coarse, angular to sub rounded, mottled, moist. 30% silt. Trace gravel up to 1/5 in. No odor or visible contamination. (28.5-29.5) ML: SILT WITH SAND, light brown, high plasticity, iron stained mottles, moist. 30% fine to medium sand. No odor or visible contamination. (29.5-30.0) SM: SILTY SAND, brown, fine to coarse, 30 -30 C-4 30-35 angular to sub angular, elongated, black mottles, moist, 35% silt. No odor or visible contamination. 0.010-in. slot. 2 in. Sch. 40, (30.0-32.5) SM: SILTY SAND WITH GRAVEL, PVC screen brownish gray, fine to coarse, angular to sub from 30.5-40 ftrounded, elongated, wet. 35% silt. 35% fine to bgs. medium gravel up to 1.5". No odor or visible contamination. Groundwater Remarks and Datum Used: Sample Type Sch. - Schedule N = SPTDate Time Depth (ft.) **AECOM - Environment** ft-bgs - feet below ground surface DP = Direct Push 03/27/09 0805 11.33 ft. 710 2nd Ave. Suite 1000 Seattle, WA 98104 SS = Split Spoon Phone: (206) 624-9349 Fax: (206) 623-3793 C = Core

#### Well #: 5-W-43 **AECOM Boring/Well Log** Sheet 4 of 4 Project: Skykomish Monument: Flush Mount Stick Up: -Project #: 01140-222-0300 Northing: -Ground Elevation: -Location: Skykomish, WA Drill Rig Type: Rotosonic compact 17-C MP Elevation: -Client: BNSF Method: Rotosonic Total Depth: 40.5 ft. Start Date & Time: 03/26/09 0840 Casing ID: 2 in. Filter Pack: 10/20 Silica sand Finish Date & Time: 03/23/09 1050 Boring ID: 6 in. Seal: Bentonite chips Contractor: Cascade Drilling Inc. Bit Type: Carbide tooth coring bit Operator: Valentino Logged By: Renee Knecht Screen: 0.010-in. slot PVC, 30.5-40.5 ft-bgs Elevation(ft. Sample Soil and Rock Description Depth (ft. Graphic Comments Rec & Samples Classification Scheme: USCS/ASTM ~ (32.5-34.5) ML: SILT WITH SAND, brownish gray, high plasticity, brown ring-like mottles, wet. 25% fine to medium sand. No odor or visible contamination. (34.5-35) SM: SILTY SAND, brownish gray, fine to coarse, angular to sub rounded, elongated, wet. 30% silt. No odor or visible contamination. -35 C-5 35-37 (35.0-36.0) ML: SILT WITH SAND, gray, medium plasticity, mottled, wet. 35% fine to coarse sand. No odor or visible contamination. 10/20 silica (36.0-37.0) SM: SILTY SAND, brownish gray, fine to sand pack from coarse, angular to sub rounded, elongate, wet. 25% 29.5-41 ft-bgs. silt. 15% fine to coarse gravel up to 2 in. No odor or C-6 37-41 visible contamination. (37.0-41.0) SW: WELL GRADED SAND, brownish gray, fine to coarse angular to rounded, elongate, 2 in. Sch. 40, wet. 30% fine to coarse gravel up to 3 in. 10% silt. PVC end cap No odor or visible contamination. from 40-40.5 ftbgs. -40

Remarks and Datum Used:	Sch Schedule	Sample Type	Groundwater			
		N = SPT	Date	Time	Depth (ft.)	
AECOM - Environment 710 2nd Ave. Suite 1000	ft-bgs - feet below ground surface	DP = Direct Push	03/27/09	0805	11.33 ft.	
Seattle, WA 98104		SS = Split Spoon				
Phone: (206) 624-9349 Fax: (206) 623-3793		C = Core				





Skykomish Airport Town of Skykomish **MONITORING WELL:** MW-38A

PAGE: 1 of 1

PROJECT NO.: 2006046-100 A-FIGURE:



#### **AECOM Environment**

710 2nd Avenue, Suite 1000, Seattle, WA 98104 T 206.624.9349 F 206.623.3793 www.aecom.com

iviemo	orandum
Date:	March 23, 2009
То:	Ron Timm, Department of Ecology
From:	Renee Knecht
Subjec	5-W-42 draft boring log, draft soil and groundwater results table
Distribu	
A ttoob o	d in the beginn log and recults you requested from the Alexandr 40,0000 All attacked

Attached is the boring log, and results you requested from me on March 12, 2009. All attached information is draft. Please let me know if you have any questions.

Sincerely yours,

Renee Knecht

renee.knecht@aecom.com

Well #: 5-W-42 **Boring/Well Log** ENSR | AECOM Sheet 1 of 2 Stick Up: -Monument: Flush Mount Project: Skykomish Ground Elevation: 923.84 ft. Project #: 01140-204-0320 Northing: 259235.732 Easting: 1509858.08 Drill Rig Type: Spider Sonic MP Elevation: 923.45 ft. Location: Skykomish, WA Total Depth: 20 ft. Method: Rotosonic Client: BNSF Casing ID: 2 in. Filter Pack: 3-20.2 ft. Start Date & Time: 11/13/2008 0830 Boring ID: 6 in. Seal: Bentonite Finish Date & Time: 11/13/2008 0945 Grout: -Bit Type: Carbide Tooth Coring Bit Contractor: Boart Longyear Operator: Brian Owens Logged By: Jesse Waknitz Screen: 0.020-in. slot, Sch. 40 PVC, 5-20 ft-bgs Completion Log Elevation(ft. Sample Soil and Rock Description Graphic Comments Depth Type Number Range Rec & Samples Classification Scheme: USCS/ASTM Flush mount C-1 0-5 10 (0.0-5.0) SP: POORLY GRADED SAND, brown, road box to 1 medium, loose, moist, 5% fine gravel, sub rounded ft-bgs. and equant. No odor or visible contamination. Concrete from 0-1 ft-bgs. Bentonite seal from 1-3 ft-bgs. 2 in. Sch. 40 PVC riser from 0-5 ft-bas. 920 -5 C-2 5-10 100 (5.0-10) SP: POORLY GRADED SAND WITH GRAVÉL, brown, coarse, loose, moist. 30% fine gravel, sub rounded and equant. 10% coarse gravel, 10/20 silica sub rounded and equant. 10% cobbles sub rounded sand pack from and equant up to 5 inches. 5% silt. At 9-10 feet, 3-20.2 ft-bgs. Strong Bunker-C odor, blebs common with heavy 2 in. 0.02 in.sheen. slot, Sch. 40 PVC screen, 5-20 ft-bgs. 915 9-10 TPH: 11030 mg/kg. - 10 C-3 10-15 20 (10.0-15.0) SP: POORLY GRADED SAND WITH GRAVEL, brown, coarse, loose, wet. 30% fine gravel, subrounded to equant. 10% coarse gravel, sub rounded to equant. Mild bunker-C odor, 1mm Groundwater Remarks and Datum Used: Sample Type Depth (ft.) N = SPTDate Time **AECOM - Environment** Sch. Schedule DP = Direct Push 710 2nd Ave. Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 ft-bgs - feet below ground surface SS = Split Spoon C = Core Fax: (206) 623-3793

ENSR	AECOM		Bor	ing/Well Log		#: 5-W-42 t 2 of 2				
Project: S	kykomish		Monumer	nt: Flush Mount	Stick Up: -					
Project #:	01140-204-0320		Northing:	259235.732 Easting: 1509858.08	Ground Elevation	n: <b>923.84 ft.</b>				
Location:	Skykomish, WA		Drill Rig T	ype: Spider Sonic	MP Elevation: 92	MP Elevation: 923.45 ft.				
Client: BN	ISF		Method:	Rotosonic	Total Depth: 20	ft.				
Start Date	& Time: 11/13/20	08 0830	Casing ID	): <b>2</b> in.	Filter Pack: 3-20.	.2 ft.				
Finish Dat	e & Time: 11/13/2	008 0945	Boring ID	: 6 in.	Seal: Bentonite	•				
Contractor	r: Boart Longye	ar	Bit Type:	Carbide Tooth Coring Bit	Grout: -					
Operator:	Brian Owens			y: Jesse Waknitz	Screen: 0.020-in.	slot, Sch. 40 PVC, 5-20 f	ft-bgs			
	Sample	etion 1	(ft.)	Soil and Rock D	escription	Commen	nts			
Type & Number	Range % Rec	Well Completion Log Graphic	Depth	Classification Sche	eme: USCS/ASTM	Elevation (ft. Commen & Sample				
C-4	15-20		- - - - - - - - - - - - - - - -	(15.0-17.0) SP: POORLY GRAGRAVEL, gray medium, loose, sub rounded to equant. 5% co rounded and equant. 10% coblequant, up to 4 inches in diamevisible contamination.  (17.0-19.0) SP: POORLY GRACOBBLES, brown, fine, loose, rounded and equant. No odor contamination.  (19.0-20.0) ML: SILT WITH SA slow dilatency, no plasticity, we sand. No odor or visible contamination.	wet. 15% fine gravel, arse gravel, sub ples, sub rounded to eter. No odor or DED SAND WITH wet. 5% cobbles, sub or visible  ND, gray, medium, et. 10% very fine	15-17 TPH: 9.41 mg/kg.  17-19 TPH: 3.32 mg/kg.				
Remarks a AECOM - En 710 2nd Ave Seattle, WA 9 Phone: (206) Fax: (206) 62	. Suite 1000 98104 ) 624-9349	Sch. Schedu ft-bgs - feet k		N = S DP =	Direct Push Split Spoon	Groundwater te Time Depth (	(ft.)			

#### Skykomish - 5-W-42 GW Data

		An	alytical Metl	NW	TPH-D>	(	NWTPH	I-Dx S	G	NWT	PH-D	(	NWTP	H-Dx S	SG	NWTPH-Dx	NWTPH-Dx SG
	Chemical Na Unit		ug/l		ug/l		PHC AS DIESEL FUEL		ug/l		TPH (calc) ug/l	TPH (calc) ug/l					
Location ID	Sample ID	Sample Date	Sample Ty	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL		
5-W-42	5-W-42-1208	12/17/2008	N	ND	84.9	472	ND	151	472	ND	38	236	ND	37.7	236	61.3	94.35
5-W-42	5-W-420-1208	12/17/2008	FD	ND	84.9	472	ND	151	472	ND	38	236	ND	37.7	236	61.3	94.35



#### Skykomish - 5-W-42 Soil Data

		*	, *	Analytical Method Chemical Name Unit		il Ran	TPH-Dx ge Hydro ng/kg	ocarbons		C AS I	TPH-Dx DIESEL F ng/kg	UEL	NWTPH-Dx TPH (calc) mg/kg
Location ID	Sample ID	Sample Date	Sample Matrix	Sample Type	Result Qualifi		MDL	RDL	Result Qualifi		MDL	RDL	
5-W-42	5-W-42(9-10)	11/13/2008	SO	N	6070	JN	68.8	539	4960	JN	34.5	216	11030
5-W-42	5-W-42(17-19)	11/13/2008	SO	N	ND		4.42	34.7	ND		2.22	13.9	3.32
5-W-42	5-W-42(15-17)	11/13/2008	SO	N	6.46	J	3.66	28.7	2.95	J	1.84	11.5	9.41



### Appendix C

#### **Field Forms**

Rev 10/02/05 LAB USE 8,8 SHIPMENT INFORMATION Comments and Special Analytical Requirements: BNSF COC No E. COMMENTS LAB WORK ORDER: 4 Shipment Method: Tracking Number: Project Manager. Project Number Phone: S Email: Custody Seal No.: METHODS FOR ANALYSIS Lab: Custody Intact? CONSULTANT INFORMATION のところ Date/Time: S C/M Halmn LABORATORY INFORMATION Gity/State/ZiP ス EDD Reg. Format? Matrix DUPLICATE - CONSULTANT 400 and the same of th Type (Comp/ Grab) \$\f\{\partial}{\partial}\rangle} Other Deliverables? Filtered Y/N Company: Address: Ž Ž OX OX Sampler X 3 Received By: 200 Lab Remarks: Z Received By: Time Sample Collection Received By BNSF Work Order-Novier Project City: 及が大力 DELIVERABLES BNSF Standard (Level II) Date SAMPLE INFORMATION Project State of Origin: Level IV Level III Containers Date/Time: Date/Time Š Į RAILWAY ORIGINAL - RETURN TO LABORATORY WITH SAMPLES BNSF PROJECT INFORMATION 5- to 8-day Rush CHAIN OF CUSTODY SNSF Project Name: TURNAROUND TIME 4 Sample identification Same Same J., ~0 00 X Other Z eceived by Laboratory: NSF Project Number: 4000 1-day Rush 2-day Rush 3-day Rush linquished By: elinquished By: elinquished By 3NSF Contact:

Rev 10/02/05 LAB USE SHIPMENT INFORMATION Comments and Special Analytical Requirements: BNSF COC No COMMENTS 2 LAB WORK ORDER: Shipment Method: Fracking Number: Project Number: Project Manager: Email: Sustody Seal No. METHODS FOR ANALYSIS Lab: Custody Intact? が、大学とは、 CONSULTANT INFORMATION Date/Time: Date/Time: Phone: LABORATORY INFORMATION 4ddress: | 0 | 5 | 5 Matrix DUPLICATE - CONSULTANT LAND. Type (Comp/ Grab) City/State/ZIP: Other Deliverables? EDD Reg, Format? Filtered Y/N company: 3 3 Sampler BNSF Work Order No. Lab Remarks: eceived By: Received By: Received By: 8 Sample Collection Time DELIVERABLES SNSF Standard (Level II) Date Sity/State/ZIP: SAMPLE INFORMATION Project State of Origin: Level IV Level III Containers Date/Time: aboratory: Date/Time. Date/Time Ž. DISPORT BUSIN RAILWAY ORIGINAL - RETURN TO LABORATORY WITH SAMPLES BNSF PROJECT INFORMATION CHAIN OF CUSTODY NAY DENY 5- to 8-day Rush Standard 10-Day TURNAROUND TIME Sample identification Carper S Other eceived by Laboratory. NSF Project Number: NSF Project Name: 1-day Rush 2-day Rush 3-day Rush dinquished By Relinquished By: Relinquished By: SNSF Contact:

PROJECT NAME: BNSF-Skykom PROJECT NO: 01140 - 204 - 03 DAY & DATE: Tras Coc 164 20	SHEET OF
FIELD ACTIVITY SUBJECT: DESCRIPTION OF DAILY ACTIVITIES & EVENT	Groundwater gauging
TIME	
0815 Acrived ensite	everyone already ensite
0825 Safety moething	
0850 Set up to Star	+ gaughy 6han) WLS Fred & Great Act WILLS
1530 Some to de sucver	
1630 Anichles no onsite	
1645 Loft sto	
VISITORS ONSITE:	CHANGES FROM PLANS OR IMPORTANT DECISIONS:
Nous	None
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
Clondy, 40 of	None
PERSONNEL ONSITE: Dean Kinney	Nove Charl Subbane, Fred Meral) & Grey Brunkhort

PROJECT NAME: BNSF-Sky kom/SL COMPLETED BY: D, KINGLY PROJECT NO: 01140-204-0340 APPROVED BY: DAY & DATE: Weds Do 1744 2008 SHEET   OF Z
FIELD ACTIVITY SUBJECT: Groundward Sampling
DESCRIPTION OF DAILY ACTIVITIES & EVENTS:
TIME
0645 sottling up to carple & had satoty meeting,
0700 Callboted meters (ISI made) 556 & Oakton made Fin
0715 Claring off Wehicle
0730 Wat to Stuft on 28-W-45
DASS Started purply SB-W-45
08) D Cample of TB-W-45 For NaTTH-Dx (see gw sangling
torm)
0834 Started Purgly 2B-W-46
0855 Sampled ZB-W-96
0025 Went to start contry well samples
0950 started pumping at \$51 (SW 01270)
1000 Sampled SI
1030 Charles soon to access 5
1048 Start & proplas 52
2102 Sanda SZ /
1119 Clerchy sould to access 53
1152 stated punches 53
liast same 10 d 53
BD+ West to got largh
1235 Returned & Dealine out 5-4-17
1304 Started ONTHE STWON
1325 Samp/22 5-W-17
134 TOOK egulo, Alk - labeled: MW-500-1708
12/18 Stated Purgla 5=W-15
IAAD Sampled 5-W+15
1515 Putthy equipment away & gottling roady to leave
1215 Loft sto
VISITORS ONSITE: CHANGES FROM PLANS OR IMPORTANT DECISIONS:
VISITORS ONSITE:  CHANGES FROM PLANS OR IMPORTANT DECISIONS:  DIANT SAMPLE ST > WELLS not put  In at this thro
WEATHER CONDITIONS: IMPORTANT TELEPHONE CALLS: John Sample SA
Snawing, 25-30 OF Grant MANSWORTH - MUNISMAND SAT
PERSONNEL ONSITE: DOGN KINCY, Ghan Subbana

		GROUND	WATER S	AMPLING	LOG			
Project name	BNSF-Skykor	mish			Well No.	5	-W-14	
Project No.	01140-204-03				Sampled	Bv 💪	Lani	
Date	12/17/08				weather	Suoy	1 19	°F
	11100							
W	ELL INFORM	ATION				COMM	ENTS	
Depth to water Q.15 (ft)								
Depth of well:		(a)	(ft)					
Well diameter:	2		(in)					
Feet of water:			(ft)					
Product thicknes	s:	,	(ft)					
Screen interval:								
well condition:	(200	$\alpha$						
	,							
				·····				
			PURGE D	ATA		·		
start purge time	1225							
time		1235	1238	1241	1244			
DTW	(ft)	911	9,17	9.17	9.17			
purge rate	(L/min)	300	300	300	300			
рН	(Units)	6,16	610	6.15	6.17			
conductivity	(umhos/cm)	0,080	0,085	0,087	0.089			····-
temperature	(deg C)	4.62	4.83	4,89	4.99			
D.O.	(mg/L)	5,65	5.52	5.48	5.44			
ORP	(mv)	99.3	100 6	16.4.1	10416			
turbidity	(NTU)	2.9	2.9	2.7	12.7			**********
purge and samp	le equip.	Peristaltic	pump and	silicone/p	polyethyler	ne tubing		
		445	IPLE INFO	PMATIO	N .			
sample number	time	· · · · · · · · · · · · · · · · · · ·	lysis	· · · · · · · · · · · · · · · · · · ·	tainer	# bottles	preservat	ive
5-W-14-1208			x (w/SGCU)		. Amber	2	HCI	110
3-00 PT 1208	1630		(w/o SGCU)	<del> </del>	. Amber	2	HCI	
		1	. ( 3 3 3 3 3 )	<u> </u>		<u> </u>		
		<b>†</b>						

		GROUND	WATER SA	AMPLING	LOG					
						a signal way	2 i montes			
	BNSF-Skykor				Well No.		N-15	·····		
Project No.	01140-204-03				Sampled		NV	0		
Date	12/7/0	8			weather Snowling 25 °F					
	, ,						J J			
W	ELL INFORM	ATION	· .		COMMENTS					
Depth to water	gastro gastro	1.65	(ft)		Extra	sample.	for lab	QC		
Depth of well:		· · · · · · · · · · · · · · · · · · ·	(ft)		Samo	20 2	18× 4			
Well diameter:			(in)			775	<u> </u>			
Feet of water:			(ft)			0/				
Product thicknes	s:		(ft)		,		,			
Screen interval:										
well condition:										
			*****	444444444444						
			PURGE D	ATA						
start purge time	148		4							
time	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4-28	1431	1434	143					
DTW	(ft)	769	7.69	7.691	7.60					
purge rate	(L/min)	0.30	Company of the Compan		and the same of th					
рН	(Units)	6,53	6.53.	6153	6,53					
conductivity MS		$\Delta 0$	1,070	-0,0,72	0,07	2				
temperature	(deg C)	7,0	6.9	63	68					
D.O.	(mg/L)	0,50	0,50	Di45	0.43					
ORP	(mv)	-33	-33	-34	-34					
turbidity	(NTU)	158	173	169	178					
purge and sampl	le equip.	Peristaltic	pump and	<u>silicone/p</u>	olyethylei	ne tubing				
		SAM	IPLE INFO	<del>, , , , , , , , , , , , , , , , , , , </del>		<u> </u>				
sample number	time	anal	<del></del>		ainer	# bottles	preserv			
S-W-15-1708	1440	NWTPH-Dx (w/SGCU)			Amber	6	HC			
	. , ,	NWTPH-Dx	(w/o SGCU)	1L GI.	Amber	\$	HCI			
						ļļ				
,										

		GROUND	WATER S	AMPLING	LOG			
Project name	BNSF-Skyko	mish			Well No.	5	-W-)	6
Project No.	01140-204-0			•	Sampled	By Col	ani	
Date	12/17/2	K		-	weather	Shew		19°F
W W	ELL INFORM	IATION				COM	//ENTS	
Depth to water		8.02	(ft)				<del> </del>	
Depth of well:			(ft)					
Well diameter:	2		(in)	]				
Feet of water:			(ft)	·				
Product thicknes	s:	,	(ft)					
Screen interval:								
well condition: (તુંદરલે _								
			4					
	<b>,</b>		PURGE D	ATA	· · · · · · · · · · · · · · · · · · ·			•
start purge time	1350					r	· · · · · ·	
time		1400	1403	iyok				
DTW	(ft)	8,02	8.02	8.02	<u> </u>			
purge rate	(L/min)	300	300	300				
рН	(Units)	6.29	4. 24	6,31				
conductivity	(umhos/cm)	0.055	0.055	0.056				
temperature	(deg C)	0,51	0,51	0,46				
D.O.	(mg/L)	12.48	12.07	12,01				
ORP	(mv)	136,0	137.0	137.2				
turbidity	(NTU)	4.5	4.0	13.9	<u> </u>	<u></u>		
purge and sampl	le equip.	Peristaltic	pump and	silicone/p	olyethyler	ne tubing		
·								
			IPLE INFO	<del></del>	<del></del>		r .	
sample number	time	anal	<del></del>		tainer	# bottles	<del> </del>	ervative
5-W-16-1208	1410	NWTPH-Dx (w/SGCU)		1L GI.	Amber	2	HCI	

NWTPH-Dx (w/o SGCU)

1L Gl. Amber

2

HCI

GROUNDWATER SAMPLING	G LUG
Draiget name PNSE Skykomish	Well No. 5-W-17
Project name BNSF-Skykomish Project No. 01140-204-0340	Sampled By
	Ann agents.
Date 17 108	weather Snowly, 25°F
WELL INFORMATION	COMMENTS
Depth to water $\frac{7}{3}$ (ft)	
Depth of well: (ft)	
Well diameter: (in)	
Feet of water: (ft)	
Product thickness: (ft)	
Screen interval:	
well condition:	
PURGE DATA	and the second s
start purge time	
time     3 T   3 7   1320	
DTW (ft) 7.37 7.37 7.3	7
purge rate (L/min) 0,30	· · · · · · · · · · · · · · · · · · ·
pH (Units) 6,13 6,14	
conductivity (umhos/cm) 0,046 0,046 0,045	>
temperature (deg C) 4,7 4,8 4,8	
D.O. (mg/L) 3,00 2,97 2,91	
ORP (mv) 104 106 108	
turbidity (NTU) 0.95 0.	
purge and sample equip. Peristaltic pump and silicone/	polyethylene tubing
CAMDLE INCORMATIO	

SAMPLE INFORMATION						
time	analysis	container	# bottles	preservative		
1325	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI		
	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI		
	time	time analysis  / 325 NWTPH-Dx (w/SGCU)	time analysis container  / 325 NWTPH-Dx (w/SGCU) 1L Gl. Amber	/ 325 NWTPH-Dx (w/SGCU) 1L Gl. Amber 2		

### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	12/11/08	

Project name	BNSF-Skykomish	Well No. 5-W-18
Project No.	01140-204-0340	Sampled By Blani
Date	12/11/08	weather Show 19 °F
	WELL INFORMATION	COMMENTS
Depth to water	7 = 3 (4	

Depth to water	7.53.	(ft)
Depth of well:		(ft)
Well diameter:		(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:		
well condition:		

COMMENTS

			PURGE D	ATA				
start purge time	1512							·
time		1522	1525	1528	1531	1534	1537	1540
DTW	(ft)	7.53		7.53	7.53	7.53	1.5	7.53
purge rate	(L/min)	300	300	300	300	300	300	300
рН	(Units)	6 18	6.18	6.18	6.15	6,16	2.15	6.15
conductivity	(umhos/cm)	0.156	0.162	0,167	0,168	0.169	0,168	0.168
temperature	(deg C)	4.22	4.39	4.38	4.44	4.35	41.55	9.44
D.O.	(mg/L)	1,03	0.63	0,64	0.33	033	0.43	0,0
ORP	(mv)	82.6	78.6	10,4	64,1	580	5218	47.0
turbidity	(NTU)	11.0	7,8	6.5	4.8	MM	MM	0414
purge and samp	le equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
5W-18-1208	1545	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI	
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI	
5W-180-1208	1550		ì	2		
,			Sacros	2.	W	
			V			

		GROUND	WATER S	AMPLING	LOG			
Duningt manne	DNOT Clade	na i a la			\A/all Nla	ŀ	- 1.1-1	<i>a</i>
Project name	BNSF-Skyko 01140-204-0		·····		Well No.	Dv 07	3-10 /	
Project No.		·			Sampled		941	
Date	17/ (/ /	08	······		weather	Snbw		19 °F
W	/ ELL INFORM	IATION				COMN	MENTS	
Depth to water	· · · · · · · · · · · · · · · · · · ·	7.36	(ft)					
Depth of well:		11.5%	(ft)			<del></del>		
Well diameter:		2-	(in)					
Feet of water:		Com	(ft)					<del></del>
Product thicknes	G.		(ft)					
Screen interval:	<u> </u>	,	(10)		<del>,</del>	·····		
well condition:	Miss.	ai hai	ch 11				<del></del>	
Won conditions.	- William	<del>114 - 17 - 17 - 1</del>				· · · · · · · · · · · · · · · · · · ·	<del></del>	
		Newwork .	<del></del>	l			<del> </del>	<del>- 1,,</del>
			PURGE D	ATA	e de Nama	-		
start purge time	1100	<u></u>	ľ					······································
time		1110	11/3	11/6	1119			
DTW	(ft)	7.36	7.36	7.36	7,36			
purge rate	(L/min)	300	300	300	300			
рН	(Units)	6.07	6,06	6.09	6,09			
conductivity	(umhos/cm)	0.076	0,070	0.067	0.065			
temperature	(deg C)	4.53	4.58	4.61	4.63			
D.O.	(mg/L)	5 16	5,04	5.08	5.08			
ORP	(mv)	49.9	\$5.5	57.9	62,1			
turbidity	(NTU)	3,0	2.8	2.8	2.9			
purge and samp	le equip.	Peristaltic	pump and	silicone/p	olyethyler	ne tubing		
-								,
	·		IPLE INFO	<del>, ,,</del>		<del></del>	·	
sample number	time		lysis		tainer	# bottles		ervative
5-W-19-1208	1125		k (w/SGCU)		Amber	2		HCI
		NWTPH-Dx	(w/o SGCU)	1L GI.	Amber	2	<u> </u>	HCI
			· · · · · · · · · · · · · · · · · · ·					<del></del>

### GROUNDWATER SAMPLING LOG

Project name	BNSF-Skykomish
Project No.	01140-204-0340
Date	12/17/08

WELL INFORMATION				
Depth to water	6.94	(ft)		
Depth of well:		(ft)		
Well diameter:	2	(in)		
Feet of water:		(ft)		
Product thickness:		(ft)		
Screen interval:		,		
well condition:	100 d			
	,	,		

Well No.	5-W-ZD
Sampled By	Napi S
weather S	10W. 19°F

	COMMENTS	
		*
,		

			PURGE D	ATA				
start purge time	0949							
time		0959	1002	1005	1008	1011	1015	1018
DTW	(ft)	6,94	6.94	6.94	6,94	6.94	6,94	6.94
purge rate	(L/min)	300.	300	300	300	300	300'	300
рН	(Units)	6.14	6.14	6,16	6.17	6.17	6.16	6.16
conductivity	(umhos/cm)	0.145	6.148	0.151	0.152	0.155	6,159	6,161
temperature	(deg C)	6.17	6,43	6,53	6.53	6.45	6,37	6.37
D.O.	(mg/L)	1.12	1,70	2.03	1.57	0.91	0.57	0.51
ORP	(mv)	43.3	37.3	33.6	30.3	27,8	25,5	25.5
turbidity	(NTU)	8,5	7.1	6.1	6,2	6.1	5.3	5,0
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	olyethyle	ne tubing	,	

		SAMPLE INFOR	MATION	· · · · · · · · · · · · · · · · · · ·	*
sample number	time	analysis	container	# bottles	preservative
= H-20-1288	1025	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI
	<del></del>				

		GROUNE	WATER S	AMPLING	LOG				]
Project name	BNSF-Skykor				Well No.		-W-43	Acceptable of the second	
Project No.	01140-204-03				Sampled	By GA	uni.		
Date	12/17	108			weather	Snow	<i>)</i>	19 °F.£	-
W	ELL INFORM	ATION				COMN	MENTS		]
Depth to water		6.6.	(ft)		Ouelles	te samo	le -		
Depth of well:			(ft)			-4-ZO-1			
Well diameter:		2-	(in)		collec	ted			
Feet of water:			(ft)						
Product thicknes	s:		(ft)						4
Screen interval:									4
well condition:	Good								<u> </u>
	ſ				ļ				
					<del></del>				<b>-</b> 7
	16	<u> </u>	PURGE D	ATA					-
start purge time			00.00		150 50			Tan O O	
time	0930	0830	0833	0836	08 39	0842	0845	0848	]08 j
DTW	(ft)	6.67	6.67	6.67	6,67	6.67	6.67	6.67	6,6
purge rate	(L/min)	300	300	300	300	300	300	300	300
рН	(Units)	6,27	61/	6.18	6,20	6,19	6.18	6.19	60.1
conductivity	(umhos/cm)	0.076	0077	0,078	0.078	0.080	6,082	0.082	0,00
temperature	(deg C)	5.63	5.56	5,70	5.76	5.85	5.99	6.02	6.
D.O.	(mg/L)	4.19	3.96	3.86	3,48	3.36	3.06	3,07	3.0
ORP	(mv)	60.0	62.6	61.7	60.2	60.60	6/3	61.3	61.
turbidity	(NTU)	4.9	4.8	4.6	4.3	3,8	4.2	4.3.	4.
purge and samp	ie equip.	Peristaitio	pump and	silicone/p	olyethylel	ie tubing		<del></del>	ل
		C A N	IPLE INFO	DMATIO			<del></del>		7
	45	····		<del>, , , , , , , , , , , , , , , , , , , </del>	ainer	# bottles	l nross	ervative	-
sample number	08 SS	<del> </del>	lysis		Amber	<del> </del>	ļ	HCI	-
5-W-42-1208	0077		x (w/SGCU)		Amber	2	<del></del>	1CI 1CI	-
- 1 670 IT	(1) (1)	NVV I PH-DX	(w/o SGCU)	IL GI.	Amber		ļ ,	TOI	-
5-W-420-1208	0850			-	<u> </u>	1 1	1	J	-
Couplingte	<b>)</b>	V		<u> </u>		$+$ $\frac{\mathcal{V}}{\mathcal{V}}$			-
Sample	1					<b> </b>			-

GROUNDWATER SAMP	LING LOG
Project name BNSF-Skykomish	Well No. (MW-500)
Project No. 01140-204-0340	Sampled By DW
Date 12/17/08/	weather Snewling Z5°F
WELL INFORMATION	COMMENTS
Depth to water (ft)	
Depth of well: (ft)	
Well diameter: (in)	
Feet of water: (ft)	
Product thickness: (ft)	
Screen interval:	
well condition:	
PURGE DATA	
	<del></del>

			PURGE D	ATA				
start purge time								
time								
DTW	(ft)					·		
purge rate	(L/min)	1						
рH	(Units)	and the same of th						
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)			,				
turbidity	(NTU)							
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

	SAMPLE INFORMATION										
sample number	time	analysis	container	# bottles	preservative						
MW-500-1208	1345	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI						
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI						
,											
,											

	· · · · · · · · · · · · · · · · · · ·	GROUND	WATER SA	MPLIN	G LOG			
					· · · · · · · · · · · · · · · · · · ·			
Project name	BNSF-Skyko				Well No	-		
Project No.	01140-204-0	340			Sample		wle	17.1944
Date	12/17	108			weather	Snow	lng, 250	<u> </u>
\\	/ELL INFORM	ΙΔΤΙΩΝ	<u> </u>			COMM	FNTS	4,
Depth to water			(54)			1 /		
	8,7		(ft) (ft)		>an	PIDA 5	w plezo	
Depth of well: Well diameter:			(in)					
Feet of water:			(ft)		<del> </del>			
Product thickness	.c		(ft)					
Screen interval:	)J					····		
well condition:	A							
TYON CONGRESION.								-
			PURGE D	ATA				
start purge time	0950	·					<u> </u>	
time		1000						
DTW	(ft)							
purge rate	(L/min)	0,30						
рН	(Units)	201						
conductivity p	<del>(umho</del> s/cm)	0000	<b>&gt;</b>					
temperature	(deg C)	4,7						
D.O.	(mg/L)	411						
ORP	(mv)	197						
turbidity	(NTU)							
purge and samp	le equip.	Peristaltic	pump and	silicone/	polyethyle	ne tubing		
						<del> </del>		
		γ	IPLE INFO	<del></del>	<del></del>	1		
sample number	time	<del></del>	lysis		tainer	# bottles	preservative	<u> </u>
51 -1208	1 10N.Y)	<del></del>	x (w/SGCU)		l. Amber	2	HCI	
		NWTPH-Dx	(w/o SGCU)	1L G	l. Amber	2	HCI	
,								
						-		-
					<del>,.</del>	-		
					***			
		<u> </u>						

		GROUND	WATER SA	MPLING	LOG	***************************************		
Draigat nama	DNCE Skyko	mich			Well No.			nge
Project name Project No.	BNSF-Skykor 01140-204-03				Sampled	Rv	DWK .	A John .
	01140-204-0	<del></del>					- Company	°F
Date	140	108			weather	SOONN	04, 20	F
W	ELL INFORM	ATION				COMN	MENTS	
Depth to water	D,	52	(ft)		Sam	1 600	VE O	072
Depth of well:			(ft)					- N
Well diameter:			(in)					· · · · · · · · · · · · · · · · · · ·
Feet of water:			(ft)	•		······································		
Product thicknes	s:		(ft)					
Screen interval:								
well condition:	(	06						
						A. W. A.		
					·			
			PURGE D	ATA			d l	
start purge time	1045	<u> </u>		· · · · · · · · · · · · · · · · · · ·				
time	(	1094						
DTW	(ft)							
purge rate	(L/min)	0.30	-					
pH	(Units)	7.63						
conductivity 05		01075	7					
temperature	(deg C)	430						
D.O.	(mg/L)	1.81						
ORP	(mv)	(20)						
turbidity	(NTÚ)	8 1 Sulve						
purge and sampl	<del></del>		pump and	silicone/p	olyethyler	ne tubing		
		SVM	PLE INFO	PMATIO	NI			
sample number	time	anal	<del>,</del>	<del></del>	tainer	# bottles	preser	ryativo
SZ -12.K		NWTPH-Dx	<del></del>	<del>````</del>	Amber	2	H	
30 -124		NWTPH-Dx			Amber	2	<del> </del>	<u>01</u> CI
		INVVIENDA	(W/O 0000)	ı L Gi.	- MIIDEI			<u> </u>
,								

		GROUND	WATER SA	AMPLING	G LOG		
Duningtung	DNCT Clarks	miah			Well No.		
Project name	BNSF-Skyko 01140-204-0				Sample		7.3
Project No.							0-
Date	12/1-7/8	<u> </u>			weather		My Z5°F
w	ELL INFORM	ATION			.5	COMME	NTS
		N					
Depth to water		4,82 <u></u>	(ft)		NW	plezo	
Depth of well:			(ft)			_:	
Well diameter:			(in)				
Feet of water:			(ft)	•			
Product thickness	s:	•	(ft)				
Screen interval:			, , , , , , , , , , , , , , , , , , , ,				
well condition:		ali					
Land the second							
			PURGE D	ATA			
start purge time	1132						
time	8 *	1147		,			
DTW	(ft)						
purge rate	(L/min)	0.30					
pH	(Units)	5171					
conductivity /h>-	(umhos/cm)	0,068					
temperature	(deg C)	5.4					
D.O.	(mg/L)	1.34					
ORP	(mv)	47					
turbidity	(NTU)						
purge and sampl	le equip.	Peristaltic	pump and	silicone/p	olyethyle	ne tubing	
				,,,			
		<del>,</del>	IPLE INFO	<del>, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>			
sample number	time	anal	<del></del>		tainer	# bottles	preservative
53 -12-08	LIAS	NWTPH-D			. Amber	2	HCI
<u></u>	1.17	NWTPH-Dx	(w/o SGCU)	1L GI	. Amber	2	HCI
,					····		

Project name	BNSF-Skykor	nish			Well No.		.54	
Project No.	01140-204-03				Sampled	Ву	DWIZ	
Date	12/17/2	08			weather	Snov	JM 25	°F
1.5	ELL INCODE	ATION			<u> </u>	COMM	IENITO	
<u>vv</u>	ELL INFORM	AHUN				COMN	IEIVIO	\$ 17 ms
Depth to water			(ft)					
Depth of well:			(ft)					
Well diameter:			(in)					
Feet of water:			(ft)	•				
Product thicknes	s:		(ft)					
Screen interval:								
well condition:							<u> </u>	
			<u> </u>					
	, we consider the second		PURGE D	ATA	and Mark			· · · · · · · · · · · · · · · · · · ·
start purge time						1		
time					<u> </u>			
DTW	(ft)		1		LA	· ·		
purge rate	(L/min)		JAT	$-\leq A$	MULL	0,1	1	
рН	(Units)		MO /	1/1				
conductivity/ S	(umhos/cm)	6	/ <u>,</u>	- Salar		7/1/1		
temperaturé	(deg C)		( ) (	<u> </u>	ľ Š	ì		
D.O.	(mg/L)							
ORP	(mv)			. , ,				
turbidity	(NTU)		<u> </u>	<del></del>	<del></del>	<u> </u>	L	
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	oolyethyler	ne tubing	····	
		SAN	IPLE INFO	RMATIO	Ń		·	
sample number	time	anal	ysis	con	tainer	# bottles	preserva	tive
C4 -1208	Not		(w/SGCU)	1L GI	Amber	2	HCI	,
<del></del>		NWTPH-Dx		1L GI	. Amber	2	HCI	
		21/			-			
,	0 0							

		GROUND	WATER SA	AMPLING	LOG			
					3A/- II <b>5</b> 3-	- 8		
Project name	BNSF-Skykoi				Well No.		V-46	
Project No.	01140-204-03				Sampled		W/	e O
Date	12/17/09	<u> </u>			weather	SNI	owly ?	√°F_
	, 					00111	J/	
W	ELL INFORM	ATION				COMM	ENIS	
Depth to water		9.88	(ft)		TUBL	4 Wlet	at 2	105
Depth of well:			(ft)					,
Well diameter:			(in)			***************************************		
Feet of water:			(ft)					
Product thicknes	s:	COMMANDE.	(ft)		,			
Screen interval:								
well condition:		OK						
					Ĺ			
<u> </u>				· · · · · · · · · · · · · · · · · · ·				<del>,</del>
		<u> </u>	PURGE D	ATA				
start purge time	0836				,	J		T
time		0846	0849	_082 <u>5</u>				
DTW	(ft)	9,89	9,20	9,29				
purge rate	(L/min)	0,30	in the second se		<b>*</b>			
рН	(Units)	5,83	5,84	5,83				
conductivity 1/25		0.037	0,039	0.039				
temperature	(deg C)	86	8,6	$\angle$				
D.O.	(mg/L)	3,65	5/6	3,60				
ORP	(mv)	174	175	175	ļ		···	ļ
turbidity	(NTU)	4251	LJ.557_	44	<u> </u>	]		
purge and samp	e equip.	Peristaltic	pump and	<u>silicone/p</u>	olyethyler	ne tubing		
		S V V	IPLE INFO	DMATIO				<u> </u>
sample number	time	,	ysis	· · · · · · · · · · · · · · · · · · ·	ainer	# bottles	prese	rvative
2B-W-46-1208	0833		(w/SGCU)		Amber	2		CI
27-10-10-1203	VA3.2		(w/o SGCU)		Amber	2		CI
		IIII II BX	(1110 0000)	72 01.				
, , , , , , , , , , , , , , , , , , , ,								
								· · · · · · · · · · · · · · · · · · ·
								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

		GROUND	WATER SA	AMPLING	LOG		
Droiget name	DNSE Skyko	mich			Well No.	20 10/ 4-5-	
Project name Project No.	BNSF-Skykoi 01140-204-03				Sampled		12
		340					10 75°F
Date	12/17/08				weather	SAPW	105 F
w	ELL INFORM	ATION				COMME	
	LLL IIII OIGH	-				<b>X</b> 21,111.11	1
Depth to water		<u> </u>	(ft)		Tub	n some	6+ at ~10.
Depth of well:			(ft)				
Well diameter:			(in)				
Feet of water:			(ft)				
Product thicknes	s:	#25400mmago	(ft)				
Screen interval:			· ·				
well condition:		01				<u> </u>	
		<u> </u>					
			PURGE D	ATA			
start purge time	0752						
time		0802	0805	08 08			
DTW	(ft)	996					
purge rate	(L/min)	6,30	And the second s	and the second			
рН	(Units)	5,68	5,69	521			·
conductivity in	(umhos/cm)	0,037	0.35	12.039	-		
temperature	(deg C)	69	6,9	69			
D.O.	(mg/L)	3,27	301	2,98			
ORP	(mv)	162	163	167			
turbidity	(NTU)	206	204	201			
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	olyethylen	e tubing	
		SAM	PLE INFO	RMATION	1		<u> </u>
sample number	time	anal	<del></del>		ainer	# bottles	preservative
2B-W-45-1208	0810		(w/SGCU)		Amber	2	HCI
		NWTPH-Dx	(w/o SGCU)	1L Gl.	Amber	2	HCI
,							

Notes:				PVC's been cut. Still need new elevation.	Trace Product													PVC's been cut. Still need new elevation.	PVC's been cut. Still need new elevation.						
GW Elev.	921.98	924.08	921.55			920.86	921.86	924.28	921.92	925.07	921.83	925.56	921.96	925.57	921.98	927.04	923.14			921.78	922.01	924.13	921.99	921.93	921.89
DTW	15.12	9.67	9.21	9.34	8.38	9.56	9.80	7.09	10.21	7.14	16.59	8.50	13.30	9.85	12.52	8.54	12.56	7.98	10.58	8.06	13.08	13.63	10.81	6.58	9.93
T0C	937.10	933.75	930.76			930.42	931.66	931.37	932.13	932.21	938.42	934.06	935.26	935.42	934.50	935.58	935.70			929.84	935.09	937.76	932.80	928.51	931.82
Date	12/16/2008	12/16/2008	12/16/2008	12/16/2008	-	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	•	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	-	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008
wells to be gauged twice a week for the HCC wall	CV	EV	FWV	IW-01	IW-02	P-1	P-2D	P-2U	P-3D	P-3U	P-4D	P-4U	P-5D	P-5U	P-6D	P-6U	P-7D	P-7U	P-8	PW-01	PW-02	PW-04	RW-01	RW-06	W

PAGE 3

4

1 705														
			Total					11/1(	11/10/2008	10/1	10/14/2008			
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ff)	Prod. Thick. (ft)	Sign Off	Comments	<del>-,,</del>
P-1	12/ /2008							ΣZ		ΣZ				
P-2U								ΣN		Σ				
P-2D								ΣZ		Ž				Τ
P-3U				-				Z		Z				
P-3D								Z		N N				
P-4U								Z		Ž				
P-4D								Z		Ž				
P-5U								MN		Σ				T
P-5D								ΣZ		∑				
(P-6U								ΣZ		Σ				
Р-6D								Z		Ž				
P-7U							- Annual Control of the Control of t	ΣZ		ΣZ				
P-7D								ΣZ		Z				T
P-8								Z		Z				T
HCC-RW-01								ΣZ		Ž				
HCC-RW-02								ΣZ		ΣZ				
HCC-RW-03								MN		Σ			74117.1	
HCC-RW-04								ΣN		ΣŽ				
HCC-RW-05								MN		ΣZ				
HCC-RW-06								MN		ΣZ				Τ
HCC-IW-01								ΣZ		ΣZ				
HCC-IW-02							e	ΝN		ΣZ				
/ MW-7		5%5		202		, agent	\$0.00 \$1.00	10.10	None	12.91	None		A STATE OF THE PARTY OF THE PAR	
MW-17	2	Ë		5.13		hill From	77,00	MN		ΣZ			3-1.07 × W.C.	455
2A-W-3				00 (%)		SON TOCK		7.95	1	ΣN		16	111	
2A-W-11	80 70 7	Ŧ.		37		approximation .		4.99	Hvy Tr	2.89	Hvy Tr		16.0	
MW-39	12/10/3			7.73		**************************************	Q-	68.9	Ļ	9.61	Tr		6 -127	
2A-W-4	12 1968	34		5.3				8.09	Hvy Tr	11.75	Hvy Tr	س ساھ	89-01 2/24	
ひ かんて Other Notes:		200 200 200		0		had thous	ha No						50.	

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

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

Fluid Level Gauging Form

				<u> </u>				J.	S.	_										
d.		Comments	7					16 16 16 16 16 16 16 16 16 16 16 16 16 1				12 6 4 7 5 C	A COLUMN TO THE							
		Sign						Tovichio												
	10/14/2008	Prod. Thick. (ft)																		
, , , , , , , , , , , , , , , , , , , ,	10/	DTW (ft)	13.45	11.83	10.28	10.46	3.51	2.89	6.00	5.68	4.63	6.49	7.36	9.25	11.56	7.94	10.31	6.01	Σ	ΣN
DNX	11/10/2008	Prod. Thick. (ft)																		
	11/1	DTW (ff.)	10.25	9.92	7.59	7.91	0.91	0.45	3.47	3.22	2.12	3.42	4.16	6.57	8.53	5.15	7.17	3.02	ΣN	ΣZ
Collected by:		Method																		
-204-0340	O	Thickness	)					3870	2,55	7215	12:21	192								
01140-20	-	Depth to LNAPL (ft)									*	4			(					
Project Number:	-	Deptn to Water (ft)		$\leq$	た。 8 8	9918	, Q,	) E	12.7	Ş	E	] Z	S, 63	一十十	, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	6,37	\$,00	4	9,01	45,00
	Total	Casing Depth					, Mi													
omish		Time	2	1323	BB	989	7.15	330	28	26	2/2/2	1748	200	S	1707	7,07	(C) (B)	72.55	200	N N
BNSF Skykomish		Date	12/1/2/2008		Jan : .		ψž.				<b>\$</b>									
Project Name:		Well Number	2A-W-5	2A-W-7	2A-W-9.	2A-W-10	2B-W-4	2B- <b>G</b> V-11	2B- <b>1</b> 8/-12	2B- <b>Ø</b> 4-13	2B- <b>®</b> -14	2B- <b>0</b> 4-15	2B- <b>Ñ</b> -19	2B- <b>6</b> y-21	2B- <b>£y</b> -30	2B- <b>6</b> 4-32	2B-W-33	2B-B-21	2B-W-45	2B-W-46
			<b>*</b>	9	۵	0	a		0	6		9	- 1	0	0	6	0	6		<u>a</u>

S S

Dischot or plan. Sherry 100 11 0 STA10 Comments 41.4 Aury しもつらる Sign Prod. Thick. (ft) 12.95 12.56 12.78 12.93 13.80 10:28 12.15 13.19 14.90 12.72 DTW (ft) 9.63 9.38 7.25 6.25 ΣŽ Σ ΣZ ΣZ ΣZ Σ Σ ΣŽ ΣZ Σ Prod. Thick. (ft) 10.15 10.50 10.60 11.79 9.62 6.70 9.74 3.06 7.53 9.50 6.62 4.47 9.82 ΣŽ Σ ΣZ Σ ΣŽ Σ Σ Σ ₹ Σ Method LNAPL Thickness Depth to LNAPL (ft) こんな カウラ ,32 0, Depth to Water (ft) **サフド** 10 0G C. 27.50 12:51 5.61 2 2 11,54 رد اک -Total Casing Depth 13.5 1132 Sign 1201 - 530 - 530 <u>0</u> 5003 50  $\tilde{z}$ カバル **建立** 50° 7 Time 12/ 6/2008 Date Well Number PAGE 2 A WAS F 1A-W-2 1C-W-2 MW-40 1B-W-2 1B-W-3 MW-10 MW-12 MW-13 MW-14 MW-15 MW-16 MW-18 MW-26 MW-38 X 5-W-2 MW-11 MW-3 MW-5 6-WW MW-2 MW-4 MW-1

2965: 167

11:05

V

# Fluid Level Gauging Form

Nar Nar	Project Name:	BNSF Skykomish	/komish		Project Number:	01140-204-0340	-0340	Collected by:		00	í.		
				Total			1		9/15	9/15/2008	6/23	6/23/2008	
z	Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ff)	Prod. Thick. (ft)	
1A-	1A-W-5	12/16/108	14.5		39,6				10.22		7.98		-
5_W	5-W-13								IN		ž		
√ 5-W	5-W-14				-				99.6		09'2		_
2-W	5-W-15		1338		770				8.15		6.19		
N-5	5-W-16								8.43		6.45		
2-W	5-W-17		1439		1.38				7.79		5.77		
5-W	5-W-18		1407		1.87.72				7.91		5.92		-
5-W	5-W-19		14.32		125.7				7.82		5.82		
5-W-20	V-20		5/6/		7.0%				7.41		5.44		
2-W	5-W42		175		6,70		-		NM		MN		



Comments

Sign Off

X dirty casing, possible trace product dirty well

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

Hwy Tr Hvy Tr

6.46 6.45

Hwy Tr Hwy Tr

> 8.22 8.52

5.26 6.48

7.95 9.63

Trace Trace

Other Notes:

MW-36 MW-22 5-W-3 5-W-1

 $\times$ 88 $\times$ 

# Fluid Level Gauging Form

	0
Project	Number:
	BNSF Skykomish
Project	Name:

01140-204-0340

Collected by:

II O'MA			Total				1 mg	9/15/2008	/2008	6/23	6/23/2008		
Number	Date	Time	Casing Depth	Deptin to Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ff)	Prod. Thick. (ft)	WTO (ft)	Prod. Thick. (ft)	Sign	Comments
1A-W-5	12/16/08							10.22		7.98			
5-W-13								Z		Ē			1174-117
5-W-14							11170000	99.6		7.60			
5-W-15								8.15		6.19			minimal property and the second secon
5-W-16								8.43		6.45			A CANADA CONTRACTOR CO
5-W-17								7.79		5.77			THE PROPERTY OF THE PROPERTY O
5-W-18								7.91		5.92			
5-W-19								7.82		5.82			
5-W-20								7.41		5.44			THE RELEASE OF THE PARTY OF THE
5-W42								ΝN		ΣŽ			
5-W-1	12/16/65	1420		5.69+45		Being Spilant		9.63	1-	6.48	Trace		6.2.2.0 Statement State
5-W-3				25		- 1200 TR	<u></u>	7.95	Hvy Tr	5.26	Trace		8-1.03
MW-22	12/16/08	Z Z				fed	J. J.	8.22	Hwy Tr	6.46	Hvy Tr		
MW-36	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	157/		736		6.900	E. Succession	8.52	Tr	6.45	Hwy Tr		5-5
2-2-5	M-W-2 17/16/25 1445	ž Ž		23	De Spiller	売る	<u></u>						
Other Notes:	••				<u>(E)</u>	14	,						

X dirty casing, possible trace product dirty well

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

# Fluid Level Gauging Form

**BNSF Skykomish** Project Name:

Project Number:

01140-204-0340

Collected by:

		***	Total	;	;			9/15	9/15/2008	6/23	6/23/2008			
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ff)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments	
1A-W-5	12/16 /08	1493	عفر	9,65				10.22		7.98		\Sigma 0		
5-W-13	**************************************	General C		Ä				Z		Z		1	The state of the s	_
5-W-14		<u>8</u> <u>8</u>		9,21				99.6		7.60		250	,	
5-W-15		338		7.70				8.15		6.19		55	THE PROPERTY OF THE PROPERTY O	
5-W-16		5		S,00				8.43		6.45		Z		
5-W-17	·····elline esse esse esse esse esse esse esse e	1439 1439		7,38				7.79		5.77		\C	THE PROPERTY OF THE PROPERTY O	<b>~</b>
5-W-18		407		450				7.91		5.92		<b>G</b> rayer		,
5-W-19		14,32		7,45				7.82		5.82		ange transport constant		
5-W-20	and the second	       		7,02				7.41		5.44		***************************************		
5-W42	~~~	<u>F</u> .2		6.70				NM		MN		>		<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>
5-W-1	·	1220		9+ <del>+</del>		None	40	9.63	Tr	6.48	Trace	TJ.	10-2,24	~
5-W-3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1340		6.95	and the second	として		7.95	Hvy Tr	5.26	Trace	-	501-8	
MW-22	er parameter de la constitución de	123		843		,×		8.22	Hvy Tr	6.46	Hvy Tr	Accompany of	な'0-9	,
MW-36	ð	なが		7.36		- W		8.52	Tr	6.45	Hvy Tr	)	8-0,64	_

## Other Notes:

X dirty casing, possible trace product dirty well

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

# Fluid Level Gauging Form

Project Number: **BNSF Skykomish** Project Name:

01140-204-0340

Collected by:

			Total	14.46				11/1	11/10/2008	10/1	10/14/2008		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	WTO (#)	Prod. Thick. (ft)	Sign Off	Comments
2A-W-5	12/16/2008	素の新		11,92				10.25		13.45		V	
2A-W-7	وبعد	1325		2				9 97		11 83			ヤーターライン サー・シー
2A-W-9	aptraza esa V	00/00		から				7.59		40.28			
2A-W-10	200,0017,000,000	1936		79'8		ランろろ	7	7.91		10.46			
2B-W-4	N. S.	12.15		26'1		(F)		0.91		3.51			
2B-W-11	S.S. Allegacy had	1339		N	1	0,88		0.45		2.89			13 13 0 15 0 15 0 15 0 15 0 15 0 15 0 15
2B-W-12	en katalika (P	で で が が に が が に り に り に り に り に り に り に り に		4,21		12/5/V		3.47		6.00			
2B-W-13		1349		ξ		3,22		3.22		5.68			To 10 6001 1 60 0 0
2B-W-14	************	13.53		W/N		727		2.12		4 63			
2B-W-15	cumarine Shirt	222		WN		27.6		3.42		6.49			1247
2B-W-19	our constant or	282		5,63				4 16		7.36			25 42 56
2B-W-21		(22)		オカ				6.57		9.25			
2B-W-30	33mmahanga	1307	3	0,55				8 53		11 56			
2B-W-32		1287		6,3+				5.15		7 94			
2B-W-33		5260	2	30,00	-			7.17		10.31			
2B-B-21	with the transport	7245	, comment	4,11				3.02		6.01			
2B-W-45	ni-Ward Wa	1235		0.95/				ΣŽ		Z		***************************************	
2B-W-46	)	17%		±3.6				ΣŽ		2			

dostrosod Comments 14-0,83 0-1.08 SOBI 262 W £ £ N. Contraction 2 Sign Off H Prod. Thick. (ft) 12.95 12.56 12.78 12.93 10.28 12.15 13.19 DTW (ft) 13.80 14.90 12.72 9.63 9.38 7.25 6.25 ΣZ Σ ΣŽ Ν Σ Σ Σ Σ Σ Σ Prod. Thick. (ft) 10.60 11.79 10.15 10.44 10.50 6.70 9.62 6.62 4.47 9.82 9.74 3.06 7.53 9.50 ΣZ ΣŽ Σ Σ Σ Σ Σ Σ Σ Σ 1991 Method 197 404 LNAPL Thickness 大公一つ 4 Depth to LNAPL (ft) 3,53 9,32 13.82 14.97 10.E 44/2017 26'9 Depth to Water (ft) 45. 2.62 12.75 4000 100/1 9,48 11.48 から 6195 82 Total Casing Depth 13.5 \$ \frac{1}{2} \fra 3.40 152 10.5g 17.8% 200 1003 22 115 115 11328 10.5 るか \d 5 Time N 3 12/16/2008 Date Well Number 1A-W-2 1B-W-2 1B-W-3 1C-W-2 MW-10 MW-12 MW-13 MW-14 MW-15 MW-16 MW-18 MW-26 MW-38 MW-40 MW-11 MW-2 MW-3 MW-4 3-WM MW-9 5-W-2 5-W-3 MW-1

PAGE 2

PAGE 3

			Total					11/1	11/10/2008	10/1	10/14/2008	-	
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ff)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
P-1	12/16 /2008			9.S.L				ΣZ		Ž		1	
P-2U	******		18	08.6%				ΣZ		ΣZ			district.
P-2D				100 m				ΣZ		ΣZ		- training	
P-3U				4				ΣN		ΣZ		0.2079	
P-3D				じば				ΣZ		ΣZ			
P-4U				8,50				ΣZ		Z			
P-4D				(6,5)				ΣZ		ΣZ			
P-5U				988				Σ Z		ΣZ			
P-5D				S. S.				ΝN		ΣZ			
P-6U				N N				ΝN		ΣZ			
P-6D				12:27	,			MΝ		ΣZ		and the second second	
P-7U				30%				ΣZ		ΣZ		*******	
P-7D				7 80				Σ		ΣZ		Lancing and the	
P-8				500				MN		ΣN			
HCC-RW-01				133 100 100 100 100 100 100 100 100 100				ΣN		Z			
HCC-RW-02								N		MN			
HCC-RW-03	rne:::::o							MN		ΣN			
HCC-RW-04	2,770(0.1)							NM		ΣZ			
HCC-RW-05	300 to 100 to 10							N		ΣZ		Orange in the Principles of Pr	
HCC-RW-06	7720007133-1-0			658				NN		ΣZ		waters to a constant	
HCC-IW-01				がなっ				MN		ΣZ			
HCC-IW-02				8,38				ΜN		ΣZ		>	
MW-7		201		1,05/		Nore	Ha F	10.10	None	12.91	None	S LVL	126.0-21
MW-17		134		8,93		7	g.,ercycoliticis	ž		Σ		- Sheireba	70.00
2A-W-3		500		8,83		MULTE	Newspaper	7.95	Ţ	ΣZ			10-1114
2A-W-11	Marin Salah da	N/S		67.9		1		4.99	Hvy Tr	2.89	Hvy Tr		70-4
X MW-39		M		77.4		Narg		68.9	九	9.61	1.		4712
2A-W-4	7	1546		10,34		2	<b>→</b>	8.09	Hwy Tr	11.75	Hw Tr	7)	89.0 -31

### Other Notes:

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

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

## River Gauging Form

Name: BNSF Skykomish Project

stake ID	date	time	backsight	foresight	water level	comments
SK-1	80/01/21	3	86.74	80.5		Vied IC-W-2 for Dickering
SK-2	g	8091	/6'M	21.31		900
SK-3	**************************************	5551	10.30	16.52		TOSOS JOH OF THE COSI
SK-4	etaine, eye partie	1545	Glenne	16.93		
SK-5	7	1241		18.83		
ML-1						
ML-2	*					
ML-3	ada Aran Silab Arbaningay					
ML-4	<b>)</b>					

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

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

water level: depth of water at gauging point

at 1530 54-17: 10.30

さったった

Notes:				PVC's been cut. Still need new elevation.														PVC's been cut. Still need new elevation.								
GW Elev.	921.98	924.08	921.55			920.86	921.86	924.28	921.92	925.07	921.83	925.56	921.96	925.57	921.98	927.04	923.14			921.78	922.01	924.13	921.99	921.93	921.89	
MTQ	15.12	9.67	9.21	9.34	8.38	9.56	9.80	7.09	10.21	7.14	16.59	8.50	13.30	9.85	12.52	8.54	12.56	7.98	10.58	8.06	13.08	13.63	10.81	6.58	9.93	
T0C	937.10	933.75	930.76			930.42	931.66	931.37	932.13	932.21	938.42	934.06	935.26	935.42	934.50	935.58	935.70			929.84	935.09	937.76	932.80	928.51	931.82	
Date	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	Υ_	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	$\overline{}$	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	12/16/2008	
wells to be gauged twice a week for the HCC wall	CV	EV	FWV	IW-01	IW-02	P-1	P-2D	P-2U	P-3D	P-3U	P-4D	P-4U	P-5D	P-5U	P-6D	P-6U	P-7D	P-7U	P-8	PW-01	PW-02	PW-04	RW-01	RW-06	WV	

deron, Com LAB USE Comments and Special Analytical Requirements: SHIPMENT INFORMATION BNSF COC No -204 Phone: Phone: (200) 624-9340 Fax: COMMENTS Emaily 1/0 / 0000 0 Project Number 01140 Project Manager LAB WORK ORDER: Shipment Method: Tracking Number: Sustody Seal No.: METHODS FOR ANALYSIS Patertime: Ua/OallS 026-Lab: Custody Intact? sto. 1000 CONSULTANT INFORMATION \$010m Date/Time: Jate/Time: 420 MJOS/M XU-HOLMN Phone: 3 Address: TIO 2 D.A. AVC. HULLMN LABORATORY INFORMATION AFICON Matrix City/State/ZIR: - FQUIS 3 DUPLICATE - CONSULTANT  $\leq$ 2  $\geq$  $\geq$ 3 Ste 400 Type (Comp/ Grab) Company: Other Deliverables? (EDD Req, Format Filtered Y/N REIEC Received BY IN MILL OF ILL Grack PRUVN 1088 VU L E S Sampler aboratory ast America C 65 20 95.5 075 1100 びすら 0 1650 5001 000 Lab Remarks: Received By: Received By Sample Collection Time BNSF Work Order No.: Project City: 1/24/29 312 514 5757 Address: Civ/State/Zip 157176/5 DELIVERABLES ☑ BNSF Standard (Level II) Date SAMPLE INFORMATION Level IV Level III Containers 4 9 7 bateloto on y thouse ORIGINAL - RETURN TO LABORATORY WITH SAMPLES RAILWAY Shappan 5020-05 かっとつし 309 5 BNSF PROJECT INFORMATION 0 CHAIN OF CUSTODY 5- to 8-day Rush Standard 10-Day 0 TURNAROUND TIMÉ S INSF Project Name, A LOPINS IN ر 2 Sample identification 0 Other C 0 3 0 17  $c_{j}$ 000 ţ 1 3 3 3 t  $\geq$ 3 eived by Laborator 🔲 1-day Rush 2-day Rush 3-day Rush linquished By: かな SNSF Contact: 4

FEMALESCENCES, GRANTESCEN, MINERAL MANAGEMENTS.	_	נן	ABORATO	LABORATORY INFORMATION	ATION			LAB WORK ORDER:	
	Laboratory: 10.5+	HMOGICA	-		Project Manager.			SHIPA	SHIPMENT INFORMATION
RAILWAY		North Grace PENV	y N	Ste, 4	SZD Hone CAPS	02.0	9500	Shipment Method:	
CHAIN OF CUSTODY	City/State/ZIPB 27 H.Q.	086 HM	110%		Fax:			Tracking Number.	
BNSF PROJECT INFORMATION	Project State of Origin:				CONSULTANT INFORMATION	INFORMATION		0	140-204-0340
BNSF Project Number:	Project City:		Company:	AE	と見ると			Project Manager:	Voges
7			Address:	01七	2nd AVE	Sta	1000	Email: Nalab	1040
BNSF CONTACT Shefford	BNSF Wark Order No.: C F	801	City/State/Z	City/State/ZIP:	AW, Q	11086		(-Phone: ) 624 - 9	3
TURNAROUND TIME	DELIVERABLES		Other Deliverables?			METHOD	METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)								
2-day Rush	Level III	EDD Reg, Format?	eq, Format?	ž	Y7 <b>X</b> (1	)			
3-day Rush Other	Level IV	뵈	アカーの	THE RULLS	75	<u>ーフ</u>			
WYS	SAMPLE INFORMATION				93 14d 75 14d	<del>9</del> :			
		Sample Collection	Filtorod	i	9) 10	> /,			***************************************
Sample identification	Containers	Time Sampler	N .	(Comp/ Ma Grab)	Matrix	M			
5-11-56-0309	Polps 2/2 5	17001	2	3	X	(			COMMENTS LAB USE
5- M-S00-0309	2 3railed	W-1 0091	Species		X	1			
pos 0-81-11-5;	FORSIGE T	13051				  -  -			-
1 5-W-180-030A	4 2/25/14	W35021		-	X				
\$ 5-W-15-0309	100/83/60 H	1210 614			X				
1	10/52/5 t	UAZO FIN			X				
, 5-W-19-0309	hc/50/8 +	ELV OF			X	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			
8-W-52-0309	2 3/24/61	N2 5031	>		X				
6									
11									
12									
13									
14									
Relinquished By H. L. /2/C in Comm. Co. Lat. M.A.	515 6/60/3	뒫	WURK	P		Date/Time: (9)	Shba/	omments and Special Analyti	Comments and Special Analytical Requirements:
Relinquished By:	Date/Time:	Received By:				Date/Time:			ca great Clarano
Relinquished By:	Date/Time:	Received By:				Date/Time:			
Received by Laboratory:	Date/Time	Lab Remarks:				Lab: Custody Intact?	2	Custody Seal No.:	BNSF COC No :
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES			OUPLICATE	DUPLICATE - CONSULTANT	TN				Rev 10/02/05

### Sample continued to Day Part 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Amprica A. Crark Play N.	SHIPMENT INFORMATION
### 720 No.PH, Crea. P. Ray, N. S.P.C. 400  CHAIN OF CUSTODY  SET LOW STATE  SET	Fth (rest Plany N. Ste 400 Phone 425) 420-	
Start   Star		Shipment Method: 1400 Coll 1000
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Control   Cont	Company: A CC	M
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Sample Identification   Sample Interest to Day   Sample Identification   Sample Identification   Sample Identification   Sample Identification   Sample Collection   Filtered (Comp. Viv.)   Google   Comparison   Containers   Sample Collection   Filtered (Comp. Viv.)   Google   Comparison   Containers		010 140
Sample identification   Sample Collection   Sample Collection   Sample Collection   Sample Collection   Sample Collection   Three   Sample Collection   Three   Corruptions   Corrupti	DD Reg, Format?	
Sample identification  Sample identification  Containers  Sample collection  Sample Collection  Filtered (Complete)  Containers  Sample Collection  Filtered (Complete)  Containers  Date Time Sampler (Wind Grab)  Filtered (Complete)  Containers  Sample Collection  Filtered (Complete)  Filtered (Complete	RETRA-EGILIS IX	
Sample identification  28 - W - L - C3.09		
Sample identification Containers Date Time Sampler (Comp. 17.1)  2. 3/23/05 16 20 50 50 50 50 50 50 50 50 50 50 50 50 50	<i>}</i>	
2.6-W-4-0309 2 3/23/09/16-20 MWk. N  14-W-3 - 2 2 1/10 09/00    14-W-5 - 2 2 1/10 09/00    14-W-4 - 2 2 2 1/10 09/00    14-W-45 - 2 2 1/10 09/00    14-W-53 - 2 2 1/10 09/00    14-W-54 - 2 2 1/10	Date Time Sampler (Comp/	J
14-W-3-2-2-3240909001 14-W-38R-2-2-3240909001 14-W-4-5-2-2-2-2-1055 1055 1055 1055 1055 1055 1055 1055	. 3/23/09/6 20 DWK N	COMMENTS LAB USE
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3-W-52		
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3-4-25 -W-53 -W-53 -W-45 -W-45 -W-45 -W-53 -W-45 -W-53 -W-45 -W-53 -W-45 -W-53 -W-45 -W-53 -W-60		
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3-W-45		
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Date/Time* Date/Time*	109/1740 Received By: 13 1/4 1200	Gomments and Special Analytical Requirements:
DateTime:		10000 Jan 2000 Jan 20
Date/Time Date/Time	Lab Remarks:	Custody Seal No.: BNSF COC No :
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES  DUPLICATE - CONSULTANT		Ray 10/02/05

	2	,	LABORATORY INFORMATION	N		LAB WORK ORDER:	P. 7 1/2
	Laboratory:	10001		Poject Manager:		SHIPMENT INFORMATION	1
RAILWAY	Address:		1000 000 1000	Phone: 47	22-0200	Shipment Method:	
CHAIN OF CUSTODY	City/State/ZIP: ROH	II MA	9801	ax; *** ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '		Tracking Number:	
BNSF PROJECT INFORMATION	Project State of Origin:		-	CONSULTANT INFORMATION	MATION	Project Number:	()
BNSF Project Number:	Project City:		Company:	1			0467
BNSF Project Name:		<b>S</b> 2	7.67	4 410	1307 43	Email:	
BNSF Contact: RCV C Chonner	BNSF Work Order No.:	3017-	City/State/ZIP:	4 10	フラング	Phone: 141-171 10005 (Fax.	10com, com
TURNAROUND TIME	DELIVERABLES	Other D	Other Deliverables?	100 (11	METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)						
2-day Rush	Level III	X EDD Req, Format?		/ - * X			
3-day Rush	Level IV	DETE	FAULS	17 TO			
SAM	SAMPLE INFORMATION			15 15			
	lomeS	Sample Collection	1.00	S 10-			
Sample identification	Containers Date	Time Sampler	Filtered (Comp/ Matrix Y/N Grab)	/M LMA J/M J/MN	-	STIMBLINGS	a v
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Relinquished By:	Date/Time:	Received By:		O	Date/Time:		
Received by Laboratory:	Date/Time	Lab Remarks:		[-3	Lab: Custody Intact?	Custody Seal No.: BNSF COC No.:	. No :
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES			DUPLICATE - CONSULTANT				Rev 10/02/05

			LABORATORY INFORMATION	RMATION		LAB WORK ORDER:	C 70 18
	Laboratory, To St. Propries			Project Manager.		SHIPMENT INFORMATION	
BAILWAY	Address: 11720 Na	300	Phus N Sto	Phone: 000 (	1420-0200	Shipment Method:	
CHAIN OF CUSTODY	1/0	WA 980	11 / 1	. Fax:		Tracking Number:	
BNSF PROJECT INFORMATION	Project State of Origin:			CONSULTANT INFORMATION	NFORMATION	Project Number:	
BNSF Project Number:	Project City:		Company: AECON	88		1200	
BNSF Project Name: 3 & UDM 15			Address: 710	2 nd AUG	e Ste 1000		
BNSF CONTACT STOCKER	BNSF Work Order No.: $770/00 - F10S$	Ų	City/State/ZIP:	94	-	Phone: Fax:	(S) (S)
	層	Other Deliverables?	1		2	1 3/3 (6) 3-1	
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)						
2-day Rush X Standard 10-Day	Level III	📝 EDD Req, Format?	q, Format?				
3-day Rush	Level IV	847	RCTEC-EQUIS	N.	¥		
SAM	SAMPLE INFORMATION			)9	76		
	James O	Sample Collection		5	75		
Sample identification	Containers Date	e Collection Time Sampler	Filtered (Somp/ Y/N Grab)	Matrix DAV DAVIN	5/M	CHINA	<u>.</u>
SYNS I NATION	2 2/1/2/	772/1	-	X		S I NEIMEN S	LAB USE
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	2	2000					
- 88-1>	N	2060		X			
- N H - 2 S	2	7560		X			
, 52-AD -	2	2760		X			
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Relinquished By:	Daté/Time://	Received By:			Date/Time:	ADUA I SIER GOI CIGARA	COUNTY
Relinquished By:	Date/Time:	Received By:			Date/Time:		
Received by Laboratory:	Date/Time	Lab Remarks:			Lab: Custody Intact?	Custody Seal No.: BNSF COC No	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		a	DUPLICATE - CONSULTANT	TANT			Rev 10/02/05

				LAB WORK OKUBER:
	aboratory: 10 5 mm	HM G- ACA Project Manager.	/lanager.	HIPMENT INFORMATION
RAILWAY	Address 7 ZO MONTHICKEL	May 11, Ste 400	5) 420 -9200	Shipment Method:
CHAIN OF CUSTODY	W. I DATES	1 980 II		Tracking Number.
BNSF PROJECT INFORMATION	Project State of Origin:	CONSULT	CONSULTANT INFORMATION	Project Number: 9114-0 - 702-0-0710
BNSF Project Number.	Project City: NOS 101	13		
BNSF Project Name Ly KOMS A		200	Alve, sto, 1000	Vacas Goods
BNSF CONTACT Shappard	BINSE WORK ORDEN NO DO HOS	City/State/ZIP:	WA 98104	(206) 624-3349 Fax
NAR	DELIVERABLES	Other Deliverables?	METHODS FOR ANALYSIS	
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)			
		EDD Req. Format?	. XO	
3-day Rush		RETEC-EQUIS !	パフ	
SAI	SAMPLE INFORMATION	10-	シない	
TANKS TANKS TO THE	Sample Collection	Type	5	
Sample identification	Containers Date , Time	re Sampler Y/N (Gomb/ Matrix >	/M 4N	
S3-CN - 0309	121101/12/2 2 19	X M NAMO OI		COMMENTS LAB USE
S4-PU - (	521 7			
59-A0 -	1305	X X		
S4- BU -	181 1 2			
54- BN -		1530       X		
SATON	7 1 134			
54-60 5	2 1/1355	X - X		
			74	
01	- ST			
11				<i>y</i>
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Reinnuished By:	Salog 19 4 Control of the Control of	10 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	1169 17.4	Comments and Special Analytical Requirements:
		10%:	Date/Time:	
Refinquished By:		l By:	Date/Time:	
Received by Laboratory:	Date/Time Lab Remarks:	arks:	Lab: Custody Intact? Custody	Custody Seal No.: BNSF COC No
			22	

#### BNSF-Skykomish March ZDD9 Lab QC,

THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN THE PERS		
ZA-W-9	duplicate	ZA-W-90-0309
5-W-16	- ms/m:	$\mathcal{A}_{\mathcal{S}}$
5-W-18	dullaste	5-W-180-0309
MN -4	ι)	MW-400-0309
5-W-56	$H_{-}$	5-W-500-D309
S1-BD	11	510-BD-0309
53-AU	1)	530-AU-D309
53-Си	-	tab QC (ms/msp)
MW - 500		Equip. Blank

PROJECT NAME: BNSF-Skykon PROJECT NO: 01140-204- DAY & DATE: 3/24/09	
FIELD ACTIVITY SUBJECT:	Ground water Sampling
DESCRIPTION OF DAILY ACTIVITIES & EVE	ENTS:
TIME	
0730 Satati Mestina	W DWK 2-65
0745 Callbrathre moter	(VSI-model 356) a sottle 40
do semplo , F	m enstro
0840 Startal Sampling	en west went (SI) put tubing lots
	2")
0905 Author sampling 5	51 locations (SI-AU,-AD,-BU4-BD)
(took duolicate a	1 51-BD (510-BD-0509) - NWTPH-DX
0030 Started on 52	Gond
1015 Fortshed W the 4	locations at SZ (SZ-AU-AD-BUD-BD-NATPHON
1105 Storted on 53	7, 3, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,
1210 Anishad W/ 6 Poration	s at 53 (53-AU-AD,-BU-BD,-CU 4-CD)
(trot duplicated at	-53-AU (530-AU-0309)) - NWTPH-DV
1225 Lunch	
1350 Returned 9 setup	on 54
1255 Storted Sandling	of SA - NWTPH-DY
135 Finished W/6 100	atles at 54 (54-AU,-AD,-BU,-BD-(NO-D)-
1415 Sother to logic sam	o ling NUTPHAX
1426 Started purgly 2A	-W-11 (see gw sampling torm)
1440 Sampled ZA-W<1)	tor NWTPH-DX
1450 Started purging MW	-39
1500 Sampling MW 139	for NWTPH-DU
1510 Started purgly 5	
1570 Sampled 5-W-51	EN NWTPH-DY
1535 Putting early cont	
1600 loading sample cool	es from FM 2 GS
1635 Left site for lat	
VISITORS ONSITE:	CHANGES FROM PLANS OR IMPORTANT DECISIONS:
None	None
100	7000
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
Snow to Ralm, 30-400F	None
PERSONNEL ONSITE: Dean Kinney,	Fred Merrill, Chan Sobbane 9
metuh Ranche	3 (MP) (GD)

PROJECT NAME: BASE - Skykomi- PROJECT NO: 01140 - 704-0 DAY & DATE: Mon. Mar 234	APPROVED BY:
FIELD ACTIVITY SUBJECT: DESCRIPTION OF DAILY ACTIVITIES & EVE	Groundwater Caughy @ Sampling ENTS:
0745 D. Kinney onsite a 0830 Merning safety Moeth 0900 DWK of FM to gain	go wells, GS & MR to do product
1305 pulk a FM complete 1315 pulk softling up to 1315 pulk softling up to 1330 Lunch	
1405 Wart to check o	(SI-model 556) of labeled bottles
1545 Armed at 2B- 1558 Started purging 1670 Sampled ZB-W 1640 Putting things as 1705 Working on paperus	-W-4 2B-W-4 -4 for NWTPH-Dx (soc gw samply topm) Ngy for the day
1810 Completed work	a went to house
visitors onsite:	CHANGES FROM PLANS OR IMPORTANT DECISIONS:
WEATHER CONDITIONS:  Cloudy to Lt. Rat. 35-40°F	IMPORTANT TELEPHONE CALLS:
PERSONNEL ONSITE: DOWN KINNEY, FR	ad Merrill, Ghan Sebbane & Melvh Ranches (FM) (65) (MR)

Field Act	ivity Log	AECOM
Project Name: Skykomish	Completed By: Grant Selb and	· ·
Project Number:	Date: 03/23/09	<del></del>
Field Activity: Semi-annal	Weather: Cloudy 47° E	<del>-</del>
Gw- Sampling	Personnel on site: Chanis; Dean Kill	fred. Mithelun.
0750: Arrived to the s	ite.	
0800: Had Safety meeting	og with Dean i fred and he	14-
and we discussed	work plan.	· · · · · · · · · · · · · · · · · · ·
: ) •	product will with hello	1
	and had alunch.	
1600: Started surveying	g sky River with helvin	
	aying Melvin left a site went to	
	e equipment	
1670: Rogan Setting up	Von 14-W-3	····
	. water way turbide with	Iron Stain
1704: Began Recording.	. /	Hich By.
also Do unstable	·	
1740 started collection	rander oleand us	<b>3</b>
duaped purged	water into druma.	
1830; left a site to		
0 '		
Q\\\(\alpha\)		
		<del> </del>

	Field Ac	tivity Log	Page: <sup>2</sup> of 5	AECOM
Project Name: Sky		Completed By: 6/	,	
Project Number:			4109	
Field Activity: Sami - And	ual	Weather: Su	10W. 3/0F.	
GW-Sampling		Personnel on site: (	Zhanis	
0730:04 5	ite had	safety ru	esting is the D	can
07451 Regun	Calibrat	Le O Quip		
0810: Stocked	setting "	uson M	W-38 A.	
0829: Regin	Dugine.	/		
U8 39: storted	1 Record	ing Darameter	1.	
09001 Risau	collecti	2 Panole	1	
ogza: claite	d & Alla	) une en	1A-W-5.	
nguo: Began	purging =			
ogio: clarted	(2001 di	na Daraput	· / /·	
3	Sampling	/ /	,	
1025: Starte	47	) up en 1A-	-\N-(b.	,,,,,,
1035. Bence	1	,		
1047: Sta	rtid re	cording p	er me ters	
1055: Bes		plives ) to		
1115: star	ted sets	44 4204	1AW-1.	
1130: 38464	purgles.	) (		
icio: starte	1 11 worder	s Derampler	ſ	-
1155: Rega				
12 17: Starte	d setting	42 00 1	1B-W-3.	·
12301 Beg	un purci	inos Few	sectionent came as	ext
1240: Star	ted Reco	rding par	ampters. Do and	Two bidil
	talak.	) /-		•
1300: Rego	7	1114		
13/6: Start	ed settins	)	1 R- W-2:	
-1332: Began	DUNGING			
1342 Starte	ed secordi	un parame	ters-turbidity	un (tablo
1405: B164	· Collecti	into a amail as	51	7-1200
(100)		J pary		

Field A	ctivity Log  Page: 3 of 5 AECOM
Project Name:	Completed By: Change S
Project Number:	Date: 03/24/09
Field Activity: Qw-Scapling.	Weather: Rowin 34° F
	Personnel on site: (slani, S, Fred. M.
1920: look leun ch.	and dumped purgl water into deur
1510: Regan Settin	) up ou MW-3
15255 Storted purgi	Ly - /
	deling pavametirs.
1600, Storted wilde	J
Dean Took all	samples and left site to the lab
1623 : Bigan Setti	gup on MW-4. Straing tubing
1640, Started pai	rging
1650 : Began record	
17051 Started Colle	cting samples.
1710; collected D	uplicate 11W-400-0309.
1730: Cleaned up	pumped pumpe water.
	to the House
1 01	
A ar	

**Field Activity Log AECOM** Page: 4 of 5 Completed By: Chan; Selfsane Project Name: Project Number: Weather: Field Activity: sem - annua Personnel on site:

Field Act	tivity Log Page: 5 of 5 AECOM
Project Name: Sky	Completed By: Chan / S
Project Number:	Date: $(3/25/69)$ .
Field Activity: Simi - annual	Weather: cloudy 35 cF.
- OW- Sampling.	Personnel on site: Glan, S. Fred M
1430 started Settil	47 04 5-W-20
1442 : Began puglin	9
1452 : Started record	
1520: Began collec	
1547, Storted settin	1
1606: Regar purch	
	die parameters
1630: Began Collec	. )
,	g up dunped purje auter into.
	van with cooler, gave Fred
exappent.	Va-t William Java Fredrick
1800: lest a site.	
	AN ANA
	A CONTRACTOR OF THE PROPERTY O
- p!	



Fluid Level Gauging Form

**BNSF Skykomish** Project Name:

Project Number:

01140-204-0340

Collected by:

					stalled	stalled	stalled	stalled	stalled	stalled	stalled	stalled	stalled stalled	lot Installed NotInstal [ad	stalled  Trs+x    q	Stalled Trs+k   ch	Installed	stalled  Trs+z    q	Installed	Inghal   pal	Instal   at	Instal   al	Installed	Instal   a	Installed	Installed	Instal at	Installat
<del></del>	,	ر الرائز	\$0 U	고 대 표 오 존 등		FM FIM Not Installed																	2	2	2	2	2	
Inick. (ft)	9		CT	क घ	त	<u>τη η   Γ</u>	प म । ग्र -	T T 1 1 1	<b>π</b> । <u>π</u>	T N 1 1 1	प ग्र । ग्र	<b>π</b>	<u>π π 1 π → &gt; 1</u>	<b>T II</b>	<b>π</b> η <u> </u>	π π 1 <u>π</u> → 1 <u>₹</u>	пп 1 <u>п</u> → 1 <u>З</u> → 3	<ul><li>□ 「 」 「 」 」 」 </li></ul>	<ul><li>市 1 直</li><li> 1 図</li></ul>	<b>東京 1 日                                  </b>	<ul><li>市 1 月 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1</li></ul>	<ul><li>市 1</li></ul>	<ul><li>市 1</li></ul>	<ul><li>市 1 月 → 1 図 →</li></ul>	<ul><li>市 前</li></ul>	<ul><li>市 1</li></ul>	<ul><li>「</li></ul>	<ul><li>可</li></ul>
	13,75	8.63	12/6	NN	13.1	A CONTRACTOR OF THE PARTY OF TH	4,68	4, <i>E</i> 8	13,19 13,19 9,61	4,68 3,19 9,61 10,70	4,68 3,19 9,61 0,70	4,68 13,19 10,70 10,74	4,68 3,19 3,19 0,52 0,93 0,93	4,68 3,19 9,61 0,35 0,95 0,85 0,60	14,68 18,19 10,24 10,95 14,60 8,56	4,68 3,19 9,61 0,92 0,93 NM 4,60 8,56 8,56	14,68 13,19 10,70 10,70 10,95 NIM 14,60 8,56 8,77	4,68 13.19 9.61 10.32 10.93 14,60 14,60 15,6 211 2111 2211	4,68 8,19 0,95 0,95 0,95 4,60 8,56 2,11 2,11 2,11 2,11 2,11 2,11	4,68 13,19 10,74 10,95 10,95 11,5 2,55 2,55 2,55 2,55 2,55 2,55 2,5	8.18 8.19 9.61 0.23 0.23 8.56 2.11 2.11 2.11 8.13 8.13	13.19 10.70 10.70 10.95	9.61 9.61 0.74 0.95	19.68 18.19 10.95	4.68 9.61	8,56 10,95 10,	20.00 0.00	4.68 19.61 10.95 1
		3	9 1				Ì																					
	6091	1580	952	1	£260	֓֡֝֜֝֓֓֓֜֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֡֓֡֓֜֓֡֓֓֓֡֓֡֓֡֡֡֡֓֜֓֡֡֡֓֜֓֡֡֡֡֡֡	777	0849	2849 3914	0849 0914 03.5	0849 0849 0835 0835	0849 0814 0801	0900i 0900i	0990i 0933	09.33 09.33 09.24 09.33 09.33	6211 6233 6960 6924 6933 6924	27/2 27/2	09.04 09.04 09.03 00.03	09849 09861 09861 09861 09861 1129 1129 11457	09849 09904 1129 1129 11457	250 100 100 100 100 100 100 100 1	0849 0914 0924 0924 0924 0927 1129 1156 1011	9000 1120 1120 1120 1120 1120 1120 1120	2849 1000	0849 0914 09001 090001 09001 09001 09001 09001 09001 09001 09001 09001 09001 09001 090001 090001 090001 090001 0900000000	2849 1086	0849 0849 0801 0801 0801 0801 0801 0801 0801 080	0849 0914 0924 0924 0924 0927 1027 1027 1032 1040 1017 1040
A. Ramba Spiller	<u> 8091 60/878</u>																											
×	1A-W-1	n 1A-W-4	1A-W-5	n 1A-W-38	1B-W-2	1B-W-3	1C-W-1	A CHARLES AND A CHARLES	-W-2	-W-2	-W-2 -W-3	-W-2 -W-3 -W-4	-W-2 -W-3 -W-7	n 1C-W-2 n 1C-W-3 n 1C-W-4 n 1C-W-7 s 2A-W-8	-W-2 -W-3 -W-7 -W-8 -W-8	-W-7 -W-7 -W-8 -W-9 -W-9	-W-2 -W-4 -W-8 W-9 W-10	.W.2 .W.4 .W.8 .W.9 .W.9 .W.4	-W-2 -W-3 -W-7 -W-8 -W-9 -W-4 -W-4 -W-4	-W-2 -W-3 -W-7 -W-8 -W-9 -W-4 -W-4 -W-4 -W-15	-W-2 -W-4 -W-9 -W-4 -W-4 -W-15 -W-14 -W-14	-W-2 -W-3 -W-4 -W-9 -W-10 -W-15 -W-15 -W-15 -W-15	-W-2 -W-3 -W-4 -W-9 -W-9 -W-4 -W-14 -W-14 -W-15 -W-16 -W-16 -W-18	-W-2 -W-4 -W-9 -W-10 -W-15 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16	-W-2 -W-4 -W-9 -W-9 -W-10 -W-15 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-16 -W-17	-W-2 -W-4 -W-8 -W-9 W-9 W-9 W-9 W-10 W-16 W-15 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-16 W-17 W-18 W-18 W-18 W-18 W-18 W-19 	n 1C-W-2 n 1C-W-3 n 1C-W-3 n 1C-W-4 n 1C-W-4 n 1C-W-8 s 2A-W-9 s 2A-W-9 s 2A-W-9 s 2A-W-10 n 5-W-15 n 5-W-16 n 5-W-16 n 5-W-18 n 5-W-18 n 5-W-18 n 5-W-18	1 C-W-2  1 1C-W-3  1 1C-W-3  1 1C-W-4  1 1C-W-8  2 2A-W-9  2 2A-W-9  3 2A-W-9  5 2A-W-9  5 2A-W-10  6 5-W-15  7 5-W-16  7 5-W-17  7 5-W-16  7 5-W-17  7 5-W-16  7 5-W-16  7 5-W-17  7 5-W-17  7 5-W-17  7 5-W-18

1								,					
Well			Total		Design to							l	
Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign O#	Comments
n 5-W-50	SEIIMEZE	113S		7.35								\{\bar{\}}	
n 5-W-52		MI		5.89								1-	
n 5-W-53		1103		6,34								-	
n 5-W-54		1115		6,23								-	The state of the s
n 5-W-55		621		6,69								+	
n 5-VV-56		<u>\$21</u>		6,72								->	
s MW-1		9944		12,24								1	
s MW-2		1934		11.85								<b>*</b> -	
s MW-3		6027		44.8									
s MW-4		9931		7,32								1	
s MW-12		1023		4,00								+	
s MW-14		     	13.5	10,12								-	
s MW-16		9101		12,46								+	
s MW-18		8		13.49								2	
s MW-26		1		NM								1	Well Abandone
s MW-32		380		5.85								2	
n MW-35		ı		NM								+	12 1 Coches of 12 200
n MW-38R		322		4,26								2 2	THE TOTAL IN THE
n 1A-W-36		1		WN								4	Not Tout 110
n 1A-W-37		I	7	NM								1	11 0
n 18-W-23		6935		13,81								<u>s</u>	
n-2A-W-40		l		NR.								+	Not Inctallas
n 2A-W-41		1		Ş								1	
n 2A-W-42		1		NM								1	
s 2B-W-45		1206		₹6,6								K	
s 2B-W-46	A	1203		9,40									
n EW-4		1221		0£'01								£ 1,1	
n EW-2		1		NM								1	1) nt Tocts // 1
n GW-1		I		_ VIM						/		1	1
n GW-2		2501		8.51								11	
n GW-3	-	なな		13,53								_	
n GW-4	إذ	090g,		18/0								>	

8,57 13,54 14,60 727 7238 1303 

		Casing Water (ff) LNAPL (ft) Thickness Method DTW Prod. DTW Prod. Off Off	8,02 None Tap		1 6,09 None Tap	4.21		9,00 Hry TR Tap		6,87 HW TR	6,87 TR	12 4.7 H. T.P	
	-		20	WN.	60'9	41,51	\$r	0	NM N	_	±8'9	ų	
		Date Time	323/09 0945	1, 1	0850	22,60	1833	1154	1	1	1136	1074	
PAGE 3		Number	1A-W-3	X 2A-W-3	X2A-W-11	X MW-28	X MW-39	2A-W-4	5-W-1	5-W-2	5-W-3	MW-22	

#### Other Notes:

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

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

60KZK 15-M-5 total wells: 91

6,85

Hwy Trace Product



# River Gauging Form

Project

Name: BNSF Skykomish

Project

Number: 01/40 - 204-0340

Measured

	1 1 1	#25							
comments	The state of the s	NOW I I WE I I I	*	1130	Lack Collet Civil	2000			
water level									
foresight	FC.91	48.12		70.07	50.00				
backsight	4.72	4.35	9.65	9,65	9.65				
time	3251	0151	あかい	のナケー					
date	3/23/2009	11	17	u	. 13	ž			
stake ID	SK-1	SK-2	SK-3	SK-4	SK-5	ML-1	ML-2	ML-3	ML-4

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

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

foresight: height of level above gauging point (staff placed in stream bed at  $\mathsf{SKx}$ ,  $\mathsf{MLx}$ ) water level: depth of water at gauging point

Fluid Level Gauging Form

								) }							
Prc	Project Name:	BNSF Skykomish	komish		Project Number:	01140-204-0340	-0340	Collected by: (C) KANDO	٥						
L.						カルド		• [		1					- 1
×	Well Number	ţ.	i	Total	Depth to	Part 4			2/24	2/24/2009	1/2:	1/22/2009			Г
	ioniinu io	Cale	e L	Casing Depth	Water (ft)	10 To 15 To	Thickness	Method	WTO (ft)	Prod. Thick. (ft)	WTQ	Prod. Thick (#)	Sign Off	Comments	
2A-1	2A-W-5	03/23/09	1003		76'11	)			20.07			(11)			Т
2A-W-7	W-7	-	1050		17.7				12.65		11.55		XMA		7
2A-W-9	6-W		500		TV B				11.54		ΣZ				_
2A-1	2A-W-10		0.21		なたが				9.01		8.22				
2B-W-4	W-4		17		0 11		-		9.05		8.36				_
2B-1	2B-W-11		2,00		] -	177.4			2.45		NM			Had to die out well	
28.	2B W 42		1 6			8			3,45		3.33			٦	_
2 6	21-44		579		4.53				4.55		3.97				<del></del>
97	ZB-VV-13		155		296				3.73		5.54				_
ZB-1	2B-W-14		130 130		7,31				2.40				-		7
2B-1	2B-W-15		1024		Dx 0 42	2.55			2		3.32		1		
2B-\	2B-W-19		4		20,0						ALC C		7		
2B-V	2B-W-21		340		777				Σ.		ΣN				
2B-V	2B-W-30		0 6		D P				8.29		₽			14d to dig out plaze	7
2B-V	2B-W-32		42		(1)				10.67		9.67				
2B-V	2B-W-33		12		1000				ΜN		6.21				_
2 6		+			4.87				8.39		9.68				
7-G-G7	17-0		35		574				ΣX		Σ				_
2B-1	2B-W-45		100		466				10.24		0 7.4				Т.
2B-V	2B-W-46	>	1203		9,40				10 14		NIN		<b> </b>		
											IAINI		,		

Staff Lauges:

0,71' 1,2,1' 1,54,0

Burind ander snow Aban doned Comments PWK DMC ĬĮ Š Sign Off E Prod. Thick. (ft) 13.19 14.90 11.13 10.68 13.40 #) 11.11 7.00 11.01 3.71 ∑Z ΣZ Σ Ν ∑ Σ Σ Σ Prod. Thick. (ft) 11.90 12.90 14.16 11.45 12.67 12.08 10.69 11.95 12.72 14.60 ₩ (#) 12.31 8.51 7.25 4.40 8.59 9.79 ΣZ Σ Σ Method LNAPL Thickness Depth to LNAPL (ft) 17.46 13.49 NM 14,68 4.26 Depth to Water (ft) 4,00 9.61 11,15 04'01 11.05 10.12 12.74 [3,1] N 8,19 Total Casing Depth 13.5 2200 4269 1016 1994 **6** 156 6229 4160 を 0832 1023 Time 03/23/09 Date > Well Number MW-38 R 1B-W-2 1B-W-3 1C-W-2 MW-13 MW-15 MW-16 MW-18 MW-26 MW-40 MW-10 MW-11 MW-12 MW-14 MW-2 MW-3 MW-4 MW-5 6-WW MW-1

9.01

9.75

PAGE 2

PAGE 4

								9				Ī		ſ
								2/24	2/24/2009	1/22	1/22/2009			
Ueptin to Deptin to	Casing Depth to Depth to Depth Water (ft) LNAPL (ft)	Casing Depth to Depth to Depth Water (ft) LNAPL (ft)	Depth to LNAPL (ft)			LNAPL	Method	WTQ (#)	Prod. Thick. (ft)	VTO (#)	Prod. Thick. (ft)	Sign Off	Comments	
03/23/09 0828 1 10,75 Nora	N 54'01 18280	N 55'01 1	2	Nona			707	11.18	None	₹		65	12-1,751	T
1 0903 8,69 HUUTR	8.69	8.69	_	HVVT	N		Tap	ΣZ		ΣX			1/20-6	Т
EN	EN.						l	MM		₹			Burlan molor cho lolate	T
0852 6,09 Nane	60'9	60'9		Nove			J-0-1	6.12	Ļ	5.77	Hwy Tr		7-0-6	7
0837 7.57 None	7.57	7.57			-		ļ	7.65	None	7.42	Ļ		0.0.43/	1
13,11 HV.T			13,11 HW.T	HALT	W			NM		Σ			14-0.69'	Т
TWH 78.9 FIII			6,87 HWT	ガベナ	d			ΝN		ΣZ			X I X	1
1136 6.87 TR		6.87 TR	6.87 TR	TR				ΣN		Σ			8-11/3/	Г
4 1154   9.00 HAW T	9.00 HW	9.00 HW	_	_	TR		4	ΣN		ΣZ		5	10-1.00	T
														1

#### Other Notes:

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

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

Fluid Level Gauging Form

Project Name:	BNSF Skykomish	comish		Project Number:	01140-204-0340	-0340	Collected by: D, Khingy	D, I	Chinas					
		-	Total	Donth to	4400			2/24	2/24/2009		1/22/2009			
well Number	Date	Time	Casing Depth	Water (#)		LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	WTO (#)	Prod.	Sign	S Comments	
2A-W-5	03/23/09	大公		7611				2007		(2)	(11)(11)			
2A-W-7		023		C2.11				12.65		11.55				
2A-W-0		17.00						11.54		ΣZ			,	i
6-14. 40								9.01		8.22				
ZA-W-10		7.7		3++				9.02		8.36				
2B-W-4		7		7				2.45		NIN			1 7 7 1 (7)	-
2B-W-11		1776		1111	D.C.			2.45		IAIN.			120 0.0 0m mg	<u>_</u> ن
2B-W-12		1223		4.35	75,7			0.40		3.33			•	
2B-W-13		023		1	10			4.55		3.97				
2D W/ 44		100		non.	3			3.73		5.54				
41-AA-G7		100		6121	710			2.40		3.32	-			
2B-W-15		4701		Dr. 0.4.1	7,0,54			Ē	-					
2B-W-19		141		6.07				5		S)				
2B-W-21	s. • • • • •	040		3,8	1			N. S		ΣZ				·
2B-W-30		Cial		440				8.29		ΣZ			Hac to dia out o	S S
2B-W-32		142		1		976		10.67		9.67				
2B-\M-33		1		00/1				Ž		6.21				
CC-W-02		100		1.81				8.39		9.68				
ZB-B-21		707		7.75				×		WIN				
2B-W-45		1206		での、の				10.24		1		1.		
2B-W-46	≽	1203		24,00				10.4		7.6				
, , ,								10.14		N.				
マナイナ つき	0 49.180													_

Statt gauges 2 NOTH 10 N

1480

D. Kingsy

PAGE 2		غ	D. KINGA	in in									
			Total	)				2/24	2/24/2009	1/22	1/22/2009		
Well Number	Date	Time	Casing Depth	Vater (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	WTG (ff.)	Prod. Thick. (ft)	Sign Off	Comments
MW-1	03/23/09	0244		12,24				12.67		11 73			
MW-2	,	16-13		188				12.34		MIZ			
MW-3		九60		448				0.51					
MW-4		0931		7.87				7.25		MZ 6			
MW-5		$\mathcal{B}_{\mathcal{S}}$		5,53				NW.		8. N			
MW-9		(E) S. S.		11.05	-			11.90		11 01			
MW-10		S. 20		11,34				12.08		11 10			
MW-11		ĺ		6				NM		N N			0.00
MW-12		1023		4,00				4 40		0 74			חביי והיין נדף ומן צוינניים
MW-13		100C		0				8 50		7			
MW-14		3	13.5	10.17				20.00		MA			
MW-15		50		ر = اد				11.05		WN.			
MW-16		9 9		12,46				12.90		2 2			
MW-18	-	F +50		13,40				14 16		13 10			
MW-26				1				9 70		2 2			
MW-38		1		)				NIM					
MW-40		<b>BB</b> 5		ativi				IAIN.		MIN			
18-W-2		1		)				11.40		10.68			
1B-W-3	~	l		(				12.72		13.40			
1C-142-	)	1						14.00		14.90			

G. Sebbine / M. Runches

1303
1303
12.24 12.29 13.00 12.21 12.30 12.30

PAGE 4

				ġ	Ĭ		6	۲,	)	
	Comments	12-1,25.	4.0.21	Mount ont brill a	7-0,91	270 0	10-01-0-6		8 1.13	ت
	Sign Off									
1/22/2009	Prod. Thick. (ft)				H <sub>V</sub>	, L				
1/2	DTW (ft)	ΣŽ	Z	Z	5.77	7.42	N	Z	Ž	ΣZ
2/24/2009	Prod. Thick. (ft)	None			i,	aucN				
2/24	DTW (ft)	11.18	ZZ	Z	6.12	7.65	Σ	Ž	Σ	N
	Method	4-	37			TP	TP	4	TP	F
i i	LNAPL	Nove								
	Depth to LNAPL (ft)	シアタン/	15.17		YP/VF	Now	ナー・サ	4	Trace	HY Trad
	Depth to Water (ft)	10,75		5		151				co b
Total	Casing Depth									
	Time	8:28	603	ĺ	39:8	20 20 11	<b>5</b> 560	11111	1136	155
	Date	87! 8 60/EZ/EO								
	Well Number	MW-7	MW-17	2A-W-3	2A-W-11	MW-39	1A-W-2	5-W-2	5-W-3	2A-W-4

#### Other Notes:

DIM - 13,75 (2) 1609. Ţŧ. 1-M-41-

PAGE 1

Fluid Level Gauging Form

Project Number:

Project Name:

	Project Name:	BNSF Skykomish	ykomisl	4	Project Number:	01140-204-03	-0340	Collected by: De Kingy	De	1000 1000	7			
	Well	Date	Time	Total Casing	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	WTQ	Prod.	WTQ	Prod.	Sign	Comments
L				ındən					(£)	Thick. (ft)	<u>i</u>	Thick. (ft)	;	
	n 1A-W-1		V 100		i di			· 一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个						
	n 1A-W-4													
	n 1A-W-5													
	n 1B-W-2													
	n 1B-W-3													
	n 1C-W-1													
<u> </u>	n 1C-W-2													
-	n 1C-W-3				· · · · · · · · · · · · · · · · · · ·									
20-	n 1C-W-4				· · · · · · · · · · · · · · · · · · ·									
"	s 2A-W-8	21/2/V3	19539		14,00									
. "	s 2A-W-9		1000		8,56									
	s 2A-W-10	)\	11120		448									
٠,	s 2B-W-4		2511		2.1							-		
(رب	s 5-W-4													
17	n 5-W-14	A Company												
13.	ñ 5±W-15	and the second												
烈 (1)	n 54W-16													
200	n 5-W=17													
n a	n 5-W-18											8		
	n 5-W-19													
100	n 5:W-20													

CW. 1030 JAZ

PAGE 1

Fluid Level Gauging Form

	Project Name:	BNSF Skykomish	ykomish		Project Number:	01140-204-0340	-0340	Collected by:		Fred Menn	and I			, A	
	Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments	
ء ک	n 1A-W-1								,		9 <b>7</b> 7	*		HIT W/ SNOW PICKS - FORES BU	5
٦	1A-W-4	3/23/09	1500		8,63					9.0					
) L	n 1A-W-5		1250		126	3				e dispersion (C.				GNBN - WILL BROKN	
γ.	4 n 18-W-2	2/23/09	7200		13.11						3		-		
u V	1B-W-3	3/23/09	6932		89'51				dig.		6				
ت ک	n 1C-W-1	3/23/0	12366105491		b!*£{							<b>*</b> 8		SANDING HOUSENSTANDENS	Reci
u V	n 1C-W-2	13/23/07/09/14	4160		. ! 9°b										
u }	n 1C-W-3	3/23/09	25%		D 20.01		•				7		0	1720 JUST MENT STEERS	
ت (د	n 16-W-4	13/13/09	143		₽ <i>©.01</i>									S. W. VEDO MATTE DESTRUCTION	-
D S	s 24-W-6	•						À							
DS	s 24 W-9	4.2	:				,								
S	2A-W-10				5.1					0					
S	2B-W4														
ν >	5-W-4	5/25/69	1/45		5.45									NEBS AND BUTE	
ا د	5-W-14	3/23/61	10c6		786								_		
へ	5-W-15	3/23/69	101		184				- Leader					7.40.800888	
<b>u</b> )	5-W-16	80/25/64	000/		8,13				, M					グロッちっぱストスパスマ	
y,	5-W-17	9/242	7.07		ふたし										
ر ا	5-W-18	3/23/69	P50/		197									N22.05 2 DCO	
۽ <u>د</u> ح	5-W-19	3/27/01	1034		5.5						Y			NECOS BECT STANDAR HO	
<b>)</b>	n 5-W-20	2/22/69	1032		え 第				2004			5, 5		3	
1		,													

Comments Agandensis Sign Off Thick. (ft) Prod. ₩(#) Prod. Thick. (ft) MTO (Æ) Method Product - Huy trace LNAPL Thickness Fred Mariell Depth to LNAPL (ft) Depth to Water (ft) 13.53 6.73 8.52 9.2C 6.23 735 5153 Total Casing Depth 13.5 1080 1800c) 325/2 BOA 173/01/ 100 Time TRIP 1356 (1 C-w-7 3/23/61 Ore: 5-6-55 3/23/09/1129 5-W-53 3/33/69 1103 5-W-54 3/33/69 1115 3/23/01/1135 3/23/09 842309 3/23/27 3 33 /89 13/23/09 3/33/8 Date 5-W-52 5-W-53 5-W56 Gw-2 5-39方 CN805-10-5-1 4680-4 O) Seaway III s MW-38 (< S-12-43 05-M-5 Well Number PAGE 2 MW-18 MW-16 S MANAGES s MW-32 s MW-14 s MW-12 s MW-3 s MW-4 \ MW-1 s MW-2

13,81

418-W-23 3/23/09 10435

Well									11 x 11 11 11 11 11 11 11 11 11 11 11 11		2 1 10 10 10 10 10 10 10 10 10 10 10 10 1		
Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	D_TW (ft)	Prod. Thick. (ft)	M (E)	Prod. Thick. (ft)	Sign Off	Comments
\ MW-1	3/2/5	1600914		77/71									
s MW-2	,	1934		11,85									**************************************
s MW-3		大260		X 4X		4.1							1,000
s MW-4		1560		7,22					And the second second				
s MW-12		<b>\\ 201</b>		4,00									
s MW-14		130	13.5	21701									
s MW-16		1016	ļ	947									
s MW-18	7	(227-)		13,49			,						
s MW-26	7	1	)										
F s MW-32		1	1	Ì									
F s MW-38		\	(	"managagam"	-								
F 5-W-42		(	1	)						100			

6, subbria

PAGE 3					6, shophar	/DV-V-							•
;			Total										
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	WLQ (#)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
X1A-W-3	Shbobokaka	Shbo		୍ଷ ଚ୍ଚିତ୍ର	当だの人		4						9 0 0 V
				WIV									F. Sandriga
A TANK		1	1										
X 24-W-3				المائدا									Bur 2)
X2A-W-11													
X TAMES X				$\langle \omega \gamma \rangle$									March Lond
X MW-28	0	59.22			SMOIN		T.F.						(8'0 - 51
X 444-39													
1A.W.2													A become to som
2A-W-4												<u>.</u>	
5-W-1		3		ΝÀ									abordoned
5-W-2													
5-W-3													
MW-22		さるの			赤ア		<u>                                     </u>						8-0.55
MW-36	Ü	0136		7.30	Rad		d. 1						8 - 0,10

### Other Notes:

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

total wells:

Ų,

BNSF - Skykomish Sentry Well Sampling Log

Well No.	Sampler	Sample Date	Sample Time	
S1-AU	DWL	3/74/09	2840	
S1-AD		1	0850	
S1-BU			0900	- 11 - 4
S1-BD			1905	1510-AD-0200
S2-AU			0930	- SIO-BD-0309 (0910)
S2-AD			9940	
S2-BU			1005	
S2-BD			1015	
S3-AU			1105	Duplicate: 530-AU-0309 (1115)
S3-AD			1125	(1115)
S3-BU			114-0	
S3-BD			1150	
S3-CU			1200	lab QC
S3-CD			1210	
S4-AU			12535	_]
S4-AD			1305	_
S4-BU			1315	_
S4-BD			1370	
S4-CU			1345	_
S4-CD		V/	1355	

Project nan	ne	BNSF-Skykomish	
Project No.		01140-204-340	
Date	03	124/09	

WELL	INFORMATION	
Depth to water	13.76	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	No bolds.	
	HV+D	

Well No.		1A-W-	- 1	
Sampled	l By	Ghan	کہ یے 'ر	
weather	Mix	Snow	33	°F

COMMENTS
In ut tuling 2 15 Ft
Durge water started
pury witer started
later on was clear.

			PURGE	DATA			
start purge time	1130						
time		1140	1143	1146	1149	1152	
volume purged	(gal)	13.83	1384	13.84	13.84	13.84	
purge rate	(L/min)	290	290	290	290'	290	
pН	(Units)	5,75	5.69	5.67	5.68	5,67	
conductivity	(umhos/cm)	0.077	0,080	0.081	180,0	0.081	
temperature	(deg C)	6,08	6,11	6,17	6.20	6,21	
D.O.	(mg/L)	4.66	4.43	4.26	7. <b>2</b> 7	4.21	
ORP	(mv)	153.9	154.9	155.8	156.7	157.4	
turbidity	(NTU)	6,01	3.57	3.06	3.31	2.98	
purge and sampl				nd silicon	e/polyeth	ylene tubing	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
1A-W-1-0309	1155	NWTPH-Dx	1L Gl. Amber	2	HCI
				_	
					· · · · · · · · · · · · · · · · · · ·

		GROUNI	<b>DWATER</b>	SAMPLI	NG LOG			
				, .				
Project name BNSF-Skykomish					Well No.		1A-W-	<u>3</u>
Project No.	01140-204-3	340		_	Sampled	I By <i>久し</i>	rani.	5
Date ©3	123/09			•	weather	clous	dy y	? °F
	<b>-</b>			-	,		/ '	
WE	LL INFORMA	NOITA		_		COMI	MENTS	
Depth to water	8.02		(ft)		Dur S.	e water	star le	d
Depth of well:			. (ft)		1 /	kry tu	, (	with
Well diameter:	2-		(in)		Iva.	7	· .	
Feet of water:			(ft)					
Product thicknes	S: NON	E	(ft)		Inot tobing 9.50 Ft			
Screen interval:						· ·		
well condition:	No bel	ds		]				
				]				
						•		
			PURGE	DATA				
start purge time	16 47	1						·
time		1704	1707	1710	1713	1716	1719	1722
volume purged	(gal)							
purge rate	(L/min)	250	250	250	250	250	250	250
рН	(Units)	6,17	6.19	6.17	81.3	6.19	6.18	6.16
conductivity	(umhos/cm)	0,082	0.084	0.085	0,087	0.088	0.092	0,094
temperature	(deg C)	6.20	6.20	6.11	6,12	6.09	6.02	6.03

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
1A-W-3-0309	1740	NWTPH-Dx	1L Gl. Amber	2	HCI
<i>-</i>	٠				
·				,	

3,56 3,08

100,6 97.7

22,4 22,5

Peristaltic pump and silicone/polyethylene tubing

93.4

104.7 99.6

61.80 24.5

D.O.

ORP

turbidity

purge and sample equip.

(mg/L)

(mv)

(NTU)

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/24/09	

Well No.	1A-1	V-4	
Sampled B	y Coha	71.5	
weather	snow	33	°F

WELL	INFORMATION	
Depth to water	8.60	(ft)
Depth of well:		(ft)
Well diameter:	7,	(in)
Feet of water:		(ft)
Product thickness:	LONE	(ft)
Screen interval:		
well condition:	No holds	

COMMENTS	
Inlet tubing a	10.00Ft
J	<u>'</u>
purgl water is	clear.
, , , , , , , , , , , , , , , , , , , ,	

			PURGE	DATA				
start purge time	1035							
time		1045	1048	1051				
volume purged	(gal)	869	8.69	8,69				
purge rate	(L/min)	270	270	270				
pН	(Units)	6.37	6,40	6,40				
conductivity	(umhos/cm)	0,061	0.062	0,062				
temperature	(deg C)	5.79	5.81	5.90				
D.O.	(mg/L)		6,03	6,07				
ORP	(mv)	138.1	137.1	136.8				
turbidity	(NTU)	1,52	1.36	1,39				
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
1A-W-4-130	1055	NWTPH-Dx	1L Gl. Amber	2	HCI	
				ļ		
	·					

DTON

Project nan	ne BNSF-Skykomish
Project No.	01140-204-340
Date	03/24/09

(ft)
(ft)
(in)
(ft)
(ft)

Well No.	1A-W-	-5
Sampled By	Olace	21.5
weather S	now	31 °F

COMMENTS
Inlet tuling 1 11.00
<u></u>
purge voter is close
<i>y</i>

			PURGE	DATA				
start purge time	0940							
time	·	0950	0953	0956	0959			
volume purged	(gal)	9.65	9.65	9.65	NM	·		
purge rate	(L/min)	290	290	2.90	290			
рН	(Units)	6,30	6.28	6.30	6.39			
conductivity	(umhos/cm)	0.058	01028	0,058	0.058			
temperature	(deg C)	3.74	3.70	3,60	3.56			
D.O.	(mg/L)	5.92	6.05	6,08	6.10			
ORP	(mv)	142.2	148.9	143,2	143.8			
turbidity	(NTU)	1.47	1.38	1.37	1.42			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyethy	lene tubi	ng	

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1A-W-5- 0300	1005	NWTPH-Dx	1L Gl. Amber	2	HCI
					MANA
			-	<u> </u>	
		1			

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/24/09	

WELL INFORMATION					
Depth to water	13.09	(ft)			
Depth of well:		(ft)			
Well diameter:	2-	(in)			
Feet of water:	<b>~</b>	(ft)			
Product thickness:	MONE	(ft)			
Screen interval:					

Well No.		1B-W	-2	
Sampled	Ву	Glacin	1.5	
weather			33 <b>°</b> F	

COMMENTS
Inlet tubing 2 15.00
· J
purge water is clear.

			PURGE	DATA				
start purge time	1332							
time		1342	1345	1348	1351	13.54	1357	1400
volume purged	(gal)	1368	13,64	13,62	13.62	13.62	1362	13.62
purge rate	(L/min)	150	100	100	100	100	100	100
pН	(Units)	5,23	5.21	5.22	5.24	5.25	5.25	5.25
conductivity	(umhos/cm)	0.384	0,386	0,389	0.390	0.390	0.384	0,376
temperature	(deg C)	5.63	5.47	5.36	5,30	5,44	5,47	5,44
D.O.	(mg/L)	5.21	4.90	4.89	4.65	4.68	5,01	4.93
ORP	(mv)	167.7	172.3	173.5	75.1	177.6	178.5	179,1
turbidity	(NTU)	5.96	3,86	3.44	2,83	2.18	2,14	1.98
purge and sample equip. Peristalt			ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

		SAMPLE INFO	ORMATION		
sample number	time	analysis	container	# bottles	preservative
18-W-Z-D-79	1405	NWTPH-Dx	1L Gl. Amber	2	HCI
			·		
·					
					·
	-				
				L	<del></del>

DTW-

well condition:

Project na	me Bl	NSF-Skykor	nish
Project No	o. 01	1140-204-34	·0
Date	03/2	4/09	

WELL	INFORMATION	
Depth to water	14.67	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	No boids	
	Hv - D.	

Well No.	1B-W-3
Sampled By	Ghanis
weather Mix	5 n. w 33 °F

COMMENTS
Inlut tubing a 16 woft
,
purge Wonter is clear.
Few sectional came ontatinitial puess.  Do unctable
ontatinitial puesl.
Do unctable

			PURGE	DATA		ing state of the s		
start purge time	1230							
time		1240	1243	1247	1250	1253	1256	
volume purged	(gal)	14.68	14.68	14.68	14.68	NM	NM	
purge rate	(L/min)	250	250	250	250	250	250	
рH	(Units)	6.20	6,23	6.31	6.31	6.28	6.25	
conductivity	(umhos/cm)	0.092	0,088	0.085	0.084	0.083	0.083	
temperature	(deg C)	5,95	5,94	5.94	5,94	5.90	5.89	
D.O.	(mg/L)	1.10	1,99	2.61	2.76	2.94	3.05	
ORP	(mv)	112,10	110.5	109.4	109.5	110.50	112.5	
turbidity	(NTU)	9.63	7.02	3.71	3.52	3.22	3,01	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
1B-W-3-0300	1300	NWTPH-Dx	1L Gl. Amber	2	HCI		

PTW

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/25/09	

WELLI	NFORMATION	
Depth to water	12.70	(ft)
Depth of well:		(ft)
Well diameter:	2-	(in)
Feet of water:		(ft)
Product thickness:	NoNE	(ft)
Screen interval:		
well condition:	No bolds.	

Well No.	16-1	W-1
Sampled E	By Glan	, , , \$
weather	Snow	31 °F

COMMENTS
Tulet tubing: 14.50F
purge water storted with Iron stown. necome clear later.
became coar inter.

			PURGE	DATA			
start purge time	1224						 
time		1234	1237	1240	1243		
volume purged	(gal)	12.70	12 00	12.70	12.70		
purge rate	(L/min)	200	200	200	200		
pН	(Units)	5.67	5,69	5.69	5.69		
conductivity	(umhos/cm)	0 ,044	0,044	0,044	0.043		
temperature	(deg C)	イ・イン	4.61	4.72	4.71		
D.O.	(mg/L)	7.20	7.44	7.29	7.23		
ORP	(mv)	178.2	178,2	1782	178.8		
turbidity	(NTU)	4.77	2.81	2.82	2.59		
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	e/polyethyl	ene tubing	 

SAMPLE INFORMATION								
sample number time		analysis container		# bottles	preservative			
1C-W-1-0309	1245	NWTPH-Dx	1L Gl. Amber	2	HCI			
	·							
		<u></u>						

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/25/09	

Well No.	16-61-2	
Sampled By	Chani.S	
weather So	70W 31 °F	_

WELL	INFORMATION	
Depth to water	9,21	(ft)
Depth of well:		(ft)
Well diameter:	7.	(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:		
well condition:	No beids	
	HV-P	

COMMENTS					
Inlet tubing	10 50Ft				
purge water	ris cloar.				

			PURGE	DATA				
start purge time	1123							
time		1133	1135	1138				
volume purged	(gal)	9.21	9.21	9.21				
purge rate	(L/min)	250	250	250				
рН	(Units)	5,58	5.55	5.55				
conductivity	(umhos/cm)	0.043		0,047				
temperature	(deg C)	3,53	3.68	3.83				
D.O.	(mg/L)	6,44	6.30	6.27				
ORP	(mv)	171.7	171,9	172.9				
turbidity	(NTU)	2.27	2,08	2,09				
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyethy	lene tubir	ng	

SAMPLE INFORMATION								
sample number time		analysis	container	# bottles	preservative			
1C-W-Z-0309	1140	NWTPH-Dx	1L Gl. Amber	2	HCI			
				· .				

		GROUN	DWATER	SAMPLI	NG LOG			
Project name	BNSF-Skyke	nmieh			Well No		- W/-	7
Project No.	01140-204-3			_	Sample	d By	EW -	
Date	3/24/09	J-10		-	weather		<u> </u>	°F
Date	3124101			-	weather			<u> </u>
WE	LL INFORMA	ATION		]	William Constitution	COM	MENTS	
Depth to water	10.37		(ft)					
Depth of well:			(ft)	1				
Well diameter:			(in)	1				
Feet of water:			(ft)	]				
Product thicknes	s:		(ft)	]				
Screen interval:								
well condition:								
					<del></del>			
			PURGE	DATA				
start purge time	1026	I	24.0	1 7 7 7 7 7	1 (10)	1 7	T	1
time	( D = 10 - 10)	1037	1040	1093	1046	1049	10 52	1085
volume purged	(gal) orw	11.60	11.60	11.60	1/60	11.60	11.59	11.58
purge rate	(L/min)	200	200	800	200	290	200	2500
рН	(Units)	5.69	5 kil	5 (1	5.60	5.64	3.62	5.69
conductivity	(umhos/cm)	1 2 2 2 2 2 2	Callein			0.053	0.049	0.049
temperature	(deg C)	4.6.3	4,73	4 30	4.95	2.94	4.93	4.89
D.O.	(mg/L)	7.0%	Se (14		7.81	7.59	7.70	3.62
ORP	(mv)	The trace	W137	3/2.3	8/3.1	2125	2145	
turbidity	(NTU)	21.5	3.7.7	35.3	36	250	38.9	380
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tub	ing	
		SAI	IPLE INF	ORMATI	ON			
sample number	time	ana	lysis	conf	ainer	# bottles   preservat		rvative
14-3-0309	1100		PH-Dx	1L Gl.	Amber	2	<u> </u>	ICI
					······································			

Project name	BNSF-Skyke	omish			Well No		5-W-0	t
Project No.	01140-204-3			_	Sample		FIM	
Date	3/24/	D9		- -	weather			°F
WE	LL INFORMA	ATION		]		COM	MENTS	
Depth to water	10.45		(ft)					
Depth of well:			(ft)					
Well diameter:			(in)	]			. 1	
Feet of water:			(ft)					
Product thicknes	SS:		(ft)					
Screen interval:								
well condition:								
<del></del> .								
start purge time	1/19	المرجم بن	1120	11-25-	1128	1 + 6 2   1	1175	
time	( )	1129	1/32	//35	1/38	114	//44	
VALUMA DURACA	(gal)	10.59	10.60	15.61	10.61	10:64	10.64	
volume purged		<del>                                     </del>		·			15 1	
purge rate	(L/min)	210	QIO	210	210	210	210	
purge rate pH	(L/min) (Units)	\$10 \$10	Q10 5.50	210 5.50	210	5.49	8149	
purge rate pH conductivity	(L/min) (Units) (umhos/cm)	9.10 5.53 0.063	Q10 5.50 0.075	210 5.50 0.079	0.032 5.49	210 5.49 0.085	210 6,49 0,586	
purge rate pH conductivity temperature	(L/min) (Units) (umhos/cm) (deg C)	\$10 5.53 0.063 5.60	811 5.50 0.075 5.94	210 5.50 0.079 5.92	210 5.49 0.032 5.99	210 5.49 0.085 5.95	9.55L 6.02	
purge rate pH conductivity temperature D.O.	(L/min) (Units) (umhos/cm) (deg C) (mg/L)	210 5.53 0.063 5.50 1.09	0.10 0.075 5.94 0.84	210 5.50 0.079 5.92 0.85	310 5:49 0:082 5:99 0:66	210 5.49 0.085 5.95 0.72	6.02 0.72	
purge rate pH conductivity temperature D.O. ORP	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv)	\$10 \$.53 0.063 \$.50 1.09 214.0	0.10 0.075 0.075 5.94 0.84 217.5	210 5.50 0.079 5.92 0.85 221.2	210 5.49 0.082 5.99 0.66 222.4	210 5.49 0.085 5.95 0.72 2201	219 6,49 6,681 6,02 0,72 9,187	
purge rate pH conductivity temperature D.O. ORP turbidity	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	\$10 \$.\$3 0.063 \$.50 1.09 214.0 15.50	0.10 6.50 0.075 5.94 0.84 2175 /5.00	Q10 5.50 0.079 5.92 0.85 QQ1.2 3.06	210 8.49 0.082 5.99 0.66 222.4	210 5.49 0.085 5.95 0.72 220-1 2.11	219 6.49 6.02 0.72 9.18.7 2.8	
purge rate pH conductivity temperature D.O. ORP turbidity	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	\$10 \$.53 0.063 \$.50 1.09 214.0 15.50	0.10 0.075 0.075 5.94 0.84 217.5	Q10 5.50 0.079 5.92 0.85 QQ1.2 3.06	210 8.49 0.082 5.99 0.66 222.4	210 5.49 0.085 5.95 0.72 220-1 2.11	219 6.49 6.02 0.72 9.18.7 2.8	
purge rate pH conductivity temperature	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	210 5.53 0.063 5.50 1.09 214.0 15.50 Peristal	0.10 6.50 0.075 5.94 0.84 2175 /5.00	2:0 3:50 0:079 5:92 0:85 221.2 3:06 und silicon	210 5.49 5.99 5.66 222 4 2.23 ne/polyeth	210 5.49 0.085 5.95 0.72 220-1 2.11	219 6.49 6.02 0.72 9.18.7 2.8	
purge rate pH conductivity temperature D.O. ORP turbidity	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) le equip.	210 5.53 0.063 5.70 1.09 214.0 15.52 Peristal	0.075 0.075 5.94 0.84 217.5 75.00 tic pump a	2:0 5:50 0.079 5:92 0.85 021.2 3.06 and silicon	210 5.49 5.99 5.66 222 4 2.23 ne/polyeth	210 5.49 0.085 5.95 0.72 220-1 2.11	210 6,086 6.02 0.72 9187 2.8 ing	vative
purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) le equip.	210 5.53 0.063 5.70 1.09 214.0 15.50 Peristal	0.10 0.075 5.94 0.84 217.5 75.00 tic pump a	2:0 5:50 7:42 2:85 22:2 3:06 and silicon	210 5.49 0.032 5.99 0.66 222.4 2.23 ne/polyeth	210 5.49 0.085 5.95 0.72 220-1 2.11 pylene tub	210 6,086 6.02 0.72 9187 2.8 ing	
purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) le equip.	210 5.53 0.063 5.70 1.09 214.0 15.50 Peristal	0.10 0.075 5.94 0.84 2175 75.00 tic pump a	2:0 5:50 7:42 2:85 22:2 3:06 and silicon	210 5.49 0.032 5.99 0.66 222.4 2.23 ne/polyeth	210 5.49 0.085 5.95 0.72 220-1 2.11 nylene tub	210 6,49 6,684, 6,02 0,72 9,18,7 2,8 ing	

Project name BNSF-Skykomish
Project No. 01140-204-340
Date 03/25/09

Well No. ZA-I		
Sampled By Char	w.S	
weather Show	31	°F

WELL INFORMATION						
Depth to water	8,03	(ft)				
Depth of well:		(ft)				
Well diameter:	2	(in)				
Feet of water:		(ft)				
Product thickness:	NONE	(ft)				
Screen interval:						
well condition:	Good.					

COMMENTS					
Inlet tubice 9,50 ft					
J					
Jollowish.					
t					
Inglicate Sample collected					

			PURGE	DATA				
start purge time	0845							
time		0855	0858	0901	0900			
volume purged	(gal)	8.12	8,12	8.12	NM			
purge rate	(L/min)	200	200	200	200			
рH	(Units)	5.67	5.65	5.65	5,65			
conductivity	(umhos/cm)	0.113	0.114	0.114	0,111			
temperature	(deg C)	1.75	1,77	1.77	1.76			
D.O.	(mg/L)	0.60	0,64	0.52	0,50			
ORP	(mv)	129.7	125.2	127.1	116,7			
turbidity	(NTU)	3,20	2.14	2.32	2.31			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	e/polyeth	ylene tubi	ng	

		SAMPLE INFO	ORMATION			
sample number	time	analysis	container	# bottles	preservative	
2A-W-9-0309	0910	NWTPH-Dx	1L Gl. Amber	2	HCI	
A-W-80-0:00	0920		**************************************			
(piplicates)						

		GROUN	DWATER	SAMPLII	NG LOG		
Project name Project No.	BNSF-Skyko 01140-204-3			_	Well No	o. <u>7</u> d By <i>F N</i>	A-W-10
Date	2/24/09			_	weather	Rmmy	~ 40° P °F
	7					/	· · · · · · · · · · · · · · · · · · ·
WE	LL INFORMA	NOITA				COMN	IENTS
Depth to water	844		(ft				
Depth of well:			(ft		-		
Well diameter:			(in				
Feet of water:			(ft)	<u>]</u>			
Product thicknes	ss:		(ft)	<u>J</u>			
Screen interval:		'.					
well condition:				_			
					04		
No. 100 to 100 t		S. 178	7 54565		10 x 1 x 1 x 1 x 1 x 1 x 1 x 1 x 1 x 1 x		
			PURGE	DAIA		<u>Na Wasan in A</u>	
start purge time	1237	1246	10 UG	1 : 2 - 2	T	1	
time	(==N @ N	<u> </u>	1249	1252		<del> </del>	
volume purged	(gal) @ Dπο (L/min)	240	\$.83	240		1	
purge rate pH	(Units)		240	7			
conductivity	(umhos/cm)	531	53:	5.31 0.088			
temperature	(deg C)	2.79	2.69	2.66			
D.O.	(mg/L)	5.64	5.77	6.06			
ORP	(mv)	241.3	2472	2467			
turbidity	(NTU)	1,45	1.46	1241		1	
purge and sampl	· · · · · · · · · · · · · · · · · · ·				e/polveth	ylene tubir	na
ipa. go ana campi	c cquip.	. 0			por, ou	.,	·5
		SAN	MPLE INF	ORMATIC	NC		
sample number	time	ana	lysis	cont	ainer	# bottles	preservative
2A-4-10-1310	1256	NWT	PH-Dx	1L Gl.	Amber	2	HCI

		GROON	DVVATER	SAMPLI	NG LUG		<u>i ya makari energia bila da er</u>
Project name	BNSF-Skyko	omish			Well No.	- 7	A-W-17
Project No.	01140-204-3				Sampled	l By	NW -
Date	3/74/0	<u>5)</u>		_	weather	Ral	ninh 35°F
	7/1-17	<del>-</del> /		_		<u> </u>	//
WE	LL INFORMA	ATION				COM	MENTS
Depth to water			(ft	,			
Depth of well:			(ft)	_			
Well diameter:			(in)				
Feet of water:			(ft	-			
Product thicknes	s:		(ft)			<del> </del>	
Screen interval:				1			
well condition:		<u>,                                      </u>					
				1			
start purge time	14-26		PURGE	DATA			
time	l l						
volume purged	(gal)		,		Å.	1	
purge rate	(L/min)		Har		h //	50/11/11	ran Mal
рН	(Units)		1100	V	V 0 11		
conductivity	(umhos/cm)			as e	4000	ملم	
temperature	(deg C)			110 T	0010011	er C	
D.O.	(mg/L)						
ORP	(mv)		ļ				
turbidity	(NTU)		<u> </u>	<u> </u>	<u> </u>		
purge and sampl	e equip.	Peristall	ic pump a	and silicor	e/polyeth	ylene tubi	ng
		CAI	ADI E INE	ORMATI	ONL		
sample number	time		irce iinc Iysis	1	ainer	# bottles	preservative
2A-W-14-0309			PH-Dx	4	Amber	2	HCI
22-W-11- (1510g)	1477	14041	i ii-bx	12 01.	ATTIOCI		
				<del> </del>			· · · · · · · · · · · · · · · · · · ·

		GROUN	DWATER	SAMPLI	NG LOG			
Droinet name	DNCE Clark	mich			Mall Na		- A 11 4	١
Project name Project No.	BNSF-Skyko 01140-204-3			-	Well No.		ZB-W-2	†
	<del></del>	-		-	***************************************	1	DWIC	0=
Date	3/2-3/	179		-	weather	Clou	dy, 40	°F
WE	LL INFORMA	ATION		]		COM	MENTS	
Depth to water		711	(ft)		Tubl	ny inlet	+ ot 23	$O^{t}$
Depth of well:			(ft)	1	1.7.4.	7	<u> </u>	<u> </u>
Well diameter:	***************************************	7_	(in)	1			<del></del>	
Feet of water:	<del></del>	Len	(ft)	1				
Product thicknes	s:	******	(ft)	1				
Screen interval:				1				
well condition:		OK		1				
				]				
				•				
			PURGE	DATA				
start purge time	1555							
time	ů	1608	1611	1614	1617			
volume purged	(gat) (山(科)	218	219	219	219			
purge rate	(L/min)	0,30.			_ زر			
pН	(Units)	15,98	5.98	3,98	5:98			
conductivity	(umhos/cm)	0.026	0.025	0,024	0,034			
temperature	(deg C)	3,6	3.6	5.6	3,54			
D.O.	(mg/L)	0,75	0.59	0.60	0.61			
ORP	(mv)	164	159	156	150		<u> </u>	
turbidity	(NTU)	179	DOI	0.87	0,95			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	
		SAN	IPLE INF	ORMATIC	NC			
sample number		anal	lysis	cont	ainer	# bottles	preservati	ive
2B-W-4-030g	1670	TWN	PH-Dx	1L Gl.	Amber	2	HCI	
	7		,					

# GROUNDWATER SAMPLING LOG Project name BNSF-Skykomish Well No. 2 β - W - 45 Project No. 01140-204-340 Sampled By F. Micanic Date 3/24/29 weather RAM ~ 44 °F WELLINFORMATION COMMENTS

WELL INFORMATION					
Depth to water 9.75	(ft)				
Depth of well:	(ft)				
Well diameter:	(in)				
Feet of water:	(ft)				
Product thickness:	(ft)				
Screen interval:					
well condition:					

CON	MENTS		
 		····	
·			
	·····		

			PURGE	DATA				
start purge time	1454							
time		1505	1508	151;				
volume purged	(gal)	9.75	9:35	9.75				
purge rate	(L/min)	250	250	250				
рH	(Units)	547	5.49	5.45				
conductivity	(umhos/cm)	0.044	0.045	0,046				
temperature	(deg C)	3.74	371	3.69				
D.O.	(mg/L)	8:38	8,59	8.50				
ORP	(mv)	236.1	2381	2398				
turbidity	(NTU)	150	1.15	0,98				
purge and sampl	e equip.	Peristal	tic pump a	nd silicor	e/polyeth	ylene tub	ing	

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
2B-W-45-0309	1515	NWTPH-Dx	1L Gl. Amber	2	HCI				
					•				

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	3/24/09	

(ft)
(ft)
(in)
(ft)
(ft)

Well No.	ZB-W-46	
Sampled By	EM	
weather		°F

COMMENTS	

			PURGE	DATA	Vijetike i i i i i i i			
start purge time	1409				<del></del>			
time		1420	1423	1426	1429	1432		
volume purged	(gal) Diw	9.55	9.55	9.55	9.55	9.55		
purge rate	(L/min)	270	270	270	270	250		
рН	(Units)	5,56	5.62	567	5.69	5.68		
conductivity	(umhos/cm)	0.036	0.038	0.039	0.040	0.040		
temperature	(deg C)	5.03	5.26	5:30	5.37	5,41		
D.O.	(mg/L)	5.74	4.48	3.81	3.53	3.42		
ORP	(mv)	226.4	233.8	221.1	220,2	2203		
turbidity	(NTU)	1.18	0.70	0.64	0.81	0.72		- 64
purge and sampl	purge and sample equip. Perist			nd silicor	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
2B-W-46-0309	1435	NWTPH-Dx	1L Gl. Amber	2	HCI			
					· .			
***************************************								

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/25/09	

Well No.	5-W-4
Sampled By	Cohani.s
weather Claud	ly 34 °F
	1

WELL I	NFORMATION	
Depth to water	5.05	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MOME	(ft)
Screen interval:		
well condition:	No bolds	
	HV - D.	

COMMENTS
Inlet tubing 2 6.50A
J
purge water is clear.
, P

			PURGE	DATA				
start purge time	1319							
time		1329	1332	1335	1338	1341	1344	
volume purged	(gal)	5.06	5,06	5.06	5.06	NM	NM	
purge rate	(L/min)	280	280	280	230	280	280	
рН	(Units)	6.24	6,30	6:32	6.31	6.32	6.33	
conductivity	(umhos/cm)	0,080	0.086	0,090	0.092	0.092	0.093	
temperature	(deg C)	4.70	4,70	4.71	4.71	4.72	4.71	
D.O.	(mg/L)	2.75	2,43	2,18	2.08	2.06	2.04	
ORP	(mv)	165.4	160,8	157.0	152,3	199.4	146.4	
turbidity	(NTU)	1.54	1.35	1,41	1,21	1,25	1.25	
purge and sample equip. Per			Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION								
sample number		analysis	container	# bottles	preservative			
5-W-4-0309	1345	NWTPH-Dx	1L Gl. Amber	2	HCI			

STW -

		GROUN	IDWATER	SAMPL	NG LOG			
Project name	BNSF-Skyk	omish	· .	Well No.	ς.	-W-14		
Project No.	01140-204-	340		_	Sampled	5. By <i>F M</i> 2	22,16	
Date 3/8	24/09			_	weather			°F
				-			******	
WE	LL INFORM	ATION				COMM	ENTS	
Depth to water	9.00		(ft					
Depth of well:			(ft					
Well diameter:	21'		(in					
Feet of water:			(ft					
Product thicknes	s:		(ft					
Screen interval:								
well condition:	NREDS 1 BG	OCT						
				_				
			PURGE	DATA				
start purge time	0357			.,	_,			
time		0907	0910	0913	0917			
volume purged	(gal)- 0760	9.00	7.00	9.00	9.00			
purge rate	(L/min)	300	300	300	300			
pН	(Units)	6. 45	6,24	6.22	6.21			
conductivity	(umhos/cm)	0044	0.049	0.053	0.053			
temperature	(deg C)	6.15	6118	626	6.26			
D.O.	(mg/L)	530	5,88	5,70	5,46			
ORP	(mv)	17101	187.2	1853	185.1			
turbidity	(NTU)	2.09	1.58	2.19	1.11			
purge and sampl	e equip.				ne/polyethy	/lene tubin	g	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
5-W-14-0309	0920	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI	
	0920	NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI	

Project name	BNSF-Skykomish	
Project No.	01140-204-340	-
Date	3/25/09	

Well No.	5-W-1	5		
Sampled By	6.MERR	14		
weather 5	reny /RAINY	35	°F	

WELL INFORMATION	N
Depth to water 7.45	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS

			PURGE	DATA				
start purge time	1137							
time		1147	1150	1153	1156	1159	1202	205
volume purged	(gal) DTN	7.65	7.65	7.65	7.65	7.65	7.65	7.65
purge rate	(L/min) my	300	300	300	300	360	300	300
рН	(Units) '	6.45	6.51	6.53	6.56	6.57	6.59	6.61
conductivity	(umhos/cm)	0.069	0,070	6.070	0070	0.071	0.071	0.072
temperature	(deg C)	5.68	5.72	5.79	5.84	5.87	5.88	5.87
D.O.	(mg/L)	0.66	0.39	0.35	0.34	0119	0.18	0.18
ORP	(mv)	74.3	566	29.7	16:00 10.0	5.2	5.1	4.9
turbidity	(NTU)	28.1	40.2	33.0	31.8	17.80	18.0	17.0
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
S-W-15-0309	1210	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI
	1210	NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI
		•			

#### **GROUNDWATER SAMPLING LOG** Well No. BNSF-Skykomish Project name 01140-204-340 Sampled By Project No. ٥F weather Date COMMENTS WELL INFORMATION Depth to water 7.90 (ft) (ft) Depth of well: (in) Well diameter: Feet of water: (ft) Product thickness: (ft)

Screen interval:

well condition:

			PURGE	DATA				
start purge time	0944							
time	(gal)	0956	0959	1002				
volume purged	(gal) Diw	790	7.90.	7.90				
purge rate	(L/min)							
pН	(Units)	6:72	6.74	6.75				
conductivity	(umhos/cm)	0.035	0.036	0.035				
temperature	(deg C)	3.39	3.31	3.29				
D.O.	(mg/L)	10,67	10.45	10.33				
ORP	(mv)	182.1	183.2	183.9				
turbidity	(NTU)	7.29	7.98	7.65				
purge and sample equip. Peristalt			tic pump a	and silicone	e/polyethy	lene tubin	ıg	

Extra sample for Lab QC

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
SW-16-0309	1005	NWTPH-Dx w/o SGCU	1L Gl. Amber	ర	HCI	
		NWTPH-Dx w/SGCU	1L Gl. Amber	6	HCI	
		·				

Project name	BNSF-Skykomish
Project No.	01140-204-340
Date	3/24/09

WELL INFORMATION				
Depth to water 7.21	(ft)			
Depth of well:	(ft)			
Well diameter:	(in)			
Feet of water: *	(ft)			
Product thickness:	(ft)			
Screen interval:				
well condition:				

Well No.	5-W-17	
Sampled By	F. MEREILL	
weather 5000	24 y ~35	°F

?	C	COMME	NTS	
y (	001D NO	IT CONT	1002 00)	SAMPLE
DUE	TO HIGH	+ Volum	ns of a	JATER2
Com	no Into	(1)84_1	nowym	NT
				************
Ci.	II a la		12 2-1	10.40
100	11 cote	SUMH	W COL	16 CTC-C)

		4 3 3 3 3	PURGE	DATA					
start purge time	1104		165 PRET@ 1600						
time	6	1/13	1116	1119	1610	1613	1616	1619	
volume purged	(gal) On	7.21	テス	721					
purge rate	(L/min)	300	300	300					
рН	(Units)	6.18	6.16	6.15	5.99	6-08	6.12	6.14	
conductivity	(umhos/cm)	0.046	0.047	0.048	0.045	0.047	0.048	0.048	
temperature	(deg C)	5,93	6.00	5.73	652	6.63	6.67	6.62	
D.O.	(mg/L)	5.28	5.14	5.23	4.69	4.87	4.88	4.87	
ORP ´	(mv)	1927	1930	193.6	105.0	حا. 100	998	103.7	
turbidity	(NTU)	1.76	1.41	0.67	0.84	1.60	0.91		
purge and sampl	purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
5-W-17-0309	H20-m	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI		
	1620	NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI		
5-W-17-0-0309	1020				A		
(Quetootet		NOTH Dx w/o		-2-C	<b>12</b> 1		
		¿u/_		-2-	(E)		

## Project name BNSF-Skykomish Project No. 01140-204-340 Date 3/25/09

(ft)
(ft)
(in)
(ft)
(ft)

Well No.	5-W-18
Sampled By	f. Mreein
weather	SNOWY /RAMY 35°F

COMMENTS	
Duplicate Somple co	(lacto-)
	16600

			PURGE	DATA			
start purge time	1245						
time		1255	1258	1301			
volume purged	(gat) DTW	7.40	7.40	7.40			
purge rate	(L/min)	300	300	300			
рН	(Units)	6,28	6.28	627			
conductivity	(umhos/cm)	0.090	0.092	0.092			
temperature	(deg C)	5.42	5.40	5.29			
D.O.	(mg/L)	0.35	032	0:32			
ORP	(mv)	-1.6	-1.5	-1.4			
turbidity	(NTU)	8,12	7.51	7.45			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicone	/polyethyle	ne tubing	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
5-W-18-0309	1305	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI			
		NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI			
5-10-180 -0309	1205	NWTPH-DX W/OSE NWTPH-DX W/S6		2	HCI			
		NWIPH DX W/S6		2_	HCI			

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	3/25/09	

Well No.		5-W-19	
Sampled	Ву	F.MERRICE	
weather	MOST	ny cloudy ~3	7 °F

(ft)
(ft)
(in)
(ft)
(ft)

	COI	MEN	TS		
		<del></del>			
<del></del>	 			<del></del>	

			PURGE	DATA			
start purge time	1340						
time		1349	1352	1355	1358	1401	
volume purged	(gal) DTW	7.36	7.36	736	7.36	736	
purge rate	(L/min)	300	300	300	300	300	
рН	(Units)	6.25	6-24	6.24	6.24	6.24	
conductivity	(umhos/cm)	0.046	0.043	0.012	0.042	0.041	
temperature	(deg C)	5.91	5.91	5,91	5.96	5.96	
D.O.	(mg/L)	6.26	6.49	637	6.36	6-36	
ORP	(mv)	10,2	21.4	36.9	38.4	3040.4	
turbidity	(NTU)	2.55	0.99	0.89	0.87	0.45	
purge and sampl	ic pump a	nd silicor	ne/polyeth	ylene tubing			

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
K-W-19-0309	1405	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI		
		NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI		

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/25/09	

WELL	INFORMATION	
Depth to water	6.89.	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	missing b	olds.
	)	

Well No.	5-W-Z	)	
Sampled By	Chani	. \	
weather clou	idy	35	٥F

		COMMI	ENTS	
inlet	tul.	,B .oe	F+	
		)		

			PURGE	DATA				4 4 - 1. 3 - 1.
start purge time	1442	<u>ــــــــــــــــــــــــــــــــــــ</u>						
time		1452	1455	1458	150i	1504	1507	1510
volume purged	(gal)	6.90	6.90	6.90	6.90	NM	MM	NM
purge rate	(L/min)	250	250	250	250	250	250	250
рН	(Units)	6.32	6.34	6.34	6.34	6.35	6.36	6.36
conductivity	(umhos/cm)	0,101	0,101	0,103	0,104	0.105	0.106	0,107
temperature	(deg C)	8,09	5.91	5,91	5.89	5.93	5.88	5,79
D.O.	(mg/L)	1.15	0.75	0,42	0,40	O 33	0,30	0,31
ORP	(mv)	89,9	86,7	83.1	92,6	88,6	88.3	85,8
turbidity	(NTU)	7, 35	6.07	4.94	4.30	3,31	2,77	2.39
purge and sampl	e equip.	Peristalt	ic pump a	ind silicon	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
SW-20-0209	1520	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI	
		NWTPH-Dx w/SGCU	1L Gl. Amber	2	HCI	
		·				

GROUNDWATER SA	AMPLING LOG
Project name BNSF-Skykomish	Well No. 5-W-20
Project No. 01140-204-340	Sampled By Chanis
Date 03/25/09	weather cloudy 35 °F
WELL INFORMATION	COMMENTS
Depth to water & g (ft)	
Depth of well: (ft)	
Well diameter: 7 (in)	
Feet of water: (ft)	
Product thickness: べんん (ft)	
Screen interval:	
well condition: wissing 3 bolds	
PURGE D	ATA.
start purge time 1442	
time 1513 1516	

			PURGE DATA
start purge time	144	2_	
time		1513	1516
volume purged	(gal)	6,90	NM
purge rate	(L/min)	250	250
рН	(Units)	6,37	6.36
conductivity	(umhos/cm)	0,106	0,107
temperature	(deg C)	5,82	5,86
D.O.	(mg/L)	0,29	0,28
ORP	(mv)	82.2	<b>7</b> 2. 8
turbidity	(NTU)	2.26	2.31
purge and sample equip. Peristalt			tic pump and silicone/polyethylene tubing

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
5-W-20-039	1520	NWTPH-Dx <i>ωίο</i> ζ	ဌ 1L Gl. Amber	2	HCI		
		NWTPH-DXW/SG	1L Amber	2	Itel		

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	03/25/09	

WELL INFORMATION					
Depth to water	6.36	(ft)			
Depth of well:	<del></del>	(ft)			
Well diameter:	2	(in)			
Feet of water:		(ft)			
Product thickness:	NONE	(ft)			
Screen interval:					
well condition:	Cawd.				

Well No.	5-W-4	72
Sampled By	Colago	ni Sellou
weather clo	udy	75°F

COMMENTS	
Ilt tubing = 8,00	> Ft
purge Water is	clear
1	
-	

		TO A	PURGE D	)ATA					
start purge time	1606								
time		1616	1619	1622	1625				
DTW	(ft)	6.41	6.41	6.41	6.41				
purge rate	(L/min)	280	280	280	280				
pН	(Units)	6.37	6.36	6.34	6.33				
conductivity	(umhos/cm)	0.054	0.054	0.053	0.054				
temperature	(deg C)	5,57	5,51	5,36	5,40				
D.O.	(mg/L)	4.34	4.51	4.65	4.63				
ORP	(mv)	65.30	70.2	76.4	විට . 기				
turbidity	(NTU)	2.75	2.07	1.94	1,95				
purge and sampl	le equip.	Peristaltic	pump and	silicone/p	olyethylen	e tubing			

	SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative				
5-W-42-0300	1630	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI				
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI				
·									

Project r	ame	BNSF-Skykomisl	
Project N		01140-204-0340	
Date		5/09	

WELL INFORMATION	
Depth to water 6.71	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

Well No.	5-W-545-W50
Sampled By	FINELIZIE
weather gr	HETTYSHING ~37°F

	COMMENTS	
<u> </u>		

			PURGE	DATA	egis ( <u>15</u> 60 <u>1770 1570</u>			* A 11
start purge time	1520			1	170			
time		1530	133	1536	1539			
DTW	(ft)	6.71	6.71	6.71	6.71			
purge rate	(L/min)	300	300	300_	300			
pH	(Units)	5.54	5.49	546	5.46			
conductivity	(umhos/cm)	0.035	083	0.032	0032			
temperature	(deg C)	3.81	3.79	3.80	3.81			
D.O.	(mg/L)	0.58	0.48	0.44	0.44			
ORP	(mv)	106.8	106.9	106.4	106.0			
turbidity	(NTU)	3.78	13.27	3.38	3.09			
purge and samp		Peristal	tic pump a	and silico	ne/polyethy	ylene tubi	ng	

		SAMPLE INFO	RMATION		
***	time	analysis	container	# bottles	preservative
sample number	1540	NWTPH-Dx	1L Gl. Amber	2	HCI
W-54-0300	1310				
5-W-50-0209					
					·
		L			

VACO ALL	G	ROUNDWATE	R SA	MPLIN	IG LOG			
							1 —	
Project name	BNSF-Skykon	nish			Well No.	5-1	1-5)	
Project name l Project No.	01140-204-03	40			Sampled E	3y <i>  <u>   </u>}  </i>	<u> </u>	0
10,000	3/24/09				weather	Realnh	<u>~a,35</u>	_ °F
Date	724109						J1 -	
WEL	L INFORMAT	ION				COMM	ENTS	
Depth to water			(ft)					
			(ft)					
Depth of well:			(in)					
Well diameter:			(ft)					
Feet of water:			(ft)					
Product thickness	s:		44					
Screen interval:			$\dashv$					
well condition:			$\dashv$					
							<del> </del>	
		DUE	<u> </u>	ATA				
		PUR	(GE L	JAIA_	<u> Maria Arra da Cara d</u>	<u> </u>		
start purge time	1500			<del> </del>	T			
time	7				-			
DTW	(ft)				<del>                                     </del>		1.	7
purge rate	(L/min)			10	du A	- 2 ~	dis	Nesse
рН	(Units)			1 (10	(In of		1/1.0	1 62
conductivity	(umhos/cm)		-4	10 C	100	Der	9me	10/0
temperature	(deg C)		1.1	NU	110			<del>                                     </del>
D.O.	(mg/L)							<b>†</b>
ORP	(mv)							
turbidity	(NTU)				1	dana tubi	na	<u> </u>
purge and samp	le equip.	Peristaltic pur	np ar	nd silico	ne/polyeth	ylene tubi	ng	
Par So Tite Carrie								741 T& E
		SAMPLE	INFO			<u> </u>		- ration
sample number	time	analysis			ntainer	# bottles		rvative
5-W-51-0309	1.7	NWTPH-D		1L C	N. Amber	2	<u> </u>	<del>I</del> CI
- 1 V 3 V V V V V V V V V V V V V V V V V	1		·					
				**.				
						ļ		
	+							
							<u> </u>	
		<del> </del>					1	

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date		

WELL INFORMATION	
Depth to water 5.75	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition: 6000	

Well No.	5-W-52
Sampled By	Generalia:
weather	°F

COMMENTS	
	<del></del>

			PURGE	DATA		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
start purge time	1525			1 1 1 1 1 1	Irman	1556	1559	1602
time	,	1544	1547	1550	1553	-	5.86	6786
DTW	(ft)	8,85	5.86	5.86	5.66	5.6%	300	300
purge rate	(L/min)	300	300	300	200	800	622	6.22.
рН	(Units)	6.10	6.15	6.19	620	6.20		0109
conductivity	(umhos/cm)	0.090	0.104	0,104	0.105	4.63	6.66	4.66
temperature	(deg C)	4.66	4.67	4.60	4.57			3.17
D.O.	(mg/L)	7.00	5.08	3.80	3.50	9.38	3.27	163
ORP	(mv)	573	260	7.6	-1.0	3.9		1.0
turbidity	(NTU)	191	1.48	0.85	0.7	- Carpen	0.75	7.0
purge and samp		Peristal	tic pump a	and silico	ne/polyetl	nylene tub	oing	

time	SAMPLE INF	container	# bottles	neconvotivo
		Container	# Dornes	preservative
605	NWTPH-Dx	1L Gl. Amber	2	HCI
+				
<del></del>				

		ROUND	WATER S	AMPLIN	IG LOG		
	<u> </u>			<u>,-,</u>			
Project name	BNSF-Skykoi	mish			Well No.	<u>5-W.</u>	_53
Project No.	01140-204-03	340			Sampled	By F.M.S.	M.C.
	24/09				weather		°F
Date 37	77101		-				
WEL	WELL INFORMATION					COMME	NTS
Depth to water	6.30		(ft)				
Depth of well:	<u> </u>	(ft)					
Well diameter:			(in)				
Feet of water:			(ft)				
Product thickness	s: N/A		(ft)			·	
Screen interval:	-,,,,						
	goed						
Won Condition	Well collation.						
				·		<del></del>	
			PURGE	DATA		2.	
start purge time	0934				<u> </u>	<del>,</del>	
time		093141		09344	3	<del>                                     </del>	
DTW	(ft)	640	6.40	640	<u> </u>	<del> </del>	
purge rate	(L/min)	240	240	240		-	
pH	(Units)	5.85	5.88	5.89	<del></del>	-	
conductivity	(umhos/cm)	0.076	0.077	0.678			
temperature	(deg C)	4.64	4.63	4.70		<del> </del>	
D.O.	(mg/L)	6,30	5.74	5.89		<del></del>	
ORP	(mv)	212.8	2112	23.6		<del> </del>	
turbidity	(NTU)	8.47	7.45	's 3,4	- ( b b	l L	<u> </u>
purge and samp	le equip.	Peristal	tic pump a	and silico	ne/poiyeti	nylene tubin	<u> </u>
			,	ODLIA	ION		
			MPLE INF			# hottles	preservative
sample number	time		alysis		ntainer	# bottles	HCI
5-W-53-030		I NW1	PH-Dx	1L G	I. Amber		.10.
V-				ļ		<del> </del>	
				<del> </del>		+	
		<del> </del>		<del> </del>		+	
		<b></b>		<del> </del>		+	,
	<u> </u>	<del> </del>		<del> </del>		+	
		<del> </del>	<u>,, ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	<del> </del>		+	

		GROUND	WATER	SAMPLII	NG LOG			
	<u> «                                    </u>					,		0-54
Project name	BNSF-Skykoi	mish			Well No.	5-	W-56	
Project No.	01140-204-03	340			Sampled	BY A-p-	·0/·	0=
	25/09				weather			°F
				•	·			
WEL	L INFORMA	TION				COMM	ENIS	
Depth to water	5.69		(ft)					
Depth of well:	of well: (ft)							
Well diameter:			(in)					
Feet of water:			(ft)	1				
Product thickness	s:		(ft)	1				
Screen interval:								
well condition:								
·				]	L		<u> </u>	
							ers supplied in the con-	· ************************************
	<u> ikonji nasili</u>	<u> </u>	PURGE	.UAIA	1 Yes Bay A. A. yes		<u> </u>	
start purge time	1431			1.1.15	T	Г	Т	<del></del>
time		1441	1444	1447				
DTW	(ft)	5.69	5.69	5.69	<del> </del>			
purge rate	(L/min)	300	300	300				<u> </u>
pH	(Units)	6.12	6.12	6.06	<del> </del>	<del>                                     </del>		
conductivity	(umhos/cm)	0.054	0.056	0.056	-	<del>                                     </del>		
temperature	(deg C)	4.60	4.47	4.43	<b>-</b>			
D.O.	(mg/L)	9.16	9.23	9.33		<del>                                     </del>		
ORP	(mv)	90.7	95.6	98.9				
turbidity	(NTU)	263	2.54	2 03	no/nolyoth	vlene tubir		
purge and samp	le equip.	Peristal	tic pump a	and silico	ne/poiyetii	ylene tubir	שי.	
5		0.41	MPLE INF	OPMAT	ION			
						# bottles	preser	vative
sample number	time		alysis		ntainer Amber	2	H(	
5W-66-030		NWI	PH-Dx	IL G	I. Amber	+		<del></del> _
5-10-54-0309	1450		<u></u>			-		
·				<del> </del>				
						1		····
				<del> </del>				<u> </u>
		<u> </u>		-				
1		<u> </u>				4		

Project name	BNSF-Skykomish	Well No. 1 - W-55
Project No.	01140-204-0340	Sampled By Museum
	3/24/04	weather Spowy ~33 °F
Date	3/3/4/10	

WELL INFORMATION					
(ft)					
(ft)					
(in)					
(ft)					
(ft)					
•					

COMMENTS						
	í					
			<u> </u>			
				-		

		ne salah	PURGE	DATA		
start purge time						<del></del>
time		0852	8855	0858	0811	0314
DTW	(ft)	6.09	6.09	6.09	6.09	6.09
purge rate	(L/min) Mymn	240	240	240	240	240
pH	(Units)	5.74	5.77	5.80	5.80	5.82
conductivity	(umhos/cm)	0-8-18.061	0.854	0.048	0.045	0044
temperature	(deg C)	6.06	5.72	5,57	5.50	5,48
D.O.	(mg/L)	8,72	8.59	8.65	8.68	8.65
ORP		216.2	215.2	213.8	212.0	259.1
turbidity	(NTU)	9.27	3.69	1.96	1.4)	0.94
purge and samp		Peristalt	ic pump a	and silico	ne/polyeth	nylene tubing

		SAMPLE INF			
sample number	time	analysis	container	# bottles	preservative
5-W-55-0300	8815 0915"		1L Gl. Amber	2	HCI
			,		

	GROUNDWATER	R SAMPLING LOG	
roject name	BNSF-Skykomish	Well No. 5- N-5 Sampled By Eman	<del>D</del> 5-W-56
roject No.	01140-204-0340 3/24/09	weather	°F

WELL INFORMATION				
Depth to water 5,53	(ft)			
Depth of well:	(ft)			
Well diameter:	(in)			
Feet of water:	(ft)			
Product thickness:	(ft)			
Screen interval:				
well condition:				
	•			

COMMEN	TS	
	<del></del>	

			PURGE	DATA				
start purge time	1628	:		· · · · · · · · · · · · · · · · · · ·	г	11	A 1 800 W	
time	1620	1641	1644	1647	1650	1453	1656	
DTW	(ft)	6.55	6.55	6.5%	556	5-56	5.66	
purge rate	(L/min)	200	De sue		110e	9.00	0000_	
рН	(Units)	6.05	5.98	6.03	6.03	6.01	6.06	
conductivity	(umhos/cm)	0.028	0.02	0.020	0.019	0.014	0.014	
temperature	(deg C)	4.19	4 9	4.23	4.40	4.36	4.33	
D.O.	(mg/L)	9.33	10.00	9.98	9.79	10.12	10.66	
ORP	(mv)	62	187	28.0	30.5	80.9	33.6	
turbidity	(NTU)	01.48	7.37	5.95	422	438	3.90	
purge and sample equip. Peristal			tic pump a	and silicor	ne/polyeth	ylene tub	ing	

		SAMPLE INF			
lo numbor	time	analysis	container	# bottles	preservative
sample number	17-00	NWTPH-Dx	1L Gl. Amber	2	HCI
5-W-56-0309			4	1 2 +	HSI
5-W-500-030+	1600	NWTH-TOX	il Amo	2-	1100
				-	
:					

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/24/09	

WELL INFORMATION					
Depth to water	7.72	(ft)			
Depth of well:		(ft)			
Well diameter:	2	(in)			
Feet of water:		(ft)			
Product thickness:	NOME	(ft)			
Screen interval:					
well condition:	C				

Well No.	MW-3
Sampled By	Chani.S
weather rain	, 34 °F

	COMMENTS
Inlet	tubing- 1 9.0Ft
purse	water is clear
Water (	evel Draw dawn.
	rate to 200.

			PURGE	DATA				
start purge time	152	5						···
time		1535	1538	1541	1544	1547	1551	15.54
volume purged	(gal)	9,00	8.95	8,90	8,88	8,81	8,74	8.73
purge rate	(L/min)	300	200	200	200	200	200	200
pH	(Units)	5,68	5,66	5,67	5.67	5,67	5,66	5,68
conductivity	(umhos/cm)	0.079	0,025	0,025	0,024	0.024	0.023	0,023
temperature	(deg C)	1.91	1,94	1,98	202	1.99	1.85	1.81
D.O.	(mg/L)	8.11	7,81	7,73	7.61	7,67	802	8,03
ORP	(mv)	171.0	1713	170.1	169,7	170,6	170,6	171.1
turbidity	(NTU)	2,17	ไ∖าย	1.94	1,09	1,23	0.77	0,62
purge and sampl						•		

	SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles preservative				
MW-3-0309	1600	NWTPH-Dx w/o SGCU	1L Gl. Amber	2	HCI			
		-NWTPH-Dx W/SGCU-	1L Gl. Amber	2	-HCT			
	•							

Project name	Project name BNSF-Skykomish Project No. 01140-204-340				Well No. $MW-3$			
Project No.		<del>, -</del>	Sample	d By Cahani				
Date O	3/24/09			<del>-</del>	weathe	rrain	3	y °F
W	ELL INFORM	ATION		]		соми	MENTS	
Depth to water			(ft)					,
Depth of well:			(ft)					
Well diameter:			(in)	1				
Feet of water:			(ft)	1		· · · · · · · · · · · · · · · · · · ·		
Product thickne	ss:		(ft)	1				
				1				
Screen interval	ı							
well condition:			PURGE	DATA				
start purge time time volume purged purge rate	(gal) (L/min)	1557	PURGE	DATA				
start purge time time volume purge rate pH	(gal) (L/min) (Units)	200 5.67	PURGE	DATA				
start purge time time volume purge rate pH conductivity	(gal) (L/min) (Units) (umhos/cm)	200 5.67 0023	PURGE	DATA				
start purge time time volume purge rate pH conductivity temperature	(gal) (L/min) (Units) (umhos/cm) (deg C)	8.73 200 5.67 0023	PURGE	DATA				
start purge time time volume purge rate pH conductivity temperature D.O.	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L)	8.73 200 5.67 0.023 1.80 8.36	PURGE	DATA				
start purge time time volume purged purge rate pH conductivity temperature D.O.	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv)	8.36 11.6	PURGE	DATA				
start purge time time volume purge rate pH conductivity temperature D.O. ORP turbidity	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	8.72 200 5.67 0.023 1.80 8.36 171.6			ne/polyeti	nylene tubi	ng	
start purge time time volume purged purge rate pH conductivity temperature D.O.	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	8.73 5.67 0.023 1.80 8.36 11.6 0.94 Peristalti		ind silicon		nylene tubi	ng	
start purge time time volume purge rate pH conductivity temperature D.O. ORP turbidity	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	8.36 1.80 8.36 171.6 0.94 Peristalti	ic pump a	ind silicon				vative

### GROUNDWATER SAMPLING LOG

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/24/09	

WELLIN	FORMATION	
Depth to water	7,23	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		````
well condition:	Good.	

Well No.	MW-4	
Sampled By	Ghani, S	
weather Rain	54 °F	

COMMENTS	
Inlet tubing ?	8,50F
J	
purge water is	Clear.
puplicate sample	Collector
	37,237

			PURGE	DATA				
start purge time	1640							
time		1650	1653	1656	1659	1702		
volume purged	(gal)	7.24	7,24	7.24	NM	NM		
purge rate	(L/min)	200	200	200	200	200		
рН	(Units)	5,71	5,69	5,67	5:66	5,65		
conductivity	(umhos/cm)	0.020	0,020	0.020		0,020		
temperature	(deg C)	1,93	1,88	1.89	1.89	1.82		
D.O.	(mg/L)	7.20	7.11	7,10	7.14	7.15		
ORP	(mv)	172.6	174.5	175.5	176.6	177.4		
turbidity	(NTU)	2.14	1,90	2.14	2.18	2.19		
purge and sample	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION							
sample number time	analysis	container	# bottles	preservative			
MW-4-0309 1705	NWTPH-Dx	1L Gl. Amber	2	HCI			
MW-400-0300							
MW-400-0300 (Duglicate) 1710	NWTPH-DX	16 GlAnter	2	Hel			
	// // // // // // // // // // // // //						

TW

					IG LOG

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	03/25/09	

(ft)
(ft)
(in)
(ft)
(ft)
,

Well No.	Mr	1-16
Sampled	By 64	ini.5
weather	Show	3 ° °F

COMMENTS	
Inlet tubing 13.5	0
J	
purgo water is clear.	

	PURGE DATA							
start purge time	10 25							
time		1032	10.35	1038	1041			
volume purged	(gal)	12,94	12,94	12.94	NM			
purge rate	(L/min)	200	200	200	200		•	
pН	(Units)	5,54	5.53	5.52	5,48			
conductivity	(umhos/cm)	0.056	6,048	0,044	0.043			
temperature	(deg C)	2.36	2.37	2.44	2,46			
D.O.	(mg/L)	6.37	6.65	6.82	6.89			
ORP	(mv)	156	158,2	157.7	158.2			
turbidity	(NTU)	1,49	1.20	1.19	1.31			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyethy	lene tubin	g	

		SAMPLE INF	MPLE INFORMATION						
sample number time		analysis	container	# bottles	preservative				
MW-16-0309	1045	NWTPH-Dx	1L Gl. Amber	2	HCI				
			, , , , , , , , , , , , , , , , , , ,		,				

DTW

		GROUN	DWATER	SAMPLI	NG LOG			
	51105 01 1						<b>3</b> —	
Project name	BNSF-Skyk			-	Well No		<i>5</i> 5	·····
Project No.	01140-204-3				Sample		1	
Date	3/23/09	<u> </u>		_	weather			°F
	,			_				
WE	LL INFORM	NOITA				COMM	ENTS	
Depth to water			(ft)	)	1 We	1) 100	ATTONO	)
Depth of well:			(ft)	(		<del>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </del>	<del>, , , , , , , , , , , , , , , , , , , </del>	; <b>1</b>
Well diameter:			(in)		111	May (1)	n Stru	200
Feet of water:	*		(ft)		NA		<del></del>	· · · · · · · · · · · · · · · · · · ·
Product thicknes	ss:		(ft)			J		
Screen interval:				1				
well condition:				1				
				1		•		
			· · · · · · · · · · · · · · · · · · ·	•				
			PURGE	DATA				
start purge time			1				· · · · · · · · · · · · · · · · · · ·	
time	1.5							
volume purged	(gal)							
purge rate	(L/min)							
pH	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)							
purge and sampl	e equip.	Peristalt	ic pump a	and silicor	ne/polyeth	ylene tubin	ıg	
						•		
		SAN	IPLE INF	ORMATI	ON			
sample number	time	ana	lysis	con	tainer	# bottles	preserv	ative
MW-35	No	NWT	PH-Dx	1L GI.	Amber	2	НС	;[
	- 1							
	Sample							
				1	***************************************			

### GROUNDWATER SAMPLING LOG

Project na	ame BNS	SF-Skykomish
Project No	o. 0114	40-204-340
Date (	03/24/0	7 G

WELL	INFORMATION	
Depth to water	4.25	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		
well condition:	Coord	

Well No.	MW-	38 P	
Sampled B	y Chan	٠ ٤ ٠	
weather	Snow	31	°F

COMMENTS	
Inlet tubing a	6.00Ft
purge mater is	
-	

			PURGE	DATA				
start purge time	0829							
time		0839	8842	0845	08.49	0851	0854	
volume purged	(gal)	4,26	4.26	4126	4.26	4.26	4.26	
purge rate	(L/min)	280	280	280	280	280	280	
pН	(Units)	6.04	6,05	6,07	6,09	6,12	6.12	
conductivity	(umhos/cm)	0.041	0,045	0,047	0.048	0,049	0.049	
temperature	(deg C)	4.56	4,68	4.96	<b>G</b> .08	5.11	5.09	•
D.O.	(mg/L)	2.47	1.91	1.51	1.30	1.22	1.22	
ORP	(mv)	148.2	147.2	148.4	148.5	148.2	148,00	
turbidity	(NTU)	1.90	2,03	1.86	1.44	1.71	1.65	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ing	

	SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative		
MW-388-0309	0900	NWTPH-Dx	1L Gl. Amber	2	HCI		

DTW

		GROUN	DWATER	SAMPLI	NG LOG			
Project name	BNSF-Skyk	omieh			Well No	•	.1 3e	
Project No.	01140-204-		***	_	Sample		1W-39 W	
	7 7			-		~ ^		 }<^ °F
Date	3/24/	09		_	weather	Ket II	21.50g ) =	₹ <u></u> \$ - F
WE	LLINFORM	ATION				COM	MENTS	
Depth to water			(ft)					
Depth of well:	· ·		(ft)					
Well diameter:			(in)	<del></del> i				
Feet of water:	Manager 1		(ft)	_				
Product thicknes	SS:		(ft)					
Screen interval:				1				
well condition:						77.07	<del>"</del>	
				_		-		
			PURGE	DATA				
start purge time	1450							
time					,	/	ĵ,	
volume purged	(gal)		Proc	uct	in di	5chu(	40 1	
purge rate	(L/min)			V			1	
pН	(Units)			$0 \ \theta$	4 Cam	0 to 10		
conductivity	(umhos/cm)			WHICH STREET		V. U.		
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)							
purge and sampl	e equip.	Peristalt	ic pump a	ind silicor	e/polyeth	ylene tubi	ng	
		SAN	IPLE INF	ORMATI	NC			
sample number	time	ana	ysis	cont	ainer	# bottles	preser	vative
MW-39-0309	1500	NWTI	PH-Dx	1L GI.	Amber	2	H	CI
		· •	<del> </del>					
	***************************************							

		GROUN	IDWATER	SAMPLI	NG LOG		
Project name	BNSF-Skyk				Well No	. Equip	Blank
Project No.	01140-204-				Sample	a By	WIC
Date	3/24/1	9			weather	· Ral	ning 35°F
WE	LL INFORM	ATION				COMI	<b>VENTS</b>
Depth to water			(ft)				
Depth of well:			(ft)				
Well diameter:			(in)				
Feet of water:		$\overline{}$	(ft)			· · · · · · · · · · · · · · · · · · ·	
Product thickness			(ft)				
Screen interval:							
well condition:		********					
· · · · · · · · · · · · · · · · · · ·							
			PURGE	DATA			
start purge time							
time							
volume purged	(gal)						
purge rate	(L/min)						
рН	(Units)						
conductivity	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
purge and samp	le equip.	Peristal	tic pump ar	nd silicor	ne/polyeth	ylene tubi	ng
		SAI	VPLE INFO	RMATI	ON		
sample number	time		lysis		ainer	# bottles	preservative
MW-500-0309			x w/o SGCU		Amber	2	HCI
<u> </u>			Dx w/SGCU		Amber	2	HCI

ENSR | AECOM Field Activity Log Page: | of 2 Project Name: SKYKomish Completed By: Project Number: Field Activity: RW-Sampline Personnel on site: ¿

ENSR | AECOM Field Activity Log Page: 2 of 2 Project Name: SKYKomish Completed By: Project Number: Date: Field Activity: 6W. Weather: Personnel on site: . DTW. 5. 75 Ft.

ENSR | AECOM Field Activity Log Page: ( of 2 Project Name: SKUK on ish. Completed By: Project Number: Field Activity: ( Weather: Personnel on site: (

Project Name: Sky Project Number: Field Activity: ( ) W - Sampling	Completed By: Chan;  Date: 03/25/28.  Weather: Mostly Sanay.  Personnel on site: Chan; Carrie	Z Dean.
16:30: Stup on M	W-1B-W-3	
	ing parameters of D un  - 64.1 to + 0.1 was	stable. Still unstable
.17:50: Started can		
	·	
		· · · · · · · · · · · · · · · · · · ·

ENSR AECOM Field Activity Log	
Project Name: Skykonish. Completed By: Chani	
Project Number: Date: 03/26/08.	
Field Activity: (3/1) - Sampling. Weather: Chow.  Personnel on site: (3/1) - (3/1) - (3/1)	
Tersonier on site. Addicy Cassia Jean.	
Diso: Started calibratia, 413 & turbidity meters.	
8:15: 8ct up on MW-037.	
Or So: Stayted Durging.	
9:03: Started rading Darameters or puntable.	
1:30: Started Sampling anyway.	
9:45: Dicked up Carrol's YIS meter.	
10:00: Setap on Mar- 2A-W-6.	
10:16: Starte d Durgias.	
10:29: Started via ding Dargnetus.	
10:45: Started Sandling.	
sampled Dun. ID 24-W-60-0308 at 10:30	
10:00 : Dack UD staff.	
11:10: Helzed mosie sanding last well.	
11:30: Dansed water surge into Drum.	
12:00: ( kan up. Dean had coolers to take to the	
lab Test America Rothell. Cassie had elevinon	ect C
to take to the office. I have to stay to	-(/4 .
watch. For the 2 kelw. Cassing wells.	
12:30, T checked out for Hotel.	
12:48: had wach and stayed on site till 14:30	
picked up traffic coms.	
14:20: Out of Site.	

PAGE 3

PAGE 3													
Well			Total					7/30	7/30/2007	2/16/	2/16/2007		
Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	ALG (B)	Prod. Thick (ft)	WTO (i)	Prod. Thick. (ft)	Sign	Comments
1A-W-3	3/24/06	10.30		7.52		10.ch	77	8 8.84	none	6.27	none	R	96-1.48
1B-W-1	3/24/08	10:45		9.36		truce	16	11.89	hw trace	8.70	none	) H	(18,0-0,64)
X2A-W-1	3/14/98	14:54		8,60		10,75	77	11.51	frace	8.10	none	A	19.0-0,46)
(2A-W-3 -								11.84	hw trace	8:38	none	98.	
2A-W-11	3/24/08	m;{J		5.75				69:6	hwy trace	5.14	trace		(6.5-0.75)
MW-27	3/24/08	17:45		10.37		none	77	13.19	none	9.64	none	4)	(1.0-0.63)
MW-28 ~						•		15.00	none	11.86	none		
MW-39 -								10.12	none	6.80	none		
1A-W-2	अप विद	13:00		98,6		Viria heura France	01	13.24	78.0	9.14	CALLE Value	Ψ >	(11.5 - 1.12)
2A-W-4 -	3/24/08	15:43		9.13		News Knee	21	12.28	0.28	8.82		) V	(0.0.0.07)
5-W-1	\$2.410g 15:25	32:21		5,93		tina	21	8:40	trace	5.12			7.0-1.07)
5-W-2	3/24/08	st:21		5.62		very fraci	TP T PUMP	7.59	hvy trace	4.75	trace	A)	(.0-0.38)
5-W-3	3/17/08	11:30		5.69		Henry Yace	راه	7.49	none	4.77	trace	AJ	(1800)
MW-21	३ १८५ १९	13:07		12.82		deis finer	4	15.52	0,62	12.06	hw trace	λS	(4.0-1.18)
MW-22	3/54/08	(1:05		0 b.9		henry truck	42	. 8.60	0.4	il de la constant	hvy trace		(7.5-0.40)
MW-36	83/54/pg	10:10		7,16	6.34 ×		TP + PUMP	8.30	hvy trace	5.09	hvy trace	4.	7,0.0.66
T1-MW-													

attempted genying by purpo pruthed but was not a mensionally amount of freduct to massive by this method to but type was covered with product and a fet of product was intruited with the total during pumping. 5-M-2 Netes

MN-27 - WELD NEW CUP, series on cup correctly, which cap and thento came all sull cooled that

Fluid Level Gauging Form

Project Number:

Project Name:

L															- [
	Well			Total	Doneth 40	7 17			7/30	7/30/2007	2/16	2/16/2007			ı
	Number	Date	Time	Casing Depth	Vater (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments	
=	n 1A-W-1								14.53		11.94				
2	1A-W-4								9.16		6.86			بهو	
7 1	1A-W-5								10.07		7.66				
п П	1B-W-2								13.55		10.46				
u u	1B-W-3			# B			は、は、一般の対象を対象を対象を対象を対象を対象を対象を対象を対象を対象を対象を対象を対象を対		14.91		12.16				*
2	1C-W-1								13.20		10.49				
	1C-W-2								10.27		7.49				
<u>ک</u> د	1C-W-3								10.93		8.72				
<u>۔</u> ا	1C-W-4	# * / 15 * / 15				6.			10.28		8.42				
N	n 2A-W-6								11.90		9.30				
7	s 2A-W-8		1023		13.24				15.82		12.18				
7	s 2A-W-9	3/24/0%	FO IIB		8.03	-			10.99		7.38				
7	s 2A-W-10	3/24/cs	2,11		8,19				11.51		7.79				
<u>2</u> E	s 2B-W-4								4 02		08.0				
က်	s 5-W-4	3/24/168 1250	1350		5.634,43	8)			6.75		4.03				
L S	5-W-13							in the period of the second	N		Z				
က်	in 5-W-14			30 E		2			9.44		Z				
b	n 5-W-15								8.02		Z				
Ġ	ก 5-W-16								8.27		2				
								The second of th		1		1			

# Fluid Level Gauging Form

																	7	, XXXX	یمہ	,				
	Comments																	2. R-W-33. only	Not apporte	Shew 91ce				
	Sign O∰	DWK																						
5/2007	Prod. Thick. (ft)																							
11/16	DTW (ft)	9.75	11.80	9.77	7.93	8.28	69.6	1.70	66:0	3.93	3.41	3.35	3.54	5.36	7.31	9.81	6.12	8.01	3.33			·		
1/2007	Prod. Thick. (ft)																							
12/13	DTW (ff)	10.29	10.63	10.89	8.69	8.83	9.81	1.91	1.24	4.34	3.81	2.78	Dry	5.49	7.87	10.19	6.29	8.24	MN		, <del>‡</del>			
	Method															-				TAP	上の一十	tof	201	4
	LNAPL																							
	Ueptin to	(7777)			t			->	250	3,60	3,14	964	1512										:	
1	Depth to Water (ft)	64'6	11,50	10,79	1-1840			7	0.80	382	3,42	2,14	3678	536	7,27	3.56	6,05	7.4.1	NM	7,35	8.89	11.81	82'01	10,87
Total	Casing Depth				Ì	(	1	1					,											
	Time	12421	1	186	j	l	l	i	1124	1126	.2 2	1777	11551	4011	725,11	1138	1108	1059	1	1254	6521	40%	3/6	320
	Date	80/27/2	- ,	-															≫					
-	Number	2A-W-2	2A-W-5	2A-W-7		VALUE OF THE PROPERTY OF THE P	TANA SO	S WA	2B-W-11	2B-W-12	2B-W-13	2B-W-14	2B-W-15	2B-W-19	2B-W-21	2B-W-30	2B-W-32	2B- <b>69</b> -33	2B-B-21	/ MW-38	1 ZA-W-3	Lawy -	ti-mw/	T-180
	Total 11/15/2007 11/15/2007	Date Time Casing Water (ft) LMAPL Method DTW Prod. DFP Prod. Sign Off (ft) Thickness Depth (ft) Thickness Depth (ft) Thickness Depth (ft) Thickness Depth (ft) Thick (ft) Thick (ft) DFP	Date   Time   Casing   Water (ft)   Live   Depth to   Depth to	Date   Time   Casing   Water (ft)   LNAPL   Method   DTW   Prod.   DTW   Prod.   Off	Date   Time   Casing   Water (ft)   LNAPL   Method   DTW   Prod.   Thick. (ft)   Thickness   Sign   Off     3/24/bg   24/2   11/50   11/50   10/29   10.89   9.75   11.80   10.89   9.77   11.80   10.89   9.77   11.80   10.89   9.77   11.80   10.89   10.89   9.77   11.80   10.89   10.89   10.89   10.89   10.89   10.80   10.8	er         Date   Time   Casing   Water (ft)   Water (ft)   Vertex   V	Total Depth to Dept	Date   Time   Casing   Water (ft)   LIMAPL   Method   DTW   Prod.   DTW   Prod.   Off	Time   Casing   Water (ft)   LNAPL   Method   DTW   Prod.   DTW   Prod.   Off	Date   Time   Casing   Water (ft)   LNAPL   Method   DTW   Prod.   Thick. (ft)   Prod.   Off   Thick. (ft)   Off   Thick. (ft)   Prod.   Off   Off   Thick. (ft)   Off   Thick. (ft)   Off   O	Date   Time   Casing   Water (ft)   Linkhes   Wethod   DTW   Prod.   DTW   Prod.   Off   DTW   DTW   Thick (ft)   Off   DTW   Off   DTW	Total   Depth to   D	Total Depth to Dept	Time   Total   Depth to   LNAPL   Method   DTW   Prod.   Sign   Off   Depth to   Depth to   Depth to   Depth to   Depth to   Depth   Depth to   Depth   Depth   Depth to   Depth   D	Time   Total   Depth to   Depth   Depth	Total Depth to Dept	Date   Time   Casing   Depth to   LNAPL   Method   DTW   Prod.   DTW   Prod.   Off	Date   Time   Casing   Depth to   LNAPL   Method   DTW   Prod.   DTW   Prod.   Off	Time   Total   Depth to   LNAPL   Method   DTW   Prod.   DTW   DTW	Time   Total   Depth to   Depth	Date   Time   Casing   Water (ft)   Depth to   DIAPL   DIAPL	Date Time Casing Water (ft) Liabel. Method DTW Prod. DTW	Total   Depth to Depth   Method   DTW   Prod.   DTW   Prod.   DTW   Prod.   DTW   Depth   D	Time   Total   Depth to   LiMap   Thickness   Method   DTW   Prod.   DTW   Prod.   DTW   DTW

pollet in price - 21/2 Comments TAR / GASTR Sign Off Prod. Thick. (ft) 11.91 11.06 10.01 11.45 10.63 13.45 10,11 10.89 OTW (ff) 11.27 11.57 12.67 7.86 3.30 4.97 Prod. Thick. (ft) Hwy.Tr 12.34 11.79 10.79 11.14 12.74 11.12 10.72 11.67 11.82 DTW (ft) 11.77 9.19 13.67 7.58 5.74 4.95 Method LNAPL Thickness Depth to LNAPL (ft) Depth to Water (ft) 10,75 Jo.C 5 一分子 11.35 12.79 not Mercle of Total Casing Depth 13.5 02/07/10/55 1005 Time 53/34/09/1001 1753 1140 1146 3/34/63 3/24/0% 3/24/08 Date Well Number MW-10 MW-11 MW-13 MW-15 MW-40 MW-17 MW-5 MW-9

			Total					7/30	7/30/2007	2/16	2/16/2007			
Well Number	Date 2008	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	(y)	Prod. Thick. (ft)	Sign Off	Comments	
n 5-W-17	303			- 90'£			· · · · · · · · · · · · · · · · · · ·	7.60		Z				1
n 5-W-18	3/23	<b>EC</b>		88'E				7.78		Z			Yankari manakari man	
n 5-W-19	<b>Se/S</b>	33		E814				7.72		Z		11 11 12 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14		
n 5-W-20	333	CF()		<b>.</b> 46′9				7.32		N				
s MW-1							,	13.25		10.29				
s MW-2								12.93		9.38				
s MW-3				·				11.32		6.80				
s MW-4								10.28		6.62				
s MW-12								6.90		3.03				-
s MW-14	3(23)	1337.	15 July 19 Jul	20,0°				12.87		9.59			well appoint to casing	1
s MW-16	<del>\$0</del> 3	1353		13.54				15.62		12.75			When fillished	Ĭ
s MW-18								15.49		12.55				
s MW-19								12.22		9.32				
s MW-26								9.58		6.12				
s MW-32	50/5							9.48		8.10				
n MW-34	8	まり	Š	hh·o! \				11.60		9.37				
n MW-35	<b>3</b> 23	ୀର	45	76.01%				12.94		10.30				
s MW-37								10.31		7.05				
s MW-38	C :   C :							5.25		MN			Well-Damaged	
n 2A-W-22		I DID		<b>士</b> 0.6				10.60		Z				
S MW-13	3/33	CHOI		8,02	, ,									

Comments Well-Damaged M TI S  $\tilde{\Sigma}$ Sign Off 5 7 Prod. Thick. (ft) 12.75 ₩. (#) 10.29 12.55 10.30 9.38 6.80 6.62 3.03 9.59 9.32 6.12 8.10 7.05 9.37 Z Z Z Z Σ Z Prod. Thick. (ft) 13.25 12.93 11.32 10.28 15.49 12.22 10.60 MED (#) 12.87 15.62 11.60 12.94 10.31 7.78 9.48 7.60 7.72 7.32 6.90 9.58 5.25 Method LNAPL Thickness Depth to LNAPL (ft) 7,33 6,94 4,34 9,67 6.78 8.73 五元 3.45 13.27 10,44 Depth to Water (ft) 3,65 13,54 F.06 9,94 7.63 9011 0.06 11.59 16'01 Total Casing Depth 13.5 137 |E/2| M40 1136 1046 4221 1250 1233 1256 1100 2171 Time 103.1 ||a| <u>i</u>N \$12409 Date Well Number 5-W-17 n 2A-W-22 5-W-19 n 5-W-18 n 5-W-20 s MW-16 s MW-18 s MW-19 s MW-26 s MW-12 s MW-14 n MW-34 n MW-35 s MW-38 s MW-3 s MW-32 s MW-37 s MW-2 s MW-4 s MW-1 c

Fluid Level Gauging Form

**BNSF Skykomish** Project Name:

Project Number: 01140-204-0340

Collected by:

Well			Total	44.00	1			7/30	7/30/2007	2/16	2/16/2007		
Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	WTO (ff)	Prod. Thick. (ft)	Sign Off	Comments
n 1A-W-1	2/24/08 (D35	.≤€0)		12.67				14.53		11 94		100	
n 1A-W-4		194)		K.Z.I	en la			0 16		90 9		}	
n 1A-W-5		0301		9.34	200	7		40.07		9 6			
n 18-W-2		0.29						10.00		8 3			
n 18-W-3		82		N	14 36			15.00		10.46			
n 1C-W-1		1,62		100				14.91		12.16			
n 1C-W-2		8		200				13.20		10.49			
n 1C-W-3				2 84				10.27		7.49			
				500				10.93		8.72		4	
n 1C-W4		A A		200				10.28		8.42		\ \ \	
n 2A-W-6		1010		10.14				11.90		9.30		V	
s 2A-W-8		1023		13.74				15.82		12.18		11 5	
s 2A-W-9		2111		20.8				10.99		7 38			
s 2A-W-10		7111		8,19				11.51		7 70			
s 2B-W-4		1255		1.67				4 00		08.0		¥ (v	
s 5-W-4		1250		4,63				6.75		200		) ز	
n 5-W-13		t	i.	1	1	)		Z		20.1		+	
n 5-W-14		11.46		64'8		(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		9 44		2			NOT TUSTALLEA
n 5-W-15		1105		4,34				8.02		2 2		- 5	
n 5-W-16	<b>)</b>	120		ジれた			100	8 97		2 5			

Comments Sign A と H A K Prod. Thick. (ft) hvy trace hvy trace hvy trace none none none none trace none none none trace none trace 0.01 0.11 2/16/2007 11.86 12.06 ¥£) 8.10 5.14 5.85 5.09 8.70 8.38 4.75 9.64 6.80 5.12 6.27 9.11 8.82 4.77 Prod. Thick. (ft) hvy trace hvy trace hvy trace hvy trace hvy trace none none trace none trace none none 0.37 0.28 0.62 0.4 11.89 11.51 11.84 13.19 15.00 10.12 12.28 15.52 13.24 (£) 69.6 7.59 7.49 8.30 8.84 8.40 8.60 TaP Pum TEP , Pump 9 790 T.9.D TOP TOP Method Tap T0.0 T4P 198 190 197 744 Traca Very Huy Hay Trace Very HAY Hwy Traice LNAPL Thickness Trace Traise HYV TORGE Very HUY Naca None Spro Mare Depth to LNAPL (ft) 6.34 Depth to Water (ft) 4.32 9.90 7,16 5.62 5,69 787 9818 75.2 10.37 9.8% 92.6 8.60 5.93 9,13 757 Total Casing Depth 1030 1307 1228 (307 11:0 1054 1242 1300 1343 10 20 1047 17.59 1254 725 1130 350 Time 3/24/08 Date 7 Well Number 2A-W-11 1B-W-1 2A-W-3 1A-W-2 2A-W-4 1A-W-3 2A-W-1 MW-39 MW-27 MW-28 MW-36 MW-21 MW-22 5-W-2 5-W-1 5-W-3 

Comments Well Damaged Sign Prod. Thick. (ft) 9.59 12.75 12.55 ¥E) 10.29 3.03 8.10 10.30 7.05 6.12 9.38 6.80 6.62 9.32 9.37 Ž Ī Z Z Z Z Prod. Thick. (ft) 13.25 12.93 11.32 10.28 12.87 15.62 15.49 11.60 12.94 10.31 10.60 12.22 ¥£0 (#) 7.72. 6.90 7.60 7.78 7.32 9.48 5.25 9.58 Method LNAPL Thickness Depth to LNAPL (ft) Depth to Water (ft) 8.93 55 3.65 13.27 4.94 11.06 6.79 C . 150 とけん 4.34 Total Casing Depth 13.5 1.2.C.G 1036 1307 Time (333 18 1369 1216 1645 1017 131 1831 3/1-6/8 70/12/ 29/20 \$24/00g 13 124 lod 3/24/64 3/15/1/66 3/24/69 Date 3/21/2 3/24/04 40/hal Well Number 5-W-18 n s-W-17. n S-W-18 5-W-20 5-W-19 s MW-12 MW-32 MW-34 MW-35 MW-38 s MW-14 s MW-16 s MW-18 s MW-19 s MW-26 s MW-37 s MW-2 s MW-3 s MW-4 s MW-1

Merch Mw-17: A3 Mw-17: Mw-14 Mw-37 Mw-37 Mw-37 Mw-37

2-8m 71. MM

2 × 3 ×

PAGE 2

5)



## River Gauging Form

Project

Name: BNSF Skykomish

**Project** 

Number: 01140-204

Measured by: flaron Jambros) of Fred Morrill/Lussie Smith

stake ID	date	time	backsight	foresight	water level	comments
SK-1	3)24/05	41	4,24	4,24,74,45		
SK-2		4591	5,10	20.54		
SK-3	·	1635	6,56	15, 13		
SK-4		1620	6.56	t 181		
SK-5	7	1640	9519	17.40		
ML-1			(2)	2	\N.\2	
ML-2					-	
ML-3						
ML-4			2	0	à	

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

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

foresight: height of level above gauging point (staff placed in stream bed at  $\mathsf{SKx}$ ,  $\mathsf{MLx}$ )

water level: depth of water at gauging point

# Fluid Level Gauging Form

Number   Date   Time	Total Casing Depth	Depth to Water (ft)   決し子   発子	Depth to	-		773	7/30/2007		0000		
2008 Time 2008 1035 312308 William 312308 William 312318 William 312318 William	Casing Depth		Depth to			The second second second second second	The state of the s	7.10	7/10/2007		
3838 3838 3838 3838 3838 3838		15.67 45.87 45.87	LNAPL (ft)	LNAPL	Method	W) MLG	Prod. Thick. (ft)	MIG (III)	Prod. Thick. (ft)	Sign	Comments
8023 8023 8023 8023 8023 8023 8023 8023		\$ 2 K				14.53		11.94			Well Com Ast on Cash
3/23/00 3/23/00 3/23/00 3/23/00 3/23/00 3/23/00		7.SH				91.6		98.9			-Put cap on white
3/23/28 3/23/28 3/23/08 3/23/08 3/3/3		00				10.07		7.66			
812.3 8123.00 823.00		つうこ				13.55		10.46			
		12.21			<b>一种人们的</b>	14.91		12.16			
	では、一般の一般の一般の一般の一般の一般の一般の一般の一般の一般の一般の一般の一般の一	- €9 /II				13.20		10.49			
393		4 O 1			新 强使引	10.27		7.49			
<b>E 6 8</b>						10.93		8.72			
<b>303</b>						10.28		8.42		627	
						11.90		9.30			
s 2A-W-8						15.82		12.18			
s 2A-W-9						10.99		7.38			
s 2A-W-10						11.51		7.79			
s 28-W4 303 1355		ক <b>।</b>				4.02		08.0			
s 5-W-4						92.9		4.03			
in 5-W-13						IN		N	و المراجعة المستحدد ا	A SALAN A	NOT FIXITION
10 5-W-14 - 823 11-F(6		Č T Č				9.44		Z			
		7.3+				8.02		N		i let	
10 SW-16 703 120		プルド				8.27		Z			

IN/OB			Total	Š				12/15	12/13/2007	11/15/2007	5/2007		
Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	WLQ)	DTW Prod. (ft) Thick.(ft)	MLQ (jj)	DTW Prod. (ff) Thick. (ft)	Sign Off	Comments
MW-7	3/24/08	025)		10,87		Tag	401	12.10	12.10 None	11.08	None	N.C.	
Y								10:09	±.	69.6	None	)	
VI A								9.75	þ	9.04	None	385 625 655 656 856	
A A								7.86	$\mathbf{T}^{\prime\prime}$	5.53	None		
A P							-	7.98	None	7.38	None		
A A								10.04	None	9.42	None		

### Other Notes:

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

12 Automotivation (CENTRALIDATE ALONG TRANSPORTER AND		LAB	LABORATORY INFORMATION	TION	LAB WORK ORDER:
	Laboratory: To st	Amarica		Project Manager:	SHIPMENT INFORMATION
RAILWAY	JOF	ral Phyly N	1, As 400	Phone 425)426 - 949	Shipment Method:
CHAIN OF CUSTODY	M.)	WA 9801	<u>.</u>	Fax:	f
BNSF PROJECT INFORMATION	Project State of Origin:			CONSULTANT INFORMATION	Project Number 01/20 204 0
NSF Project Number:	Project City: Ly Lpm ?	_(		AECON ENVIOUSE	Chro
NSF Project Name: $S(L_V R_D m_1'S)$	*		Address: 710 7	710 204 AUG	Email Color of Color of Color Color
NSF CONTACT Shapard	BNSF Work Order No.: 0100	)	City/State/ZiP:	40189 PW. 3	Phone: 74-924-9
TURNAROUND TIME	DELIVERABLES	Other Deliverables?	verables?		1
1-day Rush 5- to 8-day Rush	SNSF Standard (Level II)				
2-day Rush	Level III	EDD Req, Format?	Format?		
3-day Rush Other	Level IV	O4	発展の		
SAM	SAMPLE INFORMATION				
		Sample Collection			
Sample identification	Containers	Sampler	Y/N Grab) Matrix	/// /M/N ////	
6090- +> -M9	60/01/9 2	1200	3	Z	COMMENS
2A-W-4Z -	2	- K2			
- 7-MO	2	1345		X	
-04-M-42		4.50		X	
24-W-400-	~	4		<u> </u>	
58	7	[公]		<u> </u>	
- Z - Z - A -	7			X	
(2W = 3	7 6 6 6	4030	Jangan Lungg M	X	
100-NO-		840 8		<u> </u>	
· *28-12-45-		0930 DWL	· · · · · ·	X	
" 27 R - W-46 -	7	IDIO DIWK	7	X	
12 8/8-W-Z3 - +	4	1030 65		X	
71					
Note that the second se	Date/Time: F C F F		6		Comments and Special Analytical Requirements
		Received By:		Oste/Time:	SGCU - Silica gal Claunup
Relinquished By:		Received By:		Date/Time:	
Received by Laboratory:	Date/Time:	Lab Remarks:		Lab: Custody Intact?	Custody Seal No.: BNSF COC No.:
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		iλα	DUPLICATE - CONSULTANT		Rev 10/02/05

Column California   Colu	And the state of t	173		LABORAT	LABORATORY INFORMATION	MATION			LAB WORK ORDER:	
Column   C		aboratory:	10001Ca			Project	er: /-/		SHIPMENT INFORMATION	
Committee   Comm	RAILWAY	87	S. E.	MN	7 4%	O Phone:	20-1727	6.5	10077	12
Comment production   Comment	CHAIN OF CUSTODY			0.00	; ;	Fax:				
See Visit See	BNSF PROJECT INFORMATION	Project State of Origin:				CONSUL	FANT INFORMATION		140-704-	240
See See See See See See See See See Se	NSF Project Number:	Project City:		Company	40	1.	NICOMBA		Cla Albano	
The control of the	V			Address:	2/0	220	Ave		Email: SACA A DESCO DATE	
The Park County Think   Park Secretary Lower   Develor   Park Secretary Lower   Park Secr	Kill S	BNSF Work Order No.	O	City/State	F		.i		From: 74 -9240	7
Committee from the control of the	TURNAROUND TIME	DELIVERABLE		Deliverable	s?	_	METHODS FC	OR ANALYSIS		
Contract (a.b.n)		SNSF Standard (Level II)								
Comparison		Level III		Req, Format	<i>ب</i>	×	· · · · · · · · · · · · · · · · · · ·			
Sumple transfirming  Sumple Containing  Sumple Cont		Level IV	α	加加	J	( <u>(</u> -	in Kg-			
Sample leading and the leading	78	AMPLE INFORMATION				Hd	) 9 -11,			
Sample identification   Continue   Continu		es	mple Collection	-	_	II. T	了 ( ) ( )			
W   W   W   W   W   W   W   W   W   W	Sample identification	Date	- 1		(Comp/ (Grab)		MN			
- W - 8 2 - 1	90 m /m Mm	7	0-791							AB USE
W	× 1/3/	Ι.	1700	+		X				
W -   5 -   4	- W-		5760	-		X	X			
W -   50 -   4	91-11-		1			X	X			
N	7		0			X	X			
SO	3	4	921			X	X			
	081	the state of the s	\( \text{S} \)			X	X			
W	1 31	12-	8			X	X		The Manual Control	
	8131	7	1450			X	X		Y G (2) 70 (1) 8 (	
W	Africa IV	N	1540			X				
W	(8)		1630			X	X			
	02 -	) T				X	X			
Comments and Special Analytical Requirements   Comments and Special Analytical Requirements	3	, by				X	X			
Comparison   Com	EW- 1					X				
Date/Time:	and the same of the same	/	Ľ			X				
Date/Time:         Received By:         Date/Time:         Date	DECT CONTRACT	1 30	Received By:	Leaux	7				ents and Special Analytical Requirements	
Date/Time:     Received By:     Date/Time:     Lab Remarks:     Lab Remarks:     Lab Custody Intact?     Custody Seal No.:     BNSF COC No.:       DUPLICATE - CONSULTANT     DUPLICATE - CONSULTANT     Date/Time:     BNSF COC No.:     BNSF COC No.:	Keinquished By:	Date/Time:	Received By:				Date/Time:	K T	out - sinca del ciuan	25
DUPLICATE - CONSULTANT  Lab: Custody Inlact?  Lab: Custody Seal No.:  DuPLICATE - CONSULTANT  Lab: Custody Seal No.:  BNSF COC No.:	Refinquished By:	Date/Time:	Received By:				Date/Time:			
DUPLICATE - CONSULTANT	Received by Laboratory:	Date/Time:	Lab Remarks:				Lab: Custody Intact?	2		
	URIGINAL - RELURN TO LABORATORY WITH SAMPLES	. 5:		DUPLICAT	E - CONSULT	ANT				Rev 10/02/0

PROJECT NAME: BNSF-Stykomsh PROJECT NO: 01140-204-034 DAY & DATE: Thurs June 1999	SHEET OF
FIELD ACTIVITY SUBJECT:	GW Sampling
DESCRIPTION OF DAILY ACTIVITIES & EVEN	
TIME	
0820 AKINNEN ANCHO	/
Des Salety meeting	
083+ Relcan conto	a collhated meters
· Horlba (n-22)	Oakten (T-100)
0858 stagged purgly	2B-W-45
0930 Sympled ZB-WL	45 FOI NUTPH-DX
0944 Started ourgly	26-W-46
1010 Sanged 2Bow -	46 for NNTPU-DX
1025 Dungel Purge We	atec
1055 Louding Chan's	- van for taking roolers to
lab of office	egulp Strage
1145 Went to And C	sneg C.
1200 Maring material &	rox Store shop to Bunkhouse
1355 Completed the	MOUMA ON Setting up to pump
PRZOS -	P7U
1410 DTW = 9,90' (+	rom crossbar (+ 1,52 above PK cosing)
148 Rumping P74 8	1.6 C/min (W) peristattie pumps (e)
1973 DTW (From cross bar)	= 13, 19'
1428 DTW ( 4 " ")	-13,60
433 OTW Cn 4 11)	= H.O3 C Shot down PARPS
1638 STW (4 11 4)	= (2,3)
F	= 11,32.
1335 00 91 00 9 1121	9,901) a started pumping 60.304mln
1550 DIW (from (pss bal) =	11.15
1555 pumping purge was	ter a cleanly up
1630 Left 51te	
VISITORS ONSITE:	CHANGES FROM PLANS OR IMPORTANT DECISIONS:
None	Nene
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
cloudy, 50 - 6596	None
PERSONNEL ONSITE: Dean Kinney,	Shan) Sebbare

PROJECT NAME: BNSF - Skykom's PROJECT NO: 01140-204-034 DAY & DATE: Weds June 10th 2	COMPLETED BY: DI KINNEY  APPROVED BY:  2009 SHEET   OF
FIELD ACTIVITY SUBJECT:	GW Sampling
DESCRIPTION OF DAILY ACTIVITIES & EVE	NTS:
TIME	
0725 Dikinney onste 9	- setting up to sample
	22) & Oakton (T-100) meters
0745 Setery meets	, , , , , , , , , , , , , , , , , , , ,
0810 Strue to sample	
DOOL Started purcha	5-W-14
0925 Sampled 5-W-1	4 for NMTPH-Dx (We W/O SITIED GOI CHANGE
0953 Started purgly	5-W-16
1015 Sampled 5-W-	6 (some as 5-W-14)
1000 Started purgly	5-W-15
1110 Canpled 5-W-15	(sono as 5-W-14); took dup (cute)
laboled 5-W-1	50-0609
1130 Lunch	
1150 Took campment.	blank Claboled 5 MW-500-0609
1205 Want for get n	nore hottles
1257 Started purgling	5-W-H
13 cer sampled 5-W-17	(took lab ac sample whee)
1927 Started purgly	5-W-18
1450 >amples 5-11-18	
15 19 Started Pulging 1	C-M-+
1540 Samples Cont	
1608 started purgly	5-W-19
16 Sp Sampled 5-W-1	9
His Started Purgh	g 5-W-ZO
1750 Sampled 5-W-7	
VISITORS ONSITE:	CHANGES FROM PLANS OR IMPORTANT DECISIONS:
None	
	None
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
Cloar to P. Cloudy, 60-701	None
Cher I Town I The Transfer of	i de la companya de
PERSONNEL ONSITE: Dean Klandy, Gh	an Sebbane

PROJECT NAME: BNF-Skykom! PROJECT NO: 01140 - 204-03 DAY & DATE: Tues, June 94 21	APPROVED BY:  SHEET   OF
FIELD ACTIVITY SUBJECT: DESCRIPTION OF DAILY ACTIVITIES & EVE	Groundwater gauging a Sampling ints:
TIME	
0750 D. Klynna posite.	Eric already here
0800 Ghan onstre, Ju	st worting for Free to do Safety Mity.
0810 Frod onsto 8 star	ted safeth mtg
1845 Softling up to could a	$\mathcal{J}$
0905 West to start gaught	down town wells a Dean doing FACWE
1210 Finished W/my list a w	helping Fred Complate his list; Charle
12/0 Returned a started	- hasping ricol compression is i change
1400 Done Waguaine a	looking to locate bollic-W-7 & well
2A-W-47_	TOOK ING ID ICKE TO THE TOOK IN THE TOOK I
	but gauged 2A-W-42; Strider Will
inchanner out walkway	my to set access to 10-W-7
	n stove shop that need to be moved
& Chani Working on	Storting OW Sampling
1605 Settling up to sample	storting gw Sampling (U-ZZ) &
Pakton (T-100) mas	Horc
1637 Started purging IC	/
1700 Sampled 16-W-8	for TPH-DX (NWTPH-DX)
1720 Pumped purge water	
1750 bost site	7
VISITORS ONSITE:  None	CHANGES FROM PLANS OR IMPORTANT DECISIONS: Hed OVER WALL IC-W-7 has been as phatted over Stilder Constr. Will Jackhammer out on Works.
P. Cloudy, 65-750F	IMPORTANT TELEPHONE CALLS: Struction W/1C-W-7
PERSONNEL ONSITE: Dean Kloney, Fred Erlc Storkonson	d Menill, Ghant Sebbane &

Field Act	Page: \ of \ AECOM
Project Name: BNSF Skykomish	Completed By: Chan . Selbane
Project Number:	Date: 06/09/09
Field Activity: Granterly Cylx	weather: Cunny 70° 1°
Sampling	Personnel on site Chanis, Dean K, Fred M; Eric.
0745. Arrived to the site,	put on PPE. organized equipment
in Van	
we with the a	I had safety reefing and
OSCIT: Started Setting	apach began gangrup
product wills. Jo	and Hoc wells with Enc.
1200 : Had - lanch	
1250: Lack to the site	.Finished gauging product
wells.	
1420 Fir shed gaucai	C. Clean up Decon.
1430: Helped Fred 10	cating wells. 2 HW- 417. 14-W-T
ist, started parking	up and organized excipment.
1530: Regan Calibro	1:-, e priprent.
1600: started setting	ap on 10-W-1.
1618: Began purging	-
1628: Started seconds	
1640: Bugan collecting	Samples.
1700 : packed 40	Decon and clearaly p.
1715: Wit a site	
<i>y</i> ,	
Jan.	

**Field Activity Log AECOM** Page: | of 2 Completed By: Project Name: Project Number: Date: Field Activity: (Duar Weather: Personnel on site:

**Field Activity Log AECOM** Page: 2 of 2 Skykon/sh Completed By: Project Name: RNSF Project Number: Field Activity: Waar Weather: Personnel on site:

Field Act	ivity Log	AECOM
Project Name: Bus St Skykomish Project Number: 0(140-204-0340 Field Activity: Quartury Cyw Sampling.	Completed By: Chani &.  Date: OC/11/09.  Weather: Cloudy 60°F	- - -
083: net with Dea 0840: started setti 0855: Began Durging 0905: Started recording 0930: Began Sampling 6W-30-0609. 1000: Started Setting up 1007: Regan purging 1017: Started record 1030: Regan Collection 1030: Regan Collection 1030: Regan Collection 1000: Started record	Cooler: With Fresh I'm and had safety men and had safety men of W-3.  Sparameters: O2P Unis also I Collected D.  and IB-W-23.  Mater is clear.  Ling: parameters.	
A and		

Fluid Level Gauging Form

AECOM

Comments DINIA DINIA DIME Divid Dil PWL Durch PWE DINIE A A 7100 Sign Off l Prod. Thick. (ft) 13.60 14.75 11.47 10.86 11.25 11.28 12.16 10.34 11.35 12.32 13.27 10.89 DTW (#) 3.85 8.58 8.54 7.47 5.70 4.32 8.43 Prod. Thick. (ft) 14.15 11.35 10.55 10.75 10.95 11.58 10.11 11.10 11.98 13.00 10.62 12.92 01₩ (#) 7.50 7.08 5.53 4.12 8.22 3.50 8.20 Method LNAPL Thickness Depth to LNAPL (ft) 12431 6,67 12,00 97.66 9.71 12,65 Depth to Water (ft) 8,49 11.98 9,4 Total Casing Depth 13.5 1104 1203 1129 124 モタロ Time 011 011 1 60/60/90 Date 001100K Well Number PAGE 2 MW-18 MW-38R MW-40 7 1C-W-2 MW-12 1B-W-2 MW-10 MW-13 MW-14 MW-15 MW-16 MW-11 MW-5 6-WM MW-1 MW-2 MW-3 MW-4

D. Kinney

F. Merry

PA	PAGE 2											J. J.		
:	:			Total	Don'th to	Don'th to			5/12	5/12/2009	4/21	4/21/2009		
Š	Well Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
MW-1	1-1	60/60/90							11.35		1			
MW-2	2								0.5.		4:			
8 41.0									10.55		10.86			
NIVV-3	3								7.50		8.54			
MW-4	4-1								7.08		7.47			
MW-5	1-5								5.53		5.70			
MW-9	6-/										2.70			
04/0/-10	140								10.75		11.25			
									10.95		11.28			
MW-11	/-11								11.58		12.16			
MW-12	1-12								4.12		4.32			
MW-13	/-13								8 22		8.43			
MW-14	1-14			13.5					15 4		2 3			
MW-15	-15								5 3		10.34			
MW-16	-16								2		11.35			
MW-18	-18								11.98		12.32			7
Vac May V	000		/sice		9				13.00		13.27			
) I	700Y		905/		250				3.50		3.85			
M 2	MW-40		30.00		g. U.S				10.62		10.89			
7 18-W-2	W-2		777		1241				12.92		13.60			
7 1B-W-3	W-3		01+1		14.46				14.15		14.75			
X 1C-W-2	-W-2		S.S.		5.78				8 20		8 58			

AECOM

	Žį				•	AECOM	_					, ,		
PAGE 3											) (2)	app	o, sobbore, E. Arler.	_ ;
14 11 11 11			Total	Don'th to	Joneth to	1		5/1:	5/12/2009	. 4/2:	4/21/2009			⋛┏
Weil Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments	
P-1	60/60/90	2010	21,4	800										Т
X P-2U		5000		3										
P-2D		しつら	Sept.	25 8										T
X P-3U		09 IS		7,11					í				7602	Т
P-3D		819		00,					۲		X.		- Jana A	Т
X P-4U		12/10		8,40										Т
P-4D		823		3011										
X P-5U				77.0	A The									
E-5D		09 26		(3,02										Т
X P.eu		0970		100 00 100 00 10										Т
T-eD		0982		12 - 71										1
New Market		20 3C		30,70										Т
P-70		227		2.0										
P-8		350		000										
X ING COL		1000		1:										
10-MNI-0011		1000		27.0							,			
HCC-KW-02		200		11,32										T
HCC-RW-03		- N		97:1										1
AHCC-RW-04		2172		1.2.1							100			$\overline{}$
HCC-RW-05		815c		6,77										$\overline{}$
HCC-RW-06		= 3		28.9										$\neg \vdash$
X HCC-IW-01		0937		878										$\neg$
X HCC-IW-02		ngri		9,20									****	$\neg$

FWV = 9.15 (6 2505.

24-1= 24 (6 2909.

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# G. Subbane, K. Starkerson

PAGE 4													
		i	Total	Denth to				5/12	5/12/2009	4/21	4/21/2009		
well number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ff)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
(MW-7	60/60/90	(00g		12.13		NOME	4	00 07	1			1	100 0
AMM 47		1		1.00		3		10.66	None	11.04	꼰		15, - 0,81
/ 1-00101		200		2 2 2		<u>+</u>	<u>م</u> را	8.20	Hwy TR	8.58	Hw TR		(0-1.0)
2A-W-3		(6.37		) () ()		1505	4	8 44	AT WH	78.8	0 F . 5 . 7		
2A-W-11		02 O		しり,7		1.32			(1)	0.0	Al ÁAII		
NA1A/ 20		7		000				90.9	X.	6.28	뀌		J 1, 9
C-04101		2001		<b>6</b> .63		大人の子子	子一十	7.64	None	7.59	au CN		10 - 0 to - 0 1
5-W-2		ノー		0.62	S W SO	774	5-30	. 6	-		2102		
5-W-3 ·*	ç	20/1		7007		10,50	0	90.0	TW - X	6.30	Hwy TR		7.0.02
A 741 AC	٤	1308		Т	1		-	5.45	TR	5.86	TR		6. K-0. GW
**A-W	7	1555		3	The State of the S	0,16	purp	8.90	0.22	9.35	0.91		37.0
Other Notes:					10.03								100

Other Notes:

clean well- north (town') half use water level meter (WL)
clean well - south ('railyard') half use water level meter (WL)

| clean well - south ('railyard') half use water level meter (WL)
| vise water level meter le

1.00

total wells:

## Maloney Creek Staff Gauging:

Vater Level (5/12/09)	0.85	1 30	1.05
Water Level	59'C	<b>A</b>	456
Date	6/9/2009		3
Location	North Staff Gauge	Mid Staff Gauge	South Staff Gauge

3 ->

### Fluid Level Gauging Form

Project Name:	BNSF Sk	ykomish		Project Number:	01140-204	1-0340	Collected by:	:	C. M.	ener	u		
Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness (ft)	Method	DTW (ft)	Prod. Thick.	DTW (ft)	Prod. Thick.	Sign Off	Comments
X 1A-W-5	06/09/09	1017		8,40				9,21	(ft)	<del>                                     </del>	(ft)		STANDINELLO GOOD
n .1	06/09/09	<i>14</i> 31		13.62				NM	<del> </del>	<b>†</b>			The factor
X 1B-W-23		0930	16.68	12.65	1	**		13.19		-		<b> </b>	
y 1C-W-1 x 1C-W-7 'vaut?			16.68 F.	12.65 ET				10.95	<del> </del>	<b>†</b>		<b></b>	BOTHETEUR TOOL
		1001	76.62	18.00				NM		<u> </u>			12/12
1C-W-8		t		10096				NM		<del>                                     </del>			
2A-W-40		1056		12,83				NM		7		<b></b>	
7 2A-W-41				11.49						-			
2A-W-42		1520 1104		8.06				·NM	<del> </del>			<u> </u>	NEED NEW BOCTS
5-W-14				6,50				9.26 7.75		<b> </b>			
5-W-15		11/6 1322		6.82					<del> </del>				NEED NIW ECCTS
5-W-16								8.13					NEED NEW BOUTS
5-W-17		7/11		6.16				7.45					NEED NEWBOLTS
5-W-18		1120		6.26				7.61	<del> </del>				NEED NEW BOLTS
5-W-19		1126						7.55	<del> </del>	7.1 243			TORLY FORM BOLLS
5-W-20		1131		5.71		- 1		7.13		1749			
5-W-42		1136		7-30				6.65					
5-W-50				6.34 5.61				7.35					
5-W-52		1353						5.89	<del> </del>				
5-W-53		1356		6.02				6.34					
5-W-54		1359		5.95			~~	6.23					
5-W-55				5.67				6.09					
5-W-56		1328		6.06				6.72					
EW-1								10.70					
EW-2				· ·				NM					
GW-1								NM					
GW-2								8.52					
GW-3								13.53					
GW-4								10.81					
HCC-RW-01					27			10.72					
HCC-RW-02	-					\		11.74		1 2			
HCC-RW-03								11.69				$\dashv$	
HCC-RW-04	,							6.03	-				
HCC-RW-05								6.53	77.464				
HCC-RW-06								6.48				_	
HCC-IW-01					*			9.68					
HCC-IW-02								8.03				-+	
5-W-51						<u> </u>	-	6.85	Hvy TR				4.
5-W-3								6.87	TR	·  .			<del></del>
MW-22				l	<u> </u>	*		7.45 .	Hvy TR				

Other Notes:

dirty casing, possible trace product dirty well

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

### AECOM

### Fluid Level Gauging Form

	Project Name:	BNSF Sk	vkomish	1	Project Number:	01140-204	I-0340	Collected by	· · · 6.	Sebba	Na	E.S	tor	kortan
				1	_ 	T	T	- T		3/2009	1		1	
	Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness (ft)	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
	1A-W-5	06/09/09							9.21					
	1B-W <b>-</b> 23								NM					
	1C-W-1								13.19					
	1C-W-7								10.95					
	1C-W-8								NM					
	2A-W-40								NM					
	2A-W-41								NM					
	2A-W-42								NM					
	5-W-14								9.26					
	5-W-15								7.75					
	<b>5-W-1</b> 6								8.13					
	5-W-17								7.45					
	5-W-18								7.61					
	5-W-19								7.55					
$\perp$	5-W-20								7.13					
	5-W-42								6.65					
4	5-W-50								7.35					
4	5-W-52								5.89					
4	5-W-53								6.34					
4	5-W-54								6.23					
4	5-W-55								6.09					
4	5-W-56								6.72					
4	EW-1								10.70					
- 1	EW-2								NM					
┰	GW-1								NM					
	3W-2								8.52					
_	3W-3								13.53					
_	3W-4								10.81					
	ICC-RW-01								10.72					
_	ICC-RW-02		-						11.74					
_	ICC-RW-03								11.69					
	ICC-RW-04								6.03					
	ICC-RW-05								6.53					
_	ICC-RW-06								6.48					
_	ICC-IW-01								9.68					
	ICC-IW-02								8.03			$\perp$		
	-W-51		136		5.70		Trale		6.85	Hvy TR				6-03
_	-W-3		, ,						6.87	TR			$\perp$	
N	IW-22		126		6.39		Trac		7.45	Hvy TR				7-061

Other Notes:

dirty casing, possible trace product dirty well

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

7.90

Date	6/10/09	
Project No.	01140-204-0340	
Project name	BNSF-Skykomish	

NFORMATION	
8.17	(ft)
	(ft)
2	(in)
	(ft)
NOME	· (ft)
Chand.	
	NFORMATION  8.17  2  NOME  Condi

Well No.	EW-1	
Sampled By	Chani, S	
weather 50	uny 12	°F

	COMMENTS
Inle	f tolinga 10 Ft.
Par	se luder is clear.
Dο	unstable.

			PURGE	DATA				
start purge time	0923			and the second second second	and the second second second	<del>- Carana da sana da sana</del>	The Control of the Co	ediscusión de la laboración
time		0933	0936	0939	0942	0945	0948	0951
DTW	(ft)	8,18	8.18	8.18	NM	MM-	MM	8.18
purge rate	(L/min)	230	230	230	230	230	230	230
рН	(Units)	5.65	5.63	5.66	5.65	5.70	5.70	5.70
conductivity	(umhos/cm)	0,044	0.046	0.045	0,043	0.044	0.047	6.048
temperature	(deg C)	10.55	10.71	11.08	10.56	16.57	11.53	11.41
D.O.	(mg/L)	2.55	2.26	2,07	1.95	1.79	1.66	1.57
ORP	(mv)	196.3	193.4	192 16	193.0	190,0	190.3	190,1
turbidity	(NTU)	1.20	1.26	1.21	1.23	1,20	1,23	1,23
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	<u> </u>

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
EW-1-0609	1000	NWTPH-Dx	1L Gl. Amber	2	HCI
				·	
				<u> </u>	
`					
·					

		GROUN	DWATER	SAMPL	NG LOG			
Project name	BNSF-Skvk	omish		·	Well No	Elal	- 1	
Project No.		0340		•	Sample	By 0 1	ma t	
	10109			-	weather	By GL	1	°F
2410	(0/ 0/				weather	Suca	7	Г
WE	LL INFORM	ATION				COMM	IENTS	
Depth to water	&,	17	(ft)					
Depth of well:			(ft)				•	
Well diameter:	,	2-	(in)					
Feet of water:			(ft)					
Product thickness	SS: O	LONE	(ft)					
Screen interval:								
well condition:	C	1000/	-					
			PURGE	DATA			edy to Ali	
start purge time				· · · · · · · · · · · · · · · · · · ·		<u> Anna Carte a anteste c</u>	Mary Commence	
time		0954	0957					
DTW	(ft)	8 18	MM					
purge rate	(L/min)	230	230					
рН	(Units)	5:10						
conductivity	(umhos/cm)	0,048	0.047					
temperature	(deg C)	11.23	11.71					
D.O.	(mg/L)	1.49	1,46					······
ORP	(mv)	1900						· · · · · · · · · · · · · · · · · · ·
turbidity	(NTU)	1.21	1,20					
purge and sampl	e equip.	Peristalt	ic pump ar	nd silicor	e/polyethy	lene tubin	a	
							<u> </u>	<del></del>
		SAN	IPLE INFO	PRMATIC	ON			
sample number	time	ana	ysis	cont	ainer	# bottles	preserva	ative
EW-1-0609	1000		PH-Dx		Amber	2	HCI	
							****	
·								

		GROUN	IDWATER	RSAMPL	ING LOC	9	
Project name	BNSF-Skyk	omish			Well N	o. EW-	Z
Project No.	01140-204-0				Sample		
Date	6/9/	09	·	<del>-</del>	weathe		°F
WE	ELL INFORMA	ATION				COMM	ENTS
Depth to water			(ft	)	Mo		Installed
Depth of well:			(ft	<del></del>	100	11101	11216180
Well diameter:	·	· · · · · · · · · · · · · · · · · · ·	(in	<b>⇔</b>			
Feet of water:			(ft)				
Product thickness	SS:		(ft)	_			
Screen interval:				4		· · · · · · · · · · · · · · · · · · ·	
well condition:	······································		<u></u>	7			
				1	,		
			PURGE	DATA			
start purge time		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			<del>and the section of t</del>		<u> Takan katan kanan ka</u>
time				T T	1		
DTW	(ft)				1		
purge rate	(L/min)						
Н	(Units)						
conductivity temperature	(umhos/cm)						
temperature	(deg C)						
D.O.	(mg/L)						
ORP	(mv)						
turbidity	(NTU)						
ourge and samp	le equip.	Peristalt	ic pump a	nd silico	ne/polyet	hylene tubin	g
		SAN	IPLE INF	ORMATI	ON		
sample number	time	ana	lysis	con	tainer	# bottles	preservative
EW-Z-0609	Not	NWT	PH-Dx		Amber	2	HCI
	Sampled						
·							
	<u> </u>						

	·				- 200 to 6	<del></del>		
		GROUN	DWATER S	AMPLIN	G LOG			
Project name Project No.	BNSF-Skyko 01140-204-0			<b>-</b>	Well No Sampled		W-14	·
Date	6/10/09	)		_	weather		νC , (	50°F
				<del>-</del>				
V	VELL INFORM	NATION		1	MQY JA	COM	MENTS	
Depth to water	80	02	(ft)	,	Tu	the orld	105 m	+ ~ 8,70
Depth of well:			(ft)	1			1-12-21	<u></u>
Well diameter:			(in)	]				
Feet of water:			(ft)					
Product thickness	ss:	·	(ft)	]				
Screen interval:				]				
well condition:						······································		
				]	L			
			PURGE D	ΛΤΛ				
start purge time	19904	<u> </u>			<u> </u>	<u></u>	<u> </u>	<u> </u>
time	100 J	191/4	0917	0970	9022			T
DTW	(ft)	6.05	8.05	8.05	8,05			1
purge rate	(L/min)	0.30		0,0,	~			
рН	(Units)	6.05	6.07	6.08	6,09		•	
conductivity	(umhos/em)	9,9	10.0	10.0	10.0			
temperature	(deg C)	1213	11.7	10,8	10,7			
D.O.	(mg/L)	1,46	171	1.75	1,73			
ORP	(mv)	113	116	ΙZô	122			
turbidity	(NTU)	116	0.86	0.81	0,79			
purge and samp	le equip.	Peristaltic	pump and	silicone/po	olyethylen	e tubing		

SAMPLE INFORMATION								
sample number time		analysis contain		# bottles	preservative			
5-W-14-0609	0925	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI			
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI			
,								
		_						

### GROUNDWATER SAMPLING LOG Project name BNSF-Skykomish Well No. Project No. 01140-204-0340 Sampled By °F Date weather WELL INFORMATION COMMENTS Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition:

			PURGE D	ATA			
start purge time	1045						
time		1055	1058	1101	CINA		
DTW	(ft)	6,54	6,61	661	667	, ·	
purge rate	(L/min)	030			7		
рН	(Units) $$	627	6.28	6,28	6.7.8		
conductivity	(umhés/cm)	108	11.2	11,3	1114		
temperature	(deg C)	12,4	11,9	11.8	117		
D.O.	(mg/L)	0,0	0,0	O, D	DyD		
ORP	(mv)	-28	-32	-22	-34		
turbidity	(NTU)	526	559	547	107	)	
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	olyethýlen	e tubing	 

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
5-W-15-0609	1110	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI		
	•	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI		
5-4-150-0604	1122	11 WS6CU)	11	11	,,		
(dup)		1) Yosacul	/1	7)	//		
			·				

		GROUNI	OWATER S	AMPLIN	G LOG			
Project name	BNSF-Skyko	nmish			Well No.	Cal	N-16.	
Project No.	01140-204-0		<del> </del>	_	Sampled			
Date		19		-	weather	. (	*	°F
Date	9;070	<u></u>		-	weather	Clew,	65	
V	VELL INFORM	MATION			A-25-0-1-	СОММ	ENTS	
Depth to water		6,77	(ft)		Tal	eld and	+ a+ =	. 25
Depth of well:			(ft)				<del></del>	
Well diameter:		2	(in)	1				
Feet of water:			(ft)	1 ·				
Product thickness	ss:	,»	(ft)					
Screen interval:								
well condition:	· .	Ok						
				]				
			PURGE D	ATA				
start purge time	0953	<u> </u>						<del></del>
time		1003	1006	1009	1012			
DTW	(ft)	6.82	6.82	682	6,82			
purge rate	(L/min)	0,30			<b>→</b>			
рН	(Units)	6133	6,32	63	6,32		·	
conductivity	(umhos/em)	61	6.1	6	60			
temperature	(deg C)	1.3	11.3	11.3	11.3			
D.O.	(mg/L)	3.66	3,50	3,57	3.47			
ORP	(mv)	117_	112	ile	117			
turbidity	(NTU)	5,96	4 10	4,01	3,831			·
purge and samp	le equip.	Peristaltic	pump and	<u>silicone/p</u>	olyethylen	e tubing		
		<u> </u>	DI E MES					

SAMPLE INFORMATION								
sample number time		analysis container		# bottles	preservative			
5-W-16-0609	1015	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI			
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI			
:		·						
·								
		·						

Project name	BNSF-Skykomish
Project No.	01140-204-0340
Date	6/10/09

WELL INFORMATION						
Depth to water	6.17	(ft)				
Depth of well:		(ft)				
Well diameter:	~~	(in)				
Feet of water:		(ft)				
Product thickness:		(ft)				
Screen interval:	ì	,				
well condition:	OK-					

Well No.	5-11	17
Sampled By	DWK	
weather (	Ther,	70°F

COMMENTS
Tubbre Mot at ~ 7,0
Extra sample whome
€or Lab &c

			PURGE D	ATA				
start purge time	1254							
time		1304	1307	131n	1313	1316	1319	
DTW	(ft)	6,17	617					
purge rate	(L/min)	0,30		~>~			>	
рН	(Units)	6,27	6,24	6,20	6.15	6,13	6.11	
conductivity	(umbos/em)	4.5	7.5	7,6	7,6	7.6	7.6	
temperature	(deg C)	IZS	17,0	11,5	11.4	11.3	11/3	
D.O.	(mg/L)	1.34	130	425	1.20	1,70	112	
ORP	(mv)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	23	25	36	39	40	
turbidity	(NTU)	2.18	6.10	5,03	4.51	1.77	4,47	-
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

		SAMPLE INFO			
sample number time		analysis container		# bottles	preservative
5-W-17-0600	1370	NWTPH-Dx (w/SGCU)	1L Gl. Amber	6	HCI
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	8	HCI
				/	
			,		
	;				

### **GROUNDWATER SAMPLING LOG** Project name BNSF-Skykomish 5-W-18 Well No. Project No. 01140-204-0340 Sampled By 6/10/09 Date weather **WELL INFORMATION** COMMENTS Depth to water Tubling Inlest (ft) (ft) Depth of well: Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: **PURGE DATA** start purge time time DTW (ft) purge rate (L/min) (Units) / / (umhos/cm) рН conductivity (deg C) temperature D.O. (mg/L) 0,0 ORP

		SAMPLE INFO	RMATION			
sample number	time	analysis	container	# bottles	preservative	
5-W-18	1450	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI	
	1	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI	
	·				٠	
,						
		·				

Péristaltic pump and silicone/polyethylene tubing

(mv)

(NTU)

purge and sample equip.

turbidity

		GROUNI	OWATER S	SAMPLING	G LOG			
Duning to a sure	DNOT Objective	!			187.01.11			0
Project name	BNSF-Skyko				Well No.	<u>~</u>	5-W-1	<u>ブ</u>
Project No.	01140-204-0			-	Sampled	Ву	DMK	
Date	6/10/0	9			weather	P.C	louds.	<i>7∂</i> °F
	, 			_				1
V	VELL INFORM	NATION		]	STORY IN	COM	MENTS	
Depth to water		6.11	(ft)		Tuh	na enl	ot o	~71
Depth of well:	·		(ft)			. /		
Well diameter:		2_	(in)					, )
Feet of water:			(ft)					
Product thickness	ss:	_	(ft)					
Screen interval:		,						
well condition:		0ki						
							····	
<b>1</b>		·····		9 27 200 As 17			<del></del>	
	, , , , , , , , , , , , , , , , , , , ,		PURGE D	)ATA	<u> </u>	<u> </u>		
start purge time	1608	····					<del>., </del>	T
time		1618	162)	1674	16/27	······································		
DTW	(ft)	611	611	6,11	6,11			
purge rate	(L/min)	0,30		>	~~~			
pН	(Units) ms:	6,08	6,09	6,09	6.00			
conductivity	(umhos/cm)	6.9	6.8	6,2	618			
temperature	(deg C)	17,3	17.3	123	123			
D.O.	(mg/L)	1,43	1.43	U4Z	441			
ORP	(mv)	61	61	67	62	····		
turbidity	(NTU)	8191	5,44	5,72	5.01		<u> </u>	·
purge and sample	e equip.	Peristaltic	pump and	silicone/po	olyethylen	e tubing		

Parties of the second		SAMPLE INFO			
sample number	time	analysis	container	# bottles	preservative
5-W-19-0609	1630	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI
1	16,3-0	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI
		·			

·	· · · · · · · · · · · · · · · · · · ·	GROUNI	DWATERS	SAMPLIN	G LOG			
Project name					Well No. 5-W-20.			
Project No.	01140-204-0			<del></del>	Sample	d By	WIC _	
Date	6/10/0	9			weather	. Cla	under ?	70°F
				_			<del>, , , , , , , , , , , , , , , , , , , </del>	
	WELL INFORM	NOITAN		·	11.02	COM	MENTS	
Depth to water	<u> </u>	62	(ft)		Tubh	z do lot	· of 2	651
Depth of well:			(ft)			/		<del></del>
Well diameter:			(in					
Feet of water:			(ft)					
Product thickne			(ft)					
Screen interva	<u>:</u>			]				
well condition:	<i>.</i>							
				]				
			- NIBAE	45 46 46 66 F	The second of the second			· · · · · · · · · · · · · · · · · · ·
_44	1707		PURGE E	JAIA	<u></u>	<u> </u>	<u> </u>	
start purge time	1723	11,7-2-2	1777	11720	IF > 1 -2	1 3 3 -4		7
time DTW	(ft)	17533	1750	1729	1124/	1745		<del>                                     </del>
	(L/min)	3.66	5.62	5,62	12/6/	566	<u> </u>	<u> </u>
purge rate pH	(Units)	050			610	(1)		ļ
conductivity	(umhos/erh)	6,15	6/4	0213	6,14	6.12		
temperature	(deg C)	13.1	1531	13/4	17:5	15.3		
D.O.	(mg/L)	11,8	55	100	11,0	0.0		<del> </del>
ORP	(mv)	30/	72	53	34	30		
turbidity	(NTU)	17.9	7/0	500	777	531		<u> </u>
purge and sam	<del></del>		pump and	23 2 0	olvethyler			L
<u></u>	1 1				J. J J J J J J J J J J J J J J J J J J	io tability		
		SAM	PLE INFO	RMATION	l			
sample number	time	analy	***************************************	<del></del>	ainer	# bottles	preser	vative

NWTPH-Dx (w/SGCU)

NWTPH-Dx (w/o SGCU)

1L Gl. Amber

1L Gl. Amber

HCI

HCI

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/10/09	

WELL	INFORMATION	
Depth to water	5.77	(ft)
Depth of well:		(ft)
Well diameter:	7.	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	Good.	

Well No.	5-W-	-42	_
Sampled By	Chain	1.5	
weather 0	loudy	69	°F

	COMMENTS
	Fret tabing a 8 cuft
	parge water with
	Do and GRP
	unstable.
ı	

			PURGE D	ATA				
start purge time	172	3						
time		1733	1735	1738	1741	1744	1747	1750
DTW	(ft)	5.79	5,79	5.79	5.79	MM	NIM	NIM
purge rate	(L/min)	250	250	250	250	250	250	250
рН	(Units)	6.23	85.3	6,29	6.27	630	6.32	6.30
conductivity	(umhos/cm)	0094	0.097	0,096	0.097	0.103	0.100	6,103
temperature	(deg C)	10.76	10,65	10.58	10,52	10,62	10,77	10.43
D.O.	(mg/L)	12,40	2.16	2,02	1,88	1.73	1.63	1.49
ORP	(mv)	-19,3	-27,3	4	-35.3	-38.7.	-41.7	-44.4
turbidity	(NTU)	2,79	2,92	2.52	2.29	1.78	li Si	1.68
purge and sample equip. Peristaltic			pump and	silicone/p	olyethyler	e tubing		

		SAMPLE INFOR			
sample number	time	analysis	container	# bottles	preservative
5-W-42-0609	1800	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI
		·	·		
·				·	
			•		

AS

### GROUNDWATER SAMPLING LOG

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/16/09	

WELL	INFORMATION	
Depth to water	5.82	(ft)
Depth of well:		(ft)
Well diameter:	2-	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	Good.	

Well No.	58-W	-43-	5-W-
Sampled E	By Cha	mi. S	
weather	Sunay	74	°F

	COMME	NTS	
Fulet	tub inj	1 7.0.	.Ft.
	J	· · · · · · · · · · · · · · · · · · ·	
purg	e Water	is ele	Ge.

		A Service Control	PURGE	DATA				
start purge time	1021							
time		1031	1034	1037	1040			
DTW	(ft)	5.83	5.83	5.83	5.83			
purge rate	(L/min)	240	240	240	240			
рН	(Units)	6.27	6.28	6.29	6.			
conductivity	(umhos/cm)	0,099	0.101	00100	O.Ci			
temperature	(deg C)	11.18	11.02	10.98	11.05			
D.O.	(mg/L)	1.02	9.95	0.45	0,96			
ORP	(mv)	174.7	172.2	171.6	(હઈ. į			
turbidity	(NTU)	1.80	1-66	1.65	1.61			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tubi	ng	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
SA-W-43-0609-		NWTPH-Dx	1L Gl. Amber	2	HCI
5-W-43-669	1045				
					***************************************

A-S

Time	1753	1756	
DIW	B. 79	NM.	
Fluvrate	250	250	
PH	6.30	6.30	
(ond	ઇ. (७३	0.105	
Temp	10.40	10.32	
DO	1.42	1,35	
GRP	-45.3	_47,1	
Turb.	(.87	1.72	

		GROUN	DWATER	SAMPLI	NG LOG		
Project name Project No.	BNSF-Skyko 01140-204-0			- -	Well No Sample	. 1B- d By (	W-23 hanis
Date	6/11/4	19		_	weather	Cloud	9 58 °F
WE	LL INFORM	ATION				COMM	( IENTS
Depth to water	1 2	18,	(ft)		7-10	F t/-	a 1 11 ft
Depth of well:			(ft)	~	1 -7 VX	+ talsia	72 10.1.
Well diameter:	9	*	(in)		DIVE	e Water	is clow.
Feet of water:			(ft)	<b>-</b>			
Product thicknes	s: /	JONE	(ft)				, , , , , , , , , , , , , , , , , , , ,
Screen interval:	7						
well condition:	Conoc	d					
			The control of the second state of the second	W-Lo Co Const			
		**************************************	PURGE	DATA			
start purge time	100				<del></del>		
time		1017	1020	1023	1026	1029	
DTW	(ft)	13.81	13.81	13.81	MM	NM	
purge rate	(L/min)	250		250	250	250	
рН	(Units)	5.99	5,99	5,99	6,02	600	
conductivity	(umhos/cm)	0.67	0.066		0.067	0,068	
temperature	(deg C)	9.53	9.39	9,33	9.19	9.27	
D.O.	(mg/L)	4.24	4.30	4.34	4.35	4.31	
ORP	(mv)	92,4	99.5	102,8	111.2	114.3	
turbidity	(NTU)	2.48	2.38	2.10	2.13	11.91	
purge and sampl	e equip.	Peristalt	ic pump a	ınd silicor	ie/polyeth	ylene tubin	g
The defendant for the second		0.41	451 E 1815		5 N		and the second of the appropriate the second of
			IPLE INF		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	I kan saa I	
sample number	time		lysis		ainer	# bottles	preservative
1B-WLZ3-0609	1030	NWT	PH-Dx	1L GI.	Amber	2	HCI
						-	
	•		···				
							·
			· · · · · · · · · · · · · · · · · · ·				

\* :-::

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Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	40/09	

WELL	INFORMATION	
Depth to water	10.95	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE.	(ft)
Screen interval:		
well condition:	Gad.	
	- (	

Well No.		ZA	~ (W	-4	0	
Sampled	Ву	(b)	1 000	Ĺi	7,	
weather	Su	nne	1	70	<u> </u>	°F

	COMMEN	T <b>S</b>
Duelice	ted same	olo_
collec	ted	
Inlet to	151 Lun 2	13 Ft.
purse	Water is	clear.
1 /		

			PURGE	DATA			1. 25. 1.21.	
start purge time	1413							
time		1423	1426	1429				
DTW	(ft)	10.98	10,98	10.98				
purge rate	(L/min)	230	230	230				
pН	(Units)	6.54	6.52	6.50				
conductivity	(umhos/cm)	0.067	0.067	0.066				
temperature	(deg C)	13.45	13.14	13.02				
D.O.	(mg/L)	3.91	3.81	3,80				
ORP	(mv)	118.3	1180	119,0				
turbidity	(NTU)	1.80	1.96	1.84				
purge and sampl	e equip.	Peristalt	ic pump a	nd silicone	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
ZA-W-40-0609	1430	NWTPH-Dx	1L Gl. Amber	2	HCI		
		-					
2A-W-400-0609	1440	11	17	þ	n		
(due)							

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/10/09	

WELL	NFORMATION	
Depth to water	(3.00	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
well condition:	Chord.	
	3 1 - 5 3 1	

Well No.	ZA-	W-41	
Sampled	By Colo	141.8	
weather	Cloudy	72 °F	

COMMENTS
Inlet tubicais ft.
purge Water is Clear.

		Harris State	PURGE	DATA		10 10 10 10 10 10 10 10 10 10 10 10 10 1		y North Holy Dog Silver Alaman (1971) Walay
start purge time	16 20	+						
time		1634	1637	1640	1643	1647	1650	1653
DTW	(ft)	1300	1300	13.01	NM	NM	NM	NM
purge rate	(L/min)	230	230	230	230	230	230	230
рН	(Units)	6.27	6.25	6,25	6.25	6,24	6.23	6,23
conductivity	(umhos/cm)	0,060	0,080	0.078	0,079	0,078	0.079	0.079
temperature	(deg C)	12.66	12.37	12,00	12,09	11.86	11.95	11.79
D.O.	(mg/L)	3.91	3,95	4.01	3.95	3.96	4.18	4.19
ORP	(mv)	49.4	59.1	65,4	70,4	75.5	80,6	850
turbidity	(NTU)	0.90	0.64	0.74	0.66	6.80	0.98	0.99
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
2A-W-41-0609	1700	NWTPH-Dx	1L Gl. Amber	2	HCI

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	60/09	
	• • • • • • • • • • • • • • • • • • • •	

WELLINF	ORMATION	
Depth to water	11.61	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	HOME	(ft)
Screen interval:		
well condition:	G00d.	
weed to elevate	Morinant.	

Well No.	ZA-W-4Z	
Sampled	By Chan! S	
weather	Survey 74.	F_
	,	

COMMENT	Š
Fulet tubing a	13 Ft.
<i>Q</i> .	,
purgo water is	Clear.

80 80 80 80 00 00 00 00 00 00 00 00 00 0	The state of the s		PURGE	DATA				
start purge time	123	8						
time		1248	1251	1254				
DTW	(ft)	11.62	11.62	11.62				
purge rate	(L/min)	240	240	240				
pН	(Units)	6.22	6.22	6.22				
conductivity	(umhos/cm)	0:122	0.119	0.117				
temperature	(deg C)	11.26	11.25	11.19				
D.O.	(mg/L)	2.19	2.15	2.04				
ORP	(mv)	35	99.6	103.5				
turbidity	(NTU)	1.92	1.89	1.78				
purge and sampl	e equip.	Peristalt	ic pump a	nd silicone	e/polyethyl	lene tubir	ng	

sample number	time	analysis	container	# bottles	preservative
ZA-W-42-060g	1255	NWTPH-Dx	1L Gl. Amber	2	HCI
-				<u> </u>	
, , , , , , , , , , , , , , , , , , , ,					· · · · · · · · · · · · · · · · · · ·
·					

	•	
	Time	1656
	DTW	1301
	purgerate	230
	PH	6.24
<i>.;</i> *	Cord	0.079
	Terp	11.70
	Ds	4.14
	GRP	87,4
;- ;-	Turbidity	0,96.
	. 1	

### GROUNDWATER SAMPLING LOG Project name BNSF-Skykomish Well No. 01140-204-0340 Project No. Sampled By Date weather WELL INFORMATION COMMENTS Depth to water 12,18 (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: 01 **PURGE DATA** 1637 start purge time time DTW (ft) purge rate (L/min) pН (Units) (Units) (umhas/em) conductivity temperature (deg C) D.O. (mg/L) ORP (mv) turbidity (NTU) purge and sample equip. Peristaltic pump and silicone/polyethylene tubing SAMPLE INFORMATION sample number time analysis container # bottles preservative 1C-W-1-0609 1300 NWTPH-Dx 1L Gl. Amber HCI

		GROUNI	OWATER	SAMPLIN	IG LOG		
Project name	BNSF-Skyko	omish			Well No.	10-	W-7
Project No.	01140-204-0			-	Sampled		12
Date	6/10 /09			-	weather		70°F
	0,10			-	110011	II L VO VICE	<del>y , </del>
WE	LL INFORMA	ATION		]		COMM	ENTS
Depth to water	10	80	(ft)		Tub	us Inles	to 21151
Depth of well:		00	(ft)	1	1-11/2		<del>-0</del> - 1123
Well diameter:	-	2_	(in)				
Feet of water:			(ft)				
Product thicknes	s: ,		(ft)				
Screen interval:							
well condition:	. 6	0k_					
Noo.	d to mice	MARIN		], ,			
	grado 1 =	3'4 b	clow gra	do)			
			PURGE	DATA			n faster i de la faster. Al faster i de la fa
start purge time	1514						
time	•	1524	1527	1530	1235	1536	
DTW	(ft)	10,81	100	10.8)	185	10,54	
purge rate	(L/min)	0.30			-	<u>-`&gt;</u>	
pH	(Units)	5,97	5,96	5,95	5.74	5.94	
conductivity	(umhos/em)	8,6	815	8,4	8,3'	8:3	
temperature	(deg C)	13,3	13,2	اع، گ	13,1	13.1	
D.O.	(mg/L)	0,0	0.0	0,0	0,0	0,0	
ORP	(mv)	-3	- 3	-2	-2-		
turbidity	(NTU)	2.63	5.91	3,62	3,87	3,51	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	yleńe tubing	g
				·			
		SAN	IPLE INF	ORMATIC	N		
sample number	time	ana	ysis	cont	ainer	# bottles	preservative
1C-W-7-0609	1540	NWT	PH-Dx	1L GI.	Amber	2	HCI
	, , ,						
							-

		GROUNI	DWATER	SAMPLI	NG LOG		e de la companya de l	
							IC-W-I	AS
Project name	BNSF-Skyke			_	Well No.	<del></del>	G-W-8	/
Project No.	01140-204-0	0340		_	Sample	By	hani.s	
Date	6/09/6	29		_	weather	Suni	y 16°	°F
	7			<del>-</del>			7	
WE	LL INFORM	NOITA				COM	MENTS	ACAN A
Depth to water		12.71	(ft)		July	tubic	s ~ 14 C	SFH
Depth of well:			(ft)		DUTC	8 luctes	Miclour	. 1
Well diameter:		7_	(in)	1			<b>\</b>	
Feet of water:			(ft)	]				
Product thickness	ss:		(ft)	]				
Screen interval:				]			,	
well condition:	No	bolds		]				
	•			]	·			
		······································						
			PURGE	DATA				
start purge time	1618						···	
time		1628	1631	1634				
DTW	(ft)	12.74	12.74	12.74				
purge rate	(L/min)	220	220	220				
рН	(Units)	5,67	5.67	5.67				
conductivity	(umhos/cm)	0.053	0.053	0.053				
temperature	(deg C)	11-21	11.04	11.17				
D.O.	(mg/L)	6.85	6.86	6.80				
ORP	(mv)	168.2	164.6	164.4				
turbidity	(NTU)	3.23	2.77	2.59				
purge and sampl	le equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	
The second control of the second second	44-11-11-11-11-11-11-11-11-11-11-11-11-1		· · · · · · · · · · · · · · · · · · ·				The state of the s	· · · · · · · ·
			IPLE INF		200 (201 (201 ) )			
sample number	time		ysis		ainer	# bottles	preservativ	<del>2</del>
1C-W-1-0609	1640	NWT	PH-Dx	1L GI.	Amber	2	HCI	
		····						

		GROUN	DWATER	SAMPLI	NG LOG			
Project name	BNSF-Skyko	omish			Well No		6W-1	
Project No.	01140-204-0			-	Sample	By (	la con i	ک ,
Date	6/10/00	7)		<del></del>	weather	Sun	7	S °F
Date	9 10 10	1		<b>-</b> .	- Wodanor	7 6185	7 1	
WE	LL INFORMA	ATION				COM	MENTS	
Depth to water					Tule	t tub	ing of	9 Ft
Depth of well:			(ft)				W.	
Well diameter: 2			(in)		Durs	Wales	is de	TERP.
Feet of water:			(ft)					
Product thicknes	ME.	· (ft)	]					
Screen interval:								
well condition:	60	od.						
				-				
			PURGE	DATA				
start purge time	1522	}° ⊶>						
time		1532	1535	1538	15.41	1544	1547	1550
DTW	(ft)	6.85	B .8S	6.85	MM	MM	MM	NM
purge rate	(L/min)	220	240	220	220	220	no	220
рН	(Units)	6,63	6.66	6.65	6,64	6.61	6.64	6.64
conductivity	(umhos/cm)	0,107	0.106	0,106	0.165	0.105	0.105	0,106
temperature	(deg C)	11.50	11.99	11.23	11.14	11.17	11.15	11.00
D.O.	(mg/L)	1.14	0.95	0.85	0.76	0.73	0,69	0.66
ORP	(mv)	15,4	-8-9	-19.9	- U6.5	-29.9	-30.7	-33.1
turbidity	(NTU)	1.59	1.88	レスブ	1.70	1.62	1.69	1.61
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tubi	ing	•
			IPLE INF	ORMATI	ON			
sample number	time	ana	lysis	cont	ainer	# bottles	prese	rvative
GW-1-0609	1555	NWT	PH-Dx	1L GI.	Amber	2	Н	ICI
		***************************************			· · · · · · · · · · · · · · · · · · ·			
								·
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Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/10/09	

WELL	INFORMATION	
Depth to water	8.25	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:		· (ft)
Screen interval:		
well condition:	Good.	
	•	

Well No.		6W-	-2_	
Sampled	Ву	6/4	ani.	S
weather	Sú	huy	75	°F
		- /		

COMMENTS
Full tubing 1 10 Ft.
Durgo Water is Clear.

			PURGE	DATA				
start purge time	1319							
time		1329	1332	1335	1338	11341	1344	
DTW	(ft)	8.25	8.25	8.25	MM	NM	MM	
purge rate	(L/min)	220	220	220	220	220	220	
рН	(Units)	6.21	6.20	6.20	6-19	6.18	6.18	
conductivity	(umhos/cm)	0.112	0,110	0.110	0,109	0,09	0,108	
temperature	(deg C)	12.93	12.63	12,65	12,44	12.59	1251	
D.O.	(mg/L)	1.56	1.45	1,33	1.25	1.18	(17	
ORP	(mv)	1200	118,9	11911	119,5	120,4	120.8	
turbidity	(NTU)	1.41	1.47	1.58	1.66	1,53	1.63	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
6W-Z-0609	1345	NWTPH-Dx	1L Gl. Amber	2	HCI				
					· · · · · · · · · · · · · · · · · · ·				
,									

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/11/09	

WELL	INFORMATION	
Depth to water	13.56	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	Missing one bold	,
,	7	

Well No.	GW-3	
Sampled By	Chanis S	
weather ?	loadu 58	°F
,	7	•

COMMENTS	A
Inlet tobing a	15 Fa
	r.
OLF unstable.	
Duplicate collected	
Duplicate collected	

		ra is elemented and a	PURGE	DATA				
start purge time	0855							
time		0905	0908	0911	0914	3917	0920	0923
DTW	(ft)	13.56	13.56	1356	13.56	MM	NM	MM
purge rate	(L/min)	250	250	250	150	250	250	250
рН	(Units)	597	5.97	5,98	5.98	5.99	5.99	5.99
conductivity	(umhos/cm)	0.073	0,069	0.069	0.068	0,067	0.067	0.066
temperature	(deg C)	8.87	8.70	8,71	8.66	865	8,59	8.61
D.O.	(mg/L)	2.77	321	3.32	3,45	3.58	3.61	3,60
ORP	(mv)	1.6	16.3	24.4	30.8	35. E	38.7	42.1
turbidity	(NTU)	8,34	4.29	4.05	3.66	2.56	2.10	1.97
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
GW-3-0609	0930	NWTPH-Dx	1L Gl. Amber	2	HCI
6W-30-0609	0940	11	1/		<i>}</i>
(dup)					
		·····			

	•		and the state of t		
Time	0926	0929			
Drw	13.56	мМ			
que y rata	250	250			
PH	5.99	5,97			***************************************
Cend	0.066	6 0066			
Temp	8.60	8.72			
Do	3.73	3,80			
ORP	43.7	45.4			
Turk	1.82	1,87			
į.			11	Tradition of the Party of the P	

Project name	BNSF-Skykomish	
Project No.	01140-204-0340	
Date	6/10/09	

WELLI	NFORMATION	
Depth to water	10.24	(ft)
Depth of well:	· · · · · · · · · · · · · · · · · · ·	(ft)
Well diameter:	フ	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:	,	
well condition:	Good.	
	0,	

Well No.		GW-	4	
Sampled	Ву	Chr	aur. S	
weather	Su.	nay	74 °F	
		/	, ,	

	COMMENTS
Inle	+ tubing 1 11. Coff
purs	e Krafert is clear.
ORP	unstable.

			PURGE	DATA			vija i i	
start purge time	1120							
time		1130	1133	1136	1139	1142	1145	1148
DTW	(ft)	10.60	10.64	10.58	10.57	10.57	10,57	10.57
purge rate	(L/min)	220	220	180	180	180	180	180
рН	(Units)	7.00	7.02	7.04	7,03	7,03	7,00	694
conductivity	(umhos/cm)	0 157	0.156	0,151	0.157	0.155	0.154	0,155
temperature	(deg C)	11,79	11.67	11.86	12.12	12.33	12.33	12-45
D.O.	(mg/L)	0,89	0.85	0,81	0.84	0.82	6,84	0,88
ORP	(mv)	142.9	136.1	126.1	117.3	108,5	93.2	78.6
turbidity	(NTU)	2.26	2,00	2.23	1.97	2.18	2.21	2,22
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
6W-4-0609	1205	NWTPH-Dx	1L Gl. Amber	2	HCI
·					

<i>i</i>			
Time	1151 1154 11	57 1200 1203	
Drw	1057 MM N	M AM MM.	
Parks	(80 (80 180	) 180 180	
Prt	6.94 6.92 6.8	8 657 6.	
Cond	0.150 0.149 0.1	48 0:147 0:147	
Ti-	12,33 12.34 12.3	2 12.07 11.88	
00	0.92 0.93 0.9	8 0.99 1.03	
OBP		.6 58,2 58.6	100
Turbid:	72.14 2.16 2.	00 (,97 1.90	
·			

		GROUN	DWATER	SAMPLI	NG LOG			
Project name	BNSF-Skyk	omish			Well No	. 7.8	-W-46	_
Project No.	01140-204-0				Sample		DINC	7
Date		109		<del></del>	weather	cl	udy, 6	<i>O</i> °F
WE	, ELL INFORM	ATION				COM	MENTS	
Depth to water	11,0		(ft)		Trab	1	et at	L 17 1
Depth of well:			(ft)		160	Trig IV 12	0101	- 14-
Well diameter:	,	2	(in)	1		······		
Feet of water:			(ft)					<del></del>
Product thickness	SS:		(ft)					
Screen interval:			<u>\`\'\</u>	1		<u></u>		
well condition:		8/5_		1				<del>///</del>
			***************************************	1				
				•	<u> </u>			
			PURGE	DATA				in the part
start purge time	10944			4	*** ** ******	· · · · · · · · · · · · · · · · · · ·	SANT COLUMN	
time		0954	0957	1000	1003	1006		,
DTW	(ft)	11.09	11.09	11.09	11.09	1109		
purge rate	(L/min)	0.30				7		
рН	(Units)	5,68	5,68	5,69	5,70	5.7	5	
conductivity	(umhbs/cm)	5.1	5.1	5 Ž	5,2	5.7		
temperature	(deg C)	8,9	808	2.6	8.5	84		
D.O.	(mg/L)	1,19	1.21	1,70	1172	1.23		
ORP	(mv)	180	180	181	151	187		
turbidity	(NTU)	8,07	732	4.30	4.199	3,97	·	
purge and samp	le equip.	Peristalti	c pump a	nd silicon	e/polyeth	ylene tubi	ng	
		SAN	IPLE INF	ORMATIC	NC			
sample number	time	anal	ysis	cont	ainer	# bottles	presei	vative
ZB-W-46-0605	1010	NWTF	PH-Dx	1L Gl.	Amber	2	Н	CI
******								
			l l					

		GROUNI	OWATER	SAMPLIN	NG LOG			
Duningtung	DNOT Olada	! . ! .		·	Mall No.	_	0	4
Project name	BNSF-Skyko			-	Well No.		B-W-	45
Project No.	01140-204-0		<del> </del>		Sample		WV.	4 0-
Date	6/11/0	9		•	weather	Clon	dy, 01	6°F
WE	LL INFORMA	ATION				COMI	MENTS	
Depth to water	111	1	(ft)		Tub	ma holo	1 4-	~ P401
Depth of well:			(ft)	·		J		<u></u>
Well diameter:	7		(in)					
Feet of water:	· · · · · · · · · · · · · · · · · · ·		(ft)					
Product thicknes	s: —		(ft)					
Screen interval:								
well condition:	Ol	<u>حــ</u>						
Þ								
	,							
		Algorithma Martin <u>Japan</u>	PURGE	DATA				
start purge time	0828						·	
time		2908	0911	0914	0917	1900	0923	0926
DTW	(ft)	11,11	ĬĻÜ	11,11	(1,1)	12.11	11.11	11.61
purge rate	(L/min)	0.30						<u> </u>
рН	(Units)	5195	5.93	5,80	5,75	5,40	5,64	5.61
conductivity	(umhos/cm)	` Ş <u>`</u> .≥	5,3	5,3	$\mathbb{C}^{\mathbb{S}}$	5.4	54	54
temperature	(deg C)	120	11.4	10,8	10,1	9.3	95	25
D.O.	(mg/L)	0,88	0,92	<u> -0,95</u>	0,95	0,97	0,29	1,02
ORP	(mv)	166	167	170	<u> /33</u>	174	176	179
turbidity	(NTU)	17,6	11,3	7.3	7.01	6.53	6,13	5.94
purge and sampl	e equip.	Peristalt	ic pump a	<u>nd silicon</u>	e/polyeth	<u>ylene tubi</u>	ng	
La mandakadilikina ayad ay					SA(V)	0.4	and the second	કુક્સ્પુલ, પ્રાપ્ત કરે છે.
			IPLE INF					
sample number	time	anal		cont		# bottles	preser	3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
ZB-W-45-060	9 0930	NWT	PH-Dx	1L Gl.	Amber	2	H	CI
	,							

		GROUN	DWATER	SAMPLI	NG LOG			and the second
<u> </u>		<u>a esta esta esta esta esta esta esta est</u>	<u> </u>	ing an indicated and region of the control of the c	au emparaced technical (1976)	Eaul	pront	<i>(</i> , `
Project name	BNSF-Skyke	omish			Well No	Rlan	£	(MW-500
Project No.	01140-204-0			<del>-</del>	Sample		SWIZ	
Date	6/10/	99		<b>-</b> -	weather	<u> </u>		√D°F
		TION.	ustro estrojuna (galeno)	- 7			/	
WE	LL INFORM	AHUN				COMI	MENTS	
Depth to water			(ft)					
Depth of well:			(ft)					
Well diameter:			(in)	]				
Feet of water:			(ft)	]				
Product thicknes	SS:		(ft)					
Screen interval:				]				
well condition:								
								J
				-				
			PURGE	DATA				
start purge time		1						
time								
DTW	(ft)							
purge rate	(L/min)							
рН	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)			V				
purge and sampl	le equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	
		SAN	IPLE INF	ORMATIO	DN.			
sample number	time		lysis		ainer	# bottles	nres	ervative
MW-500-0609	11572		PH-Dx		Amber	2		HCI
1VIN 200- 4007	1120	148411	TEDA	7 L OI.	/ IIIIDGI	-		1101
	· · · · · · · · · · · · · · · · · · ·							

PAGE 1

Fluid Level Gauging Form

							e eagling i oill	=					
Project Name:	BNSF Skykomish	/komish		Project Number:	01140-204-0340	-0340	Collected by:	D, K.	7 Nor	, C. C.	シンロ	in the	collected by: D, Klanow F Machill 12 Sollars a Checker.
			Total		Postel du Pu							7777	WAY TOUR KINSON
Well Number	r Date	Time	Casing	Depth to Water (ft)	Depth to	LNAPL	Method	WTO	5/12/2009 W Prod.	4/21 DTW	4/21/2009	Sign	chaommo
			nebilli	.	Check				Thick. (ft)		Thick. (ft)		STIPLING
2A-W-5	60/60/90	=3		1231				44.65		1			
2A-W-7		11135		27.01				00.00		11./9		Z 2 2 2 2 3	
2A-W-9		4=		ンける				67.01		10.61			
2A-W-10		192V		000				8.53		8.65			
2B-W-4		3/25		1010				8.48		8.71			
2B. W. 44		27.2		0,40				1.62		1.82			
70-02		C74-1		2.06	1/10			3.41		2 73		-	
2B-W-12		16938		5,47	なみな			15		2		+	
2B-W-13		8001		201	1			4.07		4.28			
2R-W-14		120		120	ナメセ			5.50		5.52			
25 W 45	-	700		474	450			2.28		2.43			
CI -M-G7	+	000		5.98	पुर			Dru		2			
ZB-W-19		12/2		6.41	`			5.20		5 50			
2B-W-21		40%		8,5				7.38		7 56		-	
2B-W-30		1		10,69				990		8 8		+	
2B-W-32		840		ニカ				9.00		8.88		+	
2B-W-33		6070		レベウ				6.04		6.25			
28-R-21		0 0 0		1001				8.05		8.37		_	,
2D W 46		2 5		200				3.80		4.05			
CP-NA-92		7 5 5		10,26				9.74		9.90			
ZB-VV-40	<b>a</b>	1014		10,93				9.57		9.77		1	
												-	

### AECOM

PAGE 2													
Wolf Minne	í	j	Total	Denth to	Don'th to			5/12	5/12/2009	4/21	4/21/2009	-	
	Date	e - E	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ff)	Sign Off	Comments
MW-1	60/60/90	1132		19.11				13					
MW-2		1179						11.35		11.47		NEW T	
MW-3		11.24		0				10.55		10.86			
MW-4		12 \		10				7.50		8.54			
MW-5		12		27.0				7.08		7.47			
Ø./WW		[]		1001				5.53		5.70			
MAA/-10				2007				10.75		11.25			
WIVE 10		へ 22:		1,68				10.95		11.28			
7-7/1/1		128		12,16				11.58		12.16		-	
Z1-MM		200		5,66				4.12		4.32		-	
IVIVV-13	8	5		9.7				8.22		8.43		-	
MVV-14		200	13.5	1.5				10.11		10.34			
MVV-15		4 6 1		17,43				11.10		11.35			
MW 10		202		12,65				11.98		12.32		-	
MW 39D		200		15,60				13.00		13.27		>	
MW 40		400		535				3.50		3.85		FIR	てっていっていれてきま
1B-W 2				36,11				10.62		10.89		Z Z	STORY COUNTY
1B-W-2				13/41				12.92		13.60		<u> </u>	
10-1/1/-2	5	125		14,46				14.15		14.75		_	
2-AA-C1		9560		8,48				8.20		8.58		9	

## AECOM

			Total					5/12	5/12/2000	70,7	0000	ŀ	
Well Number	Date	Time	Casing Depth	Depth to Water (ff)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod.	WTO (#)	W Prod.	Sign	Comments
P-1	60/60/90	5069		3,0						T		+	
X P-2U	-	7000										3	
P-21)		3000		200									
7.5.1		901		0,20									
△ P-3U		10015		7,11					7.		P		
P-3D		090		2,00					=		4		
X P-4U		0921		8,00								+	
P-4D		2760		201									
X P-5U		マン8 87.43		10.47						1			
P-5D		0976		12,02									
X P-6U		(327)		1/2/2								+	
P-6D		1927		7								1	
X P-7U		1260		0 11								_	
P-7D		200		18 5									
P-8		0420		00176								+	
X HCC-RW-01		6260		5.00									
X HCC-RW-02		094¢		1.57								+	
X HCC-RW-03		444		1.46									
X HCC-RW-04		2560		474								-	
X HCC-RW-05		500		42,2								-	
X HCC-RW-06		100		6.32									
X HCC-IW-01	a	6200		8,78								+	
X HCC-IW-02		4260		$\sim$									

PAGE 3

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C	)
◁	ľ
Δ	

								9214					
	3	i	lotal	Denth to	Denth to	io six		5/12	5/12/2009	4/21	4/21/2009		
Meil Mulliber	Date	шше	Casing Depth	Water (ft)		Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
	60/60/90	60 U I		17.13		N la C.	a.t					ļ	
	•	1		10		7,70	+	10.66	None	11.04	TR	5	1×-0.84
T		2/0/2		8,95		HULTR	•••	8.20	Hw TR	8.58	H <sub>V</sub> V	,	
		1025		6,00		f		3	1			-	10 - 1003
				*		14		8.44	Hwy TR	8.87	Hvy TR	_	
T				<b>2</b>		مر ا		6.08	<u>a</u>	808	0		70 9 1
		<u>y</u>		000		۷۱۶۰	1			0.50	4	+	なうつい
		5		1000		NOVO-	>	7.64	None	7.59	None		9-6
T		14.4		6.62	0,38	0.24	Dr. P.D	5 89	ET /M	6 30	T		17
		کر ت		(3)		3	4	255	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0.30	או לארו		7 - 0,62
	7			7,04		789.18	<b>L</b>	5.45	エ	5.86	TR		6.5-0.63
٦	>	7		(0,19	10,0X	シごの	D. 20	8 90	000	36.0	200	-	
		1 / 1				7.7	7 11 1	,	1.0		5.	)	

## Other Notes:

total wells:

# Maloney Creek Staff Gauging:

ľ	water Level (5/12/09)	7 6 5	50:0	1.32	7,07	
Option	חמום	6/9/2009			*	
Location	ľ	North Staff Gauge	Mid Staff Gauge	South Staff Course	South Stail Gauge	

Fluid Level Gauging Form

ave of Stockor	abb	,6,	Men	ney, F.	D. KIN	Collected by:	-0340	01140-204	Project Number:		ykomish	BNSF Sk	Project Name:
Comments	Sign Off	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Method	LNAPL Thickness (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	Total Casing Depth	Time	Date	Well Number
	M	f							8,40			06/09/09	1A-W-5
110 elevation									13,62		14-31		1B-W-23
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	V								12,65		0930		1C-W-1
tophatted over 4	<u>~  </u> /								NW		10.80	06/10/09	1C-W-7
ued to be Add	M	F							17,00		1007		1C-W-8
add.	1	[.							10,96		1056		2A-W-40
odd	$\perp \perp$								12,83		1047		2A-W-41
<u>add</u>	$\sqcup$								11,49		1520		2A-W-42
	$\bot \bot$								8.06		1104		5-W-14
	$\sqcup$								6.50		1116		5-W-15
	$\sqcup$								6,82		1322		5-W-16
									6,16		1111		5-W-17
									6.76		1828		5-W-18
									6,14 5,71		1176		5-W-19
Lock, Productor									5,71		131		5-W-20
to elevation.	1								7.80		1136		5-W-42
110 elevation									6.34		1346		5-W-50
vo elevation.									5,61		1353		5-W-52
10 elebration									6,02		356		5-W-53
(1									5,95		1359		5-W-54
11									5,67		1335	-	5-W-55
11	1								6,06		1328		5-W-56
//	1K	D							8.16		1337		EW-1
Vo+Installed									NM				EW-2
not added		Δ.							6,75		322	$-\!$	GW-1
10 eletration									8,17		1341		GW-2
lu elevation	1								13,42		1349		GW-3
10 elevation	√ <sub>/</sub>	,							9,89		1349		GW-4
	5	6							10,49		0929		HCC-RW-01
									11,5%		0944		HCC-RW-02
	_								11,46		0947		HCC-RW-03
									7,74 6,37		0958 0950		ICC-RW-04
									6,37		0950		HCC-RW-05
									6.32		09 [] 9937		ICC-RW-06
									8,28 9,20		9937	((	1CC-IW-01
	<u>.</u>								9,701		99Z4		ICC-IW-02
6-0.3 not ac	S	6				TP	TR		5.70	gove	1136		i-W-51
6.5-0.63 7-0.61		1 1				TP			5,8+1		110		i-W-3
7-0.61	<b>'</b>	V				70	TR		6.39	T	176	<b>9</b>	NW-22

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

dirty casing, possible trace product dirty well

S-W-43 6/209 1334

DWK not adoled.

					5A-W-43 / 4 of found in someontal front		Puc ele Usher that carrier.							
		Desc.	MW-38R	EW-1	5A-W-43	GW-1	GW-2 /	2A-W-40	2A-W-41	1B-W-23	GW-3	1C-W-7	1C-W-8	
	North Rim, 2"	PVC Elev.	922.39	928.10	925.77	927.84	940.24	933.32	935.05	935.81	935.54	934.30	934.18	
4/29/2009		Case Elev.	922.59	928.35	926.04	928.09	930.47	933.66	935.39	936.10	935.79	934.76	934.39	
ells		Easting	1510078.017	1510259.672	1510273.712	1510326.403	1510419.401	1510524.621	1510748.885	1510894.706	1510936.470	1511271.395	1511278.749	
Monitoring Wells		Northing	259071.089	259071.593	259091.984	259101.697	259110.534	259111.087	259144.802	259230.748	259195.860	259292.968	259396.085	

Pt# 9344 9345 9345 9347 9349 9351 9351 10803

5-W-50 5-W-56 5-W-42 5-W-42

24-W-42

140 slevation,

### PAGE 1

Fluid Level Gauging Form

Project Name:	BNSF Skykomish	komish		Project Number:	01140-284-0540	-0540	collected by: D.Klandy, C. Sabbana, F. Marrill	DIK	hous	95,0	spane	Щ	Merill)
			Total					8/25	/2009	7/28	/2009		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	(ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
2A-W-5	09/21/09	1755		14.96				15.01		14.28		ZIMO	
2A-W-7		1813		12,82				12.86		12.27		-	
2A-W-9		135		12.19				12.23		11.42			
2A-W-10		12/6		89'21				12.89		12.03			
2B-W-4		1209		<i>42'5</i>				5.58		4.62			The second secon
2B-W-11		124		215				5.41		4.51			
2B-W-12		1212		845				8.68		7.80			- Park -
2B-W-13		ナル		36 t				8.05		7.14			
2B-W-14		1218		6,44				09:9		7.71			The state of the s
2B-W-15		1152		Dr. 642				Dry @ 4.2		7.22			- Annual Control of the Control of t
2B-W-19		65		9.20				9.58		8.53			
2B-W-21		22,3		10,66				10.95		10.10			CONTRACTOR OF THE CONTRACTOR O
2B-W-30		101		13,17				13.10		12.38			VANCOUR
2B-W-32		1205		09.6				9.95		8.98			The state of the s
2B-W-33		ţţ.		17.58				12.84		11.90			All Hilliams
2B-B-21		150		7.7				7.38		6.77			
2B-W-45		1230		12,80				12.91		12.26			THE PARTY OF THE P
2B-W-46		233		15,94				13.10		12.35			100-100
3-W-41		1000		57.79				6.91		ΣN			79077
3-W-42		10001		97.6				10.01		ΣZ			
3-W-43	4	1010		6,36				6.11		ΣZ		)	Annual Indiana

PAGE 2													
			Total					8/25	8/25/2009	7/28	7/28/2009		The second secon
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
MW-1	09/21/09	0.501		14,10				14.21		13.49		SMK DMK	
MW-2		182		12,85				13.99		13.19		ZMG	A THE PARTY OF THE
MW-3		8511		12,30				12.59		11.63		200/2	
MW-4		72711		11,40				11.63		10.82		25.7	The state of the s
MW-5		132		f0'6.				9.13		8.33		K S S	***************************************
MW-9		103/		4.78				14.51		13.75		DWK DWK	and the state of t
MW-10		1035		14.23				14.28		13.6		DWZ	
MW-11		1020		14,74				14.79		14.14		0,212	The second secon
MW-12		1146		7.58				7.63		7.01		Z/NZ	
MW-13		172		11.51				11.55		11.02		DAK	· · · · · · · · · · · · · · · · · · ·
MW-14		1129	13.5	12,46				13.43		12.93		7	
MW-15		<b>5460</b>		15,20				14.82		14.11		7	
MW-16		020		14.54				14.43		13.80		7/%	
MW-18		1057		16,19				16.23		15.54		DMK DMK	
MW-38R		1050		5,82				5.71		5.05		59	
MW-40		1260		14,65				14.35		13.64		7AMO	
1B-W-2		77721	4	14.25				14.27		14.29		59	
1B-W-3		1238		15.55				15.52		15.44		65	- nytetytet .
1C-W-2		1325		11,11				11.02		10.43		29	

PAGE 3														
			Total		100			8/25	8/25/2009	7/28	7/28/2009			Г
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Deptn to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments	
P-1	09/21/09											ES		T
X P-2U												_		Ι
P-2D													To the state of th	Ι-
X P-3U									ম		TR			
P-3D														Т
X P-4U														Т
P-4D														Т
X P-5U													- TOTAL CONTRACTOR OF THE CONT	Τ
P-5D													The state of the s	1
X P-6U														T
P-6D														Τ
X P-7U														T
P-7D														Т
P-8													Production of the Control of the Con	Т
XHCC-RW-01												7		Т
HCC-RW-02		272		14,22								II E		Τ
X HCC-RW-03		1218		14,00										Τ
HCC-RW-04		517		10,55										1
HCC-RW-05		1206		11,90								7		Т
XHCC-RW-06												F.		Т
HCC-IW-01												_	THE REAL PROPERTY OF THE PROPE	T
XHCC-IW-02	5)											ر		Т

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<b>O</b>
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		i	Total	Denth to	Donth to			8/25	8/25/2009	7/28	7/28/2009		
	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
X MW-7	09/21/09	1051		4.8%		O o la	4,0,1	22.7					
× 44	3					18018	+	14.3	None	13.85	None		,
/ 1- 00 101		<b>!</b>		2			1	Σ		Ž			D. C. O. A. C. L. C. D. C.
X2A-W-3		1040		12,04		カップト	447	12.36	0 F	2	f		מעו וחב יועושמו אמו מעו
X 2A-W11		3						12.30	Y A	36.	Y A		
		711		ジンナ		1		9.62	Hw TR	8.95	Ä		
√ WW-39		0211		2		Nove	,	77.70	ļ				
5-14/-2		200		- 200		- A (1) (1)		9	<u>×</u>	10.5	None		
7-14-0		126		せらら		HIVTK	٠,	ΣZ		8.37	TR.		
5-W-3		350		9.70	28/8	0,88	40	ΝŽ		7.74	P		
2A-W-4	<del>)</del>	320	16.0	Ž	12.00	C7 6	00	7000	100		1		
				A A		1		12.03	0.37	12.35	0.35	_	

NW - No water, only product in well Other Notes:

clean well - north ('town) half use water level meter (WL)
clean well - south ('railyard') half use water level meter (WL)

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

total wells:

# Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (8/25/09)	\
North Staff Gauge	9/21/2009	73/0	Dry	Š
Mid Staff Gauge		*		7
South Staff Gauge	J	1	7.0	

Fluid Level Gauging Form

	Comments			_	· ·				(A)	· ·	\ <u>\</u>	72	X	7	7	V			(4)	V			<u> </u>	\ \frac{1}{2}			Not Installed	DWK
		Š	}	9	0	2	100	હ	Ž	0	(3)	\ <u>{</u>	곀	3	3	9	V	Š	9	V	2	V	8	C	Ž	1	1	4
	Proc Thick.																											
	DTW (ft)																											
3/2009	Prod. Thick. (ft)																- 10											
3/2	DTW (ft)	9.21	NN	13.11	14.68	13.19	9.61	10.70	10.24	10.95	NM	14.60	8.56	8.77	2.11	5.65	9.26	7.75	8.13	7.45	7.61	7.55	7.13	6.65	NM	NM	N	
	Method																											
	LNAPL Thickness																											
	Depth to LNAPL (ft)																								823	l		
:	Depth to Water (ft)	60'11	NM	14,25	55'51	14,19	11/11	8±'11	10,89	12,12	13,58	16.45	12,19	12,68	5.24	8,91	10.32	03'8	9,00	8.39	8.46	82.8	4.79	4,58	多	NN	MΝ	10,55
Total	Casing Depth																											:
	Time	1408	ĺ	1244	1238	7571	1225	1315	319	1251	300	1942	1135	146	28	114-5	1036	18	1026	1031	1022	上101	1008	000	178	1	Î	1310
	Date	09/21/09																									う	
14/-11	weil Number	1A-W-5	1A-W-38	1B-W-2	1B-W-3	1C-W-1	1C-W-2	1C-W-3	1C-W-4	1C-W-7	1C-W-8	2A-W-8	2A-W-9	2A-W-10	2B-W-4	5-W-4	5-W-14	5-W-15	5-W-16	5-W-17	5-W-18	5-W-19	5-W-20	5-W-42	5-W-43	5-W-44	5-W-45	1A-W-4
	Total 3/23/2009	Date Time Casing Water (ft) LNAPL (ft) Thickness Method DTW Prod. DTW Prod. Off Off	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Method   DTW   Prod.   Off   Thickness   Prod.   Off   Thickness   Off   Of	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Wethod   DTW   Prod.   DTW   Prod.   Off	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   Off   Thick. (ft)   Off   Thick. (ft)   Thick. (ft)   Thick. (ft)   Thick. (ft)   Thick. (ft)   Off   Off   Thick. (ft)   Off   Off	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   Off	Date   Time   Casing   Depth to   Depth to	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   Off   Thickness   Sign   Off   Thickness   Og/21/09   I 1, 0 9   I 1, 0 9	Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   Off   Thickness   Sign   Off   Thickness   Off   O	er         Date         Time         Total Depth to	er         Date Time Casing Depth to Depth	er         Date   Time   Casing   Water (ft)   LNAPL (ft)   Thickness   LNAPL (ft)   Thickness   LNAPL (ft)   Thick	Part   Time   Casing   Water (ft)   LINAPL   LINAPL   Method   DTW   Prod.   Off   DTW   Prod.   Off   Off   Depth to   Depth to	Pate   Time   Casing   Water (ff)   LinAPL (ff)   Thickness   Method   DTW   Prod.   DTW   Prod.   Off	Post   Time   Casing   Water (ft)   Linapl. (ft)   Thickness   Method   DTW   Prod.   Prod.   Sign   Sign   Prod.   DTW   DTW   Prod.   DTW   Prod.   DTW   Prod.   DTW   DT	Pate   Time   Casing   Water (ff)   LNAPL (ff)   Thickness   Method   DTW   Prod.   DTW   Prod.   DTW   Prod.   DTW   Depth to   LNAPL (ff)   Thick. (ff)   (ff)   Thick. (ff)   DTW   Prod.   DTW   DTW	Pate   Time   Casing   Depth to   LNAPL   Method   DTW   Prod.   DFW   DFW	er         Date         Time         Casing Depth to	er         Date 17 Time Casing Depth to Dep	er         Total         Depth to	Control   Cont	Cosc   Time   Casing   Water (ft)   LiMPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   DFW   DF	Cosc   Time   Casing   Mater (ft)   LiMaPL (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   DFW   D	Control   Time   Cosmin   Cosmin   Water (ft)   Thickness   Method   DTW   Prod.   DTW   Prod.   DTW   DTW	er Date Time Casing Water (ft) LivAPL (ft) Thickness Method DTW Prod. DTW Pr	Control   Cont	Control   Cont	Converge   Time   Casing   Waster (ft)   LiAPE   Casing   Casi

PAGE 2

								2018	0000				
Well	i		Total	Denth to	Denth to	INAPI		3/23	3/23/2009				
Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	MT0 (#)	Prod. Thick. (ft)	E (£)	Prod. Thick. (ft)	Jago Jago	Comments
				*							)	1	
5-W-50	09/21/09	0 =		25/2				7.35				65	
5-W-52		1136		8.64 40.8				5.89				59	
5-W-53		1123		8.20				6.34				59	
5-W-54		178		7.81				6.23				0	1 10000
5-W-55		121		35.7				60.9				200	41444-
5-W-56		<u>                                      </u>		8.41				6.72				\$9	
MW-1		1050		14,10				12.24				D.V.K	
MW-2		1045		12.85				11.85				2	
MW-3		1138		2521				8.47				No.	
MW-4		1142		11,40				7.32				No le	
MW-12		1146		754				4.00				Z Z	
MW-14		1179	13.5	12,46				10.12				7	
MW-16		0201		14,54				12.46				287	***************************************
MW-18		1058		16,19				13.49				Dw.Z	
MW-32		1346		10.28				5.82				SS	
MW-38R		iosa		5,82				4.26				7	THE PARTY IN THE P
1A-W-36				NM				MN					Not Installed
1A-W-37		i		NM				ΝN				1	Not Installed
1B-W-23		iयभे		17.43								\ <u>\</u> \	
2A-W-40		270		13,71								\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAM
2A-W-41		1220		89131								85	T A A A A A A A A A A A A A A A A A A A
2A-W-42		1233		12,94								65	***************************************
2B-W-45		1230		08/21								DMK	
2B-W-46		1233		12,94								DWILL	
3-W-4-43		1904		67.5				ΣN				DMK	
3-W-42		0001		646				Ν̈́				DWK	
3-W-48 41		aiai		6136				NM				PMO	
EW-1		1157		10.43								\ \ \ \ \	
EW-2		1		MN				NM					Not Installed
GW-1		١		10,7%								39	
GW-2		(		13,82								59	7,000
GW-3		í		16,03								59	
GW-4		1330		11.15								SS	

200														
Well			Total	1				3/23	3/23/2009					
Number	Date	Time	Casing Depth	Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments	
X2A-W-3	09/21/09	184°		13,07		松作	461	ΣZ				S U		
X2A-W-11	-	11112		なっ		7	-	60.9	Q CON					
MW-28		1025		15,66		Non p		13.17	95					
WW-39	-	1120		11,04		Jayan Jayan		7.57	a co			_		
X 5-W-51		1143		8,48		ام آ	>	6.85	H <sub>W</sub> TB			F		
1A-W-2		j		ξ Z		1	-	N N					11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	\$ 14.5°
2A-W-4		1307		ZZ	13,53	244	dd	9.00	Hw TR				NATIONAL SAN CONSTITUTION TONG	1000 1000 1000 1000 1000 1000 1000 100
5-W-2		1132		10,04	•	HWTR	484	6.87	Hw TR					
5-W-3		330		9.70	28'8	0.88	PP	6.87	Τ					
MW-22	<b>&gt;</b>	1320		910		TR	707	7.45	Hvy TR			>		

Other Notes:

X dirty casing, possible trace product dirty well

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

NM - No water In well, only product

### 9/21/09 E. Storterson field notes

		t til store som en	
•	, D	Depth	
705	PZ-8		
	FWV	11,80	The same of the sa
	P2-75	11,16	
· 	PZ-7N	13.46	
	WV	15.17	The second secon
ceting.	1 RW-6	11.86	and the second s
	PZ-65	11.90	
'seting	PZ-6N	14.52	NAME AND SECURE AND SECURE AND SECURE AND SECURE ASSESSMENT ASSESS
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	PZ-55	12,22	
IL Sampling	PZ-SN	15,60	
109	IW-02	10.18	
	PZ-45	13.41	the Man
U date + Time	PZ-4N	14.70	· · · · · · · · · · · · · · · · · · ·
y date + time	CV	17.45	··
	RW-1	13.27	
ned on	PZ-35	11.75	
	PZ-3N	14.06	
<u>ع</u>	PZ-25	10.84	
	PZ-2N	12.20	
**************************************	IWOI	7.76	
	EV	10.68	
	PZ-1	11.27	
	6W-1	10.78	
Mindy onsite	GW-2	13.82	· <u> </u>
1/5 performed	6W-3	16.03	
15.	GW-4	11.18	· · · · · · · · · · · · · · · · · · ·
			AND THE RESERVE OF THE PERSON

Fluid Level Gauging Form

Project Number: 01140-284-0540

Project Name:

	Project Name:	BNSF Skykomish	ykomisł	ا	Project Number:	01140-284-0540	-0540	Collected by:		D. Klover	2			
L				1 77 7						000016616				
Ž	Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod.	WTQ (#)	Prod.	Sign Off	Comments
1A-/	1A-W-5	09/21/09	1		1				, c					
1A-V	1A-W-38		١		ΣZ				N. A.				) 1	
1B-W-2	۷-2		۲		(				77 07					Not Installed
1B-W-3	V-3		1		1				- 2				1	
1C-W-1	٧-1		ł		(				4.00				1	
1C-W-2	۷-2		1		)				0.0					
1C-W-3	٧-3		Ţ		į				40.07				1)	
1C-W-4	۷-4		l		(				10.70					
1C-W-7	۷-7		1						1 10				١	
1C-W-8	۷-8		(		1				10.80				1	
2A-W-8	۷8		(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		16.45	}			NIM CO				A	
2A-W-9	6-/			,	12,19				6 8 6 8 7 8 8 8				1700	
2A-W-10	7-10		1216		17,69				8 77					
2B-W-4	1-4		b071		ふって				0 0					
5-W-4	4		Ì		1				7 2 2				7	
5-W-14	4		ţ		1				90.0				١ .	
5-W-15	15		1		1				7.75				) 1	
5-W-16	9		ı		(				8.13				1	
5-W-17			١		1				7.45				7	
5-W-18	8		1		1				7.61					
5-W-19	6		1		1				7.55				1	
5-W-20	23		1						7 43				) )	
5-W-42	42		)	1	V				20.17					
5-W-43	43		(	<b>8</b>	87538	23			Σ				12/12	
5-W-44	44				MN				ΣN				1	Not Installed
5-W-45	45		1		NN				ΣZ				5	Not Installed

Fluid Level Gauging Form

		Sign Comments			Not Installed																No bolols		14:31-126Jds	1, 1450ld	5 .		Not Inchallab	Not installed	Not installed	DWZ
		V Prod.	+					+									+													
	-	H. DTW	┸									-																		
	3/23/2009	Prod. Thick. (ft)	+ 5	-	7	- 0	0 0	2 - 2	92	70	95		0	00 5	1 00	1 ;		22	97	75		15	91	55	13	35				
, ;	-	WTO (#)		S S S	707	1 2 2	13 10	9.51	10 70	10.24	10.95	Σ	14 60	± 3	8.50	0	7.7	5.65	9.26	7.75	8.13	7.45	7.61	7.55	7.13	6.65	ž	ž	Z	
Collected by:		Method																					,							
-0540		LNAPL Thickness								÷																				
01140-284-0540		Depth to LNAPL (ft)																												
Project Number:		Depth to Water (ft)	11.09	NM	14.25	555	14.19	11/11	11.78	10,89	12.12	13.58					20.01	10.32	2 0	000	0 2 0	0 C	د و ر ر	0,10	2,79	7,58	MN	MM	ΝM	55'a)
	Total	Casing Depth																		-				-						÷
ykomisł		Time	ನಿಯ)	1	かんご	1238	1256	5061	1315	1319	12521	(300					1745	950	ioxi	10701	1031	2 5	7 1 2		B 00)	00%)	i	(	()	461
BNSF Skykomish		Date	09/21/09																											
Project Name:	;	weil Number	(2) 1A-W-5	1A-W-38	) 1B-W-2	(2) 1B-W-3	A 1C-W-1	ന 1C-W-2	A 1C-W-3	0 1C-W-4	€ 1C-W-7	0, 1C-W-8	2A-W-8	2A-W-9	2A-W-10	2B-W-4	C-5-W-4	\$0.5-W-14	(N 5-W/-15	C 5-W-13	F 101.17	71-00-0	5-W-18	61-M-C)	√ 5-W-20	[	(_ 5-W-43	\$ 5-W-44	Ø5-W-45	J-341

Comments Not Installed Not installed Not Installed Sign 於 Prod. Thick. (ft) Œ (£) Prod. Thick. (ft) 7.35 5.89 6.34 6.23 6.09 11.85 7.32 6.72 12.24 8.47 4.00 10.12 12.46 13.49 5.82 4.26 (f) Σ Σ Σ ∑ Σ Ž Method LNAPL Thickness Depth to LNAPL (ft) 18,68 17.43 Depth to Water (ft) (e,43 12,94 7.56 10.28 5 5.82 ₹ ΣN Total Casing Depth 13.5 1133 22 1233 70 1115 1157 Time 1121 1 1 09/21/09 Date Well Number 2 MW-38R 1B-W-23 2B-W-45 1A-W-36 1A-W-37 JA 2A-W-42 \$A-W-40 2A-W-41 2B-W-46 \$ 5-W-55 \$ 5-W-56 5-W-50 5-W-52 5-W-53 5-W-54 MW-12 MW-14 MW-16 MW-18 3-W-42 5-W-56 MW-32 3-W-41 3-W-43 MW-1 MW-2 MW-3 MW-4 EW-2> C-GW-2 GW-1 MGW-4 EW-1

PAGE 2

Comments Not Installed Not Installed Not Installed DE VIET DWZ DAY DAY びる NW. DNIC 144 126 126 126 1 Sign Í 1 ( 1 Prod. Thick. (ft) ) (f) Prod. Thick. (ft) 5.89 6.34 6.23 60.9 6.72 12.24 11.85 8.47 7.32 4.00 12.46 13.49 7.35 10.12 5.82 4.26 ) (#) ΣN Σ Σ Σ Σ ΣZ Method LNAPL Thickness Depth to LNAPL (ft) 11,4p 3,58 13,46 12,855 12,855 12,320 14,54 Depth to Water (ft) 16,19 12,80 12,925 ΣZ 11 Σ ΣZ 1 ( Total Casing Depth 13.5 1387 550 1020 10550 FOOT 000 Time ) 09/21/09 Date Well Number 2B-W-45 1A-W-36 MW-38R 1A-W-37 2A-W-42 2B-W-46 1B-W-23 2A-W-40 2A-W-41 5-W-52 5-W-53 5-W-55 5-W-56 X3-W-42 5-W-50 5-W-54 MW-12 MW-14 MW-18 MW-32 3-W-43 ¥ MW-16 X 3-W-41 MW-1 MW-2 MW-3 MW-4 GW-2 GW-3 GW-4 EW-2 GW-1 EW-1

PAGE 2

PAGE 3						4.							
1147-11			Total					3/23	3/23/2009				
Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	MTG (#)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
2A-W-3	09/21/09	O <sup>r</sup> C		13.07			100	2					15.5 -1 12 Nuchto
2A-W-11		धाः		45.6			471	60 8	None				BET WENT 178
MW-28		10.25		15.66			486	13.17	2				10-0-43 Vac product
MW-39		1130		11.04			0 4	7.57	N				1000) 14 NGC
5-W-51		1143		8.48			140	6.85	Hwy TB				14 OM6
1A-W-2		1		MN	مخر	- Comment	- (	N					To the thin sone,
2A-W-4		1387		$t_{N}$	1353	3.47	8	00.6	Hvv TR				TO CONSLIGATION OF THE
5-W-2		1733		10.04			57	6.87	Hw TR				11 Low 1, 5%, howy stack
5-W-3		1350		9.70	Section of the sectio		de	6.87	TR				0 200
MW-22		1320		G d	200	CONL	J-	7.45	Hvv TR				
					() ()	1			X11 / Car.				

herm stace

X dirty casing, possible trace product dirty well

Other Notes:

\* NW : NOT MEASOR NO WATEL IN WELL-ONLY PRODUCT

PAGE 1

Fluid Level Gauging Form

Project								ζ <sub>ω</sub> .				• .	
Name:	BNSF Skykomish	comish		Project Number:	01140-284-0540	-0540	Collected by:		D. King			<b>₩</b> ~~`	
Wolf Number	į.	į	Total	Depth to	Denth to	Idvi	<b>f</b> .	8/25	8/25/2009	7/28	7/28/2009		
	Date	ш	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ff)	Sign	Comments
<b>X</b> 2A-W-5	09/21/09	1755		14.96				15 04		-		2	
X 2A-W-7	•	0101		17.00				10.01		14.28		75	
X 2A-W-9				1000				12.86		12.27		Z Z	
<b>★</b> 2A-W-10		2/2		11.00				12.23		11.42		Dark	
<b>★</b> 2B-W-4		100		170 V				12.89		12.03		DMI	
> 0B-W-11				11/4	>			5.58		4.62		06/14	
-A				2/16	*			5.41		4.51		200	
X 28-W-12		22		8,4%	*			8.68		7.80		Š	
X 2B-W-13		17.13		7.95	*			8.05		7 14		3 2	
X 2B-W-14		1018		6.44	*			3		4			
X 2B-W-15		1		00.00	*			00.0		7.71			
X 28-W-19				イグター				Dry @ 4.2		7.22		JAMA A	
3				2/2				9.58		8.53		Mag	
Z-M-Z1		17.3		10,66				10.95		10.10		2,70	
ZB-W-30				4/7				13.10		12.38	Ü	\ \ \ \ \	
₹ 2B-W-32		12051		2,60			·	9.95		80 8		1	
X 2B-W-33		<u>V</u>		12,58				12.84		11 00			
X2B-B-21		150		かれて				7 38		21			
7 2B-W-45		1220		08.2				5 5		0.0		7	
X 2B-W-46	a, and Tribari	(2%2)		12004				12.3		12.26		JIMIN.	
73-W-47 3)		100 K						13.10		12.35		NAME OF THE PROPERTY OF THE PR	
7 7 7		100						6.91		Σ	DW/L		By Trailer
711	1	220		グナグ				10.01		Σ	リングア		iditing HER HOWS
13-W-48 CP		000		6.36				6.11		ΣZ	アンド	713	In Bade vard

\* crook is dry at all locations

			Total					8/25	8/25/2009	8017	7/28/2009	-		r
Wolf Mirmhor	1	i	. ola	Depth to	Denth to	INADI		210	2003	1/20	2003			
numer.	Date	IIme	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (#)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments	
	09/21/09	10 SD	14,0	1				14.24		_		Olvil O		丁
		104	13.8%	M				13.00		24.67		200		_
		77.0		12,30				10.33		13.19				1
		=45		1 40				12.59		11.63		Yali	111	1
		122	40%	}				11.63		10.82		70-10		1
		10,71	54.70	7				9.13		8.33		UN K	-	-
MW-10		1,02	CC 17:	g				14.51		13.75				1
MW-11		05.67	777					14.28		13.6		BLAIC		1
		1007	1	1				14.79		14.14		Dolk		
N: VV - 1.Z		949		えいと				7.63		7.01		130		Τ
MW-13	1	176	<b>(4)</b>	1.5				11.55		11.02		1/40		_
		020	13.5	13.46				13.43		12 93		N 1		T
MW-15		084F	15.20	a				14.82		14 44		2 4		<del></del>
MW-16		020	14,54	9				14.43		1 0		1 3 C		1
		ない。	S 2	9				2 00 4		13.00		100 L		Т
6 MW-38R		31	1					10.63		15.54		1 100		T
MW-40		している	N A				12 C. 10 C.	5.71		5.05		1		
				7				14.35		13.64		アント		
Z-M-91			1					14.27	•	14.29		l		Τ
		1	į					15.52		15.44		1		<del>-</del>
G1C-W-2	>	)	(					11.00		5		1		_
						•		10:	-	2		-		-

PAGE 2

											ĺ			
	147-11 14		i	Total		Donth to			8/25	8/25/2009	7/28/	7/28/2009		
\ \	Weil Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
<u>_</u> _	P-1	09/21/09							1		Т			
	X P-2U													
	P-2D										-			
	X P-3U									ļ				
	P-3D									ĭ		H.		
-5-/ -5-/	X P-4U													
	P-4D													
	X P-5U													
	P-5D													
<del>- 1</del>	X P-6U													
	P-6D													
	X P-7U													
	P-7D													
	P-8													
7	X HCC-RW-01												1	777
	X HCC-RW-02		1225		72.41									01 0 10
ne n	X HCC-RW-03		1718		14.00									15-4.18
	X HCC-RW-04		412区		10.55								1	13-1.0
	X HCC-RW-05		18/OS		11.90									77.45 
ذ	X HCC-RW-06													2-11
7	X HCC-IW-01													
7	X HCC-IW-02													
												-		

PAGE 3

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		i	Total	Donth to	Don'th to	2 4 4		8/25	8/25/2009	7/28	7/28/2009		
weii Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	WTO (#)	Prod. D Thick. (ft) (	T. (t)	Prod. Thick. (ff)	Sign	Comments
MW-7	09/21/09	19:01		14.88	)				1	.   3	:	ľ	7
X MW-17		1		2				2.5	None	13.85	None		7.7
				1.1				ΣN		Σ			Burged cooper sol ale
ZA-W-3								12.36	Hw TR	11 60	T WH		
ZA-W-TT	_									3	· ·	1	
								9.62	Hvy TR	8.95	TR	•	•
V 100 - 39								11 19	AT.	10.5	Nono		
5-W-2									í	20.5	DION.		
E 187.5								ΣZ		8.37	TR		
	2							Σ×		7.74	<u> </u>		
2A-W-4	)							12 63	0.34	12 25	0.05		
									0.01	14.00	0.00		

## Other Notes:

clean well- north ('town') haif clean well - south ('tailyard') haif dirty casing, possible trace product dirty well

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

total wells:

# Maloney Creek Staff Gauging:

Water Level (8/25/09)	Day	Val.	Dry
Date	9/21/2009		
Location	North Staff Gauge	Mid Staff Gauge	South Staff Gauge

BNSF - Skykomish Sentry Well Sampling Log

Well No.	Sampler	Sample Date	Sample Time	
S1-AU	Dikimay	5/27/09	0910	]
S1-AD	1	7, 1, 3	0855	
S1-BU			0935	
S1-BD			00.75	
S2-AU			1015	
S2-AD			1005	13
S2-BU	New York	·	1045	Duplicate 7
S2-BD			1025	Duplicate >> 520-BU-0909 (10:55)
S3-AU			111.35	[ (10.5-)
S3-AD			1975	
S3-BU			1230	Las RC
S3-BD			1200	
S3-CU			12.05	
S3-CD			INST	
S4-AU			1455	
S4-AD			1420	Duplicate -> 540_AD-0909
S4-BU			1525	((449)
S4-BD			1515	1 ロアコツ
S4-CU			1650	
S4-CD		V	1520	

BNSF-Skykomish
01140-284-0540
9/23/09

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

Well No.	Equipment Blank (MW-500)
Sampled	By DWIL
weather	Picloudy 50°F

COMMENTS					
		*********			
	,				

, PURGE DATA								
start purge time								
time								
ŪΤW	(ft)							
purge rate	(L/min)							
pН	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTÚ)	MINISTER TO THE PARTY OF THE PA						
purge and sampl	le equip.	Peristalt	ic pump a	and silic	one/poly	ethylene t	ubing	

SAMPLE INFORMATION							
sample number	time	analysis contain		# bottles	preservative		
	NWTPH-Dx W	1L Gl. Amber	2	HCI			
		11 WSG	u n	17	9		

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	

WELL	INFORMATION	
Depth to water	13.18	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:		
well condition:	needsu	

Well No.	7B -W-46
Sampled By	OWIL
weather	P. amy 55°F
	· · · · · · · · · · · · · · · · · · ·

COMMENTS					
Inlot fully sot at					
~141					
,					

	0911		PURGE	DATA	,			
start purge time								
time	092) -	<b>A</b>	09754	0977	1930			
DTW	(ft)	13.19	13,19	12,19	13,19			
purge rate	(L/min)	0,30				7		
рН		5,54	5.57	5,58	600			
conductivity	(Units)	7.9	7,4	77	200			
temperature	(deg C)	10.9	10,7	16.6	10.6			
D.O.	(mg/L)	7.65	7.52	7.52	7,50			
ORP	(mv)	701	107	196	193			
turbidity	(NTU)	1.7.7	1.11	1,06	1,00			
purge and sample equip. Peris			ic pump a	nd silicon	e/polyethy	/lene tub	ing	

SAMPLE INFORMATION											
sample number	time	analysis	container	# bottles	preservative						
ZB-W-46-0900 0935		NWTPH-Dx	1L Gl. Amber	2	HCI						
			:								

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/73/09	

WELL IN	FORMATION	
Depth to water	12,98	(ft)
Depth of well:		(ft)
Well diameter:	2_	(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:		
well condition:		
Screen interval:		

ZB-W-45
DWK
P.Cloudy 55 °F

COMMENTS
tubing inlet set at
~ /
Collected duplicate
collected dufficate

	PURGE DATA									
start purge time	0955		·	4						
time		1005	1008	1011						
DTW	(ft)	17,90		,,,,,						
purge rate	(L/min)	0.30		->						
рН	(Units)	5.62	5,63	5,63						
conductivity	(umhos/em)	110,8	6.1	61						
temperature	(deg C) ◀	16.11	10,9	10.9						
D.O.	(mg/L)	エラフ.	1.68	1,67						
ORP	(mv)	149	140	148						
turbidity	(NTU)	2,95	7,60	7,49						
purge and sampl	e equip.	Peristal	tic pump a	nd silicon	e/polyeth	ylene tub	ing			

SAMPLE INFORMATION											
sample number	time	analysis	container	# bottles	preservative						
28-W-45-0909	1015	NWTPH-Dx	1L Gl. Amber	2	HCI						
28-W-45D-D909 Dup Groate 1	1030	11	11	И	1)						
Oupliconte y				-							

r									
,		GROUN	DWATER	SAMPLI	NG LOG				
Project name	DNICE Clock	omich			\A/all Nia		Λ ε ,	<b>^</b>	
Project name Project No.	BNSF-Skyk 01140-284-			_	Well No. 7 A ~ W − 9 Sampled By Div/V				
	01140-204-	/ <i>0</i> 340					WIK		
Date	<u> 9/23</u>	109			weathe	P. (	lowly,	6∂°F	
WE	ELL INFORM	ATION		7		COM	MENTS	. = 1000	
Depth to water	17	226	(ft		Tubi	00 1010	+ a+~	. 1> /	
Depth of well:			(ft	(m.)		<del>M</del> ME	A = A + C		
Well diameter:		7.	(in	ST .					
Feet of water:			(ft						
Product thickne	ss: -		(ft			1		*	
Screen interval:									
well condition:	0	<u></u>							
			PURGE	DATA					
start purge time	1102	·							
time		1113	116	110	1,22	1175	<u> </u>		
DTW	(ft)	12,54	12,55	17/55	12,55	10,50			
purge rate	(L/min)	0,3	0,3	0,3	0,3	0,3			
рН	(Units)	5763	5,63	5,62	5,64	566			
conductivity	(umhos/cm)	9,3	9,3	9,3	9,1	8,8			
temperature	(deg C)	12,7	126	12,4	124	17,3			
D.O.	(mg/L)	0,08	0, 17	0,04	0,03	0,03			
ORP	(mv)	10	16	18	16	17			
turbidity	(NTU)	7,29	6115	3,64	3,28	3,39			
purge and samp	le equip.	Péristalti	ic pump a	ınd silicon	e/polyeth	rylene tub	ing		
	1			ORMATIC		7	<del></del>		
sample number	time	anal		conta		# bottles	preser		
24-W-9-090	9 1130	NWTF	PH-Dx	1L Gl.	Amber	2	Н	CI	
		!							

	*	CDOLIN	DWATER	CAMDII	NC LOC			
L		GROUN	DANWIEL	RSAMPLI	NG LUG			
Project name	BNSF-Skyk				Well No	). <sub>(</sub>	nW-3	
Project No.	01140-284-	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>		<del></del>	Sample	ed By '	DW/2	
Date	9/23/	100			weathe	r B	aprily, 65°F	:
	,					,	<del></del>	
WE	LL INFORM	ATION				COM	MENTS	
Depth to water	17.	55	(ft	)	1	wbing s	inlet at -13	5
Depth of well:			(ft	)]		1		
Well diameter:		·	(in	$\overline{)}$	-			
Feet of water:			(ft	)]				
Product thickness	SS:		(ft					
Screen interval:								
well condition:	Ol	<u>r</u>						
			PURGE	DATA				
start purge time	1302	•						
time		1312	1315	1318				
DTW	(ft)	12,83	12.84	17.84				
purge rate	(L/min)	0,30						
рH	(Units) <sub>MS/M</sub> (umhos/cm)	6,63	6,67	6,64				
conductivity		18,4	17,3	170				
temperature	(deg C)	17,6	H, 4	17.3				
D.O.	(mg/L)	0,04	0,05	10,05				
ORP	(mv)	65	68	69				
turbidity	(NTU)	4)	38	127				
purge and sampl	e equip.	Peristalti	c pump a	and silicon	e/polyeth	nylene tub	ing	
							W	
				ORMATIC				
sample number	time	anal		conta		# bottles	preservative	_
mw-3-0909	1320	NWTP	H-Dx	1L Gl.	Amber	2	HCI	
								_
		*****						_
					·			_
	***							
								_

Project name	BNSF-Skyk			_	Well No.	· · · · · · · · · · · · · · · · · · ·	nW-4	
Project No.	01140-284-	0540			Sampled	d By	DWK	
Date	9/23/	09		_	weather	R	Clouds.	<i>℈</i> ℴ℉
				7				
WE	LL INFORM	ATION		1		COM	MENTS	
Depth to water		11.4)	(ft)		Tubl.	na Salu	of sot	11-175
Depth of well:		. , ( )	(ft)		- V	7		1-7-
Well diameter:		7_	(in)					
Feet of water:			(ft)					
Product thicknes	ss: -		(ft)					
Screen interval:				]				
well condition:	6							
				]				
Γ			DUDGE					
	1 , 3 2 6		PURGE	DATA				
start purge time	1339						T	
time	(α)	1549	1354	1325				
DTW	(ft)	11,44	11,44	1144				water
purge rate	(L/min)	0,30		F CQ	<del>}</del>			
pH	(Units) (umhos/cm)	5,30	5,80	5,50				
conductivity temperature	(deg C)	3,5	-5,Z	4,3		······································		
D.O.	(mg/L)	1620	15,7	33				
ORP	(mv)	0,10	OIL	0,10				
turbidity	(NTU)	90	121	- <del>1</del>				
purge and sampl			c nump a	nd silicon	e/nolveth	vlene tuh	ina	
pargo arra carrip	o oqu.p.	1 Onotare	o pamp a	na omoon	cipolycui	yiono tub	1119	
-		SAN	IPLE INF	ORMATIC	N			
sample number	time	anal	ysis	conta	iner	# bottles	preserv	vative
MW-4-0909	1400	NWTF	H-Dx	1L Gl. /	Amber	2	HC	X
		····						

Project name	BNSF-Skyk	omish			Well No	. 3-	W-41	
Project No.	01140-284-0		·	_	Sample		NZ	
Date	9/73/0	) <del>9</del>		_	weather			<i>7()</i> °F
	2/0/3/0			_			COMPANY)	
WE	LL INFORM	ATION		]		COM	MENTS	P
Depth to water		6,95	, (ft)		Twolve	mlet a	+~7	751
Depth of well:			(ft)		J			
Well diameter:	-	7 _	(in)	]				
Feet of water:			(ft)					
Product thicknes	ss: —		. (ft)					
Screen interval:				1				
well condition:	Ð	K_						
			•					
			PURGE	DATA				
start purge time	1447							
time		457	1500	1502				
DTW	(ft)	6,97		-3				
purge rate	(L/min)	0,30.						
рН	(Units)	6.17	614	6,19				
conductivity	(umhos/cm)	9.3	9.8	9,0				
temperature	(deg C)	156	155	15,4				
D.O.	(mg/L)	0,6	10,0	0,0				
ORP	(mv)	-24	-25	ーヹチ		-		
turbidity	(NTU)	8,51	8,29	8,02				
purge and sample	le equip.	Peristalt	ic pump a	and silicon	e/polyeth	ylene tub	ing	
		SAN	IPLE INF	ORMATIC	N			
sample number	time	anal	ysis	conta	ainer	# bottles	preser	vative
3-11-41-1909	7 15 15	NWTF	PH-Dx	1L Gl. /	Amber	2	Н	ÖI
	1010							

#### **GROUNDWATER SAMPLING LOG** Project name **BNSF-Skykomish** Well No. Project No. 01140-284-0540 Sampled By weather Date WELL INFORMATION COMMENTS Depth to water 10,02 (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: OK

			PURGE	DATA				
start purge time	1536							
time		1545	154×	155	5520	1557		
DTW	(ft)	1003			<b>3</b>			
purge rate	(L/min)	0.30		, /	~~~~	<u> </u>		
рН	(Units)	600	6.61	6.68	6.68	6,30	)	
conductivity	(umhos/em)	157	160	)	19	10.5	,	
temperature	(deg C)	16.2	60	15,9	15.9	15,8		
D.O.	(mg/L)	0.72	0,85	70.88	0.89	0.89		
ORP	(mv)	-19	-19	-16	15	-15		
turbidity	(NTU)	999	7.10	4.37	4.01	4 A		
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylehe tub	ing	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
3-W-4-2-0909	1600	NWTPH-Dx	1L Gl. Amber	. 2	HCI	
			•			
			•		•	

#### **GROUNDWATER SAMPLING LOG** Project name BNSF-Skykomish Well No. 3-W-43 Project No. 01140-284-0540 Sampled By Date weather COMMENTS WELL INFORMATION Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition:

PURGE DATA								
start purge time	623							
time		1633	1636	1639	1642			
DTW	(ft)	2,10	6,10	610	6.10			
purge rate	(L/min)	930						
рН	(Units)	6,47	6,44	6,41	6,40			
conductivity	(umhos/em)	618	60	6,8	6,7			
temperature	(deg C)	15,2	15,1	15,0	15,0			
D.O.	(mg/L)	0,70	0,65	0.63	0.60			
ORP	(mv)	19	21	22	73			
turbidity	(NTU)	1.92	-1.86	1,70	1,72			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tub	ing	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
3-W-43-0909	1645	NWTPH-Dx	1L Gl. Amber	2	HCI	
•	, , , ,	·				
			<del></del>			
				-		
· · · · · · · · · · · · · · · · · · ·						
·						

#### **GROUNDWATER SAMPLING LOG** Project name **BNSF-Skykomish** Well No. 01140-284-0540 Project No. Sampled By Date weather WELL INFORMATION **COMMENTS** Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: 06 **PURGE DATA** start purge time 1722 time DTW (ft) purge rate (L/min) (Units) рН conductivity (umhos/em) temperature (deg C) D.O. (mg/L) ORP (mv)turbidity (NTU) Peristaltic pump and silicone/polyethylene tubing purge and sample equip. SAMPLE INFORMATION sample number analysis container # bottles time preservative NWTPH-Dx 1L Gl. Amber HCI 11 17

GROUNDWATER SAMPLING LOG								
Project name	BNSF-Skyko	mish			Well No.		N-1	
Project No.	01140-284-0				Sample	By DW	<u> </u>	
Date	9/71	109			weather			°F
<u>Data</u>	10			•				
WE	LL INFORMA	TION				COMM	ENTS	
Depth to water			(ft)		We	11 not	- lo cot	-0d
Depth of well:			(ft)		•			1 -
Well diameter:			(in)					
Feet of water:			(ft)					
Product thicknes	s:		(ft)					
Screen interval:								
well condition:								
				,				
			PURGE	DATA				
start purge time				· · · · · · · · · · · · · · · · · · ·			<del></del>	
time								
DTW	(ft)							
purge rate	(L/min)						*	
рН	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)		<u> </u>		<u> L.,</u>	<u> </u>		
purge and samp	le equip.	Peristalt	ic pump a	ind silico	ne/polyeti	nylene tubir	ng	
				0011171				
			IPLE INF			1		
sample number	time		lysis		tainer	# bottles	preservat	ive
1A-W-1-0909		NWT	PH-Dx	1L GI	. Amber	2	HCI	
						<del>                                     </del>		
								<del></del>
1								

2 BOTTLES

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	0/23/09	
	/ / 2	

WELL INFORMATION				
Depth to water	8,96	(ft)		
Depth of well:	* .	(ft)		
Well diameter:		(in)		
Feet of water:		(ft)		
Product thickness:		(ft)		
Screen interval:				
well condition:				

Well No.	5-W	-50
Sampled	By	<u> </u>
weather	~ 700	°F
	HIGH OVEREAST	clouds
	COMMENT	S
	·	

PURGE DATA							
start purge time	0826					 	
time		0836	0839	0842	0845		
DTW	(ft)	9,04	9.04	9.04	9.04		
purge rate	(L/min)	250	250	250	250		
рН	(Units)	5.88	5.85	5-84	2.86		
conductivity	(umhos/cm)	0.087	0.088	0.088	0.088		
temperature	(deg C)	12.67	12.69	12.69	12.69		
D.O.	(mg/L)	0,27	0.23	0,22	0.21		
ORP	(mv)	883	85.3	82.5	79.3		
turbidity	(NTU)	5.22	3.69	3.09	2-57		
ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
S-W-50-0909	0850	NWTPH-Dx	1L Gl. Amber	2	HCI	
			· · · · · · · · · · · · · · · · · · ·		2000000	
				· .		
		1				

8 2 BOTTLES

	, , , ,	
Date	9/23/119	
Project No.	01140-284-0540	
Project name	BNSF-Skykomish	

Well No.	5-W-13	5-W-17
Sampled By	E.M.	
weather 70		°F

WELL INFORMATION	
Depth to water 8.52	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS	
ORGANIC DECAYS MELL	
	$\Box$
	$\dashv$
	$\dashv$
	$\dashv$
	1

PURGE DATA							
start purge time	0906						
time		09/6	0919	0922			
DTW	(ft)	8,70	8.50	8.70			
purge rate	(L/min)	250	250	250			
рН	(Units)	6.27	6.28	6.30			
conductivity	(umhos/cm)	0056	0.056	0.056			
temperature	(deg C)	9.25	9.17	9.15			
D.O.	(mg/L)	5.51	5.64	5.64			
ORP	(mv)	66.8	68.3	69.8			
turbidity	(NTU)	1:39	1.07	0.71			
ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
51/-43-09A	70925	الله NWTPH-Dx	دن 1L Gl. Amber	2	HCI		
5-00-17-0909	0925	NWBH-DX WOSE	CUILGE AMREE	Q	HC(		
5-6-170-0909	0825	NWTOH-DX W/SEC	U ILCIAMR	2			
	0825	NETTH-DX WOSE	W 1L6LAMB	2			

4 BOTILES

Project name	BNSF-Skykomish
Project No.	01140-284-0540
Date	9/23/109

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

Well No.	5-1	W-16	
Sampled I	By 🔑	$\sim$	
weather	75°	CLEAR	°F
		Sunny	

COMMENTS					
	-				
	-				
<u> </u>	_				
	_				
	_				

			PURGE D	DATA		 	
start purge time	1004					 	
time		1014	1017	1020	1923		
DTW	(ft)	9.20	9.20	9.20	9.20		
purge rate	(L/min)	250	250	250	250		
pН	(Units)	6079	6-84	6.87	6.90		
conductivity	(umhos/cm)	0.058	0.056	0.055	0.053		
temperature	(deg C)	12.68	1293	12.79	1280		
D.O.	(mg/L)	475	5 27	537	5.69		
ORP	(mv)	56.6	54.9	53,8	52.7		
turbidity	(NTU)	2.61	2.17	1-36	1.00		
ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
5-W-16-0909	1025	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI	
	•	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI	

12 MS/MSD 6 BOT. W/SGCU 6 BOT W/O SGCU

### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/93/09	

WELL INFORMATION				
Depth to water / O . 4/	(ft)			
Depth of well:	(ft)			
Well diameter: كِرْ	(in)			
Feet of water:	(ft)			
Product thickness:	(ft)			
Screen interval:				
well condition:				

Well No.	5-W-14	
Sampled By	FM	
weather	75	°F
	S 180	2

COMMENTS
Extra sample for lab QC

PURGE DATA								
start purge time	1100							
time		1110	1113	1116				
DTW	(ft)	10.41	10.41	10.41				
purge rate	(L/min)	230	280	J&)				
рН	(Units)	6.54	6,50	6.50				
conductivity	(umhos/cm)	0.061	0.061	0.060				
temperature	(deg C)	9.41	9.39	9.32				
D.O.	(mg/L)	5.47	5.92	5.89				
ORP	(mv)	68.5	70-6	71.1				
turbidity	(NTU)	1.01	0.76	0.88				
purge and sampl	e equip.	Peristaltic	Peristaltic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION									
sample number time		analysis	container	# bottles	preservative				
5-W-14-0909	1120	NWTPH-Dx (w/SGCU)	1L Gl. Amber	6	HCI				
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	6	HCI				
					,				
					······································				

ms/cm

4 BOTTLES

#### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/23 /09	

WELL INFORMATION						
Depth to water 40,400 8.88	(ft)					
Depth of well:	(ft)					
Well diameter:	(in)					
Feet of water:	(ft)					
Product thickness:	(ft)					
Screen interval:						

Well No.	5-W-15	
Sampled By	- An	
weather	70	°F

COMMENTS							
				-			
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					_		

·	PURGE DATA							
start purge time	HOO R	1303						•
time		1315	13/8	7321	1322	1327	1330	1333
DTW	(ft)	9.06	9.06	9.06	9.06	9.06	9.06	9.06
purge rate	(L/min)	270	270	270	Q70	270	270	270
рН	(Units)	678	6.75	6.74	6.75	674	6.76	6.76
conductivity	(umhos/cm)	0.097	0.098	0.009	0 099	0.099	0.100	0.100
temperature	(deg C)	13,47	13.21	13.05	12.89	12.85	1277	1271
D.O.	(mg/L)	0.48	0.40	030	0.28	0,23	0.21	O.Q1
ORP	(mv)	61.9	590	55.4	522	48.1	44.9	425
turbidity	(NTU)	9.99	9.24	892	10-44	11.79	11.11	10.70
purge and sample	e equip.	Peristaltic	pump and	silicone/p	olyethyler	ne tubing		

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
5-W-15-0909 1355	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI				
	1355	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI			
					,			
				1				
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mSom

well condition:

	ER SA	MPLING	G LOG		
Project name BNSF-Skykomish Project No. 01140-284-0540 Date 9/25/09			Well No. Sampled I weather		\$ 5-W- 9 
WELL INFORMATION			jā:	COMMENTS	
Depth to water 7.70	(ft)		- 18		
Depth of well:	(ft)				
Well diameter:	(in)				
eet of water:	(ft)				
Product thickness:	(ft)				
Screen interval:					
well condition:					

PURGE DATA								
start purge time	1409-							
time		1413	1416	1419	1422	1425	1428	1431
DTW	(ft)	7.75	7.75	7.75	7.75	7.75	175	7.75
purge rate	(L/min)	2.75	275	275	275	235	275	275
pН	(Units)	6.44	6.43	6.43	6.45	6.47	6.45	6.49
conductivity	(umhos/cm)	0.102	0.101	0.104	0.166	0,104	0.103	0.109
temperature	(deg C)	13.32	13.19	13-24	13.19	13.24	1331	13.24
D.O.	(mg/L)	0.63	0.51	0.43	0.42	0.35	0.36	0.36
ORP	(mv)	<i>2</i> 2,4	31.4	29.6		25.0	23.4	23.0
turbidity	(NTU)	1.62	1.07	1.05	1.55	428	4.14	5.5
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION								
sample number	time	analysis	# bottles	preservative				
5-W-19-000	1435	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI			
5-W-430909		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI			
<u> </u>	9							
	*							
·			• .					
	79							

4 BOTILES

GROUNDWATER SA	AMPLING LOG
Project name BNSF-Skykomish	Well No. 5-10-19
Project No. 01140-284-0540	Sampled By
Date 9/23/09	weather 79 °F
	Simmy
WELL INFORMATION	COMMENTS
Depth to water 8.40 (ft)	
Depth of well: (ft)	
Well diameter: (in)	
Feet of water: (ft)	
Product thickness: (ft)	
Screen interval:	
well condition: Geas	
PURGE D	ATA
start purge time /50Q	
Itime ICPQ ISIC	1530

			PURGE [	DATA			
start purge time	1500						
time		1512	1515	·K77	1500		
DTW	(ft)						
purge rate	(L/min)	275	275	275	275		
рН	(Units)	6.45	647	6.47			
√ conductivity	(umhos/cm)	0.051	0.050	0.6			
temperature	(deg C)	10-98	10-85	10.99			
D.O.	(mg/L)	5.33	559	5.71			
ORP	(mv)	30.5	31.0	323			
turbidity	(NTU)	0.84	0.48	239			
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	olyethylen	e tubing	

SAMPLE INFORMATION								
time	analysis	container	# bottles	preservative				
Pn	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI				
1520	NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI				
				-				
	pn	time analysis  NWTPH-Dx (w/SGCU)	time analysis container  NWTPH-Dx (w/SGCU) 1L Gl. Amber	time analysis container # bottles  NWTPH-Dx (w/SGCU) 1L Gl. Amber 2				

mS/a

4 BOTTLES

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/23/09	

Well No. 5-W-Z0	
Sampled By FM	
weather 79 °F	

WELL INFORMATI	ON
Depth to water 7.92	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

	СО	MME	NTS	
			····	
,				 
		<del> </del>		

			PURGE D	ATA				
start purge time	1541							
time		1551	1554	1557	1600	1603	1606	1609
DTW	(ft)	7.92	7.92	7.92	7.92	792	7.92	7.92
purge rate	(L/min)	286	280	280	280	280	280	280
pН	(Units)	6.67	668	6.68	6.68	6-68	6-67	6-69
conductivity	(umhos/cm)	0.085	0.087	0.087	0.687	0-088	0.088	0.088
temperature	(deg C)	13.23	13.10	13-02	12,94	12.91	12.99	13.10
D.O.	(mg/L)	0.60	0.43	0.32	29	0.23	022	0-22
ORP	(mv)	21.3	19.0	17.7	16-4	15.5	14.9	14.1
turbidity	(NTU)	ルテル	1.38	1.29	1,10	1.11	0.87	093
ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
-11-70-090	7610	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI			
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI			

Q 4 BOTTLES

Project name	BNSF-Skykomish			
Project No.	01140-284-0540			
Date	9/23/09			

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

Well No.	5-W	175	-20-4	3
Sampled By	en			_
weather <u>s</u>	Surry	70°	°F	

COMMENTS
BIO PIOCIN WELL
- ERRATIC TURB, RRADING
- REDDISH CRANGE COLOR

PURGE DATA								
start purge time	1700							
time		1710	17:3	17/6	17-19	1722	1725	
DTW	(ft)	_					1	
purge rate	(L/min)	275	275	275	275	275	275	
рН	(Units)	6.08	6.14	6.04	6.00	5.97	5,96	
conductivity	(umhos/cm)	0.051	0.050	0.050	0.047	0.048	0.049	
temperature	(deg C)	12.09	12.29	11.46	11.20	11.04	11.05	
D.O.	(mg/L)	1.36	1.56	1.58	1.35	1.30	1.27	
ORP	(mv)	38.0	37.4	46.0	46.4	47.7	48.8	
turbidity	(NTU)	328	7.18	4.31	410	20.7	6.81	
ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
5-W-17-0909	- <i>1730</i> -	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI			
5-1W-43	1730	NWTPH-Dx (w/o SGCU)	1L_GI. Amber	2	HGI FR			
					**************************************			
					- Carlot			

2 BOTILES

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/93/00	

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

Well No.	5-W	1-4	
Sampled By	FM		
weather §	sunny	70	°F
	/		

COMMENTS						
	į					

PURGE DATA								
start purge time	17 43							-2
time		1753	1756	1759	1802			
DTW	(ft)	8,92	8,92	8.92	8.92			
purge rate	(L/min)	275	275	275	275			
рН	(Units)	6.26	6.27	6.27	6-28			
conductivity	(umhos/cm)	0.108	0.116	2.113	0.117			
temperature	(deg C)	19.16	14.11	14.04	14.02			
D.O.	(mg/L)	027	0.20	0.19	0.19			
ORP	(mv)	81.3	30.2	297	29.1			
turbidity	(NTU)	2.93	1.22	0.86	1.00	· · · · · · · · · · · · · · · · · · ·		
purge and sampl	rge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
C=C1-4-10900	1805	NWTPH-Dx	1L Gl. Amber	2	HCI			

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/23/09	

WELL INFORMATION						
Depth to water	12,99	(ft)				
Depth of well:		(ft)				
Well diameter:	2	(in)				
Feet of water:		(ft)				
Product thickness:	NONE	(ft)				
Screen interval:						
well condition:	900 d					
	(					

Well No.	ZA-W	- 47	
Sampled By	Chan	1.5	
weather clos	idy	58	°F

COMMENTS				
Inlet tubing a 15				
,				
Started Some From Flacks.				
Started Some Fron Flacks.				
De unstable				

PURGE DATA								
start purge time	0831							
time		0841	P844	0847	0850	0853	0956	
DTW	(ft)	12:99	12.99	12,99	MM	NM	12,99.	
purge rate	(L/min)	250	250	250	250	250	250	
рН	(Units)	5,86	5.91	5.91	5.91	5.92	5,91	
conductivity	(umhos/cm)	0,109	0.109	0,105	6,103	0,102	0.102	
temperature	(deg C)	10,32	10,36	10.33	10.36	10,39	10.39	
D.O.	(mg/L)	0.66	0,69	0.82	0,97	\$ 1,00	1,07	
ORP	(mv)	-139,7	-140,4	141.4	-142.1	-142,2	-143,2	
turbidity	(NTU)	4,61	2.52	1,25	1.36	1.02	0,33	
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION							
sample number	time	analysis container		# bottles	preservative		
ZA-W-42-090	0900	NWTPH-Dx	1L Gl. Amber	2	HCI		
, , , , , , , , , , , , , , , , , , , ,							

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	09/23/09	

WELL INFORMATION						
Depth to water	17.50	(ft)				
Depth of well:	20.30	(ft)				
Well diameter:	2	(in)				
Feet of water:	2,80	(ft)				
Product thickness:	MUNE	(ft)				
Screen interval:	5-21					
well condition:	bud.					

Well No. 18-W-23	
Sampled By Chanis	
weather clear, 62	°F

COMMENTS	
Inlet tubing 1 19	
	_
becoming turbide.	
water level is dropply down	
Water level 19.35:	
1	_

PURGE DATA								
start purge time	0931							
time		0941	0944	0947	0950	0953	0955	
DTW	(ft)	18.61	18.79	(8,90	19,04	19.30	0	
purge rate	(L/min)	150	120	120	120	120	tump	
рН	(Units)	6.21	6.23	6.25	6.24	6,28	Shut	26-6
conductivity	(umhos/cm)	0.200	5,197	0,193	0.197	0,200	المراسل	
temperature	(deg C)	10.75	10.24	10,43	10.88	11.63	are	. <del>.</del>
D.O.	(mg/L)	1.32	1,28	0.78	1.32	1,55	exiles	5
ORP	(mv)	-145.2	-147.9	-149.3	-147.7	-147.7	dans	lown
turbidity	(NTU)	High	High	High	High	High	•	
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
1B-W-23-0909	1040	NWTPH-Dx	1L Gl. Amber	2	HCI				
					,				
Grah	Sample	. No stab	itity of Do	ra meto	rs. reached				
9 3									

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	09123/09	

ORMATION	
15.58	(ft)
	(ft)
2	(in)
	(ft)
HONE	(ft)
no bolds.	

Well No.	1B-W-3
Sampled By	Cahanis
weather (	140 J8 °F

COMMENTS						
Inled tubing 2 17						
J						
punge water is cloudy.						
1						
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						

			PURGE	DATA				
start purge time	140	.6					<u></u>	
time		1416	1419	14.22	14,25	1428	1431	1434
DTW	(ft)	15.61	15.61	15.61	15,61	NM	MM	NM.
purge rate	(L/min)	250	250	250	250	250	250	250
pH	(Units)	6.78	6.72	6.63	6.57	6-51	6.46	6.42
conductivity	(umhos/cm)	0102	0,099	0,095	0.094	0.092	0.090	0.088
temperature	(deg C)	13.36	13.34	13,27	13.32	13.32	13.37	13.19
D.O.	(mg/L)	0.66	9.78	6,90	0.95	Ø1.07	1.12	1.17
ORP	(mv)	-160.5	-161,2	162.3	-162,4	162.1	-1622	-162,2
turbidity	(NTÚ)	6.71	9.22	8.20	665	4.23	2.20	2.29
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
1B-W-3-1910	1440	NWTPH-Dx	1L Gl. Amber	2	HCI				
			,						
		·							

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/23/09	

WELL INFORMATION					
Depth to water	16.08.	(ft)			
Depth of well:	7.2	(ft)			
Well diameter:	2	(in)			
Feet of water:		(ft)			
Product thickness:	NONE	(ft)			
Screen interval:					
well condition:					

Well No.	6W-	3	
Sampled B	y Colan	. S	
weather S	unny	68	°F

COMMENTS	_
Inlet tobing = 17.5	
cloudy to turbiole.	_
cloudy. là Turbide.	
	_
	-

PURGE DATA								
start purge time	113	3			V W.			
time		1043	1046	1049	1052	1455	1658	1201
DTW	(ft)	16.66	16.57	16.55	16.55	16.56	16.53	16.51
purge rate	(L/min)	250	200	700	200	200	180	(80
рН	(Units)	6.58	6.59	6.60	6.60	6.55	6,48	6.43
conductivity	(umhos/cm)	0.280	0.277	0,276	0,262	0.190		841.0
temperature	(deg C)	11.24	11.70	12.10	12.08	11.85	11.74	12-56
D.O.	(mg/L)	5,75	0,50	0.36	0,32	0.24	0.16	6,15
ORP	(mv)	-150.5	151.7	-153.3	-156.4	158,2	-158,7	-158.6
turbidity	(NTU)	118	324	319	388	587	<b>5</b> 51	806
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
GW- 3-0920	1255	NWTPH-Dx	1L Gl. Amber	2	HCI			
·								

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	09123/09	

∴ WELL IN	FORMATION	
Depth to water	16.08	(ft)
Depth of well:	22	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	. 1	(ft)
Screen interval:		
well condition:		

Well No. (	GL	1-3	
Sampled By	Ċ	-ani-s	
weather Su	uny	72	°F
	,		

COMMENTS	
turbidity is very high	
	···

PURGE DATA								
start purge time								•
time		1204	1207	1210	1213	1215	12(8	1221
DTW	(ft)	16,50	16.50	16.50	16.50	16.50	NM	NM
purge rate	(L/min)	180	180	681	180	(00	180	180
pН	(Units)	6 42	6,41	6.37	6.33	6.32	6.30	6.28
conductivity	(umhos/cm)	6.144	0,140	0.118	0.110	0,107	0,04	०,०९९
temperature	(deg C)	12.75	12-91	12.48	12.53	12.74	12,90	12.95
D.O.	(mg/L)	6.19	0.15	0.13	0.12	0.11	0,11	010
ORP	(mv)	-159.8	160.3	161.3	3,121-	_ 163.1 .	. 163.8	164.9
turbidity	(NTU)	6,97	6,40	5x13	422	370	303	256
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
GW-3-0909	1255	NWTPH-Dx	1L Gl. Amber	2	HCI			
			4					

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/23/09	

<u>ه (ft)</u>
(ft)
(in)
(ft)
€ (ft)
olds.

Well No.	1B-W-Z
Sampled By	Chanis
weather S	unay 81°F

COMMENTS
Inlet Tubing 1 6
Purge water is cloudy. Some Fron Flacks
Some Fron Flacks
turbidity unstable.

PURGE DATA								
start purge time	15	10						
time		1520	1523	1526	1529	15324	1537	1540
DTW	(ft)	15.51	15.00	15.74	15.76	15.84	15.91	15.95
purge rate	(L/min)	250	250	180	(80	(5.5	150	150
pH	(Units)	5.68	5.69	5.71	5.74	5.77	5.75	5.77
conductivity			0,352	0,353	0,360	0.360	0.360	0.354
temperature	(deg C)	15.37	15,24	15.43	16,30	17.03	16.68	16.25
D.O.	(mg/L)	0.69	0,51	0.37	0.29	0.77	0.67	0.54
ORP	(mv)	-148.8	-148.5	-150,4	-153,6	-148.6	-150.5	- 151.5
turbidity	(NTU)	12.55	13.3.	8,28	10.04	47,2	27.3	7.93
purge and samp	1.\	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tub	ing	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
1B-W2-0919		NWTPH-Dx	1L Gl. Amber	2	HCI
1 20 10 10 10 10 10 10 10 10 10 10 10 10 10					
			1		

All parameters stabilized except turbidity. Kept Fluctuating: When I started sompling. @ 1555. The well dried out turned off pump P 1605: Desamed pumping after 15 min, and well recovered.

# 1B-W-2.

Fine 1543 1546 1549. 1552. DTW 16.00 16.06 16.14 16.22 Pury rate 150 150 150 150 5.79 5.81 5.81 5.82 PH 0.353 0.349 0.346 6.342 (ond Temp 16.47 16.26 16.26 16.26 0.39 0.35 0.36 0.37 Do ORP -152.3 -152.0 -150.9 -150.9 Turb; 5.20 3.29. 6.63 5.26

GROUNDWATER SAMPLING LOG								
Project name BNSF-Skykomish			_	Well No.		W-4		
Project No.	01140-284-0	)540		_	Sampled	IBy 🚓	hanie	
Date	9/23/0	9		_	weather	Sunay	. gc	<u> </u>
WE	LL INFORMA	TION				COMI	MENTS	
Depth to water	10.3	Ö	(ft)		Inlet	tubing	1 12	
Depth of well:			(ft)		1	_		
Well diameter: 2 (in) purse water i's clear.			r					
Feet of water: (ft)								
Product thickness: ALONE (ft)								
Screen interval:								
well condition: No hold (			· .					
			PURGE	DATA			·	
start purge time	1716							
time		1726	1729	1732	17.35			<u> </u>
DTW	(ft)	10.39	10.39	10.39	10.39			
purge rate	(L/min)	250	220	220	220			
рН	(Units)	6,48	6,46	6.45	6.44			
conductivity	(umhos/cm)	0.069	0.068	0,067	0.066			
temperature	(deg C)	12,26	12.10	12.94	11.73			
D.O.	(mg/L)	5.94	6.35	6.46	6.53			

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1A-W-4-0909	1740	NWTPH-Dx	1L Gl. Amber	2	HCI

-135,5 -140,5

12,0 82,0

Peristaltic pump and silicone/polyethylene tubing

ORP

turbidity

(mv)

purge and sample equip.

(NTU)

#### **GROUNDWATER SAMPLING LOG BNSF-Skykomish** Project name Well No. 01140-284-0540 Project No. Sampled By Date weather **WELL INFORMATION COMMENTS** Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: None (ft) Screen interval: well condition: DL **PURGE DATA** start purge time 1638 time DTW (ft) purge rate (L/min) (Units) рН conductivity (umhos/cm) temperature (deg C) D.O. (mg/L) ORP (mv) turbidity (NTU) purge and sample equip. Peristaltic pump and silicone/polyethylene tubing SAMPLE INFORMATION sample number time analysis container # bottles preservative 640 NWTPH-Dx 1L Gl. Amber HCI MW-39-0919 2

#### **GROUNDWATER SAMPLING LOG** Project name **BNSF-Skykomish** Well No. 01140-284-0540 Project No. Sampled By Date weather WELL INFORMATION **COMMENTS** 9,5 Depth to water (ft) Depth of well: (ft) Well diameter: 2 (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: **PURGE DATA** start purge time 1707 time (ft) DTW purge rate (L/min) рН (Units) conductivity (umhos/cm) temperature (deg C) D.O. (mg/L) ORP (mv) turbidity (NTU) purge and sample equip. Peristaltic pump and silicone/polyethylene tubing SAMPLE INFORMATION sample number time analysis container # bottles preservative ZA-W-11-0909 NWTPH-Dx 1L Gl. Amber HCI

#### **GROUNDWATER SAMPLING LOG** Project name **BNSF-Skykomish** Well No. Project No. 01140-284-0540 Sampled By Date weather **WELL INFORMATION COMMENTS** Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition: **PURGE DATA 1**38 start purge time time DTW (ft) purge rate (L/min) На (Units) conductivity (umhos/cm) temperature (deg C) D.O. (mg/L) ORP (mv) turbidity (NTU) purge and sample equip. Peristaltic pump and silicone/polyethylene tubing **SAMPLE INFORMATION** sample number # bottles time analysis container preservative NWTPH-Dx 1L Gl. Amber HCI 1-W-51-1900

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	.,

WELL INF	ORMATION	
epth to water	14.23.	(ft)
epth of well:		(ft)
ell diameter:	2	(in)
eet of water:		(ft)
oduct thickness:	NONE	(ft)
creen interval:		
ell condition:	No holds	,
ell condition:	No bolds	

Well No.	1C-W-	1
Sampled By	Chani.	5
weather Sun.	ny 58	°F
0		

COMMENTS
purge Water is cloar.
Inlet tubing 2 16
·

			PURGE	DATA				
start purge time	08 55							
time		0905	0908	0911	0914			
DTW	(ft)	14.25	14.25	14.25	14.25			
purge rate	(L/min)	250	250	250	250			
рН	(Units)	5.67	5.76	5.71	5.74			
conductivity	(umhos/cm)	0.057	0.057	0,056	0,654			
temperature	(deg C)	11.52	11.45	11.49	11.57			
D.O.	(mg/L)	5.99	5.57	5,38	5,22			
ORP	(mv)	-108,6	-110,4	عَ , UO  -	-112.1			
turbidity	(NTU)	1.49	1.37	1.18	0.95			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
1c-W-1-0909	0915	NWTPH-Dx	1L Gl. Amber	2	HCI		
1							

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	

WELL IN	IFORMATION	
Depth to water	13.61	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	Good.	

Well No. IC-W-8	
Sampled By Caliani S	
weather Sugay 61	°F
<i></i>	

COMMENTS	
purge unter is clear.	
Inlet toping 2 15	
	_
	1
	٦

PURGE DATA								
start purge time	0935							
time		0945	0948	0951	10954			
DTW	(ft)	1364	13.64	13.64	13.6			
purge rate	(L/min)	250	250	250	250			
PΗ	(Units)	5.92	5.92	5.92	5,93			
conductivity	(umhos/cm)	0.062	0,062	0,060	0.060			
temperature	(deg C)	14.56	14.56	14.64	14.49			
D.O.	(mg/L)	0.57	0,44	0.41	0,42			
ORP	(mv)	-124.5	-126.5	-125,1	- 129,2			
turbidity	(NTU)	1.40	1.30	1.39	0.95			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION						
time	analysis	container	# bottles	preservative		
0955	NWTPH-Dx	1L Gl. Amber	2	HCI		
	time 09.55	time analysis	time analysis container	time analysis container # bottles		

Date	9/22/09	
Project No.	01140-284-0540	
Project name	BNSF-Skykomish	

WELL II	NFORMATION	
Depth to water	12,14	(ft)
Depth of well:		(ft)
Well diameter:	7_	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:	,	
well condition:	Casod.	

Well No.	1C-W-	-7	
Sampled By	Caha	ni	2
weather 3	unny	20	°F
-	/		

COMMENTS						
parege water is cloudy						
Inlet tubing 2 14						
	_					
Inlet tubing 2 14						

PURGE DATA								
start purge time	142	7		·······		···		
time	•	1437	1440	1443	1446	1449	1452	1455
DTW	(ft)	12,15	12,15	12,15	12.15	MM	NM	MM
purge rate	(L/min)	250	250	250	250	250	250	250
рН	(Units)	6.73	6.83	6.86	6.87	6.87	6.89	6.88
conductivity	(umhos/cm)	0,104	0, (05	0.109	0.109	0.113	0.114	0.1124
temperature	(deg C)	14.59	14.52	14.54	14.69	14,43	14.59	14.57
D.O.	(mg/L)	7,70	7.70	7.78	7.78	7.80	7.69	7,73
ORP	(mv)	-123.7	-123-1	12.5	-121,4	-no:5	-120.5	120.1
turbidity	(NTU)	6,06	5.84	4.77	3,18	1.78	1.93	1.80
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION						
preservative						
HCI						
11						
·						
-						

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	

WELL IN	FORMATION	
Depth to water	10.90	(ft)
Depth of well:		(ft)
Well diameter:	7.	(in)
Feet of water:		(ft)
Product thickness:	HONE	(ft)
Screen interval:		
well condition:	bood.	

Well No. IC-W-	-4-
Sampled By	ai. S
weather Suncy	78 °F

COMMENTS	
purge water is clear	
Pulet tubing a 13	
,	
Do un stable	

PURGE DATA								
start purge time	1326							
time		1336	1339	1342	1345	1348	1351	1354
DTW	(ft)	11.25	11,27	11,20	11.19	11.18	11.18	11.18
purge rate	(L/min)	250	200	200	200	200	200	200
рН	(Units)	5,57	5.62	5.68	5,72	5.71	5,69	5.70
conductivity	(umhos/cm)	6.056	0.056	0.056	0.055	10.05U	0.054	0.054
temperature	(deg C)	11,37	11,24	11,63	11.60	11.36	11.30	11,40
D.O.	(mg/L)	1,10	0.91	0,67	6.60	0.54	0,50	0,50
ORP	(mv)	-140.3	-140.3	-140,5	-141,7	-143,5	-144.3	-145,5
turbidity	(NTU)	1.99	1.32	1,05	6.77	0.94	0.93	103
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
1C-W-A-0904	1355	NWTPH-Dx	1L Gl. Amber	2	HCI

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	-
Date	9/22/09	

WELL IN	FORMATION	
Depth to water	11.83	(ft)
Depth of well:	·	(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	No bolds.	

Well No.		1C-1	1-3			
Sampled	Ву	Colore	ni	S		
weather	SUU	uy.	6	7	°F	

COMMENTS	
purse leater is alear close	dy.
r /	1
inlet tubing & 14	
water becoming more turbide	
re duced Flow rate,	

PURGE DATA								
start purge time	1030							
time	1040	1042	1045	1048	1051	1054	1057	A#02
DTW	(ft)	12.98	1295	12.95	12,98	13,03	13.04	13.06
purge rate	(L/min)	250	180	180	180	150	150	140
рН	(Units)	5.88	5.90	5.91	5,93	5.92	5.92	5.91
conductivity	(umhos/cm)	0.066	0.068	0.068	0.068	0,067	0,066	0.067
temperature	(deg C)	16.00	17.12	17.59	17.63	17.38	16.82	17.67
D.O.	(mg/L)	600	5,58	5,59	5,68	5,87	5,88	5.46
ORP	(mv)	-109.3	- iv8.6	-104.5	-101,5	- 100 . 1	-99.3	<u>~</u> (∞,7
turbidity	(NTU)	High	High	High	821	584	432	351
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
1C-W-3-090	9 1/45	NWTPH-Dx	1L Gl. Amber	2	HCI	
.,,	,					

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	09122/09	

WELL INFORMATION					
11.83	(ft)				
	(ft)				
2	(in)				
	(ft)				
MONE	(ft)				
No holds					
	NONE				

Well No.	1C-W-3	
Sampled By	Cahani	. 2
weather so	unay &	59°F

COMMENTS					
Turb Idity High	Mery				

PURGE DATA								
start purge time	1030							
time		1107	1112	1117	1122	1127	1132	1138
DTW	(ft)	13,07	13.06	13.03	13,03	13.04	13.04	13-05
purge rate	(L/min)	140	140	140	140	140	140	140
pH	(Units)	5.92	5.93	5,92	5.93	5.95	5.93	5.94
conductivity	(umhos/cm)	830,0	0.069	0,070	0.071	0-072	0.071	0.072
temperature	(deg C)	18.12	18.53	19,21	19.73	19,61	19.14	19.83
D.O.	(mg/L)	5.24	5.21	5,10	5,24	5.21	5.33	<b>\$</b> 98
ORP	(mv)	-99,0	-96.9	-89.1	-89.4	- <i>8</i> 8.0	-84.6	-88.3
turbidity	(NTÚ)	268	230	182	140	90.2	68.9.	<b>68</b> 0
	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
1(-W-3-0909	1145	NWTPH-Dx	1L Gl. Amber	2	HCI	
		· · · · · · · · · · · · · · · · · · ·				

1142 13.06 140 5.94 6.072 29.73 4.96 -88.8 71.4

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	·
	1 /	

WELL IN	NFORMATION	
Depth to water	11.18	(ft)
Depth of well:		(ft)
Well diameter:	٧_	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	No bolds.	

Well No.	1C-W-Z
Sampled By (	alani.s
weather Sag	

	OMMENTS	
purgew	afer is Clea	r
Etal Inlet	tubings (	3/_

			PURGE	DATA				
start purge time	1611							·
time		1621	1624	1627	1430			
DTW	(ft)	11.10	11.18	11/18	NM			
purge rate	(L/min)	250	250	250	250			
рН	(Units)	5.70	5.68	5.67	5.67			
conductivity	(umhos/cm)	0.074	0,073	0,673	0,071			
temperature	(deg C)	12.57	12.44	12.75	12.56			
	(mg/L)	3.93	3.75	3.67	3.67			
ORP	(mv)	123,3	-125,9	-127.1	127.0			
turbidity	(NTU)	1,15	0.49		0.04			
purge and sampl	e equip.	Peristalt	ic pump a	and silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION								
time	analysis	container	# bottles	preservative				
1635	NWTPH-Dx	1L Gl. Amber	2	HCI				
	time  635	time analysis	time analysis container	time analysis container # bottles				

# Project name BNSF-Skykomish Well No. Project No. 01140-284-0540 Sampled By Chant, S Date 9/22/09 weather Canny 84 °F

WELL IN	IFORMATION	
Depth to water	11.22.	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:	•	
well condition:	6000.	

COMMENTS	
Talet tubing 2 13	/
/	Λ
purse mater is 1	ear
1 /	

			PURGE	DATA				***************************************
start purge time	1654							
time	,	1704	1767	1710	1713			
DTW	(ft)	11.73	11,72	11.72	11.			
purge rate	(L/min)	280	250	250	250			
pН	(Units)	6:12	6.13	6.12	6.13			
conductivity	(umhos/cm)	0.093	0.094	6,094	0.095			
temperature	(deg C)	12.57	12.54	12.33	12,60			
D.O.	(mg/L)	0.99	0.82	0,76	0.82			
ORP	(mv)	134,4	135,8	136.7	-137.4			
turbidity	(NTU)	0.93	2,44	2.28	2.46			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
GW-4-0900	1715	NWTPH-Dx	1L Gl. Amber	2	HCI				
,									
			·						

Project name	BNSF-Skykomish
Project No.	01140-284-0540
Date	0, 122/09
	1 /

WELL INFORMATIO	N
Depth to water 8.69	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition: Coop	

Well No.	5-W-52	
Sampled By	FM	
weather	75° Sunny Slight	°F
	E. BREEZE	

COMMENTS	
100	
	_

PURGE DATA								
start purge time	e <i>0920</i>						0959	
time		0944	0947	0950	0953	0956	04/000	1002
DTW	(ft)	8,69	8.69	8.91	8.90	390	8.90	890
purge rate	(L/min)	350	350	350	350	350	350	350
рН	(Units)	5.50	5.57	6.03	6.22	634	636	6.38
∧ conductivity	(umhos/cm)	0.092	0.099	0.094	0,092	0.096	0.099	0.094
temperature	(deg C)	12.22	12.19	12.22	12.45	12.66	12.54	12.96
D.O.	(mg/L)	0.62	0.58	0-49	0.50	0.45	0.42	0-41
ORP	(mv)	164.5	151.4	1427	130.6	118.0	112.1	108.5
turbidity	(NTU)	4.05	3.58	2.57	2:21	2.55	222	2.21
purge and sam	ple equip.	Peristalt	ic pump a	and silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION									
sample number time analysis container # bottles p									
5-10-57-1191	0) 1005	NWTPH-Dx	1L Gl. Amber	2	HCI				

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Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/89	

WELL INFORMATION	ON
Depth to water & 30	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMMENTS	
E. STIBUT BEEZE	
weather 76° swwy	°F
Sampled By Em	
Well No. 5-W-53	

PURGE DATA								
start purge time	1024							
time		1034	1037	1040	1043	1046	1049	1052
DTW	(ft)	3.49	3.49	8.49	8,49	8.49	8.49	8-49
purge rate	(L/min)	300	300	300	300	300	300	300
рН	(Units)	6.30	6.29	6.35	6:33	6.34	6.35	633
conductivity	(umhos/cm)	93-30.04	0.096	0.090	0.096	0.040	0.091	5.093
temperature	(deg C)	16.47	16.83	17.02	17.16	17.26	17.29	17.23
D.O.	(mg/L)	0.42	0.38	0.38	0-37	0.35	<i>0.3</i> 3	0.34
ORP	(mv)	93.1	929	90.3	ধর্ম ।	86.8	85.2	837
turbidity	(NTU)	217	10.25	9.14	6.51	4.56	Q.98	2.69
purge and sample	e equip.	Peristalti	c pump a	nd silicon	e/polveth	vlene tub	ina	•

SAMPLE INFORMATION									
sample number	time	analysis	# bottles	preservative					
5-W-53-090g	1055	NWTPH-Dx	1L Gl. Amber	2	HCI				
5-W-530-091	9 0955	H	l A	a	N				
Duol (atc)			·						

mSkm

Date	9/12/89	
D - 1 -	N/a- /10	
Project No.	01140-284-0540	
Project name	BNSF-Skykomish	

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

Well No.	5-W-5	P
Sampled By	ÉM	1
weather 75	5 sunny	°F
×1	WANT A ROCE	675

	COMMENTS	
<u></u>	COMMENTS	
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1		

			PURGE	DATA				
start purge time	7/28							
time		1138	1141	1144	1147			
DTW	(ft)	7.90	7.90	7.40	7.90			
purge rate	(L/min)	250	250	3.5O	250			
pН	(Units)	6.24	6.13	6,10	6-08			
conductivity	(umhos/cm)	0.062	0.062	0.06	0.060			
temperature	(deg C)	14.90	14.69	14.43	14.22			
D.O.	(mg/L)	0.5)	0,45	0.41	0.41			
ORP	(mv)	78.5	91.9	93.9	6.91.9			
turbidity	(NTU)	4.82	3.41	292	2.64			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	ne/polyethy	lene tub	ing	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
5-W-S4-0900 1150		NWTPH-Dx	1L Gl. Amber	2	HCI			



GROUNDWATER SAMPLING LOG								
Project name Project No. Date  WE Depth to water Depth of well: Well diameter: Feet of water:	BNSF-Skyk 01140-284- 9/22/ ELL INFORM 5.8)	Well No Sample weather	d By <i>Fi</i> - 75°	W-38R	°F			
Product thickness	38.		(ft)					
Screen interval:			(10)	4	-			
well condition:	(eoi)	·		1				
	300.3			1				
				<b>-</b>				
			PURGE	DATA				
start purge time	1312				•			<b>-</b>
time		1327	1330	1333	/336	1337	1342	
DTW	(ft)	5.90	5.90	5,90	8.90	5.90	5.90	
purge rate	(L/min)	250	250	250	250	350	250	
рН	(Units)	5.81	5.97	6.10	6.24	6.22	6.20	
conductivity	(umhos/cm)	<del>//</del>	0.057	0.057	0.056	0.058	0.058	
temperature	(deg C) ∫	1/164	10.59	10.30	10.18	10.12	1031	
D.O.	(mg/L) /	337	2.80	1.65	1.20	1.20	1,14	
ORP	(MV)		112.5	6.70	90.8	87.3	346	
turbidity purge and samp	(NTU)	0.92		<u></u>	<i>□.⋺</i> ठ ne/polyeth	0.64	<u> </u>	
purge and samp	le equip. 7		ic pump a	and Silicon	ie/poiyeti	iylerie tub	ing	
			IPLE INF	ORMATI	ON			
sample number	time	1	lysis	1	ainer	# bottles	preser	vative
MW-3ER-090	1345		PH-Dx		Amber	2	H(	
111111111111111111111111111111111111111								

-3.0

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/22/09	
	-/ · /· /	

Well No.	5-W-18	
Sampled By	GN.	
weather	75	°F _

WELL INFORMATION	
Depth to water 9.52	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition: 6℃D	

COMMENTS							

			PURGE D	DATA			
start purge time	1430						
time		1440	1443	1446	1449	1452	
DTW	(ft)						
purge rate	(L/min)	250	250	250	250	250	
рН	(Units)	6.58	6.57	6.56	6.56	6.56	
conductivity	(umhos/cm)	0.073	0.073	0.074	0,074	0.074	
temperature	(deg C)	13.82	13.86	13.94	14.00	13.90	
D.O.	(mg/L)	028	0.21	0.18	0.17	0.17	
ORP	(mv)	47.9	46.4	46.1	44.3	425	
turbidity	(NTU)	10.55	632	4.45	3,48	329	
purge and sampl	e equip.	Peristaltic	pump and	silicone/p	olyethyler	ne tubing	

•		SAMPLE INFOR	RMATION		
sample number	time	analysis	container	# bottles	preservative
-W-12-1909	1455	NWTPH-Dx (w/SGCU)	1L Gl. Amber	2	HCI
		NWTPH-Dx (w/o SGCU)	1L Gl. Amber	2	HCI
		,	-		
-W-120-09d	9-1355-	11 0	1/	11	<del></del>
Chap/icate		D D:	- ),	79	1
	)				No 1 1
					110 amplica
					talon

mS/cm

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	a/22/09	

WELL INFORMATION	1
Depth to water 7.60	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

Well No.	5-W-55	
Sampled By	m	
weather 8	55°.	°F
<u> </u>		

	Sund
	COMMENTS
IN	ITIAL Y VERY TURBED WILL
ws	TIMM Y VERY TURBID WILL  TO FUR TURB TO DECREASE
	,

			PURGE	DATA				
start purge time	1614							
time	22"-	1624	1627	1630	1633	1636		
DTW	(ft)	7.72	7.72	7.72	7.72	7.72		
purge rate	(L/min)	250	aso	250	250	250		
pН	(Units)	6.08	6.01	5.98	5.99	5.99		
conductivity	(umhos/cm)	0.065	0.064	0.063	0.064	0.0064		
temperature	(deg C)	14.73	1454	14.36	14:21	14-62		
D.O.	(mg/L)	0.31	0.29	0.24	0.23	0.22		
ORP	(mv)	33.5	384	39.8	40-1	40.0		
turbidity	(NTU)	9.41	6.86	3,95	3.82	346		
purge and sampl	e equip.	Peristalt	ic pump a	ınd silicon	e/polyeth	ylene tub	ing	

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
5-W-55-0900	1640	NWTPH-Dx	1L Gl. Amber	2	HCI		
		`					
			· ·		•		

ns/cm

BNSF-Skykomish	
01140-284-0540	
9/22/09	
	01140-284-0540

WELL INFORMATION				
Depth to water 8.42	(ft)			
Depth of well:	(ft)			
Well diameter:	(in)			
Feet of water:	(ft)			
Product thickness:	(ft)			
Screen interval:				
well condition: ১০০১১				
well collation. 65515				

Well No.	5-W-	-56
Sampled I	By An	•
weather	80°	°F
	5.101-04 4/	40 B0 G G 7 =

	COMMENTS
	COMMENTS
SIRIN-E	TURNG TOWELL
•	
***************************************	

			PURGE	DATA				•
start purge time	15QZ		*.	,				
time		1533	1536	1539	1542	1545		
DTW	(ft)	860	8,60	8.60	8.60	8.60		
purge rate	(L/min)	250	250	250	250	250		
рН	(Units)	6.27	627	6-26	6.27	6.29		
conductivity	(umhos/cm)	0.428	0-435	0.436	0.450	0.417		·
temperature	(deg C)	20.59	20,15	20.53	2033	19.63		
D.O.	(mg/L)	Q.Q8	025	0.23	0.200:21	0.21		,
ORP	(mv)	408	38.6	372	356	34.9		
turbidity	(NTU)	3.20	4.74	3.00	3.07	353		
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

		SAMPLE INF	ORMATION		•
sample number time		analysis	container	# bottles	preservative
5-W-56-09	-55 900 1550 NWTPH-Dx 1L GI. Ambe		1L Gl. Amber	2	HCI
					•
					^ .
					:

m5/cm

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	· ·
Date	9/21/119	

WELL IN	IFORMATION	
Depth to water	5,28	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:	,	
well condition:	Missing be	105

Well No.	ZB-W-D	+
Sampled B	By Cologni	2
weather	Sanny	74°F
	1	,

COMMENTS	
Inlet tubing a 7.0	0
purse water is clear.	
77.5. 7. 10.5(27. )	
Made and a second	

PURGE DATA								
start purge time	1600							
time		1610	1613	1616	1619	1622		
DTW	(ft)	5,30	5,30	5.30	5,30	MM		
purge rate	(L/min)	250	250	250	250	250		
рН	(Units)	5,77	5,77	5,76	5.76	5,76		
conductivity	(umhos/cm)	0,068	0.067	0.066	0.067	0.066		
temperature	(deg C)	12,59	12,50	12.39	12.59	12.53		
D.O.	(mg/L)	1, 55	1,47	1,52	1.50	1,60		
ORP	(mv)	-13.8	-22.0	-28.0	-27,8	-27.3		
turbidity	(NTU)	0.67	0.41	0.36	0,08	0,00		
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
2B-W-4-0900	1625	NWTPH-Dx	1L Gl. Amber	2	HCI	
·						

Project name	BNSF-Skykomish		
Project No.	01140-284-0540		
Date	9/21/09		

WELL INFORMATION				
Depth to water 12.72	(ft)			
Depth of well:	(ft)			
Well diameter: 2"	(in)			
Feet of water:	(ft)			
Product thickness: —	(ft)			
Screen interval:	-			
well condition:				

Well No. ZA-	W-10	
Sampled By FM,	MA	
weather Sun	78	°F

COMMENTO						
	COMMENTS					
	4					

			PURGI	E DATA				
start purge time	e 1550							
time		1600	1603	1606	1609	1612	1615	1618
DTW	(ft)	12.92	12.92	1292	12.92	12.92	12.92	12.92
purge rate	(L/min) O	250	6250	0.250	0.250	0,250	0.250	6.250
рН	(Units)	4.94	4.97	5,02	5.04	ಶ.೦3	5,03	5.07
conductivity 🦇	ハ(u <del>mho</del> s/cm)	0.046	0.045	0.045	0.046	0.043	0-042	0.044
temperature	(deg C)	11.67	11.69	11.50	11:37	11.41	11.23	11,23
D.O.	(mg/L)	1.11	0.95	0.82	6.72	6.6A	0.00	0.54
ORP	(mv)	171.2	167.1	165.9	165:4	160.7	66.0	163,0
turbidity	(NTU)	876	7.00	5.11	4:14	3.72	2.87	4,27
purge and sam	ple equip.	Perista	ltic pump	and silicor	ne/polyeth	nylene tub	ing	

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
ZA-W-10-0909	1630	NWTPH-Dx	1L Gl. Amber	2	HCI
				+	

2A-W-10

Time 1	1624	
DIM	12.92	
PuzeRate	0.250	
Hq	5.10	
Conductivity	0.042	
Teup	11.40	
DO	0.50	
OZY	157.4	
Turbidity	3.44	
	T	



## River Gauging Form

Project

Name: BNSF Skykomish

Number: 01140-284 **Project** 

Measured Sisteral /FMMI)

comments	10.W.2(700 pw)	18-W-3 (TOC PUC)	(1) (1) (1) (1) (1) (1)						
water level						Dr	_		<u>ا</u>
foresight	17.17	22.61	10.18	00 00 00 00	19.69		١	1	1
backsight	5.19	3.72	10,82		<b>~</b>	l		1	1
time	1	1820	1722	1715	1758	Ì	l		1
date	9/21/09	/ /			<b>→</b>	6/sz/6			)
stake ID	SK-1	SK-2	SK-3	SK-4	SK-5	ML-1	ML-2	ML-3	ML-4

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

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

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

water level: depth of water at gauging point

2 BOTICES

#### GROUNDWATER SAMPLING LOG

Project name	BNSF-Skykomish	Well No
Project No.	01140-284-0540	Sample
Date	9/23/09	weather

WELL INFORMATION				
Depth to water /0.42	(ft)			
Depth of well:	(ft)			
Well diameter:	(in)			
Feet of water:	(ft)			
Product thickness:	(ft)			
Screen interval:				
well condition:				
·				

1- (Na)	
<i>E</i> m	
7	°F
	FM 7

CC	MMEN	ITS	 
	·	<del></del>	

PURGE DATA								
start purge time	1816							<b>X</b>
time		1827	1830	1833	1836	1839		
DTW	(ft)	10,42	10.42	10.42	10.42	10.42		
purge rate	(L/min)	275	275	275	275	275		
рН	(Units)	5.99	5.95	5.85	5.84	5.85		
conductivity	(umhos/cm)	0.035	0.031	0.031	0.031	0-031		
temperature	(deg C)	9.47	9.47	9.28	925	9.22		
D.O.	(mg/L)	్రంకర్	0.58	0.57	0.56	0.56		
ORP.	(mv)	51.1	54.1	673	69.3	73.3		
turbidity	(NTU)	1.27	121	0.94	0.78	0.67		
purge and sampl	e equip.	Peristalti	ic pump a	nd silicon	e/polyeth	ylene tub	ing	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
EW-1-0909		NWTPH-Dx	1L Gl. Amber	2	HCI			
:		·						
					,			

#### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/24/09	

Well No.	ZA-W-4	O
Sampled B	y An	
weather	70°Sunny	°F

WELL INFORMATION	
Depth to water 13.56	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness:	(ft)
Screen interval:	
well condition:	

COMME	NTS	
 		_
		_

PURGE DATA								
start purge time	US 45							
time		0855	0858	0901	0904	0907	0910	0913
DTW	(ft)	13.58	13.58	13.58	13.53	13.58	13.58	1.358
purge rate	(L/min)	275	275	275	275	275	275	275
рН	(Units)	5.66	5.89	6.09	6.28	6.39	6.46	6.48
conductivity	(umhos/cm)	0071004		0.045	0.044	0 044	0.043	0.043
temperature	(deg C)	10.21	10.08	10.01	9,95	9.80	9.67	935
D.O.	(mg/L)	4.72	471	4.71	4.73	4.75	473	4.77
ORP	(mv)	269.3	267.3	254.7	244.0	235-)	2293	224.9
turbidity	(NTU)	1.17	0,85	0.79	0.25	1.02	0.80	1.04
purge and sampl	ourge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
ZA-W-40-0909	0915	NWTPH-Dx	1L Gl. Amber	2	HCI		
	·						
		-					

#### **GROUNDWATER SAMPLING LOG** Project name BNSF-Skykomish Well No. 01140-284-0540 Project No. Sampled By ٥F 70 weather Date **WELL INFORMATION** COMMENTS Depth to water (ft) Depth of well: (ft) Well diameter: (in) Feet of water: (ft) Product thickness: (ft) Screen interval: well condition:

			PURGE	DATA				***************************************
start purge time	8959							
time	,	1009	1012	1015	1018	1021		
DTW	(ft)	17.32	1732	17:32	17.32	17:32		
purge rate	(L/min)	275	275	275	275	275		
рН	(Units)	628	626	6.29	6.31	633		
conductivity	(umhos/cm)	0.129	0.120	0.112	0.107	0.103		
temperature	(deg C)	9.64	959	9.52	9.54	9.54		
D.O.	(mg/L)	5.68	6.02	6.30	6.31	6.38		
ORP	(mv)	182.8	1803	175.2	1723	169.2		
turbidity	(NTU)	1:61	1.69	1.21	1-2074	1.11		
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tub	ing	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
ZA-W-41-0909	, 1025	NWTPH-Dx	1L Gl. Amber	2	HCI
			5		
		•			

### Project name BNSF-Skykomish Well No. 1A-w-5 Project No. 01140-284-0540 Sampled By

weather

(ft)
(ft)
(in)
(ft)
(ft)

9/24/07

Date

COMMENTS	
COMMENTS	
12' TUBING INVEST	

°F

			PURGE	DATA		;	****	
start purge time	1058						**	
time		1109	1112	1/15				
DTW	(ft)	10.91	1091	10.91				·
purge rate	(L/min)	250	250	250				
pН	(Units)	6.46	6.40	6.47				
conductivity	(umhos/cm)	0.060	0.059	0.059				
temperature	(deg C)	8.75	8.68	8.68				
D.O.	(mg/L)	7.58	7.56	7.56				
ORP	(mv)	139.4	1426	1403				
turbidity	(NTU)	1.77	1.54	1,43				
purge and sampl	e equip.	Peristalt	ic pump a	ınd silicor	ne/polyeth	ylene tub	ing	

		SAMPLE INF	ORMATION		-
sample number	time	analysis	container	# bottles	preservative
1A-W-5-0909	1120	NWTPH-Dx	1L Gl. Amber	2	HCI
	·				*
	1.				
			·		

#### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/24/00	

WELL IN	IFORMATION	
Depth to water	10.30	(ft)
Depth of well:		(ft)
Well diameter:	2/	(in)
Feet of water:		(ft)
Product thickness:	MONE	(ft)
Screen interval:		
well condition:	Good.	

Well No.	6W-1
Sampled By (	Jacobi S
woother o	144 67 °F
-	,

COMMENTS
Inlet tobing 2 12'
purse water is clear.
turbidity unstable.
,

PURGE DATA								
start purge time	095	50						· · · · · · · · · · · · · · · · · · ·
time		1000	1003	1006	1009	1012	1015	1018
DTW	(ft)	10,56	10,56	10,56	10.56	NM	NM	MM
purge rate	(L/min)	250	250	250	250	250	250	250
рН	(Units)	6,28	6.27	6.25	6.25	6.23	6,23	6.22
conductivity	(umhos/cm)	0,104	0,108	0.110	0:112	0.112	411.0	0.117
temperature	(deg C)	12.56	12.37	12,23	12,28	12.30	12.21	12.26
D.O.	(mg/L)	0,27	0.25	0.24	0.23	0.26	0.23	0.26
ORP	(mv)	-182,3	-182,8	-183.7	-184.3	184.7	-184.7	-184.9
turbidity	(NTU)	8.65	7.51	4.49	3.02	2.17	1.59	1.48
purge and samp	le equip.	Peristalt	ic pump a	and silicor	ne/polyeth	ylene tub	ing	

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
6W-1-0909	1025	NWTPH-Dx	1L Gl. Amber	2	HCI
	·				

#### **GROUNDWATER SAMPLING LOG**

Project name	BNSF-Skykomish	
Project No.	01140-284-0540	
Date	9/24/10	

WELL INFORMATION			
Depth to water	12,65	(ft)	
Depth of well:		(ft)	
Well diameter:	2	(in)	
Feet of water:		(ft)	
Product thickness:	MOME	(ft)	
Screen interval:			
well condition:	Good.		
	-1		

Well No.	6W-Z	
Sampled By	Chani. S	
weather Sud	44 61	°F

COMMENTS				
Inlet tubing 2 14'				
<u> </u>				
purge lunter is clear.				
Collected Duplicate.				
GW-20-0909.				

PURGE DATA					7				
start purge time	084	4							1
time		0854	0857	0000	0903	0906	0909	0912	709
DTW	(ft)	12.64	12.62	12.62	12,62	NM	NM	MM	MA
purge rate	(L/min)	250	250	250	250	250	250	250	725
рН	(Units)	6.34	6.28	6.25	6.25	6.24	6.24	6,24	6.
conductivity	(umhos/cm)	0.066	0,067	0,069	0,071	0,071	0.071	0.075	). تا ان رو
temperature	(deg C)	11.01	11.02	10,94	10,85	10,79	10.78	10.81	lo.
D.O.	(mg/L)	1.72	1.20	0.99	છ <sup>્</sup> છે.	0.94	0.99	1.05	]1.
ORP	(mv)	-140.9	150,4	-155.0	-158.3	-160.7	-162,8	164.2	1/6
turbidity	(NTU)	2.11	2.23	1.98	1.39		0,98	0.81	8,
purge and sampl	e equip.	Peristalt	ic pump a	nd silicor	e/polyeth	ylene tub	ing		1

SAMPLE INFORMATION					
sample number	time	analysis	container	# bottles	preservative
GW-Z-0909	0920	NWTPH-Dx	1L Gl. Amber	2	HCI
GW-20-0900	0930	(1	CP	2	۲,
(Ouplicate)					

Field Act	tivity Log	AECOM
Project Name: Sky Konish.  Project Number: 01140-284-0545  Field Activity: Sampling.	Completed By: Chan: 3	
	met with Deam and was	ted for
Oldo Mindy and Find	derived and had Safely men	oting.
to meeting with w	arant discusted Troffic	_and
	Lout scoupe of work, and	splited
	. and reduced toward 3th	00/20-
1420 Finished gauging	my shake of wells.	·
1510: back to the site	picked up cooles from a	House.
1520: Started Calibration 1545: Began Setting up o		
1610: Rogan recording		
1625 ! Started Collecting	samples.	
1645; Dean back From	Scattle leith survey equip.	nect.
1715. Regan surveying 1830: Finished survey. 1900, WA a site to A	La river.	
1900, left a site to a	marox . Hotal.	
Chani	3	
han		

Field Ad	Ctivity Log  Page: \ of \ V
Project Name: Sky	Completed By: Qhan. S
Project Number:	Date: 09/22/09
Field Activity: Sem, Annya	Weather: Sunay 57°F - 78°F
low. Sampling	Personnel on site: Blanch in Dean K. Fred. M.
0725: Arrived to the si	te, and attended sofety neeting.
conducted by was	
0745: Had neeting will	h peace and fred discussed scape
	ed openiment, in van
0820; started (dibras	
0840 : Regan Setting up	on 1C-W-1.
0855: Started purgine	water is clear
0905: Regan recording &	
0915: started collecting	Sam Ves
0925. Began setting upon	
	surge water is clear started with few your flack
0945 Regar Rior dia	savare br
0955: Started Collecting	Samples.
1015 Began Setting upon	,
	, wroter Fiterted abor and become very turbide
	parameters twodity very High
1145 started Sampline	
12 Los Finished sampling	parked up and took hunde
	ter into drum by Itca building.
130: started Attiling up	Ca 16 in St
19261 Repare 2000 1000	under is along
1326: Began parging	scarters in tell
1356: Started recording	paramers to missing.
111th of the doop	1(-1, -
1415: Started 80thing as	A C W-1.
1427. Began purging.	Water & Cloudy.
19 11 Started Rigorating	parameter. turbitate unstable.
181) an simpling	also I collected Dap.
1C-W-70-0900-	. (a) 1520

Field	d Activity Log Page: Vof AECO
Project Name: Sky	Completed By: Completed By:
Project Number:	Date: 69/22/09
Field Activity: GW Sampling	Weather: Suma 82° F.  Personnel on site: Colored S. Dean K. France
	Personnel on site: Chani, S.; Dean, K; Free
$\Lambda$	anylling, went to best. The form tra
_	and started setting up on 10-w-
	offer la for lomin sta
11 28 Parding pa	
1635: Blan San 1650! Started Settl	$\mathcal{J}$
	sing water is clear.
	ding parque fors.
1715 i Began San	<i>i O</i> 1
	9
in alt	is pump jurge water in to tank in Hic
18001 Cell a Sille.	
	5.5
	NI

**Field Activity Log AECOM** Page: 1 of 2 Completed By: Project Name: Project Number: 01140 - 284-0540 Date: Field Activity: (a W Sampling Weather: Personnel on site: ()

**Field Activity Log** AECOM Page: 2 of 2 Project Name: Completed By: Project Number: Date: Field Activity: Weather: Personnel on site: / hotel. to

Field Act	tivity Log Page: / of / AECOM
Project Name: Sky	Completed By: Chanis
Project Number:	Date: 09/24/09
Field Activity: Caw Sampling	Weather: Sung, 60° F.
	Personnel on site: Chan; s, Frod M,
	of the first the
	Site Attended ABROW ASSOTETY
o7251 packed up Co	slore with fresh
0830: Began Setting	(2) CI2 GIW-2
0844: Started purging	mater is clear.
08 54. Regar acording	sara meters
0920 started sample	ine also I collected duplicate
CaW-20-0909	1.
0940 : started Se Hing	·
0950 Began purging.	
1000 : started recordin	a parametery turbichity unstable.
1025 : Began Samplina	
1045; storted setting	equipment and bathery back.
Fred carried	equipment and battery back.
10 the well location	
1058: Began purging	, water is clear.
1008: started records	us parameters.
1120: Started Collection	ng Spaples.
Door backed up to	olors in Fred's van and I packed
my van with ly	nuipred, purped purso
water into Aci	Tank. Cleaned up
1300: lest a site.	<b>,</b>
<u> </u>	
<u> </u>	
ghani: s	

,

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#### **FIELD ACTIVITY LOG**

	CT NO:	: BNSF - Slaylcom/sh 01140 - 284 Weds. Sept 23 Coog	COMPLETED BY: D. Kinney APPROVED BY: SHEET   OF Z
FIELD A	ACTIVITY S	UBJECT:	Groundwater Sampling
DESCR	IPTION OF	DAILY ACTIVITIES & EVENTS:	, ,
TIME			
0650	Arriv	Ad onsite a war	it to stilder safety my
0700	Aero	in sofety mto	. ,
0720	Talko	ed to Fred of Cha	and about days activition & then
	Wel	West to FS Company	d to re-ice samples from resterding
	and	sotup for this me	orning
0805	110	rated Horra met	
1825	Took	c powlamont blank	- 1 aboles : MW-500-0909
0911	Star	to Duraling 2B-1	N-46
0935	Sand	0/0 / ZR-W-46	
1953	- Stai	rted purglyn z	B-W-45
1015	San	olad 78-W-45	took duplicate labeles. 28-W4500909
1107	Staff	ed purgling ZA-W.	39
1130	SAMO	1/2 2A-W-9	
1145	Dur	road pure wate	A went to lund
1235	Do	timal & setup	on MW->
1277	Sta	stel ouralia m	W-3
1270	Same	read mw-3	
1230	ste	after outsing	MW-4
1400	Sar	noted my -4	
1420		amoral pirate Me	ter & picked up bottles
10C	- St	acted owner 2	11-4)
105	San	note 1 3-W-47	
1835	Star	tod progra 3	-W-42
1600	San	wed 3-W-41	
1623	Star	(tal euraln 3	-W-43

WEATHER CONDITIONS:
P. Cloudy, 55-75°K None
PERSONNEL ONSITE: Dean Kinney, Fred Merall @ Charl Sebbane

DANG GACLOM, COM TAL-1001 (06/08) LAB USE 1200 SHIPMENT INFORMATION Comments and Spegial Analytical Requirements: SNSF COC No COMMENTS 0<u>F</u>0 Sacab LAB WORK ORDER: Shipment Method: Fracking Number: Project Manager: Ź 0 METHODS FOR ANALYSIS Ste 1000 John J Lab: Custody Intact? CONSULTANT INFORMATION Date/Time: Date/Time: MN LABORATORY INFORMATION ζ Matrix DUPLICATE - CONSULTANT City/State/ZIP: Type (Comp/ Grab) Other Deliverables? EDD Req, Format? Filtered Amorrica 10 S 29000 Sampler 59 0260 0915 0830 040 1025 1025 1120 Received By: eceived By: Sample Collection Time 9/24/09 9123/69 DELIVERABLES BNSF Standard (Level II) Date られ SAMPLE INFORMATION BNSF Work Order No.: Level IV Trevel III Containers NN N Project City: Date/Time: 0000 ORIGINAL - RETURN TO LABORATORY WITH SAMPLES RAILWAY Shorda BNSF PROJECT INFORMATION Standard 10-Day CHAIN OF CUSTODY 5- to 8-day Rush TURNAROUND TIME INSF Project Name: Karkon S Sample identification ZA-14-40 20-M-4 22-20 \<u>N</u>-- 3c ceived by Laboratory NSF Project Number: 1-day Rush 2-day Rush 3-day Rush Hinquished By: SNSF Contact

Surah, albano Gagan, Can Project Number: 01140-284-054D TAL-1001 (06/08) LAB USE SHIPMENT INFORMATION Albano Comments and Special Analytical Requirements BNSF COC No COMMENTS 206) 624-9349 Project Manager, LAB WORK ORDER: Shipment Method; Tracking Number: ustody Seal No. METHODS FOR ANALYSIS ट्टा १८०० Pione: 23 922-2310 at Hansy ab: Custody Intact? 28104 CONSULTANT INFORMATION 710 200 AVE MSECH WATPH-DX WATPH-DX NWTPH-DX 3 AFICOR LABORATORY INFORMATION Sity/State/ZIP: Soa H to Matrix DUPLICATE - CONSULTANT 2 Type (Comp/ Grab) AFCOL Other Deliverables? EDD Req, Format? Filtered Address: Sampler America DY. **103**0 080 1130 1320 9123/p | 0935 1400 1517 Sample Collection Lab Remarks: Time 20 Received By: Received By SKYZOWIS 0 DELIVERABLES 1420 BNSF Standard (Level II) tsa Project State of Origin: Date SAMPLE INFORMATION BNSF Work Order No.: Level IV Level III N Containers Sity/State/ZIP N A N ate/Time: 6060-RAILWAY Bluce Shoppar ORIGINAL - RETURN TO LABORATORY WITH SAMPLES BNSF PROJECT INFORMATION ١ CHAIN OF CUSTODY NSF Project Name: Sky Kon Sh 5- to 8-day Rush X Standard 10-Day -W- 450-TURNAROUND TIME -46 Sample Identification 2A-1M-9 Other Das-MW MN-N MW-4  $\leq$ **ISF Project Number:** ceived by Laboratory 🔲 2-day Rush 1-day Rush 3-day Rush linquished By: VSF Contact:

Comments and Special Analytical Requirements:

W/O SGCU - Without Silica galcleniu Phone Squar, A bango alcon, Com 01140-284-0540 LAB USE WSCCN-pith silves gol clossop SHIPMENT INFORMATION BNSF COC No. COMMENTS LAB WORK ORDER: Shipment Method: Fracking Number: Project Manager: Project Number ustody Seal No.. 98104 METHODS FOR ANALYSIS 540-1000 252) 922-2310 ab: Custody Intact? CONSULTANT INFORMATION Date/Time: ate/Time: XI-HITWN XI-HITWN XJ-DS/W LABORATORY INFORMATION 500Hkg DUPLICATE - CONSULTANT 3 310 Type (Comp/ Grab) Sity/State/ZIF Other Deliverables? EDD Req, Format? Filtered FIN 1005 FM Sampler 2012/20 Amarica 1993 1520 1630 Received By: ab Remarks Sample Collection Time 6011716 1420 DELIVERABLES BNSF Standard (Level II) -aboratory: To 5+ 122/6 Date SAMPLE INFORMATION Date Time: 09 BNSF Work Order No.: Level IV Level III Containers Y 2 ate/Time Binca Shappar RAILWAY DRIGINAL - RETURN TO LABORATORY WITH SAMPLES 2A-W-10-0909 BNSF PROJECT INFORMATION CHAIN OF CUSTODY Standard 10-Day 6- to 8-day Rush SKyKomish TURNAROUND TIME Sample identification ŝ 2B-W-4-Other 5-M-5 G-M-530 95-M-S F- M-54 5-M-5 AW-38 R ーターン sceived by Laborator NSF Project Number. NSF Project Name: 3-day Rush 1-day Rush 2-day Rush elinquished By: NSF Contact

TAL-1001 (06/08)

-		LAB	LABORATORY INFORMATION		on account of
	-aboratory:	1	Project Manager:		SHIPMENT INFORMATION
12	Address:	, जिल्ल	Phone: Phone	#T-	Shipment Method:
CHAIN OF CUSTODY	City/State/ZIP:		Fax: Fax		Tracking Number:
BNSF PROJECT INFORMATION	Project State of Origin:		CONSULTANT INFORMATION	VFORMATION	Project Number:
BNSF Project Number:	Project City:	Ö	Company:		Manager:
BNSF Project Name: SLUKOMICIA		V	710	Sto 1000	-
BNSF Contact: Refer Showard	BNSF Work Order No.:	0	Oky/State/ZIP:	~	Phone. Park A Call Tax O (Call Tax O)
TURNAROUND TIME	DELIVERABLES	Other Deliverables?		METHODS FOR ANALYSIS	
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)				
2-day Rush Standard 10-Day	Level III	💟 EDD Req, Format?	-ormat?		
3-day Rush Other	Level IV	AEON	DX X DX X S S		
SAM	SAMPLE INFORMATION		1-H	75.	
		Sample Collection	Type	) S	
Sample identification	Containers	Sampler	Y/N Grab) Matrix 5/0 X		COMPLEANTS
, 2-1W-47 -nong	2 ahz/mg	16.00	3		COMMEN S LAB OSE
, i		000			
10-16	7		<>		
· MM-160 -	7	TAN T	(X		
->	7	CX SO FM	\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>		
· 5-W-13	4	0925			
1 S-W-170	4	0000		(* )	
· 5-W-16 -	7	1000	\X (X)		
3-W-(4	-7	120			Exta samp
10 S-W-15	4	1387			40 a0 a
" 5-W-42 -	7	4/2/		<b>A</b>	
12 S-W 19	4	15/2			
" S-W-20 -	4				
" STM-63	2,	77		,	
15 Californic Bod California Bod Cal		1/0/2	ダ ラ ラ		
Nemadasire Di	26 log 142	Received			Comments and Special Analytical Requirements:
Kelinquished by:	<b>a</b> b	Received By:		Date/Time:	N. C. J. J. N. W.
Kelinquisned By: Boosiused by: 1 stoczdoże		Received By:			My my
received by Lationality.	Date/Time:	Lab Remarks:		Lab: Custody Intact? Custo	Custody Seal No
ORIGINAL • RETURN TO LABORATORY WITH SAMPLES		DOD	DUPLICATE - CONSULTANT	**	TAL-1001 (06/08)

din-

TAL-1001 (06/08) Prone Seral, albano Quecom, com 01140-284-0540 LAB USE Sach Albano SHIPMENT INFORMATION Comments and Special Analytical Requirements BNSF COC No COMMENTS 98108 (206) 674 LAB WORK ORDER: Shipment Method: Tracking Number: Project Manager: Project Number: Ste 1000 123) 972-1310 ab: Custody Intact?

Yes No CONSULTANT INFORMATION Date/Time: Jate/Time: XI-PILM LABORATORY INFORMATION Matrix DUPLICATE - CONSULTANT Type (Comp/ Grab) Clty/State/ZIP: Other Deliverables? EDD Req. Format? Filtered Address: Sampler aborator. To St AMORICA 多 以 N/N 044 054 60/22/6 **公内** Received By: ab Remarks: Received By: Sample Collection eceived By: Time DELIVERABLES BNSF Standard (Level II) Date STSS City/State/ZIP: SAMPLE INFORMATION 9124 109 BNSF Work Order No.: Project City: W/ Level IV Level III Containers Jate/Time: Jate/Time: 0000 ORIGINAL - RETURN TO LABORATORY WITH SAMPLES RAILWAY Since Son BNSF PROJECT INFORMATION CHAIN OF CUSTODY SKYKOMS Standard 10-Day 5- to 8-day Rush TURNAROUND TIME Sample identification BW 9 8 54eceived by Laboratory NSF Project Number: NSF Project Name: 1-day Rush 2-day Rush 3-day Rush elinquished By: SNSF Contact

Service Committee of

18 TAL-1001 (06/08) LAB USE Sarah, alterant agence, Corn SHIPMENT INFORMATION Comments and Special Análytical Requirements BNSF COC No Albano COMMENTS LAB WORK ORDER: Shipment Method: Tracking Number: Project Manager: 200 GCT 04- METHODS FOR ANALYSIS Sto 1000 are Haney Phone: 253/972-73-10 الْهِ الْمُ ab: Custody I CONSULTANT INFORMATION Date/Time: Date/Time: ate/Time AIR Project Manager. MLLHH ZECTY LABORATORY INFORMATION Matrix DUPLICATE - CONSULTANT 310 Type (Comp/ Grab) EDD Req, Format? Other Deliverables? Filtered AFCOR 19/12/20 0855 DWK Sampler AMERICA 1282 1330 Keceived By: 927 937 937 727 7.33 W W 10001 V O P W 104N 0160 **W** Received By: Lab Remarks Received By: Sample Collection Time 120 120 July DELIVERABLES RNSF Standard (Level II) Date 18 0 SAMPLE INFORMATION BNSF Work Order No. Level III Level IV Containers M N ity/State/ZIP: M Date/Time: Date/Time: N N N N N -090g ORIGINAL - RETURN TO LABORATORY WITH SAMPLES RAILWAY BNSF PROJECT INFORMATION シャラウン CHAIN OF CUSTODY Standard 10-Day 5- to 8-day Rush TURNAROUND TIME 328 B B 3 8 Bu 8 Sample Identification 4 ₩ ₩ Other 5 eceived by Laboratory NSF Project Number. NSF Project Name elinquished By: 2-day Rush 1-day Rush 3-day Rush elinquished by: SNSF Contact

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ENSR AECOM Field Activity Log
Project Name: Sky M. Gw. G. Completed By: Wan.
Project Number: Date: 10/14/10 8
Field Activity: Monthly Rus. gauging Weather: ofoundy -
Personnel on site: Chanis Fred M
6:50: Arrived to the site, attended strider.
Safety meeting
7:150 Had ENSZ. safety meeting with Agran H Green
clarek.
7145, Discussed with Fred work Dlan.
8:15. stated gauging wells, Fred and I separatly.
10:45: started garging product wills together.
With Fred. 12 A.W.4. Was heavy no duct
and we pumped it to get the water level.
2A-W-3 not located. Duried under gravel pad
18:00: Reland up and left a site.

C	ı
A CA	ļ
4	ί
Δ	_

[	Well	Dafe	Time	Total	Depth to	ртw (тос-	LNAPL	1000	9/22	9/22/2008	8/2	8/27/2008	34.8		Г
	Number	, and		Depth	Water (ft)	PVC) Creek	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	(H)	Prod. Thick. (ft)	ğ	Comments	
- 1	MW-1	10/14/08	odos		12,95				1		13.02				T
	MW-2	10/14/08	०८८५		12.56				13.28		12.65				T
	MW-3	10/14/08	0851		6976				11.19		8.27				T
	MW-4	10/14/08 0933	2860		95.76			- Withhalman	10.72		9.48				Τ
	MW-5	10/14/08 0843	Sh 80		7.25				8.25		7.47				
	MW-9	10/14/08	1260		12.78				13.49		12.49				
- 1	MW-10	10/14/08	9/ 60		12.93			Andrews in the second s	13.65		12.9				T
Į	MW-11	10/14/08	0607		13,80				14.46		13.84			Strong Strell on prob. (streen)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	MW-12	10/14/08 0930	0630		6.25				6.95		6.26				` T
Į	MW-13	10/14/08 OB36	9836		87.01				10.99		10.3				
- 1	MW-14	10/14/08 0833	0833	13.5	12,15				12.95		12.27				T
- 1	MW-15	10/14/08	0830		13.19				14.19		13.34				T
- 1	MW-18	10/14/08	1260		1d'do				15.63		14.91				Τ
1	MW-40	10/14/08	0825		12:12				13.71		12.9				Τ
															_

	Mol			Total	;	;			9/22	9/22/2008	8/2	8/27/2008		
	Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	MIQ (#)	Prod. Thick. (ft)	DTW (#)	Prod. Thick. (ft)	Sign Off	Comments
X	MW-7	10/14/08 11:55	11:55		12.91	MONE	NOME	T&P	13.88	None	12.87	None		14. 109
X	MW-17	10/14/08			NM		-	T&P	ΣZ	ΣZ	ΣZ	N N		Oseing adjusted to Flush-mont
X	2A-W-3	10/14/08	}		NM.	<b>\</b>	}	T&P	11 68	Trace	10.55	Trace		Not (ne entre)
X	2A-W-11	10/14/08	-S:0)	1	01:00		Trace.	T&P	8 79	Trace	8.07	H Tropo		90-0.90
X	MW-39	10/14/08 G 1.CHG	gh: 1	ļ	10,0	Mere	Alo NE	T&P	10.33	None	9.63	None		11,00-1,39
	2A-W-4	10/14/08 45-15	te:15	-	1.75	1.75 10.82	0,93	TRED CURRY	T&P ( ) MANY 11.55	H-Trace	10.85	H-Trace		Dung
	Odba- M-4		7.5								22.2			

 $_{\scriptscriptstyle \cup}$  Other Notes:

dirty casing, possible trace product

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

11-0.18

Fluid Level Gauging Form

**BNSF Skykomish** Project Name:

Project Number: 01140-204-0340

Collected by:

- HOW	•		Total	1				22/6	9/22/2008	8/2	8/27/2008			Γ
Number	Date	Time	Casing Depth	Depth to Water (ft)	DTW (TOC- PVC) Creek	LNAPL Thickness	Method	WTG (ft)	DTW PVC	EQ #)	DTW PVC	Sign	Comments	
	10/14/08	9,35		13,45				14.3		19 EE				Т
	10/14/08 11:45	[1:45]		11,83				12 20		13.33				$\neg$
2A-W-9	10/14/08	2180		(0.28				11 30		11.87			Well Located	$\overline{}$
2A-W-10	10/14/08	2730		at.0)				11.06		10.32				Т
2B-W-4	10/14/08	1 <b>8</b> 80		3.51				7 40		10.3				$\overline{}$
2B-W-11	10/14/08	6846		2.69	Dry			4 30	Č	3.52				_
2B-W-12	10/14/08	0838		6.00	DIV			7.7	) C.	2.03				$\overline{}$
2B-W-13	10/14/08	9060		5.68	Dry			7.07	S C	0.0				
2B-W-14	10/14/08	5060		4.63	26			7.01	) O	/6.c				Т
2B-W-15	10/14/08	1260		6.49	Dry.			7.24	VIV.	8.4				<u> </u>
2B-W-19	10/14/08	<b>3825</b>		7.36				12.7	VII/A	NIN I			Meter Stuck in the PVC	-T
2B-W-21	10/14/08 0815	0815		9,25				40		7.35				
2B-W-30	10/14/08 9:5B	95:5		11,56				2 2		3.22				Т
2B-W-32	10/14/08	0821		7.94				12.20		11.51				Т.
2B-W-33	10/14/08	5580		18:01				9.82		7.93				
2B-B-21	10/14/08	0926		10.9				10.1		70.12			es e	
İ								ο. Ο		6.12				<b>-</b>

ENSR AECOM Field A	Activity Log
Project Name: < k \ k om : 5 L	Completed By: Rhan.  Date: 1/10/08  Weather: Rain, 48 F.
Project Number:	Date: ///30/08
Field Activity: Qui monthly.	Weather: Pain, 48°F.
Gauging	Personnel on site: Chanis, Tesser.
7:30 : Arrived to	sky. Waited for Jesse
0'00: Telse un s.	to Conducted Satisfy meeting.
With Tesse	and Aaron H.
8:30: Gathered all	equipment we need from stow shop.
splited job &	between Jesser and started.
gauging.  It is started ga	uncing Drodect well a tace that win
Tuce and I.	uging product wells together wis
. <i>O</i>	
12:30 : Done gangi	ing. returned lawy munt, cleans
	· · · · · · · · · · · · · · · · · · ·
13:00: I took off	Tesse staged there For Avilling:
	·

# Fluid Level Gauging Form

	•						Fiuid L	Fluid Level Gauging Form	Form						
	Project Name:	BNSF Skykomish	ykomisł		Project Number:	01140-204-034	0340	Collected by:			3	ESSE WAKNITZ ON	8	80/01/11	ĆΔ.
				-					2 g	1 About	18	and Hook James Selbars	bare		
				Total					10/4	4/2008	3/5	2/2008	10.12		
• •	Well Number	Date	Time	Casing Depth	Depth to Water (ft)	DTW (TOC- PVC) Creek	LNAPL Thickness	Method	(m).	DVA WTO	(m)	DTW PVC	Sign Off	Comments	
	2A-W-5	11/10/08	3001		10.25				13.45		14.3				
	2A-W-7	11/10/08	1030		9,93				11.83		1239		We	Well Located	
	2A-W-9	11/10/08 7	411		7.59				. 10.28		11.39				
	2A-W-10	11/10/08	930		12,41		,	9	10.46		11.96				
	2B-W-4	11/10/08	905		16.			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3.51		4.49				
,	2B-W-11	11/10/08 94C	940		540	550		. And a	2.89	Dry	4.39	DRV			
Ž	2B-W-12	11/10/08	935		3.47	2,47			9	Dry	7.7	Div			
, i	2B-W-13	11/10/08	930		3,33	3.40			5.68	Dry	7.04	Dny			
7	2B-W-14	11/10/08	016	•	21/2	761			. 4.63	Dry	5.7	ρυ			
	2B-W-15	11/10/08	1030		3,40		•		6.49	Dry	7.21	* Dry			
	2B-W-19	11/10/08	9:50		4.16				7.36		8.32				
	2B-W-21	11/10/08	849	•	45.9			. 3.	9.25		10				
	2B-W-30	11/10/08	to iS		8.53				11.56		12.26			-	
	2B-W-32	11/10/08	255		5,15				7.94	1 T	8.82				
	2B-W-33	11/10/08	QQQį	•	7,17			,	10.31		11.81				
	2B-B-21	11/10/08	10/5		3,02				6.01		6.8				

Big hadded a control 1-20( and m 30 Comments Product smeil Stern 150 Sign Off Prod. Thick. (ft) (H) 14.19 13.28 11.19 14.46 12.95 15.63 13.59 10.72 13.49 13.65 10.99 13.71 8.25 6.95 Prod. Thick (ft) 10/14/2008 . (#) 12.95 12.78 10.28 12.15 13.19 12.72 12.56 12.93 9.63 9.38 7.25 13.8 6.25 14.9 Method LNAPL Thickness DTW (TOC-PVC) Creek Depth to Water (ft) 4.47 ナナロ 9 47.6 10.50 3.06 30.0g 35.6 6.70 シーう 6.62 :53 Casing Depth Total 13.5 SA C.S. 000) 55/20 928 435 XX7 2007 811,0 St 13 8 11/10/08 1/03 Time 2439 11/10/08 4 558 =0 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 11/10/08 Date Well Number MW-10 MW-13 MW-14 MW-15 MW-78 MW-40 MW-12 MW-# MW-5 MW-2 MW-3 6-WW MW-1 4WM

PAGE 2

				1975					10/14	0/14/2008	9/22	72008		**
	Well	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	MTO (π)	Prod. Thick. (ff)	,(μ) (μ)	Prod. Thick. (ft)	the plant his	Sign Off
X	MW-7	11/10/08	lioi		10.10		NoLLE	(F)	12.91	None	13.88	None		
X	MW-17	11/10/08			WN		-		ΣN	WZ	ΣZ	ΣZ	<b>学规划</b> 定	
X	2A-W-3	11/10/08 1220	1220		29.7	·	HEAVY Track	<u>T</u>	ΣN	WN	11.68	Trace		
$\boxtimes$	2A-W-11	11/10/08 1105	1105		66' h		1. Traco	77	8.1	Trace	8.79	Trace		
X	MW-39	11/10/08 1051	1501		6.89		NOWE	<u>d</u> 1	9.61	None	10.33	None		
	2A-W-4	11/10/08 11.45	11.45		Gree S		Heavy	上户	11.75	0.93	11.55	H-Trace		
					8		Iras p	ę.						

Other Notes:

dean well = north ('town) thatf clean well - south ('railyard') half

use water level meter (WL)
use water level meter (WL)
use tape and paste (TP)
use tape & paste (TP) + peristaltic pump (PP) dirty casing, possible trace product

# Fluid Level Gauging Form

**BNSF Skykomish** Project Name:

Project Number:

01140-204-0340

Collected by:

14/01			Total					9/16	9/15/2008	6/2:	6/23/2008		
Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ff)	Prod. Thick. (ft)	Sign Off	Comments
1A-W-5	12/16 /08	1455		9,65				10.22		上		ンソ	
5-W-13		j		Ę				Z		000		$\hat{0}$ 1	
5-W-14		1418		9,21				99.6		7 60		250	
5-W-15		1338		2,70				8 15		6.19			
5-W-16		1940		00,8				8.43		6.45			
5-W-17		1439		7.38				7.79		577		J.V.	
5-W-18		1407		4,52				7 91		5 92		\ \frac{1}{2}	
5-W-19		1432		4,45				7.82		5.82			-
5-W-20		1415		2014			-	7.41		5.02			
5-W42		1421	·	0419				ΣZ		ΣZ		1	
5-W-1		1420	·	3.76		None	400	9.63	1	6.48	Trace	77	10-7.74
5-W-3		1340		6.95		HVV Tr		7.95	Hvy Tr	5.26	Trace		1
MW-22		1231		543		7,8		8.22	Hw Tr	6.46	Hw Tr		\$ 0-9
MW-36	7	なり		7,36		TR	د	8.52	Ļ	6.45	Hw Tr	>	470-0

### Other Notes:

X dirty casing, possible trace product dirty well

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

## Fluid Level Gauging Form

Project Number: **BNSF Skykomish** Project Name:

01140-204-0340

Collected by:

				10-2	3			1	3	100	47	7								
	Comments			to lot to the	<b>s</b>			Tro 12 12 12 10 10		Too to Challer	0 10 11 11	14.4.00								
	Sign Off		š	7	-		-		-											1
10/14/2008	Prod.	Thick. (ft)																		
10/1	WEG	Œ	13.45	11.83	10.28	10.46	3.51	2 89	9 00	5.68	463	6.49	7.36	9.25	11.56	7 94	10.34	6.01	ΣŽ	ΣŽ
11/10/2008	Prod.	I hick. (ft)																		
11/1	WTG	Œ	10.25	9.92	7.59	7.91	0.91	0.45	3.47	3.22	2.12	3.42	4.16	6.57	8.53	5.15	7.17	3.02	Z	ΣZ
	Method					7	ĵ									·				
	LNAPL					10// Car	2	220	2,55	3,22	727	27.6								
	Depth to LNAPL (ft)							,												
,	Water (ft)		11,92	2	からな	99.8	1,93	Š	4,21	NM	NN	NM	5,63	14.4	9,85	6,37	90,0	4,11	26.0	9.87
Total	Casing Depth																			
	Time		加予	1325	6950	95@U	1215	1330	122	1349	1300	1248	Q@Z!	(222	1307	1205	€260	1245	1235	1272
	Date :		12/ <b>16</b> /2008	-																}
	Well Number		2A-W-5	2A-W-7	2A-W-9	2A-W-10	2B-W-4	2B-W-11	2B-W-12	2B-W-13	2B-W-14	2B-W-15	2B-W-19	2B-W-21	2B-W-30	2B-W-32	2B-W-33	2B-B-21	2B-W-45	2B-W-46

14-0,83 FM 20-1,08 FM 8 - 1805 Zas E Z Sign 3 S Prod. Thick. (ft) 12.15 12.95 13.19 14.90 12.56 12.78 12.93 13.80 (E) 9.63 7.25 6.25 10.28 Ž 12.72 Σ ₹ Ž Σ Σ Σ ₹ ₹ Prod. Thick. (ff) 10.44 10.60 11.79 10.15 10.50 MTO (#) 9.62 6.70 9.82 9.74 3.06 7.53 9.50 6.62 4.47 Σ Σ Σ M ∑ Z, N Σ̈́ Σ Σ 195 Method 4 H/V TC LNAPL Thickness HWT 孩几 4 Depth to LNAPL (ft) 5.61 10,43 47.9 13,53 14.97 7619 11.44 9,32 £1'E1 Depth to Water (ft) 200 11.48 N/S 846 12,07 N 11.50 Total Casing Depth 13.5 \$124 \$126 1053 40 500 047 047 1078 021 1003 232 17.42 345 にない Time 15 Š 120 12/16/2008 Date Well Number 1C-W-2 1A-W-2 1B-W-2 1B-W-3 MW-10 MW-12 MW-13 MW-14 MW-15 MW-16 MW-18 MW-26 MW-38 MW-40 MW-11 MW-5 MW-3 MW-9 5-W-3 MW-1 **MW-2** MW-4 5-W-2

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401

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PAGE 2

PAGE 3

			Total					11/1	11/10/2008	10/1	10/14/2008	-	
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	WTO (#)	Prod. Thick. (ft)	ᆸ	Prod. Thick. (ft)	Sign	Comments
P-1	12/ <b>[</b> 6 /2008			75.6				Ž				D.A.	
P-2U	-			~08:6ª				Ž		N Z		<u> </u>  -	
P-2D				1709 V				Ž		Ž			
P-3U				7.14				Ž		NZ.			
P-3D				0,71				Σ		NIM			
P-4U				8,50				Z		MN			7,7,7
P-4D				6.69				Ž		Z			
P-5U				58%				Ž		ΣZ		-	
P-5D				13,30				∑ Z		Z			
P-6U				<b>公</b> 公				ΣZ		ΣŽ		-	
P-6D				1252				NN		Z			
P-7U				366				NZ.		MN			
P-7D				1756				ZZ		Ž		-	
P-8				200				MN		Z			
HCC-RW-01				1801				Ν̈́N		ž			
HCC-RW-02								NN		¥ Z			
HCC-RW-03								Ν̈́Z	:,.	Z		-	
HCC-RW-04								MN		Ž			
HCC-RW-05								Ž		Z			
HCC-RW-06				859				ΣŽ		Z			
HCC-IW-01	•			8.7x				ΣN		Σ			
HCC-IW-02				8,38				ΣZ		Σ			
MW-7		0201		11,05		None	Tap	10.10	None	12.91	None	3	12-0.90
MW-17		134		8,93		TR		ž		ΣZ			401-0
2A-W-3		2001		8,83		<b>HVV</b> TC		7.95	1	ΣŽ			7/-0
2A-W-11		100		67.9		工化		4.99	Hw Tr	2.89	Hw Tr	10	ーナツーで
X MW-39		TA PA		7.73		Nara		6.89	11	9.61	Ļ		427-3
2A-W-4	7	1546		10,34		18 18	<del>)</del>	8 09	Hw Tr	11.75	Hw Tr	_2  -2	874-11

### Other Notes:

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

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



## River Gauging Form

Name: BNSF Skykomish **Project** 

stake ID

SK-2 SK-1

SK-3 SK4 SK-5 ML-1 ML-2 ML-3 ₹4

Project

**たらに でんこんどうそ** 122c 6519 nt Project Number: 01/40-204-0340 by: 6,526600 <u>4</u> comments 26-6-5 1300 Jan 10 شمز water level foresight 10.52 21.31 16.93 15.08 backsight 10:30 11.38 Q 8091 1545 time 2007 date

18.83

12/2/

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

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

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

water level: depth of water at gauging point

SUN-17 = 10.30

ENSR MECHANISM Field Activity Log Page: 1 of 3 Project Name: 5 Ky Komish Completed By: Project Number: Field Activity: Gauging and GW Weather: Personnel on site: 6/ Dean. K : Fred. M. Harm. H

Project Name: $\subseteq \mathcal{K} \cup \mathcal{A}$	Completed By: ( ) ( ) ( )
Project Number:	Date: /2//7/08
Field Activity: GW. Samplin	
	Personnel on site: Granis, Dean. K.
06:30: Started soll	ins leading sawnest.
	rating Philip.
0800 : started cettie	
0820: Started pur	Dia !
dissur Beggin Peulli	in Oparameters,
	ting Samples also Ecollecte
blind Dup I	W-420-1209
09:35: Started Sett	ing up 511/-70.
0948 : Segan Dura	, Ju (
0959 started par	Miss, parameters.
1025: Regan Collect	Ping Sample.
10:45 Finished song	1965
1050 started setting	1 /2 on 5w-19.
1100: Blagan purge	ling
1110: Startect ranking	e parameters
1125 : Regar collection	& samples
1100: Finished same	pling, and went to dump a pury
water into a dri	om. also I took Dean's price water a
12-10: Started setting	
125 Regan puda	ing ,
1235: Started recer	dies parameters.
1250: Regun Collection	og samples.
1305: Done camplis	Went to steer sleep to him
more bottles	/
1730: Begun Afring	up on 5W-16.
	rging

ENSK   Although Field Activity Log Page: 3 of 3.	
Project Name: ( ) W	Completed By: () ()
Project Number:	Date: /2//7/08
Field Activity: (5W - Sampling	Weather: Chaw - 19ck.
	Personnel on site: Chanis, Deay, K.
1410: Started collection	g samples.
1430 5 Done Sampling	P in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second
1445: Started Setting	5 UD on MW-18.
1510: started purg	•
1520: Began Jecore	dia Daramotecs
1545: started collec	i > l - 1
	up! MW-180-1208 @ 1550.
, · , · , · , · , · , · , · , · , · , ·	
	rangling and Started packing
· ·	ing up. Dumped parge.
water into Deux	
17:25: Took off.	From gly.
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W 1004	
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<u> </u>	

Fluid Level Gauging Form

Collected by:

Project Number: 01140-204-0340

**BNSF Skykomish** 

Project Name:

																			Machine						
	Comments			Burley woods con	1			Bucked under Snow	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						DING Burled under Som	Gulden Liche		11;	Chipped Ice Kin Insida Manunio		Burley under snow		Ruday hall Care		
L	Sign	į	X E	3	3		N N	D <sub>to</sub> /Y	أأزمار	J. N.C.	17 C		200	という	Div		2	2		ZWZ.	N N	<b>3</b>			
11/10/2008	Prod.	IIIICK. (II)																							
11/	MLQ (#)		10.25	9:92	65 2		7.91	0.91	0.45	3.47	3.22	2 12	71.7	3.42	4.16	6.57	8.53	4	0.10	7.17	3.02	ΝN	ΣN		
12/16/2008	Prod.	(in) want																							
12/1	WTO (#)		11.92	Σ	8.57	198	0.00	1.93	MM	4.21	ΣX	Ž		Ž.	5.63	7.71	9.85	637		0.00	4.11	9.95	9.87	( -	_
	Method						i di	The following	)															89 EVELS.	・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
id Viv	Thickness					The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	1,17	A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR																E	j.
Denth to	LNAPL (ft)					(	6.00		75.05	3/2/	3,5	207												E S	Š
Depth to	Water (ft)	1.53	2	<u>.</u>	2,26	95	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ナシー	100	1/1	1,04	2,32	IN 64 1	2			10%	6,2	39.6	2	0	1-2	NIN	J.	
Total	Casing												***											as a	<b>,</b>
j	9	で方		15	رة أ	70.0	j	1720	17.72	15/2	120	17	1,020	١	1	6, 67	12/2	<u> </u>	1887	1	1.7 22	7,7		光光	
4.0	Calc	01/22/09																						干	
Well Number		2A-W-5	2A-W-7	0 % 40 %	8-AA-W-9	V 2A-W-10	2B-W-4	2B-W-11	2B-W-12	20.00	ZD-VV-13	2B-W-14	2B-W-15	2B-W-19	2B-W-21		ZD-VV-3U	2B-W-32	2B-W-33	2B-B-21	2B-W-45	2B-W-46	05-11-07	1245 North Staff gows	

@ 1245 North stack gows

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Burled under snaw under 5000 under som Wady Show Buntal under snow under Snow Bunlad under snow DINIZ BUNGA UNGUE SOON Comments DWK Burley DWC Buckel Burles Dur <u>Z</u> <u>Z</u> <u>Z</u> DINK X Z DWK DWK DW/N DIMIC ÌM. TA TA 1500 A 결 Sign Off Prod. Thick. (ft) 10.60 10.15 10.44 10.50 11.79 7.53 9.50 OTV (#) 9.62 6.70 6.62 4.47 9.82 9.74 3.06 Σ ΣZ Σ Σ Σ Σ Prod. Thick. (ft) 11.59 11.35 12.25 10.43 11.44 12.65 13.53 11.02 13.53 14.92 11.48 (£) 12.07 9.15 7.44 4.29 8.51 9.32 ΣZ 9.48 5.61 Method LNAPL Depth to LNAPL (ft) 4,90 No. 68 3,00 Depth to Water (ft) N3 3,19 STIME E 1 3 11.01 2 ة ص 3 3 ٤ Total Casing Depth 13.5 336 多 国 47 333 队 30.00 Time 1 ) 01/22/09 Date Well Number 1B-W-2 1B-W-3 1C-W-2 MW-12 MW-13 MW-14 MW-15 MW-16 MW-18 MW-26 MW-38 MW-40 MW-11 MW-10 MW-5 6-WW MW-1 MW-2 MW-3 MW-4

Comments Sign Off Prod. Thick. (ft) DTW (ft) ₹ Σ ΣZ Σ Σ ΣN Σ Σ MN Σ Σ ₽ ₹ ΣN Σ ΣŽ Σ Σ Σ Σ Prod. Thick. (ft) 16.59 13.30 12.52 12.56 10.58 7.14 10.21 8.50 10.81 9.56 7.09 9.80 9.85 8.54 7.98 Σ Σ 6.58 9.34 8.38 Σ Σ Method LNAPL Thickness Depth to LNAPL (ft) Depth to Water (ft) Total Casing Depth Time 01/22/09 Date Well Number HCC-RW-01 HCC-RW-02 HCC-RW-03 HCC-RW-04 HCC-RW-05 HCC-RW-06 HCC-IW-01 X HCC-IW-02 P-2D P-3U P-3D P-40 P-4D P-5U P-5D P-6U P-6D P-7U P-7D P-2U P-8

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		Sign		7	ANIJ	1	INN	ر کر	*		2	1	メスト	7		DWIZ
00000	11/10/2008	Prod. Thick. (ft)		None		1		Hw Tr	11 (8)	Ė						Hvy Tr
	11/1	DTW (ft)		10.10	ΣN	101	CS./	4 99	2	68.9	MIN	Alki	N	NIM	MAIN	8.09
00000	12/16/2008	Prod. Thick. (ft)		None	Ė	F : 5 4 -	TI (VE	Ė		None	Hwy Tr	13 7	Hvy Ir	Hwy Tr		۲
47774	17.1	WTO (#)		c0.11	8.93	0 00	0.03	6.29		7.73	13.17		6.92	6.95	20:5	10.32
		Method	į			1		9	0	4	ţ			1		)
		Thickness					K	1	11/32.0	7000						
	Don'th to	LNAPL (ft)														
	Denth to	Water (ft)	87			1	11.010	5,4,65	がまれ	1	کے	. V		5	4	120
	otal	Casing Depth				CONTRACTOR COMPANIES AND STREET										
	i	Time	1	Cie	122	1	1,000	7	170	1	J	i		1	1	
		Date	Da/20 ( 17						_						7	
		weii number	MW-7		17-MM	2A-W-3	.,,,,,,	ZA-W-11	MW-39		1A-W-2	5-W-2		5-W-3	2A-W-4	

#### Other Notes:

| clean well north (town) haff | use water level meter (WL) | clean well - south ('railyard') half | use water level meter (WL) | use water level meter (WL) | use tape and paste (TP) | use tape & paste (TP) + peristaltic pump (PP)



P) ease entar into stykomish database When you have Shan! JAJ 22, 2009 830 176 12.58 14.50 930 930 6.77 6.96 6.96 6.37 6.37 7.64 13.85 1.04 P-20 [C P-20 [C P-20 [C P-20 [C P-20 [C P-30 [C P-30 [C P-30 [C P-30 [C] P-50 [C] P-60 [C] P-70 9,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 10,50 1

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## Fluid Level Gauging Form

In Depth to (ft) LINAPL (ft) (ft) LINAPL (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	Project Name: BNSF	BNSF Skykomish	nish	₽ ¥	Project Number:	01140-204-0340	-0340	collected by: Blani self and welver	7	· No	. self	o am	7	melver.
umber Date Time Casing Ureput to Depth to Depth Water (ft) LNAPL (ft) Depth Water (ft) LNAPL (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) Depth (ft) D		-	<u>°</u>	H					1/22	1/22/2009	12/1	12/16/2008		
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3 sucher Johns wall destroyed Comments RED CAP Bulle Burico Sign Off Prod. Thick. (ft) 11.59 ¥ E 9.15 11.35 11.48 12.25 10.43 11.44 12.65 13.53 11.02 13.53 14.92 12.07 4.29 7.44 5.61 8.51 9.32 9.48 Ν Prod. Thick. (ft) 13.40 14.90 ¥£ 11.11 11.13 13.19 10.68 11.01 ΣN 9.01 NΩ ₹ ₹ ΣZ 3.71 ΣN M Σ Σ Method LNAPL Thickness Depth to LNAPL (ft) 3,50 14,60 Depth to Water (ft) 11000 14.16 12.4.1 12,21 M. M. から ころい 1.45 7, 25 37 J 11.95 なりの Š S Total Casing Depth 13.5 3.63 276 (Y) 1123 32.5 2,5% 1233 11.33 355 S. Y. 37 1(31 Time ケーブ orpaled 02/11/09 Date Well Number MW-13 MW-15 1B-W-2 1B-W-3 1C-W-2 MW-18 MW-38 MW-40 MW-10 MW-12 MW-14 MW-16 MW-26 MW-11 MW-2 MW-3 MW-4 MW-5 WW-9 MW-1

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12/16/2008	Prod. Thick. (ft)				Troppo	age																	
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1/22/2009	Prod. Thick. (ft)		Ž.		Trace		*																
77/1	ML(#)	9.5	6.88	10.02	96 9	10.37	Ç	16.78	69 6	13.49	8.3	12.72	7.76	12 50	6.30	1 0 1	T NN	Ž	ΣZ	ΣZ	7,4	63	8 17
	Method	j.			<del></del>		7																
	Thickness				ナー・サ										,								
Don'th to	LNAPL (ft)					رون می		ař	e.	ì													
	Water (ft)	8.8c	6,67		6.52	16-63	33	17,16	0,82	13.87	8-73	18,00	1.06	11 23	800	N V	S	MM	MM	NM.	7.13	27.2	8,42
Total	Casing Depth									٠,				2									
	Time	16.74	ر ارج	16.4c	M CC	12.5	7 15	17.15	124	172	17	1720	17.59	132	27,7						で (4)	5191	0h
	Date	02/27/09		_															1				7
	Well Number	P-1	P-2U	P-2D	P-3U	P-3D	P-4U	P-4D	P-5U	P-5D	P-6U	P-6D	XP-7U	P-7D	P-8	HCC-RW-01	HCC-RW-02	HCC-RW-03	HCC-RW-04	HCC-RW-05	HCC-RW-06	HCC-IW-01	HCC-1W-02

Ewie; 1,22 Mepring; 9,886.7 I-w 2w : 8.43 C. D'-P3: 14,24 R. V. : 15,79 EV = 11,05 Forn 9,72 van/t. E pmp H = 14,20 FWV = 10,48 of 1756.

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-			Total	;				1/2	1/22/2009	12/1	12/16/2008		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	MTa (ft)	Prod. Thick. (ft)	Sign O∰	Comments
MW-7	02/27/09	チゾニ		81 - 1		A.C. 1/1/2		ΣŽ		11.05	None		3 1 6
MW-17				. WN				2		8 93	L L		Lack of such DG
2A-W-3				され、				2		8 83	Į.		くると
2A-W-11		15.74		6.12		1.12.6	4	5.77		8.20	Ļ		0 200
MW-39		0551		59.2		Bleny (E	d ~	7.42		7.73	None		0 2 21
1A-W-2				ええ			,	ΣŽ		13.17	Hw Tr		Sugar
5-W-2				Wy				Ž		6.92	Hw Tr	-	لماريو
5-W-3	,			WM				NΝ		6.95	Hw Tr		Lacis
2A-W-4	₽			スペ				ΣN		10.32	1		Sara Luckher

Other Notes:

clean well - north ("lown") half clean well - south ('rallyard') half dirty casing, possible trace product dirty well

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



Project Name:

# Fluid Level Gauging Form

01140-204-0340 Project Number: **BNSF Skykomish** 

Collected by:

			<del></del>												,									,					
	Comments				to location to location	NOT III Stalled							- <u>                                    </u>	NOT INSTALLOR						17.0							May Tocasilla		
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	Prod. Thick. (ft)																												
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	Prod. Thick. (ft)					,																							
	DTW (ft)																												
	Method																												
	LNAPL																												
;	LNAPL (ft)																												
3	Deptn to Water (ft)	13,75	£9'8	12'6	MN	11'81	14,68	61/8	19.6	at'01	<b>72'01</b>	56.01	2	14 60	2,56	44.8	12	5.65	9.76	さな	813	H48	197	14.55 14.55	7,13	6.65	WN	NA	7/10
Total	Casing Depth																												
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	Date	3/23/09																											
Well	Number	1A-W-1	1A-W-4	1A-W-5	1A-W-38	1B-W-2	1B-W-3	1C-W-1	1C-W-2	1C-W-3	1C:W-4	1C-W-7	1C-W-8	2A-W-8	2A-W-9	2A-W-10	2B-W-4	5-W-4	5-W-14	5-W-15	5-W-16	5-W-17	5-W-18	5-W-19	5-W-20	5-W-42	5-VV-43	5-W-44	5-1/1/-45

	Comments			10100												April About and	100 150 150 150 150 150 150 150 150 150	1 No.1 0 0 0 1 1	NATIONALIN GOOS		10.5	11	1 7 1 1 7 7 7 1 1	•					1 1 4 - 4 - 1	2001 1051 200			
-	Sign	5		-	-	+	->		J.	+				-	7	╫	\ \ \	_	3	4		1 2	<del></del>	2		3	Z 3			1 1	II S	<u> </u>	<del> </del> <del> </del> <del> </del> <del> </del>
	Prod. Thick. (ft)																																
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	DTW (ft)																																
	Method																																
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	Depth to LNAPL (ft)											-																					
	Depth to Water (ft)	7.35	5,89	(5, <del>2</del> /4)	6,23	6,09	6,72	12,24	11.85	44.8	7.32	4,00	10,12	12,46	13,49	NM	5,82	NM	4,26	- WN	VW	13,81	Mh	NM	NM	46,6	9,40	0t'01	2	WV	8.51	13.53	10,81
Total	Casing Depth												13.5								7												
	Time	1135	1	103	ilis	112.9	1125	944	1934	6927	0931	1023	<u>। ज</u> ि	1016	<b>F189</b>	1	<u>8</u>	1	322	1	1	560	l	1	1	1206	1203	1221	1	Î	2501	848	090g
	Date	3/23/10/1135	, ,		-																												لذ
	Well Number	n 5-W-50	n 5-W-52	n 5-W-53	n 5-W-54	n 5-W-55	n 5-W-56	s MW-1	s MW-2	s MW-3	s MW-4	s MW-12	s MW-14	s MW-16	s MW-18	s MW-26	s MW-32	n WW-35	n MW-38R	n 1A-W-36	n 1A-W-37	n 18-W-23	n 2A-W-40	n 2A-W-41	n 2A-W-42	s 2B-W-45	s 2B-W-46	n EW-1	n EW-2	n GW-1	n GW-2	n GW-3	n GW-4

Comments 1-001 Sign Off 55 Prod. Thick. (ft) 꼰 16.78 13.49 (ft) 9.50 10.02 10.37 8.30 12.72 12.58 10.41 11.04 6.88 6.96 9.69 8.30 7.76 6.77 Σ Σ ₹ Ν Prod. Thick. (ft) 꼰 17.16 Œ (£) 10.82 13.87 13.00 11.23 6.67 6.52 9.80 8.18 8.73 7.86 9.89 8.80 7.13 8.91 Σ Σ ΣZ Σ ₹ Method TOP LNAPL Thickness Depth to LNAPL (ft) 4 Depth to Water (ft) 8,49 8.54 13.18 25976 10,72 11.69 4.67 300 5.78 512 7.64 8,09 6.53 12,31 Total Casing Depth 1215 1220 482 223 38 12.9 122 233 1302 1222 1744 Time 228 1317 1243 03/23/09 Date Well Number 721 HCC-RW-06 HCC-RW-02 HCC-RW-01 HCC-RW-03 HCC-RW-04 HCC-RW-05 HCC-RW-06 PAGE 3 P-2D P-3D P-4D P-5U P-5D P-6U P-6D P-7U P-7D P-2U P-3U P-4 P-8

9.30	8.17	ļ								
9.22	8.43									
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39/6	0,03	3,6	<b>\$</b>	14.00	10.48	258	47 5	- / / /	4,50	
1303	10	さる	4221	1239	1300	125	i	1638	1303	
HCC-IW-01		びぞ	23	5	EV	PW 01	CW 1.10	78 04 1	FW03	

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Well Number         Date Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to Depth to														
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6,09 None Top  7,54 None Top  9,00 Hry TR  6,84 Hry TR  6,84 TR  7,50 Top  7,50 Top	- 1	323/09	845		8.02	Nene		444					~	.,
6,09 None Tap  7,57 None Tap  9,00 Hry TR  6,87 Hry TR  6,87 TR  7,50 TR  7,50 TR	- 1	`	ì		NB								Macue out Carlow 1	<del></del>
4.5.1 Anne Tap  9.00 Hry TR  6.82 Hry TR  6.82 TR  7.45 Hry TR  7.45 Hry TR  7.50 TR	- 1		0880		60.9	Neng		46					7-0.91	
7.57 None Tap  Alm 6.87 HW TR 6.82 TR 7.45 Tap 7.30 TB Tap			2260	7	13,17								14-002/	_
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6.87 HW TR 6.87 TR 7.45 HW TR 7.30 TR	- 1		1154		9,00	HW TR		4					10 - i. D.	
6.87 HW TR 6.87 TR 7.45 HW TR 7.30 TR			1		. Z	•							1012 11 Ak 1200	_
6,87 TR 7.45 HVYTR TOP 7.30 TR			山山		£8'9	₹ ₹							% - 12/	
7.30 TR Tap	- 1		136		±8'9	4							×1:12'	_
7.30 7.0	- 1		1024		7.45	大 下 R		Top					% 0.54'	-,
		<del>}</del>	( <del>9</del> 36)		2,30	ر ا-		190					, KH.O. O	

#### Other Notes:

n clean well north ('town) half s clean well - south ('rallyard') half X dirty casing, possible trace product dirty well

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

total wells: 91

60/EZ/E 15-M-5

Hwy Trace Product

Fluid Level Gauging Form

Name:         BNSF Skykomish         Number:         07140-2040340         Collected by:         D, Kih∩Qu/Librage         Time family (th)         Collected by:         D, Kih∩Qu/Librage         Time family (th)         Collected by:         D, Kih∩Qu/Librage         Time family (th)         Time family (th)         Sign of this collected by:         Collected by:         D, Kih∩Qu/Librage         Sign of this collected by:         Collected by:         D, Kih∩Qu/Librage         Sign of this collected by:         Collected by:         D, Kih∩Qu/Librage         Sign of this collected by:         Collected by:         D, Kih∩Qu/Librage         Sign of this collected by:         Collected by:         D, Kih∩Qu/Librage         Sign of this collected by:         D, Kih∩Qu/Librage         D, Min         Driver         D, Min	Project				Project			<b>)</b>						
Date   Time   Casing   Water (ff)   LivaPL   Method   DTW   Frod.   Dip   Frod.   Dip	Name:	BNSF	Skykomist		Number:	01140-204	-0340	Collected by:	١,٥	<iho< th=""><th></th><th></th><th></th><th></th></iho<>				
Date   Time   Casing   Depth to			Total		_			2010	0000		00000			
1,32	Well Nur		<del></del>	,	Depth to Water (ft)	Depth to		Method	WTO #	Prod.	WTO	Prod.	Sign	Comments
1059   1124   1156   1155   1000     1024   256   245   1140   1155   1000     1256   241   245   245   1140     1256   242   245   240   240     1256   242   240   240   240     1256   242   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1256   245   240   240   240     1266   245   240   240   240     1266   245   240   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1266   245   240   240     1267   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   240     1268   245   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268   245     1268	2A-W-5	03/23/			1					IIIICK. (st.)	(E)	I RICK. (TC)		
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1,29	2A-W-9		200		100				11.54		ΝN			
156	2A-W-10		170		25%				9.01		8.22			
1226   1, 11   0,66   3.45   3.33   1.25   1, 12   0,66   3.45   3.33   1.25   3.25   3.33   1.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25   3.25	2B-W-4				1 1 0				9.05		8.36			
1723	2B-W-11		127Ci		1	17.0			2.45		MN			Had to die out well
1233	2B-W-12		1772		1 23	3			3.45		3.33			ſ
1230	2B-W-13		17.7.7		100				4.55		3.97			
124   125   2.40   3.32	2B-W-14		17.7		1001				3.73		5.54			
144   6,06   2,55   Dru   Dry   Dr	2B W 46	+	3		43	_			2.40		3.32			
14-1	CI-M-07		1024		18y0 4.C				Dru		Z			
1010 9,37   10.67   9.67   10.67   9.67   10.67   9.67   10.67   9.67   10.67   9.67   10.67   9.67   10.67   9.68   10.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   10.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68   9.68	ZB-W-19		4		90%				ZZ		N N			
1010 9,37 1,43 6,67 1,22 7,87 1,20 3,39 9,68 1,20 3,37 1,024 9,71	2B-W-21	+	हि		3,81				8 29		2		-	1. 1. 1.
143 6.67   NM   NM   NM   NM   NM   NM   NM   N	2B-W-30		1010		0.H				40.67		IAIN		1	149 TO ALG OUT DIVED
122	2B-W-32		143		6 63				10.01		9.67		7	
	2B-W-33		1.20		201				ΣŽ		6.21		-	
1206 9,93 1203 9,40	2B-B-21		13		1101				8.39		9.68			
V 1203 9,40 10.24	3D W 4E	+	36,1		744				ΜZ		ΣZ			
1014	25-W-43	+	37		466				10.24		9.71			
	ZB-W-46	₹	1203		2,40				10.14		NIA.		<b> </b>	

Staff Cauges!

0,71' 1,71' 1,82,0 North

								10/0	0000	100	0000		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	WTQ (#)	W Prod.	WTO	N Prod.	Sign	Comments
MW-1	03/23/00	POLL		11				$\neg \Gamma$	(11)	1	I IIICK. (IL)		
	00/20/03			17/17				12.67		11.73		2	
MW-2	-	984		=           				12 34		MIN			
MW-3		COS	-	470				5.3		Ž		+	
MW-4		1260		727				8.51		ΣΖ		7	
MANA/-E		200		りかり				7.25		7.00			
200101		<b>₹</b> 75		2122				ΝM		ΣZ			
MW-9		Ball		1005				11.90		11 01			
MW-10		DONTO		= 34				12.08				1	
MW-11		11		23				2.00				+	
MW-12		17.73		-(				ΣN		ΣŽ			Buring ander snow
		750		4,00				4.40	,	3.71			
Mvv-13		20/02		8,19				8.59		MZ		-	
MW-14		<u>\$</u>	13.5	10.12								+	
MW-15		092						10.69		Σ <sub>N</sub>		+	
MW-16		21001		1 / / /				11.95		11.13		1	
MW-18		1205		10				12.90		Σχ			
MW-26		1		3 2				14.16		13.19			
WW.38 B		1.0		777				9.79		ΣN		>	Aban dang
7 00		1		400				Z		Σ	-	S S	
MW-40		0915		10,70				11.45		10.50			
1B-W-2		822		(3, 1)				P. C.		00.00		\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
1B-W-3		3		14/0				77.71		13.40		4	
40.00	2			801				14.60		14.90			
Z-^^-	>	<u>z</u>		7				1				F	

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	Sign Comments Off	12212 59	7/10/10	of a second second	Ductions standard	7 2 7 2 7	27.018		2 13 18 /	
1/22/2009	Prod. Thick. (ft)				Hw T	F				
1/2	DTW (ft)	₹	Z	Ž	5.77	7.42	M	Ž	Ž	1
2/24/2009	Prod. Thick. (ft)	None			1	None				
715	DTW (ft)	11.18	Ž	Σ	6.12	7.65	ΣZ	Ž	ΣŽ	NIA
	Method	401	Tap	l	Tap	,				لد
	LNAPL									
;	Depth to LNAPL (ft)	None	HUNTR	•	Nave	Novol	47,78	7.2	4,4	1. TR
:	Deptn to Water (ft)	10,75	69'8	EZ.	60'9		12.11	48,9	6.87	
Total	Casing Depth	_								
	Time	8280	808	ı	0852	£80	4560	1113	1136	这
	Date	03/23/09	_							J
	Well Number	MW-7	MW-17	2A-W-3	2A-W-11	MW-39	1A-W-2	5-W-2	5-W-3	2A-W-4

#### Other Notes:

clean well - north ('town') half use water level meter (WL)
clean well - south ('railyard') half use water level meter (WL)

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

**Field Activity Log** AECOM Page; of Project Name: SKYKOMISH Completed By: Project Number: Date: Field Activity: Weather: Personnel on site:

# Fluid Level Gauging Form

10000				•			) )						
Name:	BNSF Skykomish	komish		Project Number:	01140-204-0340	-0340	Collected by:		, , , , , , , , , , , , , , , , , , ,	Mag	Chan Selban & Melvin . R	1e/v,	d
			Total	Donth to	7			3/23,	3/23/2009	2124	2/24/2009		
Well Number	Date	Time	Casing Depth	Water (ft)	LNAPL (#)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	¥TQ ∰	Prod.	Sign	Comments
2A-W-5	4/2 1/2009	000		11.79				1		_			
2A-W-7		र्		19.01				76.11		12.65			
2A-W-9		27.5gc		2778				/7.1.		11.54		1	
· 2A-W-10		0855		1 2				8.36		9.01			Med (all, LOCK
2B-W-4		為元		282				8.77		9.05			
2B-W-11		<u> </u>		3 43	3,86			2.11		2.45			
2B-W-12		0852		4.28	1000			1.1		3.45			
2B-W-13		ひりつ		27.0	10			4.33		4.55			
2B.W. 44		100		2126	27,7			3.62		3.73			
47-AA-07		2 5		イング	22		-	2.31		2.40			
ZB-W-15		17,50		S	ΝŽ			Ω		Ē			TI 10 (0 17)
2BrW-19		57.80		5,50	_			90.9		2 2			1 1 2 2 20 1
2B-W-21		0334		7.56				2 84					1001000 57/55/14
2B-W-30		ć		96,66				0.71		67.0			14, 25, 49 260103
2B-W-32		ट्ये द्व		2.2				1.00		/9.01			
2B-W-33		Sobo		8.37	Dru			/9.0		ΣZ			14.35, 5 2 50lds
→ 2B-B-21		1250		20 1)	127			7.87		8.39			
2B-W-45		50		7 0	5			7.75		ΣZ			Lous PVC. O.4SFE
2B-W-46		20.20		270				9.97		10.24			21010d 2 pulls 1100
	-	^						9.40		10.14			1010100

Casing Depth to Depth to Depth to Depth
120
10.861
12 34 450
4.七十七十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二
5.4
11,45
57
12, 16
432
8,45
10.34
11,35
12.32
13.27
3,85
-1
13,60
14.75
8.58 8

<b></b> L	PAGE 3								-					
				Total	Donth to	Don'th			2/24,	2/24/2009	2/24	2/24/2009		
	Well Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	OTW (#)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
7	P-1	4/2/12009	0803		246				8.49		8.80			
Ž N	P-2U		2000		265				5.78		6.67			
1	P-2D		3 30 30		6.5				8.54		8.91			
\(\frac{1}{\chi_{\chi}}\)	P-3U		722		6:39				60.9	꿈	6.52	똔		7-0716618
<u></u>	P-3D		200		2/15				9.15		9.80			
Ž	P-4U		080		7.95				7.64		8.18			
\	P-4D		8		11.77.				18.44		17.16			NEW AZZA TA PIZ.
Ž	P-5U		SE 1.3		97.6				9.39		10.82			1
	P-5D		2627		-				13.18		13.87			
<u></u>	P-6U		0837		2.77				8.09		8.73			
\	P-6D		0538		1233				12.31		13.00			
<u> </u>	P-7U		55.0		1,8%				7.67		7.86			
<u> </u>	P-7D		0,970		8:				11.20		11.23			
7	P-8		0843		9,43				9.65		9.89			
<u>₹</u>	HCC-RW-01		0.055		10,311				10.72		ΣZ			
<b>*</b>	HCC-RW-02		1833		11:3				11.74		ΣZ			
★	HCC-RW-03		3 60		11,64				11.69		ΣZ			
<u></u>	HCC-RW-04		27.0		6.45				6.03		ΣZ			No slevetion
<b>★</b>	HCC-RW-05		2007		6.47				6.53		Σ			
<b>*</b>	HCC-RW-06		12si7		6.45				6.48		7.13			
<b>*</b>	HCC-IW-01		040		2,7				9.68		9.22			
Ž	HCC-IW-02		782		25,8				8.03		8.43			
\	<u>}</u>	<u>.</u>	(BOS		<u>a</u>									7-
1.		õ	0809		8,60									
~		0,40	9		9.5									
•	7 MJ	90	36		12.53									
ر ر	\ - -	\$ 65	瓦、		) S									
)   	> =	3	-2		001									
1	 	) (၁	_ :		7 3									
	Ta de	90	F		15.27								•	
\	>				<u>.</u>	_								

	PAGE 4						٠								
				Total	4				2/24	2/24/2009	2/24	2/24/2009	Γ	100 mm	_
•	Well Number	Date	Time	Casing Depth	Deptin to Water (ft)	LNAPL (ft)	LNAPL Thickness	Method	DTW (ff)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign O#	Comments	1.2
$\bowtie$	MW-7	4/2/1/2009	6111		ho'11		Trale	4	10.75	None	11.18	None		35.0-71	·
$\bowtie$	MW-17		1165		8.58		上公里	77	8.69	Hw TR	≨			9-0.42 6010-61	
×ſ	2A-W-3		1224		887		JAN J.	しか	ΣN		Ž			HOP to Cated a	<u>'ŏ</u>
$\bowtie$	2A-W-11		1124		2.78		Trace	77	60.9	None	6 12	Ω.		7-0.79	_
$\times$	MW-39		Shil		7.59		NONE	d L	7.57	None	7.65	None		"	
1	1A-W-2		554)		N/M.				13.11	HW TB	2	2		12.00	<del>-</del>
	5-W-2		1501		6.30		try for	4	6.87	HWTR	Ž			7 1 0 10	·
	5-W-3		1207		5.86		Fac	d	6.87	TR.	Ž			7-17	
	2A-W-4		1230		55° b	4 75.00 4 75.00	TO FEE DUNG	Dam p	9.00	Hw TR	ΣZ	0 41		(a 1. 5 . 1.0 0.00 le	9
												,		17 27	

Other Notes:

alean well-north ('town') haif

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

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

**6** 

3004/01 Staff. 12:55. Mid GSR 11.32. Ft 50 yh 6,5.3 : 1,06 Ft PASS MORD = ENSP9349

**Field Activity Log AECOM** Page: Project Name: Completed By: Project Number: Date: Field Activity: Mon Weather: Personnel on site:

Fluid Level Gauging Form

Project Name:	BNSF Skykomish	komish		Project Number:	01140-204-0340	-0340	Collected by: Shamis Helvin	Bha	N. S	7	le/vin	3	
			Total	Don'th to	<b>⊅7</b> ₩			, 1/22	1/22/2009	12/1	12/16/2008		
Well Number	Date	Time	Casing Depth	Water (ft)	LNAPL (#)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
2A-W-5	05/12/09	3),0		29·11				11.55		11 92		AS	
2A-W-7		∞ξ <i>Q</i> \		62 Q!				MN		MIN		\(\sigma\)	
2A-W-9		2/60		8.53				8 22		8 F.7		1 0 1 2	
2A-W-10		217		8h'8				98.8		9 8		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
2B-W-4		9520		791				S N		0000		100	
2B-W-11		37 00		3.41	170			3.45	0.52	S WN		3 5	
2B-W-12		0950		4.01	3,84			3.97	3.61	4.24		1 4	
2B-W-13		જુવ 🖺		05.5	3,21			7 7	0.00	17.7		700	
2B-W-14		8060		2.28	2,10			3 30	5 .5			2 0	
2B-W-15		(000		ふっち	474			NIN	20.7	2		8 4	
2B-W-19		0380		5,20						2 6		£ 5	
2B-W-21		3520		7,38				N N		20.02		5 3	
2B-W-30		(0.36		99.6				9.67		1,:,		23	
2B-W-32		0,500		40° 3				6.21		6.37		45,	
2B-W-33		<u>ئ</u> ئى		00 00 12				9.68		8.06		7	
2B-B-21		50 03		ا ئۇز				ΣN		4.11		2	
2B-W-45		1210		41.0				9.71		9.95		3	
2B-W-46		714		9.51				ΝN		9.87		4	

MW-12 : 4.12 @ 0958

TE PONESIO 0,42 Abandoned A Comments 12-1 8 LIEBEN MIC. 20 <u>5</u> 7 えが ₹ 7 Mil  $\sum_{i=1}^{\infty}$ 3 アプ 3 26 2 £ 7 \$ 3 Sign Off Prod. Thick. (ft) 12.25 13.53 14.92 11.48 10.43 12.65 13.53 11.02 11,59 11.35 11.44 E) 12.07 9.15 9.32 ΣZ 9.48 7.44 8.51 5.61 Prod. Thick. (ft) 11.13 13.19 13.40 14.90 10.68 Œ. 11.73 11.01 11.11 9.01 Σ ΣZ ∑ ΣN 3.71 Σ Σ̈ Σ Σ Σ Method LNAPL Thickness ACANTON C Depth to LNAPL (ft) 36.7 2000 5.58 74.12 1.35 F Depth to Water (ft) 3.50 12.15 1.08/1 8,2 127 300 Total Casing Depth 13.5 07/2 1201 1021 0847 0830 10 4S (6035) (0588 1105 1055 103 \$50 \$70 \$30 <del>اق</del> Time 05/12/09 Date Well Number MW-38 8 1C-W-2 1B-W-2 1B-W-3 MW-10 MW-12 MW-13 MW-14 MW-15 MW-16 MW-18 MW-26 MW-40 MW-11 MW-2 MW-3 MW-5 MW-9 MW-4 MW-1

PAGE 2

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PAGE 4

			Total					1/22	1/22/2009	12/16	12/16/2008			Γ
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments	
X MW-7	05/12/09	0211		99.01		NONE	d  -	Σ		11.05	None	A5/4AP	11.0.34	Π
X MW-17		1137		07 B		FCN/NOT	イナグ	Σ		8.93	Ļ	A5/412	080 - 5	
X2A-W-3		1154		8.पप		F. Trace	4	MZ		8.83	Hwy Tr	9-0.56	to work of	Ī
X2A-W-11		1130		6.03		1. Tray	77	5.77		6.29	Ë	AS/MP	7, 6,92	
Хмw-зэ		01.21		7.64	NONE	1	dТ	7.42		7.73	None	As/HR	9-0.36	
1A-W-2				Z W		1	١	Σ̈́		13.17	Hvy Tr	4	ACCINC ONE	
5-W-2		1235		5.89		大多型	P.	ΣZ		6.92	Hwv Tr	AS/MP	6,5-0.6	
5-W-3		1220		5,45		1.1611	Ţ	ΣZ		6.95	究院	AS/MP	6-0.55	
2A-W-4		1300		8.90	8 . 68	127.0	Jumos	MM		10.32	Tr	As/Mp	9-3= 25.0 b	မာ
Other Notes:					45	•								

Other Notes:

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

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

Maloney Creek Staff Gauging

(3/0

Location	Date	Water Level	Water level 01/22/09
North Staff Gauge	PS/Indog	0 85	0.8
Mid Staff Gauge		1, 38	1.32
South Staff Gauge		0	10 F

# Fluid Level Gauging Form

								:					
Project Name:	BNSF Skykomish	komish		Project Number:	01140-204-0340	-0340	Collected by:	D. K.	1 J mo	, a) a	7	J.	collected by: D. Conow F Marnil 1 Salars of Charles
			Total		(autology)	L)		5/12/2	5/12/2009	4121	4/21/2009		VOX or VIOL FILE
Well Number	r Date	Time	Casing Depth	Depth to Water (ft)	Depth to	LNAPL Thickness	Method	WTO (ff)	Prod.	MTO (#)	Prod.	Sign	Comments
2A-W-5	60/60/90	二法		12,31							(it)	1	
2A-W-7	,	1135		10,63				50.05		11.79		\ <u>2</u> 3.	
2A-W-9		1117		ンナな				10.29		10.61		+	
2A-W-10		7260		10 10 11 11				8.53		8.65			
2B-W-4		3027		2000				8.48		8.71			
2B-W-11		204		26				1.62		1.82			
2B_W_12		2000		95,0				3.41		3.43			
20 10 12		XXXX		ンサイ	273			4.07		4.28			
ZD-VV-13		2007		27.7	474			5.50		5.52		-	
ZB-W-14		1001		3,94	drv			2.28		2.43		+	
2B-W-15		900		5.98	5			Ē		2 2		+	
2B-W-19		0957		6.4)						À		1	
2B-W-21		1080		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				9.20		5.50		+	
2B-W-30		4		0,70				7.38		7.56			
2B-1M-32		2		12/07				99.6		9.88			
20 W 22		370		1,1,4				6.04		6.25			
20-W-02		X 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		4.54				8.05		8.37			
LZ-9-97		200		5,39				3.80		4 05			
2B-W-45		+10		10,96				9.74		06.6		+	
2B-W-46	∌	1014		10,93				9.57		27.6		+	
										-			_

PAGE 2		İ											
Woll Nimbs	d	i	Total	Donth to	# # # #			5/12/	5/12/2009	4/21	4/21/2009		
	рате	Пте	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ff)	Sign	Comments
MW-1	60/60/90	1132		11,61				11 3F		_		2	
MW-2		6211		11.11				00.1		11.47		JWZ	
MW-3		1174		9				10.55		10.86		+	
MW-4		17 )		2				7.50		8.54			
MW-5		4		4				7.08		7.47			
9-WM		()		1200				5.53		5.70			
MW-10				000				10.75		11.25			
NAM-14		十 元 元		7,6%				10.95		11.28			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		78		12,16				11.58		12.18			
MW-12		2001		5,66				1.40		2 3		+	
MW-13		かご		170				4.12		4.32			
MW-14	4	110	13.17	1.				8.22		8.43			
MW-15		5	2	30				10.11		10.34			
MW-16		150		7447				11.10		11.35			
M//-18		1001 1001		2011				11.98		12.32			
000				3,00				13.00		13.27		>	
MAN 40		400		2,95				3.50		3.85		(T)	
VIVV-40				86'11				10.62		10.89			2 100 00 V
7-M-GI		(1947)		13.41				12.92		13.60			
1B-W-3		27		14,46		2		14 15		14.7E		1 -	
1C-W-2	$ egin{array}{c} $	0956		8,48				8.20		8,73		Z	
				•			T			00		-	

			Total					E143	514712000				
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness	Method	WTO (#)	Prod.	DTW (#)	N Prod.	Sign	Comments
P-1	60/60/90	5060		2/3				1		$\top$	IIIICE: (III)	1	
XP-2U		2000										(0)	
P-2D		9069		S V								+	
X P-3U		100		シー								<b> </b>	
P-3D		0100		000					¥		뜌		
X P-4U		1260		200								+	
P-4D		197 X		700								+	
X P-5U		V28		10.47								1	
P-5D		9260		15,07								-	
X P-6U		(75/20)		200									
P-6D		0922		17.7									
X P-7U		1934		77								+	
P-7D		0935		18.0									
P <u>.</u> 8		0420		0.17								_	
X HCC-RW-01		6260		5.00									
HCC-RW-02		094¢		1.57									
HCC-RW-03		480		1.46						1			
HCC-RW-04		9560		424								+	
X HCC-RW-05		G5.60		4519									
HCC-RW-06		000		6,32								+	
HCC-IW-01		6937		8,28								-	
XHCC-IW-02	)	4260		02'6									

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Time Casing Water (ft) LNAPL (ft) Thickness Method DTW Prod. DTW Prod. Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Thick. (ft) Off (ft) Off (ft) Thick. (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) Off (ft) O				Total					5/42	9006/	,0,7	0000		
Image Casing Water (ft) LNAPL (ft) Thickness Method DTW Prod. DTW Prod. Sign		7	ř	. Of	Depth to	Denth to	IDAN		31 /6	8002	4/2	/2009		
0.09   12,13   NBOR   TP   10.66   None   11.04   TR   6.55     0.15   8.95   HW,TR   8.58   HW,TR   8.58   HW,TR     0.20   24 A.		Date	e E	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick, (ft)	Sign Off	Comments
8.95 HVYTR 8.20 HVYTR 8.58 HWYTR 8.59 HWYTR 6.30 HWYTR 6.30 HWYTR 5.89 HWYTR 6.30 HWYTR 6.30 HWYTR 7.64 TR 5.86 TR 6.36 HWYTR 6.30 HWYTR 7.64 TR 5.86 TR		60/60/90	600		17.13		N Soca	at	10.00				,	
\$\langle \frac{9}{2}\times \frac{1}{2}\times \fr		•	1		100		X, X, X		10.00	None	11.04	TR	65	12-084
6.08 TR 6.28 TR 6.28 TR 6.28 TR 6.28 TR 6.28 TR 6.29 None 7.59 None 7.59 None 7.00 None 7.59 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 None 7.00 Non	-		5/01		8,95		HULTR	,	8.20	Hwy TR	8.58	Hw TR	ļ	1-41
6.08 TR 6.28 TR None 7.59 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None 10,005 None	$\rightarrow$		1035		9,80		4		778	01.91	0 01	1	-	1000
6.08 TR 6.28 TR  Nove V 7.64 None 7.59 None  6.38 O.24 Pump 5.89 HvyTR 6.30 HvyTR  10.05 0.16 Pump 8.90 0.22 0.25 0.16			0001		2 % 1:		ŧ		1	Y A	0.0	TW IX	-	
638 0.24 Pump 5.89 Hvy TR 6.30 Hvy TR 10,08 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.	+-				4.40		4		6.08	TR	6.28	TR		8 0 84
638 0,24 Pump 5.89 HWTR 6.30 HWTR 10,00 TR 5.86 TR 5.86 TR	_		182		6898		Nona	≽	7.64	None	7.59	None		0 0
10,03 0,16 P. M. 890 022 025 021	-		カモ		6,62	N. N. O.	0.74	Pump	00 4	1		2	-	7 0 1
01/C Divor 8 90 022 025			 					. (	0.03	אן לאם	0.30	Hwy IR	4	7-0,62
Divo 8 90 000 000	+	7			7,84		HWIK	1-	5.45	TR	5.86	ᄣ		6.5-0.63
	7	,	7,7		(0, 19	10,03	シーグ	P	8 90	000	0.25	20.0	-	

#### Other Notes:

| Clean well - north (town) half | use water level meter (WL) | clean well - south (railyard') half | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use tape and paste (TP) | use tape & paste (TP) + peristaltic pump (PP)

total wells:

## Maloney Creek Staff Gauging:

Water Level (5/12/09)	0.85	132	1.05
Water Level	5974	1.15	7,6,0
Date	6/9/2009		<u>}</u>
Location	North Staff Gauge	Mid Staff Gauge	South Staff Gauge

#### Fluid Level Gauging Form

Project Name:	BNSF S	Skykomish		Project Number:	01140-204	I-0340	Collected by:	DIKIN	ng, F.	Men	111,6	لمكر	bane of Stockors
Well Number	Date	Time	Total Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL Thickness (ft)	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	
1A-W-5	06/09/0	9 1013		8,40								FM	
1B-W-23	<u> </u>	14-31		13,62									No elevation
1C-W-1		0930	)	12,65								V	1
1C-W-7	06/19/0	9 10.80		NW								~	Asphatted Over 4
1C-W-8		4001		12,00								FM	ned to be Added
2A-W-40		1056		10,96								<u> </u>	add
2A-W-41		1047		12,83				İ					add
2A-W-42		1520		11,49									add
5-W-14		1104		8.06									* ** ***
5-W-15		1116		6.50									
5-W-16		11322	-	6,82									
5-W-17		1111		6,16									
5-W-18		IFZE		6,76									
5-W-19		1176		614									
5-W-20		1131											Check, Productornot
5-W-42		1136	- 100	7.80	_								No elivation.
5-W-50		1346		6.34									Moelevation
5-W-52		1353		5,61									No elevation
5-W-53		1356		6,02									Nuelebodion
5-W-54		1356 1359 1335		5,95									(1
5-W-55		1335		5,67					ļ				71
5-W-56		1328		6,06								4	11
EW-1		1337		8.16								DWK	_ //
EW-2				NM								خمت	No+Installed
GW-1		1322		6,75								DWH	
GW-2		1341		8,17									No platration
GW-3		1349		13,42									No elevation
GW-4		13.5		9,89								4	Noelevation
HCC-RW-01		0979		9,89							[	65	
HCC-RW-02		0944		11,52									
HCC-RW-03		0947		11,46									
HCC-RW-04		0958		7,24 6,37								11	
HCC-RW-05		0950		6137									
HCC-RW-06		0911		6.32									
HCC-IW-01		10937		8,28									
HCC-IW-02		0924		9,20								4	
5-W-51		1136,	Beree	5.70		TR	TP					65	6-0.3 not about
5-W-3		1105		6,37 8,78 9,70 <b>5</b> ,70 5,87			TP						6-0.3 not add 6.5-0.63 7-0.61
MW-22	<u> </u>	11176		6.39		TR	TP					V	7-0.61

Other Notes:

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

dirty casing, possible trace product dirty well

S-W-43 6/3/09 1334

DWK not adoled.

PAGE 1

# Fluid Level Gauging Form

						¥																	
			Comments			Duried under grave																	
	Z		Sign	07	1		$\frac{1}{1}$			-						-							>
	Fred. M.	5/12/2009	Prod. Thick. (ft)	(a.)																			
		Ш	WTQ (ff)	2.5	11.63	10.29	8.53	8.48	1.62	3.41	4.07	5.50	2.28	į		5.20	7.38	9.66	6.04	8.05	3.80	9.74	9.57
	GLANI.S	6/9/2009	Prod. Thick. (ft)														ŀ			•			
		6/9	DTW (ft)	10 34	16.31	10.03	9.76	9.8/	2.70	2.06	5.42	5.19	3.94	5.98	77	4.0	10.0	10.69	7.11	9.37	5.39	10.96	10.93
)	Collected by:		Method																				
	-0340	1	LNAPL																				
	01140-204-0340	OUT SIN	LANAPL(II)						D rv.		27.5	17.6		@ry					1) 4.1/1.	2			
	Project Number:	Denth to	Water (ft)	14.28	12.27	11.42	12.03	79.7	ナンシナ	7,80	7.30	717	0	1.74	S. S. S. S. S. S. S. S. S. S. S. S. S. S	10.10	12.38	20.00	1.90	77	0 :	11.10	(6.15)
		Total	Casing Depth					405					7 -16	7	STY B	01-0		800					
	komish		Time	1119	1255	2660	0950	15/18	7560	12000	09760	3000	7500 0130		09,26	0930 40-10	12211	1260	99 59	27 52	2 2	<u>n</u>	2
	BNSF Skykomish		Date	07/28/09									24301	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \									
	Project Name:		weii number	2A-W-5	2A-W-7	2A-W-9	2A-W-10	2B-W-4	2B-W-11	2B-W-12	2B-W-13	2R-W-14r	2B VV 4E	C1-44-02	2B-W-19	2B-W-21	2B-W-30	2B-W-32	2B-W-33	2B-B-21	2B-W-45	25 50 50	04-11-07
			1_	1								ı	1	- 1	- 1	1	- 1	i	- 1		1	1	1 .

PAGE 2													
			Total	2	<u> </u>			6/9	6/9/2009	5/12	5/12/2009		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
MW-1	02//28/09	1111		13,49				11.61		11.35		5%)	
MW-2		L@		13.19				11.11		10.55		7	
MW-3		10011		11.63				9.41		7.50			
MW-4		850)		B 80.082				8.49		7 08			
MW-5		(a S o		82 B				6.67		5.53			
MW-9		6211		13.75				12.00		10.75			
MW-10		1133		09 €!				11.68		10.05			
MW-11		13ত্ব		19,19				12.16		11.58			They Drodut diese
MW-12		0000		7.01				5.66		4.12			
MW-13		1031		10.11				9.71		8 22			
MW-14		8201	13.5	26'71				11.51		10 11			
MW-15		1020		11.5				12.43		11 10			
MW-16		しなこ		08'81				12.65		11 98			
MW-18		1115		15.54				13.60		13.00			
MW-38R		153		5.05				3.93		3.50			
MW-40		1023		13.64				11 98		10.62			
1B-W-2		1214		17.29				13.41		12.02			
1B-W-3		1203		15,44				14.46		14.15			
1C-W-2	≯	1225		2001				8 48		00.8		>	

			Total			ł		6/9	6/9/2009	5/12	5/12/2009			
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments	
P-1	02/12/109			11.03								万万		
X P-2U S	07/29/09			52.0Y										
P-2D 📈	-			oh' 7)										
X P-3U S				10.92					TR.		E E			
P-30 A				18.51										
X P-40 S				15.37								_		
P-4D N				1975)										
X P-5U S				52.0)										
P-50 ~				72,60										
X P-6U S				ZM.									The product in allo to found and	Sauce Work
P-6D N				10.73								-	الماد الماد	
X P-7U S				8 वव								+		
P-7D №				1001								-		
P-8				9.9								-		
HCC-RW-01				12.31										
HCC-RW-02				W2										
X HCC-RW-03				MN								-		
HCC-RW-04				ΝZ								-	THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED IN COLUMN TO THE PARTY NAMED	
X HCC-RW-05				V Z								1	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	
HCC-RW-06				Z Z								-		
HCC-IW-01	~			16.32		1000						-	A	
XHCC-1W-02				11.07								<b>\</b>		

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	Comments	71-0-1	Purite urder Coil Stock p	12-06	01 01	000		85-0.76	1
	Sign	59	59	18	) } }		, Z	25	(9'S.
5/12/2009	Prod. Thick. (ft)	None	_	HwTR	Ę.	None			0.22
5/12	DTW (ft)	10.66	8 20	8 44	80.9	7 64	5.89	5.45	8.90
6/9/2009	Prod. Thick. (ft)	None	Hw TR	TR.	F	None	0.24	エ	0.16
6/9	OTW (#)	12.13	8.95	9.80	7.46	8.89	6.62	5.87	10.19
	Method	()		Following Tr. P.	4	77	(	£	-d.wnd
	LNAPL	NONE	Z	HVY Touce	Trace	NOM B	Trale	L. Trace	2.00 6.35
	Deptn to LNAPL (ft)								12.00
.,	Water (ft)	18.85	MN	(1.60	56.8	05.0	8.37	47.7	12.35
Total	Casing Depth								
	Time	Sobi	NM	show	いさ	1425	1515	12251	1500
	Date	07/28/09	~						V
	Well Number	X MW-7	X MW-17	X 2A-W-3	X2A-W-11	X MW-39	5-W-2	5-W-3	2A-W-4

Other Notes:

| clean well - north (town) haif | use water level meter (WL) | clean well - south ('railyard') half | use water level meter (WL) | clean well - south ('railyard') half | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water level meter (WL) | use water (WL)

total wells:

## Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (6/9/09)
North Staff Gauge	7/28/2009	4210	0.65
Mid Staff Gauge		- x 0	1.19
South Staff Gauge		7 6	200

**Field Activity Log AECOM** Page: SKY Komish Completed By: Glan, Project Name: Project Number: Weather: Field Activity:

# Fluid Level Gauging Form

		Comments																				
		Sign Off	- \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		LIWIC /	T T T	J.	April 1	Dir./7	<b>DI</b> ME	17500	P.W.	Olv (			1120	ا ا	الم الم	1/20	Plows	1	
	6/9/2009	Outside PVC. (#)																				
90		WTQ ##	12.57	10.51	50.05	9.70	9.87	2.70	2.06	5.42	5.19	3.94	5 08	0.00	0.41	8.51	10.96	7.11	9.37	5 30	00.0	10.96
n Kinnes	7/28/2009	Outside PVC. (ft)							Dıy	Dry	Dny	Dry	, C									
	712	DTW (ft)	14 28	12.27	11.40	2 5	12.03	4.62	4.51	7.80	7.14	7.76	7 22	8 53	200	10.10	12.38	8.98	11.90	6 77	40.04	12.35
Collected by:		Method													-							
.0540		LNAPL Thickness																	1			
01140-284-0540	DA 1 1/20	Leptin to						0	», «		727	, <u>&gt;</u>	) <u></u>									
Project Number:	144000	Water (ft)	15.01	12.56	12,23	12,89	550	5	DY 0	2000	2010	090	Dr 6 42	19,5g	10.0%	13,18	000	1000	17977	7,58	12.91	13.70
	Total	Casing Depth																				
comish		Time	1207	1233	1008	210	25.5	200	2	31.5		200	Digit	DSD	1032	12.02	250	1 5	1	107	130	177
BNSF Skykomish		Date	08/22/09																			3
Project Name:		Well Number	2A-W-5	2A-W-7	2A-W-9	2A-W-10	2B-W-4	2B-W-11	2B-W-12	2B-W-13	21-44-03	ZB-W-14	2B-W-15	2B-W-19	2B-W-21	2B-W-30	2B-W-32	2B-M-33	25-V-02	2B-B-21	2B-W-45	2B-W-46

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		Comments	11/8/21	112 7 7/6	19 17 3 1000		コントキングン	10 10 7 7 01	-1-4716	17to 101				113-4-51/12-12-81
		Sign Off	2		2		となる	\V%	2	a			メスス	SWIK DE
	6/9/2009	Prod. Thick. (ft)	Moss	NOTIC	Hvvr Trace	110	race	Trace	ומכב	None	0.24	7.7.0	Trace	0.16
1	6/9	DTW (ff)	10 40	12.13	8 95	8	9.80	7.46	2	8.89	6 62	30.0	5.87	10.19
0000	6002/82/	Prod. Thick. (ft)	o No	DION	Z	T-1-1-1	ny Hace	Trace	200	None	Trace	200	L. Trace	0.35
70,1	27//	WTO (ft)	13.85	20:02	Ž	44 60	00.1	8 95	20.5	10.5	8.37		7.47	12.35
		Method	700	Y	1	401	*	1-0-1-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	,	197	1		1	fumo
		Thickness	Non		1	HWITE	\ \ 	きるした		Trace	}	1		0.31
	Doneth 40	LNAPL (ft)												12163
	Don'th to	Water (ft)	14.51	4	10 (Y)	2.76		9,67	4	11013	Ę	W/V	1.80	たら
	Total	Casing Depth												
		Time	1355		1	元化	١.	4	ハノレム	X	1	1	1 / 4:	1770
		Date	08/25/09		<i>-</i>	_							1	
		well Number	MW-7	· · · · · · · · · · · · · · · · · · ·	/ IMW-17	X 2A-W-3	>	△2A-W-11	×	VIVV-39	5-W-2	5-W-3		2A-W-4

Other Notes:

clean well - north ('town') half use water level meter (WL)
clean well - south ('railyard') half use water level meter (WL)

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

### Maloney Creek Staff Gauging

<u> </u>														
_	Well Mirmbor	450	į	Total		Denth to			7/28	7/28/2009	/6/9	6/9/2009		
<del></del> -{		Date	ıme	Casing Depth	Water (ft)	LNAPL (ft)	Thickness	Method	MTQ (#)	Prod. Thick. (ft)	DTW (ff.)	Prod. Thick. (ft)	Sign Off	Comments
4	MW-1	08/25/09	1230		インフ				13.40		1		1014	
4	MW-2	~	1200		12,92				13 10		50.7		12/2	
-	MW-3		1,57		12,59				2.5		=   ;			
4	MW-4		11 SE		11.63				10.03		9.41		Z A A	
2	MW-5		15 de 1		2 0 0				10.82		8.49		3	
-2.	WW-9	y with	7.47		14.51				0.53		6.67			
_2	MW-10	25.5	740		470				13.75		12		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
+=	MANA/-114		19		27.0				13.6		11.68		きえ	
+	2	  -	2		がな				14.14	Trace	12.16	Trace	3	chio
<	MW-12 ,		<u>ෙ</u>		463				7.01		5 66		1/3/6	
_	MW-13		144		55, 11				14 50		3		1. A.V.	
2	MW-14		1411		12/4				10.02		- 3		NA CO	
2	MW-15		122		7827				12.93		11.51		720	
2	MW-16		1750		14.47				14.11		12.43			,
2	MW-18		222)		16.7.3				13.00		12.65		Z 2	
_2	MW-38R		ig						10.04		13.6		2	
2	MW-40		<u>×</u>		14.2%				cn.c		3.93		DIV.	
	1B-W-2		10 10		イング				13.64		11.98		The Transfer	
7	10 10/ 3		\(\bar{c}\)						14.29		13.41		DWG.	
+-	0-W-3	T 	5/5/		720				15.44		14.46		P.S.	
$\exists$	10-w-Z		127		11.07				16.43		8.48		7.50	
		~											1	

PAGE 2

Fluid Level Gauging Form

BNS	BNSF Skykomish	nish		Project Number:	01140-284-0540	1-0540	Collected by: D. Klane, C. Sebbane, F. Marrill	N O	DODW,	6,50	spano	7	Merill
			Total	4444	1	ı		8/25	8/25/2009	7/28	7/28/2009		
Well Number Da	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
7/60	09/21/09	1755		14,96				15.01		14.28		Dhill	
e Trappara	- S	1813		12,82				12.86		12.27		-	
	-	35		12,19				12.23		11 42			
	12	2/6		12,68				12.89		12.03			
	2!	602		42.24				5.58		4.62			
	7	747		5,12				5.41		4.51			
_	21	77		8.45				8.68		7.80			
-	12	47		2.95				8.05		7.14			
	7	2/8		6.44				09.9		7.71			
_		125		Dry 642				Dry @ 4.2		7.22			
		65		9,20				9.58		8.53			
	12	23		10,66				10.95		10.10			
		0		13,17				13.10		12.38			
	17	202		9,60				9.95		8.98			
		t		12.58				12.84		11.90			
		20		7.7				7.38		6.77			
	2	230		12,80				12.91		12.26			
	17	233		15,94				13.10		12.35			
	17	500		5,79				6.91		ΣZ			
		000		9,79				10.01		ΣZ			
9		010	~	5,36				6.11		ΣN		)	

### AECOM

PAGE 2													
			Total	:	;			8/2	8/25/2009	7/28	7/28/2009		
Well Number	Date	Time	Casing Depth	Depth to Water (ft)	Depth to LNAPL (ft)	LNAPL	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign Off	Comments
MW-1	09/21/09	10501		14,10				14.21		13.49		DIMK	
MW-2		1851		12,85				13.99		13.19		SIMIC	
MW-3		1138		12,30				12.59		11.63		700	
MW-4		142		11,40				11.63		10.82		ONLY	
MW-5		1132		£0'6.				9.13		8.33		Dialk	
MW-9		1031		14.7g				14.51		13.75		2 N	
MW-10		1035		14.23				14.28		13.6		DIAIV	
MW-11		1029		14,74				14.79		14.14		0,01%	
MW-12		1146		7.58				7.63		7.01		2/20	
MW-13		9711		11.51				11.55		11.02		2/20	
MW-14		1129	13.5	12.46				13.43		12.93		Day.	
MW-15		£460		15,20				14.82		14.11		DAIZ	
MW-16		020		14,54				14.43		13.80		2/2/2	
MW-18		1057		16,19				16.23		15.54		DMK	
MW-38R		1050		5,82				5.71		5.05		59	
MW-40		1260		14,65				14.35		13.64		DWK	
1B-W-2		1244	,	14.25				14.27		14.29		65	
1B-W-3		1238		15.55				15.52		15.44		65	
1C-W-2		1325		11,11				11.02		10.43		59	

AECOM

Comments F Sign Off ES N 7 Prod. Thick. (ft) TR DTW (ft) Prod. Thick. (ft) K DTW (ft) Method LNAPL Thickness Depth to LNAPL (ft) Depth to Water (ft) 11,90 14,22 10,55 14,00 Total Casing Depth 1206 277 1215 Time 1218 09/21/09 **D** Date Well Number HCC-RW-01 HCC-RW-02 HCC-RW-03 HCC-RW-04 HCC-RW-05 HCC-RW-06 HCC-IW-02 HCC-IW-01 PAGE 3 N-5U MP-7U N P-2U N-3U X P-4U P-5D N P-6U P-6D P-7D P-2D P-3D P-4D P-8 <u>P</u>

PAGE 4

6	*****		Total	Don'th to	14000			8/25	8/25/2009	7/28	7/28/2009		
Well Number	Date	Time	Casing Depth	Water (ft)	LNAPL (ft)	LNAPL Thickness	Method	DTW (ft)	Prod. Thick. (ft)	DTW (ft)	Prod. Thick. (ft)	Sign	Comments
MW-7	09/21/09	1501		14,88		None	707	14 51	onoN	-	000		
X MW-17		1		N. P.		1	1		200	13.03	NOIR		- 1
X 2A-W-3		040		12,04		Twite	190	10.06	-	NIN 7	£		KKINTO NUMBERSON DID
X 2A-W-11		(111)		too		Y		0.21	_	06.	HV H		
× 100 mm		7		212		4		9.62	Hvy TR	8.95	TR		
SC-MINI		9		20,		None		11.19	TR	10.5	None		
5-W-5		1132		10,04		HWYTR	_	NM		8.37	TR		
5-W-3		350		04.6	28/8	0,88	PF	NN		7.74	TR		
2A-W-4	7	1520	16,0	3	13,53	2.47	PP	12.63	0.31	12.35	0.35		

NW - No water, only product in well Other Notes:

clean well - south ('railyard') half

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

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

total wells:

Maloney Creek Staff Gauging:

Location	Date	Water Level	Water Level (8/25/09)
North Staff Gauge	9/21/2009	20	Dry
Mid Staff Gauge	_		Sin U
South Staff Gauge	9	>	S C

1	1
-	V
1	3
1	01

Fluid Level Gauging Form

D. Kinney (G. Sabbane / F. Merril)		Comments		Not Installed																						DWIZ Not Installed SWIF)	Not Installed	Not Installed	
2/1		Sign Off	65	1	65	65	09	SS	50	55	55	55)	PAK	DUK	NW K	DWZ	65	59	59	59	55	55	SS	55	65	DIMIK	Change and a	1	DWK
Sabban		Prod. Thick. (ft)																											
9		DTW (ft)																											
Innew	3/23/2009	Prod. Thick. (ft)											,																
0,	3/23	DTW (ft)	9.21	ΣZ	13.11	14.68	13.19	9.61	10.70	10.24	10.95	NM	14.60	8.56	8.77	2.11	5.65	9.26	7.75	8.13	7.45	7.61	7.55	7.13	6.65	ΣN	ΝM	ΣN	
Collected by:		Method																											
0540		LNAPL Thickness																											
01140-284-0540		Depth to LNAPL (ft)																								823			
Project Number:		Deptn to Water (ft)	11,09	NM	14,25	15,55	14,19	11,11	11,78	10,89	2/12	13,58	16,45	12,19	12,68	5,24	8.9	10,32	8,80	9,00	8,39	8,46	87.8	7.79	7,58	A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A PARTIES AND A	MN	ΣN	10,55
	Total	Casing Depth																											
komish		Time	1408		1244	138	1256	375	315	319	1251	300	1042	1135	346	1203	1145	1036	194	1026	1031	7201	4101	800	0001	1748	1	i	1310
BNSF Skykomish		Date	09/21/09	-																								)	
Project Name:	IIOW	Number	1A-W-5	1A-W-38	1B-W-2	1B-W-3	1C-W-1	1C-W-2	1C-W-3	1C-W-4	1C-W-7	1C-W-8	2A-W-8	2A-W-9	2A-W-10	2B-W-4	5-W-4	5-W-14	5-W-15	5-W-16	5-W-17	5-W-18	5-W-19	5-W-20	5-W-42	5-W-43	5-W-44	5-W-45	1A-W-4
		L											L																

Comments Not Installed Not Installed Not Installed DVK DMIC レジス ZWK ZWK N NO DWK DY. DWK 55 DWK 65 Sign DINK DAK D PK 50 30 65 65 1 Prod. Thick. (ft) DTW (ft) Prod. Thick. (ft) 5.89 6.34 6.23 6.72 12.24 11.85 60.9 8.47 7.32 4.00 10.12 12.46 13.49 5.82 4.26 DTW (ft) Σ ΣZ  $\frac{\mathbb{Z}}{\mathbb{Z}}$ ΣN ΣN  $\frac{1}{2}$ Method LNAPL Thickness Depth to LNAPL (ft) 14,10 7.58 13,46 448 16,19 40.00 10,43 6,03 Depth to Water (ft) 878 18,68 3,82 17.43 2,94 8,50 12.80 12,94 6,36 12 10,78 Σ ΣN ΣZ Total Casing Depth 1346 35 73 550 1070 OSS S यरे 1004 至25年 220 123 1320 1133 270 233 0001 15 Time 1 129 aid 1 09/21/09 Date 3-W-47 43 3-W-43 41 Well Number 1A-W-37 1B-W-23 2B-W-45 MW-38R 1A-W-36 2A-W-40 2A-W-41 2A-W-42 2B-W-46 5-W-52 5-W-53 5-W-54 5-W-50 5-W-55 5-W-56 MW-18 3-W-42 MW-16 MW-12 MW-14 MW-32 MW-2 MW-3 MW-1 MW-4 GW-2 GW-3 EW-1 EW-2 GW-1 GW-4

PAGE 2

PAGE 3

						×				2015 2015 2015 2015	j			
		Comments								Not to corted - M CANST CASTAGA				
		Sign	2			-				-	-	-	>	-
		Prod. Thick. (ft)												
		DTW (ft)												
3/23/2000	12003	Prod. Thick. (ft)		7	None		None	Hwy TR		C F	γ	Y CF	Hw TR	-
2012	07/0	DTW (ft)	2		60.03	13.17	1.57	6.85	NIN		0.00	0.0/ 7a a	7.45	1
		Method	461					•	1	dd	700	10	40-	
		LNAPL	14./4P	F	0000	A Para		4	1	745	94.75	0.00	TR	
		Deptin to LNAPL (ft)								12.52		8,87		
	Donth to	Water (ft)	12.07	0	ומני	40.11	100	8,48	2	32	10.0	04.6	9.10	
1-4-4	lotal	Casing Depth							8					
		Time	1840	1112	1070	071		142	1	1307	1132	1350	1350	
		Date	09/21/09	-									>	
	Well	Number	2A-W-3	2A-W-11	MW-28	MW-39		5-W-51	1A-W-2	2A-W-4	5-W-2	5-W-3	MW-22	

Other Notes:

X dirty casing, possible trace product dirty well

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

NM - No water In well, only product

### 9/21/09 E. Storkerson field notes

	ID I	Depth	
705	PZ-8	11.18	
	FWV	11,80	
	PZ-75	11,16	
	PZ-7N	13.46	
	WV	15.17	
eet, ny	RW-6	11.86	
	PZ-65	11.90	
'eeting	PZ-6N	14.52	
	PZ-55	12,22	
DL Sampling	PZ-5N	15,60	
mg	IW-02	10.18	
a Late + Tome	P2-48	13.41	
y date + time	PZ-4N	14.70	
ied on	CV	17.45	THE SAME STATE SAME SQUARE SAME SECOND MALAGEMENT \$ 127
	RW-1	13.27	The same and the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same section of the same sect
ned on	PZ-35	11.75	
5	PZ-3N	14.06	
\$	PZ-25	10,84	
	PZ-2N	12.20	
	IW-01	7.76	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	EV	10.68	-
	PZ-1	11.27	10.1 (III III III III III III III III III I
00 10	6W-1	10.78	
Minde onsite	6W-2	13.82	
1/5. performed	6W-3	16.03	
	GW-4	11.15	

11 MANAGEMENT AND THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY			LABORATORY INFORMATION	INFORMATI	NO		LAB WORK ORDER:	
	Laboratory: T. C. +	Amsrica			Project Manager:		SHIPMENT INFORMATION	\
RAILWAY	0 21	KUTH Creek P	parkwy :	0 g x0), 15	Rother Sport	(moth-57h) 1	Shipment Method: ## 121 Vety	
CHAIN OF CUSTODY	City/State/ZIP: 13 OF 1/2 11 W. 14	0-	110		Fax: CL 7.7	420,9210		
BNSF PROJECT INFORMATION	Project State of Origin:			ö	CONSULTANT INFORMATION	PORMATION	Project Number: 01140 - 204-034	0
ensity royer number of 140 - 204 - 0340	Project City: SKYK & M.	<b>الم</b>	Сотрапу:	本同分	50 PM		Project Manager: HG Coll. VOOPES	
BNSF Project Name: SK YKCMIL Y			Address:	o such	A40	डलाहर १०००	Email Polot, Vocas ( A AECOM, COM.	. 3
BNSF CONTACT SER VICTIONS (OF	BNSF Work Order No.:		City/State/ZIP:	Seattle	37. 37	48104	Phone: 206-624-9340 ax.	
TURNAROUND TIME	DELIVERABLES	Other D	Other Deliverables?			METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)							
2-day Rush Error Standard 10-Day	Level III	EDD Re	EDD Reg, Format?		į,			
3-day Rush	Level IV				/3 22 Xe			
SAM	SAMPLE INFORMATION				:V:5 55 - 1			
Completionification		Sample Collection		L	141			
Sample identification	Containers Date	Time Sampler	N/A	(Comp/ Matrix Grab)	7740 M/			
2A-W-41-0499	2 04/01/09/0950	25052	N	>			COMMENIS LAB USE	SE
18-W-23-0409	2 DU/01/09	SOSTO	3	3	    X			
18-W-123-0409	Pol10/120 .	1	+	3	  X			
GW-3-0409	60/101/20	1155 65		Z	  X			
6 24.W-47-0409	2 palloilog	130067.5	`ك	3	X			
6000-D-WD .	2 0x/lox/09	2.00241	\ \ \	3	X			
67W-2-0409	60/10/100	1610 6.3	17	3	X			
· 24-W-40-0409	2 Yorld	730 G.S	ハ	3	X			
· 24-W-400,0009	201/0/109	800 G.S	N	3	X			
6000	2 04/040g	2,() 5 480	マ	3	X			
" 5-W-43-0409	c4/62/69	5'9 0h60	17	3	X			
12 EW-1	6 04/02/00	10306,5	1	3	     		051/58	
13					-			
13								
L			7					
Post girls & Krow	2/09 1820	Received By: / #	( 11 14 by	پي		Dated Infe: // S // Comm	Analytical Requirem	
'Ac mainstrain o à'		Received By:				6	METOR CHANGE SILKS C.	· · ·
Kelinquished by:		Received By:				Date/Time:	Pressivative offet.	
recsived by Laboratory:	Date/Time:	Lab Remarks:				Lab: Custody Intact? Custody Seal No.	Seal No BNSF COC No.	T
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		Ω	DUPLICATE - CONSULTANT	DNSULTANT			37 114	00,000

New Wells Sampling along the Wall

TAL-1001 (06/08)

### well bevelopment.

Project name	BNSF-Skykomish	Well No. 12-W-8
Project No.	01140-204-340	Sampled By
Date	04/02/09	weather of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the original of the
V	ELL INFORMATION	COMMENTS
Depth to water	/2/c/ (ft)	Solve bether in
Depth of well:	16:75 /20 + Grebotito	25 04511
Well diameter:	(in)	<u> </u>
Feet of water:	8 (1.365g1/ (ft)	
Product thickne	ess: (ft)	
Screen interva	1: 5-20	
well condition:	apolici.	

			PURGE	DATA				
start purge time	1300							
time		1312	1319	1521	1324	1527	13-31	1354
volume purged	(gal)	10	20	25	30	35	1-91)	e g
purge rate	(L/min)							
pH Tilma	(Units)	1331	73 E/	349				
conductivity 🥡	(umhos/cm)	(70)	55	<u> </u>	53			
temperature 7000	(deg C)	411	132	135	104			
D.O.	(mg/L)							
ORP	(mv)							
turbidity	(NTU)	526	5 27	270		302	236	146
purge and sample	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

and the second second second		SAMPLE INF	ORMATION		en en en en en en en en en en en en en e
sample number	time	analysis	container	# bottles	preservative
		NWTPH-Dx	1L Gl. Amber	2	HCI
UTG	1400	1201			
DT 13	1400	18 73 5			
^	·				
·					

0 Mu - m - 1300

Date	04102109	
Project No.	01140-204-340	
Project name	BNSF-Skykomish	

WELL	INFORMATION	
Depth to water	7.54	(ft)
Depth of well:		(ft)
Well diameter:	7_	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		
well condition:	Bud.	

Well No. ∈W-
Sampled By Shari, S
weather // Lt Show 3/ °F

COMMENTS
Inlet tubing a goof
purge Water is Clar
eoilected MS/MSD.

			PURGE	DATA				
start purge time	1010	)						
time		1020	1023	1026				
volume purged	(gal)	7.54	7.54	7.54				
purge rate	(L/min)	250	250	250				
рH	(Units)	6.45	6.43	6.33				
conductivity	(umhos/cm)	3, 7	3.6	3.6				
temperature	(deg C)	3.0	3.1	3.1				
D.O.	(mg/L)	6.91	6.77	6.72				
ORP	(mv)	146	149	152				
turbidity	(NTU)	٥, <b>١</b> ٥	0,05	0.04				
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ing	

		SAMPLE INF	ORMATION		Der fill der Stadt für Miller von Stadt von der Stadt für Miller von Stadt von der Stadt von der Stadt von der Der fill der Stadt von Stadt von Stadt von Stadt von Stadt von Stadt von Stadt von Stadt von Stadt von Stadt v
sample number	time	analysis	container	# bottles	preservative
EW-1-0409	1030	NWTPH-Dx	1L Gl. Amber	2 <b>x</b> 3	HCI
				·	
	·				
	· · · · · · · · · · · · · · · · · · ·				
					`

WTG

GROUNDWA				

Project nar	ne BNSF-Skykomish	
Project No.	01140-204-340	_
Date	04102109	_

Well No.	SA- W	1-41
Sampled By	Calan	2 . 1
weather S	nai	34 °F

NFORMATION	
12.5.5	(ft)
	(ft)
2	(in)
	(ft)
NOME	. (ft)
02001	
	12.5.5

COMMENTS
Inlet tubing 2 14 Ft
pure water is clear.
, ,

			PURGE	DATA	Wife Early 1975年		
start purge time	0923	) >					CAT A COMPANIE CO. C. C. C. C.
time		6133	0930	1470	0944		
volume-purged	(gal)	12.55	12,55	12,55	MM.		
purge rate	(L/min)	230	230	230	230		
рН	(Units)	5.75	5,86	5,90	5,95		
conductivity	(umhos/cm)	11.2	11.2	11,2	11.1		
temperature	(deg C)	5.8	5,3	5.7	5,7		
D.O.	(mg/L)	5.98	6.18	6.21	G. 24		
ORP	(mv)	190	187	185	183		
turbidity	(NTU)	3.71	3.18	3.30	3,18		
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing							

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
2A-W-41-0409	0450	NWTPH-Dx	1L Gl. Amber	2	HCI	
	***	t .				

WTQ

Project nan	ne BNSF-Skykomish	
Project No.	01140-204-340	_
Date	04/6107	

WELLIN	FORMATION	
Depth to water	13.30	(ft)
Depth of well:		(ft)
Well diameter:	2_	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	hood.	

Well No. 13-W-	- 23	
Sampled By	ni S	
weather Show,	33	°F

	COMMENTS
	Inlet tubing a 15 Ft.
Ľ	),
L	purje water is obar.
$\vdash$	Contract During to
	Callected Duplicate

			PURGE	DATA				
start purge time	1023							
time		1033	1036	1039				
volume purged	(gal)	13.31	13.31	13.30				
purge rate	(L/min)	200	200	ن در <u>ع</u>				
pН	(Units)	6.27	6.30	635				
conductivity	(umhos/cm)	15.9	15.6	15.9				
temperature	(deg C)	5,7	5.3	5,2				
D.O.	(mg/L)	7.75	7.74	7.76				
ORP	(mv)	172	171	170				
turbidity	(NTU)	1.83	1.69	1,71				
purge and sample equip. Peristalti			ic pump a	nd silicon	e/polyeth	ylene tubi	ng .	

SAMPLE INFORMATION						
sample number	time	analysis	container	# bottles	preservative	
1B-W-23-040	7 1045	NWTPH-Dx	1L Gl. Amber	2	HCI	
1B-W-123.090	19 1105	NWTPH-DA	1L. Amber	2	HCL	
	·					

Project nam	e BNS	SF-Skykomish	
Project No.	0114	40-204-340	
Date	04/01/	09	

WELI	INFORMATION	
Depth to water	13.04	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MOME	(ft)
Screen interval:		
well condition:	Missing du	heid
	<del></del>	

Well No. GW-3	
Sampled By Ghanis	
weather light snow 34 °F	_
7	

COMMENTS
Inlat tubing 2 14,50
purge water is clear.

			PURGE	DATA				
start purge time	1126							
time		1136	1139	1142	1145	1148	1511	
volume purged	(gal)	13,64	13,04	13.04	NM.	Nas	1304	
purge rate	(L/min)	250	250	250	250	250	250	
pН	(Units)	6.60	6.59	6,55	6.51	6.48	6.45	
conductivity	(umhos/cm)	10,7	10.2	10.0	10,1	૧,૬	9.6	
temperature	(deg C)	6,7	6.5	8.5	6,6	6.70	6.7	
D.O.	(mg/L)	7	6.10	6.08	6.05	6.02	6,03	
ORP	(mv)	86	90	95	103	103	153	
turbidity	(NTU)	2.24	3.33	2,20	1.82	1.22	1,28	
purge and sampl	e equip.	Peristalti	tic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
GW-3-040	1155	NWTPH-Dx	1L Gl. Amber	2	HCI		
				,			
		····					

Date	04/01/09	
Project No.	01140-204-340	
<u>Project name</u>	BNSF-Skykomish	

WELLI	NFORMATION	
Depth to water	11.15	(ft)
Depth of well:		(ft)
Well diameter:	2-	(in)
Feet of water:		(ft)
Product thickness:	NUALE	(ft)
Screen interval:		
well condition:	Crosis.	

Well No. 2 A -W-	42
Sampled By	ani. S
weather cloudy	36 °F

		CON	MENT	S		
. Ih	let	tub	ing	2 1	2,5	o F
ри	V51	. W Z	te/13	0	our.	
 <del></del>	<u> </u>			-		
 		·		···	<del></del>	

			PURGE	DATA		NAME OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY		
start purge time	1237							
time		1247	1250	1253	1256		·	
volume purged	(gal)	11.16	11.16	11.16	11.16			
purge rate	(L/min)	250	250	250	250			
рH	(Units)	6.41	6.46	6.51	6.55			
conductivity	(umhos/cm)	14.2	13,6	13,4	13.2			
temperature	(deg C)	6.1	5.7	5.5	5.4			
D.O.	(mg/L)	୫ ୍ ଓ	8.84	8;88	8,89			
ORP	(mv)	112	114	116	119			
turbidity	(NTU)	2,96	2,41	2.35	2,23			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	lene tubi	ng	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
2A-W-42-049	9 1300	NWTPH-Dx	1L Gl. Amber	2	HCI
				<u> </u>	

DīW

1 s/m

Project na	ame B	NSF-Skyk	omish	
Project No	o. 0	1140-204-	340	
Date	04/0	1/09		

WELL	INFORMATION	1. 1. 14数 1.
Depth to water	10.38	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	MOME	(ft)
Screen interval:	•	
well condition:	Good.	

Well No. (5)	W-4
Sampled By	Thanis
weather rain	36 °F

COMMENTS
Inlet tubing a 12 Ft.
J
purge water is clear.
reduced flow rate.
reduced flow rate.
ORP and turbichity
unstable.

			PURGE	DATA				
start purge time	1341							
time		1351	1354	1357	1400	1403	NOE	1409
volume purged	(gal)	11.19	11,25	11,21	11.19	11.19	11.19	11.19
purge rate	(L/min)	250	190	150	150	150	150	150
рН	(Units)	6.78	6.84	6.90	6,95	6.99	7.00	7,02
conductivity	(umhos/cm)	18.7	19.8	20,1	19.6	19.9	19.60	19.5
temperature	(deg C)	6,6	6.6	6.6	6.6	6,6	6.6	6.7
D.O.	(mg/L)	4.81	4,70	4.54	4,50	4.58	4,49	4.42
ORP	(mv)	33	16	- 5	-19	-27	-33	- 38
turbidity	(NTU)	5,08	9.56	10.41	10.56	11.62	11.55	12.30
purge and sample equip. Perista			tic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
GW-4-0409	14.20	NWTPH-Dx	1L Gl. Amber	2	HCI		
					```		

DTW

m S/m

GROUNDW	VATER SAI	MPLING LOG

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	04/01/09	

Well No. GW-Y	
Sampled By Coline	7, ° . S
weather Rain	37 °F

WELLIN	FORMATION	
Depth to water	10.38	(ft)
Depth of well:	· · · · · · · · · · · · · · · · · · ·	(ft)
Well diameter:		(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		
well condition:		
<u> </u>	*****	<del></del>

COMMENTS
•

			PURGE	DATA				
start purge time	130	+1			-			
time		1412	1415	14 18			•	
volume purged	(gal)	11.19	11.19	NM				
purge rate	(L/min)	150	150	150				
рН	(Units)	7,03	7.04	7.04				
conductivity	(umhos/cm)	19.2	19.2	19.4				
temperature	(deg C)	0.6	6.6	8.6				
D.O.	(mg/L)	4.40	4.40	4.41		·		
ORP	(mv)	- <del>-</del> +3	- 45	- 47				
turbidity	(NTU)	1236	12,00	11.76				
purge and sampl	e equip.	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION							
sample number	time	analysis	container	# bottles	preservative		
GW-4-0409	1420	NWTPH-Dx	1L Gl. Amber	2	HCI		
					` <u> </u>		

PTW

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	04/01/09	

Well No. $GW-2$	
Sampled By Chani	2 ,
weather rain	36 °F

WELLIN	NFORMATION	
Depth to water	7.78	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		
well condition:	Good	

COMMENTS	
Inlet tubing x 9.01	
ozp unstable	
purgl water is clear.	

			PURGE	DATA				
start purge time	153	1						
time	1549	1549	15 52	1555	1550	1603	1606	1609
volume purged	(gal)	7.78	7.79	7,78	MM	MM	NM	NM
purge rate	(L/min)	200	200	200	200	200	200	200
pН	(Units)	6.93	6,94	6.89	6.96	6,80	6.78	6.77
conductivity	(umhos/cm)	17.9	17,9	17.7	18,0	17.8	18,50	19.0
temperature	(deg C)	5.3	50	4.7	4.5	4,2	4,2	4.2
D.O.	(mg/L)	4.32	4.33	4,27	4,20	4.28	4,24	4.25
ORP	(mv)	10	13	21	26	34	38	40
turbidity	(NTU)	7.21	3.60	3.28	3.08	2,94	2.75	2,13
purge and sample equip. Peristalt			tic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
GW-2-0409	1610	NWTPH-Dx	1L Gl. Amber	2	HCI			
				Í				
					٠			

JW

n S/m

		GROUN	IDWATER	SAMPL	ING LOG			
Project name	BNSF-Skyk	omish			Well No	o. 1C-	-W-7	
Project No.	01140-204-	340		_	Sample		Jacobi	C
	0410110	o 9		_		rocin	7910011	27 °F
	1	•		_	<del></del>	100		<u> </u>
WE	LL INFORM	ATION				COM	MENTS	
Depth to water			(#)	]				
Depth of well:			(ft) (ft)					····
Well diameter:			(in)	1				
Feet of water:		<del></del>	(ft)			` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `		
Product thickness	38.		(ft)		<u> </u>		<u> </u>	
Screen interval:		· · · · · · · · · · · · · · · · · · ·	(!:/	1				<del></del>
well condition:				1				· · · · · · · · · · · · · · · · · · ·
				1				
		•			<b>L</b>			
			PURGE	DATA				3.44
start purge time time	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 S. J. S. J. S. J. S. S. S. S. S. S. S. S. S. S. S. S. S.		STREET BEETSTREET, STREET	26-12-65 - 1522 - 154-1-5-1-	<u>an an ann an an an an an an an an an an </u>	<u>. N. 180 (1. 19. 19. 1. 19. 1. </u>	ji ku i na seu rosa. I
time		<u> </u>						
volume purged	(gal)							
purge rate	(L/min)							
рН	(Units)							
conductivity	(umhos/cm)							
temperature	(deg C)							
D.O.	(mg/L)			·				
ORP	(mv)							
turbidity	(NTU)				<u> </u>	]		
purge and sampl	e equip.	Peristal	tic pump a	nd silico	ne/polyeth	ylene tubi	ng	
		- Alama maker						
e and the second second second second second second second second second second second second second second se		SAI	MPLE INFO		ON			الجام بدارة الا
sample number	time				tainer	# bottles	presei	rvative
		TWN	PH-Dx	1L GI.	Amber	2	H	CI
				<u></u>				
				·				
					<del></del>			
			1					*

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	04101109	

BNSF-Skykomish	Well No. 2 A - W - 4 0					
01140-204-340	Sampled By Ghanis					
04/01/09	weather run 37	°F				
LL INFORMATION	COMMENTS					

WELLIN	FORMATION	
Depth to water	11、35	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:		
well condition:	Good	
	,	

COMMENTS
Inlet tubing 2 12.50 F
purge water is clear.
collected Duplicate
2A-W-400'

			PURGE	DATA				
start purge time	170	3						
time		1713	1716	1719	722	1725	1728	
volume purged.	(gal)	11,36	11,3%	11.36	11.37	11.37	NM	
purge rate	(L/min)	240	240	240	240	240	200	
рН	(Units)	6.79	6.82	6.84	£.88	6.92	6.95	
conductivity	(umhos/cm)	12.4	12,3	12.3	12.3	12,2	12,2	
temperature	(deg C)	4,0	3.8	3,7	3.8	3,8	3,8	
D.O.	(mg/L)	4.51	4,50	4.54	4,56	4.53	4,52	
ORP	(mv)	66	Q Q	65	65	65	64	
turbidity	(NTU)	3,12	3.51	3,96	5,06	5.26	5.31	
purge and sample equip. Peristalti			ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	preservative			
2A-W-40-04	09 1730	NWTPH-Dx	1L Gl. Amber	2	HCI			
	·							
2011		11 (Ta)) h	13 A /					
2A-W-400-	0407 1800	NWTPH-DX	11 Amber	12	HC!			

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	04/02/09	

Well No.	GW-	<u> </u>
Sampled	ن By	han, S
weather	Show.	31 °F

WELLI	VFORMATION	
Depth to water	6.16	(ft)
Depth of well:		(ft)
Well diameter:	-2	(in)
Feet of water:		(ft)
Product thickness:	MOME	(ft)
Screen interval:		
well condition:	G02 A	

	100 (100 (100 (100 (100 (100 (100 (100	COMN	IENTS	<b>S</b> (1)	
In(	et t	ubing	, ~ ~	1,50	FH
P		was			,
	<u> </u>				······································
			<del></del>		<del></del>

			PURGE	DATA				
start purge time	0815							
time		3825	0828	0831	0834	0837	08 40	
<del>volume purge</del> d	(gal)	6.17	6.17	6.17	6.17	6.17	NM	
purge rate	(L/min)	250	250	250	250	250	250	
Hq	(Units)	5.94	6.02	6.07	6.13	6.17	6.19	
conductivity	(umhos/cm)	13,6	13.6	13.5	13,5	13.5	13,60	
temperature	(deg C)	3,4	3,4	3.4	3,4	33	3.3	
D.O.	(mg/L)	4.34	4,20	4.20	4.21	4,22	4.21	
ORP	(mv)	166	161	158	156	152	148	
turbidity	(NTU)	3,52	76	1.61	1.11	1.02	1.09	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ing	

SAMPLE INFORMATION								
sample number	time	analysis	container	# bottles	prese <b>r</b> vative			
Cyw-1-0409	0845	NWTPH-Dx	1L Gl. Amber	2	HCI			

Project name Project No.	BNSF-Skykomish 01140-204-340	
Date	04102109	<del></del>

Well No.	5-W-43	3	
Sampled E	By Shan,	_2_	
weather	Snow	30	°F

WELL INFORMAT	ION
Depth to water 5.21	(ft)
Depth of well:	(ft)
Well diameter:	(in)
Feet of water:	(ft)
Product thickness: Ma MA	$ \varepsilon $ (ft)
Screen interval:	
well condition:	

111.3	COM	MENT	S	
Inlet	tubing	1	6.5	oFt
		4	12 B	
Pars	p wal	08	15 00	al,
,				
			<del></del>	

			PURGE	DATA				- <u>(</u>
start purge time	0912							
time		09 22	0925	0928	0931	0934	0937	
volume purged	(gal)	5.22	5.22	5,22	NM	MIM	MM	
purge rate	(L/min)	250	250	250	250	250	250	
pН	(Units)	6.48	6,48	6.48	6,49	6,49	6,47	
conductivity	(umhos/cm)	12.2	12.1	12,2	12.1	12.2	12.1	
temperature	(deg C)	3	3.2	3.3	3.2	3.2	3.3	
D.O.	(mg/L)	5,96	6.19	6.12	6.14	6.18	6.18	
ORP	(mv)	1321	131	130	130	130	130	
turbidity	(NTU)	6.35	5,54	4.717	4.18	3,95	3,81	
purge and sampl	e equip.	Peristalt	ic pump and silicone/polyethylene tubing					

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
5-W-43-04	9 0940	NWTPH-Dx	1L Gl. Amber	2	HCI				

DTW

m s/m

Field Activity Log **AECOM** Page: \ of \( \lambda \) Completed By: Project Name: Project Number: Weather: Field Activity: Personnel on site:

Field Act	tivity Log	Page: 2 of 4	AECOM
Project Name: Sky	Completed By:		<u>.</u>
Project Number:	Date: OU/GILE	,9.	<del></del>
Field Activity: Cow Sampling	Weather: Show		
New Wells	Personnel on site:	rani. S. Perus	_ K .
14381 Had Junda as	d dun ped j	ourse water it	drun
1520; Started Stline	up on GW-	2.	
1539: Regan Durgin	-		
1549: started prove		bri.	
160: Beggs Collect	ing samples		
1620, started setting	,	-7 . Three las	-2
or paralle 1/4	vator arround	a Well 7 1	ried
to evacuate it	but still water	Coming 25t	to atomised
awell. I post			
1650: Began Setting	upon 2A-W-	40 there is at	rande of power In
1703: Storted pura		(b	eside ale 11)
1713: Beg an 12001d	ing parameters	. turbidity	unstable.
1730 started Collect	ing Samples	also collected	1
Duplicate 2A-1			
1800: Cleaned den	pud purje wal	er and left	coste.
		·	
~			···········
		-	
			·

Field A	ctivity Log	Page: of	AECOM
Project Name: Sky Project Number: Field Activity: GW Sampling New Wells	Completed By:  Date:  Weather:  Personnel on site:	Ghanis 02/09 Show 318	ener. R.
to evaluate  I was about 3 in  Met with sens  OB 60; Started Settin  OB 15! Regar purgin  OB 25: Started record  OB 60: Started Setting  OB 12: Regan purgin  OB 12: Regan purgin  OB 12: Began sample	a part in vac a part a paramet in paramet in paramet in paramet in paramet in paramet in paramet in paramet in paramet in paramet	Conter around,  but coulds,  GW-1.  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  Court  C	unstable.
1300: Started Deve Water dut Walk out. Surge after a			

Field Act	ivity Log
Project Name: SiLY	Completed By: Glassis
Project Number:	Date: 04/02/09
Field Activity: Cow sampling	Weather: rain 34st.
new wells.	Personnel on site: Ghanis Revee, K.
11100: Finial d	14/0pp m = 1C-W-8 Well.
took Megsuymen	it. // )
1410 s Began Setting	
	around well, the Harila meter
didn't work	because of rain got wet.
I tried to a	try tout but couldn't help.
1530! packed coole	broke down all empty
	K them to recycling
1830: Wh a site.	to the Lab
1750: Parrived to	lab dropped off. samples
1000: Wit Home.	,
*	

## **TestAmerica**

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11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244

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425-420-9200 FAX 420-9210 X 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 509-924-9200 FAX 924-9290

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CHAIN OF CUSTODY REPORT

																			,		
Work Order #:	TURNAROUND REQUEST	in Business Days *	Organic & Inorganic Analyses  7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Petroleum Hydrocarbon Analyses	5 4 3 2 1		OTHER Specify:	* Turnaround Requests less than standard may incur Rush Charges.	MATRIX # OF LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID	2		3						DATE: OUT S. S. 110 THE OUT OF		FIRM: TIME:	TEMP: PAGE OF
CHAIN OF CUSTODY REPORT	INVOICE TO:	からか		P.O. NUMBER:	PRESERVATIVE		REQUESTED ANALYSES		3									DATE: 04/2:10 9. RECEIVED BY: SONUA PCHYMPER TIME: 855. PRINT NAME: AURTH	RECEIVED BY:	TIME: PRINT NAME:	
	CLENT APPON FOR KONTAN	REPORT TO TAIN NO CATUS ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRESS: 100 ADDRES	ASSERTION NO ASSERT	PHONE: (200) 624-73-14 FAX:	PROJECT NAME: STY TON (V.)	<u></u>			DENTIFICATION DATE/TIME		10-W-2109 4/21/09 1606 X	'	2	9	7	 6	01	PRINT NAME: ALL SUCCESS, SUCCESS, FIRM: AECOM.	RELEASED BY: PRINT NAME:	REMARKS:	

TAL-1000(0408)

**Field Activity Log AECOM** Page: of Project Name: Completed By: (3) Project Number: Date: Field Activity: Weather: Personnel on site: Wrame (err , OD D

Project name BNSF-Skykomish
Project No. 01140-204-340
Date 04/21/09

Well No. 1 C-W-8	
Sampled By Blance	c. Melvin
weather Sauny	72°F

Depth to water	(10	(50)
<u>.</u>	12,49	(π
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	NOME	(ft)
Screen interval:	-	
well condition:	Guad.	

	COMMENT	S
Inlet	tubings	14 Ft.
purse	Water is	clear.

			PURGE	DATA						
start purge time	1623								1	
time		1633	1636	1639	1642	1645	1648	1651	1654	16!
volume purged-	(gal)	12.49	12.49	12.49	12,49	12,49	12.49	12.49	12,49	
purge rate	(L/min)	200				, ,				
рН	(Units)	5.39	5.41	5.41	5.48	5.47	5.46	5.42	5,37	5.3
conductivity	(umhos/cm)	0.082	0.190	0.060	0.062	0.072	0.061	0.068	0.090	00
temperature	(deg C)	15-15	15.14	15.32	15.20	14.93	15.11	14.96	14.69	14.1
D.O.	(mg/L)	0.95	0.73	0.63	0.63	0.62	0.61	0.64	0.56	05
ORP	(mv) -	-214.4	-252.9	-240	-254.9	-362,2	-246	- 7/7:0	-2105	-2k
turbidity	(NTU)	2.23	1,60	1150	1.68	2.07	1.60	163	141	113
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon						1

SAMPLE INFORMATION										
sample number	time	analysis	container	# bottles	preservative					
IC-W-8-042	9 1705	NWTPH-Dx	1L Gl. Amber	2	HCI					
	·									
				· · · · · · · · · · · · · · · · · · ·						
:										

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	04/21/09	

WELL	INFORMATION	
Depth to water	13.02	(ft)
Depth of well:		(ft)
Well diameter:	7.	(in)
Feet of water:		(ft)
Product thickness:	NONE	(ft)
Screen interval:		
well condition:	No bolde.	

Well No. 1C - W-1	
Sampled By Chanis	
weather Sunny 72	°F

COMMENTS
purge autoris clear.
lond; OZP.
unstable.
Cond Furtiating Retween
-0.06 to 0.125
14 to 14 to 14 to 18 t
Intel Jubing 2 14.301

			PURGE	DATA					
start purge time	1523								
time		1533	1536	1539	15:42	1545	1548	1551	
volume purged	(gal)	13,04	13,04	13,04	NM	NU	NM.	MM.	
purge rate	(L/min)	200	200	200	200	200	200	200	
рН	(Units)	5.23	5,36	5.26	525	5,26	525	5,23	
conductivity	(umhos/cm)	0.057	0.064	0.063	0.064	0.065	0.064	0.062	
temperature	(deg C)	10,15	9,87	9,88	9,88	9.90	9.71	9.63	
D.O.	(mg/L)	5,30	5,49	5,51	5.65	5.59	5.61	5,59	
ORP	(mv)	<u>- (05.  </u>	-65,9	- 20,1	-2.8	4.7	7.4	75.1	
turbidity	(NTU)	0,09	80,0	0.15	0.12	0.11	0.11	0.14	
purge and sample	e equip.	Peristalt	Peristaltic pump and silicone/polyethylene tubing						

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
1C-W-1-04210	1606	NWTPH-Dx	1L Gl. Amber	2	HCI				
		-							

WICE

Project name	BNSF-Skyk	omish			Well No.		W-1	
Project No.	01140-204-				Sampled	By Gl	1991.	S : Mel
Date OC	1/21/09			- -	weather	Sunni		-70 °F
W	ELL:INFORM	ATION		() e		COMI	MENTS	ters.
Depth to water	3	02	(ft)					·.
Depth of well:			(ft)					
Well diameter:	2		(in)					
Feet of water:			(ft)				<u> </u>	
Product thickne		ONE	(ft)	_				
Screen interval:								····
well condition:	1/0	bolds	<u> </u>	]				
				]				
			PURGE	DATA	42 mil 7 m			
start purge time	!	1 6- Cil	1007	16.00	1	· · · · · · · · · · · · · · · · · · ·	T .	I
time		1554	1557	1600				
time volume purged	(gal)	NM	1557 MM	MIM				
time volume purged purge rate	(gal) (L/min)	NM 200	200	MM 200				
time volume purged purge rate pH	(gal) (L/min) (Units)	NM 200 5.21	200	MM 200 5.20				
time volume purged purge rate pH conductivity	(gal) (L/min) (Units) (umhos/cm)	NM 200	200 5.21 0.063	MM 200 5,20 0,063				
time volume purged purge rate pH conductivity temperature	(gal) (L/min) (Units) (umhos/cm) (deg C)	NM 200 5.21 0.062	200 5.21 0.063 9.63	MM 200 5,20 0,063 9,69				
time volume purged purge rate pH conductivity temperature D.O.	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L)	NM 200 5.21 0.062	200 5.21 0.063 9.63 5.66	MM 200 5,20 0,063 9,69 5,67				
time volume purged purge rate pH conductivity temperature	(gal) (L/min) (Units) (umhos/cm) (deg C)	NM 200 5.21 0.062	200 5.21 0.063 9.63	MM 200 5,20 0,063 9,69				
time volume purged purge rate pH conductivity temperature D.O. ORP turbidity	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	NM 200 5.21 0.062 9.57 5.67 171.9	200 5.21 0.063 9.63 5.66 159.8 0.00	AIM 200 5,20 0,063 9,69 5,67 178,2 0.00		/lene tubi	ng	
time volume purged purge rate pH conductivity temperature D.O. ORP	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	NM 200 5.21 0.062 9.57 5.67 171.9	200 5.21 0.063 9.63 5.66 159.8 0.00	AIM 200 5,20 0,063 9,69 5,67 178,2 0.00	ne/polyethy	ylene tubi	ng	
time velume purged purge rate pH conductivity temperature D.O. ORP turbidity	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU)	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00	AIM 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy	ylene tubi	ng	
time volume purged purge rate pH conductivity temperature D.O. ORP turbidity	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00 ic pump a	200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy	/lene tubi		ervative
time velume purged purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5,66 159.8 0.00 ic pump a	200 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy DN ainer	· (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	pres	ervative
time volume purged purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00 ic pump a	200 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy	# bottles	pres	
time velume purged purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00 ic pump a	200 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy DN ainer	# bottles	pres	
time volume purged purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00 ic pump a	200 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy DN ainer	# bottles	pres	
time velume purged purge rate pH conductivity temperature D.O. ORP turbidity purge and samp	(gal) (L/min) (Units) (umhos/cm) (deg C) (mg/L) (mv) (NTU) ole equip.	NM 200 5.21 0.062 9.57 5.67 171.9 0.00 Peristalt	200 5.21 0.063 9.63 5.66 159.8 0.00 ic pump a	200 200 5,20 0,063 9,69 5,67 178,2 0,00 nd silicor	ne/polyethy DN ainer	# bottles	pres	

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	0412109	_

Depth to water	11.02	(ft)
Depth of well:		(ft)
Well diameter:	7.	(in)
Feet of water:		(ft)
Product thickness:	NONE.	(ft)
Screen interval:		
well condition:	Cood	

Well No. 1C.	W-7.
Sampled By	acy; & Mellin
weather Suna	-7-0 °F

COMMENTS
purse water is clear.
Inlet tubing & 12 Soft
conductivity flectuating.
From -0.06 to 0.370
Do and ORPalso,
Fluetuating and not
Stable, 0
·

			PURGE	DATA	a made			
start purge time	14 18							
time		1428	1431	1434	1437	14.40	1443	1446
<del>volume purge</del> d	(gal)	11,02	11.02	11,02	NM	MM	MM	NM.
purge rate	(L/min)	200	200	200	200	200	200	200
рН	(Units)	5.63	5.72	5.72	5.67	5.70	5.72	5,72
conductivity	(umhos/cm)	0.172	0.148	P20.0	0,057	0,066	0.068	0,064
temperature	(deg C)	11.26	11,18	11.20	11,25	11,27	11,32	10.99
D.O.	(mg/L)	0.34	0,29	0.27	0,18	0,24	0.16	0.24
ORP	(mv)	-103.3	-118.7	-141.5	-164.8	-176,7	-2102	-211.6
turbidity		216	0,22	0,17	0.15	0.19	0.13	0.13
purge and sample	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

	SAMPLE INFORMATION									
sam	ple number	time	analysis	container	# bottles	preservative				
			NWTPH-Dx	1L Gl. Amber	2	HCI				
	·									
					•					
					- <del> </del>					
		<u></u> _				`				

		<b>CPALIN</b>	lawasie:	RSAMPL	Netec		Paragraph Constituti	K (88 A) (A) (37 A) (38 A)
		'avon'	PANAN EL	PRIVITAGO?	We Fee			
Project name					Well No	o. 1C	-W-7	
Project No.	01140-204-	340			Sample	ed By	nani.s	MelV
Date 00/2	21/09				weathe	r Suun	4 7	7_ °F
	1					/		
WE	LLINFORM	ATION			75 M-3	CON	MENTS	
Depth to water	11.	02	· (ft					
Depth of well:	· · · · · · · · · · · · · · · · · · ·		(ft	<u></u>				
Well diameter:	2-		(in				-	
Feet of water:			(ft					
Product thickness	SS: MO	NE	(ft					
Screen interval:	•							
well condition:	Bood			]				
	~ (			]				
			PURGE	DATA				1. T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
start purge time		T						
time		1949	1452	1455				
volume purged	(gal)	NM	NM	MM.		<u> </u>		
purge rate	(L/min)	200	200	200				
pН	(Units)	5.69	5.70	5.71	ļ			
conductivity	(umhos/cm)		0.669	0.070	<u> </u>	ļ		
temperature	(deg C)	10,99	11.42	11.50		<u> </u>		
D.O.	(mg/L)	0:15	0.16	0.15				
ORP	(mv)	-233,1	-240.6		·		<u> </u>	
turbidity	(NTU)	0,10	0.18	0.06		<u> </u>	<u>                                     </u>	
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tub	ing	
		AAS	IDI E INE	ORMATIC	าห			W128571
sample number	fime	i with the at 1889, 250	day be a lighted a fine of the color	12 - 6 15 April 20 17 44 CACAMARASS	Jacobson Ray Co	# hattice	l araaan	ative
1C-W-7-0421			PH-Dx	1L GI.		2	HC	
10 00 15 07 21		111111	DX	12 01.			110	<u>'</u>
				<del> </del>				
					i		·	
							<u> </u>	

# **FestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

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

425-420-9200 FAX 420-9210 X 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #:	TURNAROUND REQUEST	in Business Days *	Organic & Inorganic Analyses	Petroleum Hydrocarbon Analyses	5 4 3 2 1		OTHER Specify:	* Turnaround Requests less than standard may incur Rush Charges.	MATRIX # OF LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID	2 3	W 2	2 W	3						FIRM: 17 20 TIME: 18:1/5		FIRM: TIME:	TEMP: PAGE OF
DY REPORT	Programme and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon				PRESERVATIVE		ANALYSES												RECEIVED BY ( 1 / 1/4) (11 1/4) A LA PRINT NAME: (19/1/4) (11/4) A LA	RECEIVED BY:	PRINT NAME:	
CHAIN OF CUSTODY REPORT	INVOICE TO:	1573		P.O. NUMBER:	PRESER		REQUESTED ANALYSES										*		DATE: 05/17/09	DATE:	TIME:	
	L KONNENT	(CAP)	TIC WA 4800	.X:	ナッシュ	X 05.2 1,000	1477 27.50 TO	100/4/20	SAMPLING DATE/TIME	5 12 09 1520 ×	× 029 160/21/2	5/12/09 1705 X						C	ni Siller FIRM: AFLOM	HRM	7.7.7.4	
	CLIENT AECOM-EN	ب ح_ر	ったった	3	PROJECT NAME: CKYKO NIST	PROJECT NUMBER:	のこう「カイカウトラウン	SAMPLED BY: VALANI > C	CLIENT SAMPLE IDENTIFICATION	10-8-2209	2 16 - WE 209 5	1C-N-909		\$ 9	7	8	6	10	PRINT NAME: ALCOLOGICAL	RELEASED BY: PRINT NAME:	ADDITIONAL REMARKS	

TAL-1000(0408) 5.

Field Act	ivity Log Page: of AECOM
Project Name: Ky	Completed By: Chan; Sobane
Project Number:	Date: 05/12/09.
Field Activity: Monthly garging.	Weather: rain 49°F
3 Wells sampling!	Personnel on site: Olanis Melvin R.
0745 Allived to the Si	te, put on PPE.
0800: Had safety meets	ng discursed track and Hat ands
and Weather hatords	also discussed scope of work.
08301 started gauging.	class sulls
1120: Regar garcing	acudant 4/ells
1315: Had a lanch	Y
1330: Started prepare	ing For sampling sparge wells
picked bottles	parkets; bough Ice,
1345: Started Calibra	ting excipment.
14101 Regan Setting o	12 on 10-W-1.
1435: Started purgin	g
1448: Regan recordin	g parameters. ORP unstable
1520: started collecting	samples,
1535 Regan Setting u	P 07 1C-W-1
- 1544: Started pulgung	
1554: Began recording p	agameter tuobichety unstable.
1620: Started Collecting	Samples.
1630: Regan Setting	up on 1C-W-B.
1641; started purging	/ ·
651, Regan records	ug Doraneters.
storted collection	ig sannles.
1715: Finished sampli	ing cloured up, damped
purge Water into	drum. Delon. louis.
1740. léft a site.	,

-

# GROUNDWATER SAMPLING LOG

Project name	BNSF-Skykomish	
Project No.	01140-204-340	
Date	05/12/09	

WELLIN	FORMATION	Again to the
Depth to water	12,00	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:		(ft)
Screen interval:		
well condition:	Cood	
non condition.	- Closol	

Well No.	1C-W	-8		
Sampled	By Bha	ani.s -	Melu	In. R
weather	Rain	49	°F	-

	COMMENTS	S. S.
_1	Inlet tubing a 13.50	
	purge water is clear.	
	· · · · · · · · · · · · · · · · · · ·	

			PURGE	DATA	No. of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of			
start purge time	164	1						4441-44-20-1-1-1-1
time		1651	1654	1657	1700	1703	·	
volume purged	(gal)	12.02	12.02	12.02	NM	MM		
purge rate	(L/min)	230	230	230	230	230		
РH	(Units)	5:37	5.36	5,35	5.32	5.31		
conductivity	(umhos/cm)	0.064	0.041	0.039	0.038	0,040	·	
temperature	(deg C)	6.87	6.85	6.85	58.8	6,86		
D.O.	(mg/L)	2,60	2,23	2.02	1.91	1,84		
ORP	(mv)	-1099	-114.6	-122.9	-119.5.	-120.7		
turbidity	(NTU)	3,77	3,04	2.36	2.20	2,31		
purge and sample	e equip.	Peristalti	c pump a	nd silicon	e/polyeth	ylene tubi	ng	

	SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative					
1C-M-8-051206	1705	NWTPH-Dx	1L Gl. Amber	2	HCI					
					*****					
			<del></del>	1						

DTW

# GROUNDWATER SAMPLING LOG

Project name BNSF-Skykomish
Project No. 01140-204-340
Date 05/12/09

Well No.	1C-W-1	
Sampled	By Chani. S. Melvin.	2
weather	Rain, 47 °F	,

WELI	INFORMATION	
Depth to water	12.58	(ft)
Depth of well:		(ft)
Well diameter:	2	(in)
Feet of water:		(ft)
Product thickness:	X/ONE	(ft)
Screen interval:		
well condition:	Missing 3 bolds-	
	V	

额		CON	MEN	ITS		
L	Fyle	Julia	51	15.	c. Ft.	
		C. Wate				
	pory		<u>, 1</u> ,	,09 0	7907	_
	· <del></del>		<del></del>		<del></del>	
					* ***	

			PURGE	DATA				
start purge time	15 9	4						<del></del>
time		1554	1557	1600	1603	1606	1612	1615
<del>volume purge</del> d	(gal)	12,60	12.60	12.60	MM	NM	MM	MW.
purge rate	(L/min)	200	200	200	200	200	200	200
рН	(Units)	5,29	5.28	5,29	5.29	5.30	5.31	5,30
conductivity	(umhos/cm)	0.058	0.055	0.049	0057	0.052	0.058	0059
temperature	(deg C)	6.91	7,00	7,02	7.09	7.04	6.69	6.71
D.O.	(mg/L)	7.66	7,15	6.76	6,56	6.51	6.75	6.77
ORP	(mv)	-55.2	-52.8	-52,2	-51,0	- 50.9	-48,8	-46.7
turbidity	(NTU)	1.70	4.16	3,32	3,25	1.46	0,57	0,95
purge and sample	e equip.	Peristalti	c pump a	nd silicon	e/polyeth	ylene tubi	ng	

SAMPLE/INFORMATION									
time	analysis	that he is not a count the property of a first to be a contract to the	# bottles	preservative					
1620	NWTPH-Dx	1L Gl. Amber	2	HCI					
		·							
				· · · · · · · · · · · · · · · · · · ·					
	time	time analysis	time analysis container	time analysis container #-bottles					

NTK

# GROUNDWATER SAMPLING LOG

Project nam	e BNSF-Skykomish	
Project No.	01140-204-340	
Date	05/12/09	

WELL	INFORMATION	aller e
Depth to water	10.55.	(ft)
Depth of well:		(ft)
Well diameter:	2_	(in)
Feet of water:		(ft)
Product thickness:	NO NE	(ft)
Screen interval:	4	
well condition:	bud.	
	, , , , , , , , , , , , , , , , , , , ,	

Well No. / C-W-7	
Sampled By Chani. S.	helvin 6
weather Rain	°F

	COMMENTS
1	ulet tobing 213,00
	<u></u>
	purge water is clear.
	ORP unstable.

			PURGE	DATA				
start purge time	1435							
time		1445	1448	14 51	1454	1457	1500	1503
v <del>olume purged</del>	(gal)	10.55	10.55	10.55	1055	NIM	NM	NM
purge rate	(L/min)	200	200	200	200	200	200	200
рН	(Units)	5,54	5,53	5.54	5,57	5,55	5.56	5.57
conductivity	(umhos/cm)	0.077	0071	0.070	0,077	0.072	0.069	0.076
temperature	(deg C)	7,65	7.65	7.60	7.66	7.69	7.73	7.79
D.O.	(mg/L)	0,64	0.66	0.50	0,51	0.40	0.54	0.45
ORP	(mv)	-29	-10.2	-21.6	-36,7	-46.1	-56.4	-66,8
turbidity	(NTU)	1.37	0,94	1.14	1.03	0.86	1.05	1.06
purge and sample	e equip.	Peristalt	ic pump a	nd silicon	e/polyeth	ylene tubi	ng	

		SAMPLEINF	ORMATION		
sample number	fime	analysis	container	# bottles	preservative
10-6-7-051209	1520	NWTPH-Dx	1L Gl. Amber	2	HCI
				,	· · · · · · · · · · · · · · · · · · ·
					·

WIG

	Project name	BNSF-Skyk				Well No	o. 1C-	W-7	
	Project No.	01140-204-	340			Sample			· /
	Date (	05/1409				weathe	r Raic	1	0
	WE	LL INFORM	ATION				CON	IMENTS	<u>7</u> 7.
	Depth to water	1/5	55	· (ft					, and the second
	Depth of well:		<del></del>	(ft					
	Well diameter:			(in					
	Feet of water:		<del></del>	(ft	<del></del> 1		·		
	Product thicknes			(ft			······································		
	Screen interval:				1				.,
	well condition:								
				······································	7				
					<del>-</del>	•			
				PURGE	DATA				
	start purge time	143	5				***************************************		
	time		1506	1509	1512	1515	1518	Ti.	
1	volume purged	(gal)	1055	MM	MM	NM	NM		
	purge rate	(L/min)	200	200	200	200	200		
	pН	(Units)	5.57	5.56	5,56	15,58	15,56		
	conductivity	(umhos/cm)	0,070	0.073	0071	0.072	0.070		
	<b>tem</b> perature	(deg C)	7.75	7,66	7.65	7.80	7.94		
	D.O.	(mg/L)	0.48	0.42	0,49	0.54	0,52		
	ORP	(mv)	-793	-87.9	-94.9	-100,1	-104.8		
ĺ	~	(NTU)	0.79	0,97	1.04	0.84	0.85		
į	purge and sample	e equip.	Peristalt	ic pump a	nd silicor	ne/polyeth	ylene tubi	ing	
	•								
			SAN	IPLE INF	ORMATIO	NC			Sec.
	sample number	fime	anal	ysis	cont	ainer	# bottles	preservati	ve
	1C-K1-7-051209	1520	NWT	PH-Dx	1L GI.	Amber	2	HCI	
ı		·							
ŀ				<del></del>	·				
						i	`.		

TAL-1001 (06/08) 01140-284-0540 LAB USE 109ES SHIPMENT INFORMATION Comments and Special Analytical Requirements: BNSF COC No COMMENTS Phone: 206-624-4749 HAL = L Shipment Method: 2000 LAB WORK ORDER: Tracking Number: Project Manager: Email: Sustody Seal No. Address 11720 N. CPUL PKWYN & 400 425-420 9249 METHODS FOR ANALYSIS Chinisaezin: Seatte MA 98124 Lab: Custody Intact? CONSULTANT INFORMATION Date/Time: Date/Time: Project Manager ON XG - HOTWI LABORATORY INFORMATION Company: AE(O) 11/1/2 Matrix DUPLICATE - CONSULTANT Type (Comp/ Grab) AECOM Other Deliverables? Led EDD Req, Format? Filtered Z CityState/21F: Rockell IMA 98011 Z Sampler 07/07/109/12 20 hs S Laboratory Test Anerica THYOURSHOOMS KYKOMISK 2111/20/1/01/20 Received By: ab Remarks: Time Received By: Sample Collection Received By Date/Time: 0 7 10 -7 10 9 DELIVERABLES BNSF Work Order No.: BNSF Standard (Level II) Date SAMPLE INFORMATION Level III Level IV City/State/ZIP: Containers Date/Time. Date/Time 9 d Unquisted BY HOdilhani Cebbam U. B. She DDGFC TURNAROUND TIME ORIGINAL - RETURN TO LABORATORY WITH SAMPLES RAILWAY SKYKOBICH BNSF PROJECT INFORMATION CHAIN OF CUSTODY -0709 Standard 10-Day 5- to 8-day Rush Sample identification C1111-2-0709 Other Brue 51-W-13 eceived by Laboratory: NSF Project Number: 3NSF Project Name: 2-day Rush 3-day Rush 1-day Rush linquished By: NSF Contact:

**Field Activity Log AECOM** Page: Project Name: SKyKon, Sh Completed By: Project Number: 01140-284-0540 Date: Field Activity: Weather: Personnel on site:

1,550

,	Skykomish 01140-284		07/09 dy:	- - -	Well ID: Sample ID Well Cond				3 3-0709	
PRE-PURGE INFORMA' Initial Depth to Water* (f: Depth to Product* (ft): Product Thickness (ft): Water Column (ft): Inner Casing Diameter (In Water Volume in Well (gal Inner Casing Material: Start Purge Time: PURGING INFORMATIO	: _ - nch): _ al): _				Purge/Sample Method: Purge/Sample Equipment Screened Interval Depth Range* (ft) Tubing Inlet Depth* (ft): Total Well Depth* (feet): sampling tube material				low-flow  peristaltic pum  LO  polyethylene, silcone	P.
purge rate (mL/min) 1204240 ( 1207 240 ( 1210 240 ( 1213 240 ( 1216 240	depth to water (ft) 6,42 6,42 6,42 7,42 6,43	volume purged (gal)	Temp (°C) 9,37 9,17 9,23 9,21 9,20	Conductivity (mS/m) 0.062 0.067 0.067 0.069 0.069	Dissolved Oxygen (mg/L) 0.35 0.35 0.32 0.32 0.32	pH (SI Unites) 6 , 1 9	ORP mV 26,1 21,9 20,1 18,6 17,4	Turbidity (NTU) 3,50 3,55 3,43 3,34 2,98 2,67	Comments	
SAMPLING INFORMATION  Sample ID sample time  5tx/- 43 - 0709 12-2 9NV		Analysis WTPH-Dx w/o SGCU		Meth	od		Container 1 L Gl. Amber		Preservative HCl	
STABILIZATION RANGE: Dissolved Oxygen: +/- 10% Conductivity: +/- 10% Temperature: +/- 10 % pH: +/- 0.1 unit Redox Potential: +/- 10% Turbidity: +/- 10% USEFUL INFORMATION			S&OBSEI Pur ORP		(slow rech	s clea	ity, odor, s	heen, PID r	readings)	

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L 4" casing: 1 ft = 0.656 gal = 2.48 L 1 gal = 3785.4 mL

AECOM

	8kykomis 1140-284 07/ 67°F		9 (dy-		Well ID: Sample ID: Well Condi		GW- GW-	GW-2 Jul-2-0709 Good		
PRE-PURGE INFORMAT Initial Depth to Water* (f: Depth to Product* (ft): Product Thickness (ft): Water Column (ft): Unner Casing Diameter (In Water Volume in Well (gal Inner Casing Material: Start Purge Time: PURGING INFORMATION	nch): I):	9,04 MONB 2 PVC i05/			Purge/Sample Method: Purge/Sample Equipment Screened Interval Depth Range* (ft) Tubing Inlet Depth* (ft): Total Well Depth* (feet): sampling tube material				low-flow  Peristant.  11.50  polyethylene, silcone	
	depth to water (ft)	volume purged (gal)	Temp (°C)  0.8	Conductivity (mS/m) 0,072	Dissolved Oxygen (mg/L) のしらら	pH (SI Unites) 5, 82 5,80		Turbidity (NTU) 3,93 2,97	Comments	
1107 220 0	1.04		10.45	0.069	0,61	5,78	71.6	2.84		
		-								
1	sample			5 d - 41		Cant	-aln ar	No. of	Preservative	
Sample ID (7W-2-07091	time	Ana NWTPH-Dx	lysis :w/o SGCU	Method			ainer Amber	bottles 2	HCI	
						<del></del>				
STABILIZATION RANGE Dissolved Oxygen: +/- 10% Conductivity: +/- 10% Femperature: +/- 10 %		COMMENT	TS & OBSE	RVATIONS:	( slow rech	arge, turbio	dity, odor, :	sheen, PID	readings)	
pH: +/- 0.1 unit Redox Potential: +/- 10% Turbidity: +/- 10% USEFUL INFORMATION	- -									

lowflowGW sampling form.xls

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals

Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L

4" casing: 1 ft = 0.656 gal = 2.48 L

1 gal = 3785.4 mL

# **TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Tacoma 5755 8th Street E. Tacoma, WA 98424 Tel. 253-922-2310 Fax 253-922-5047 www.testamericainc.com

# Chain of Custody Record

Client AECOM		Project Manager	Satal A borne	Date	Chain of Custody Number
Address		Tolonhone Mirmhor (Area Code)/Co. Mirmhor	)// ov /// ov // / ov		27
710 2 net Ave. 300 km	000	reiepilolie ivaliibei (Area Cou	odelinas ivaliniae e e e e e e e e e e e e e e e e e e e	Lab Number	Page
City Count   R	Zip Code	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Lab Contact	Analysis (Attach list if	
Project Name and Location (State)	7/8	Carrier/Waybill Number			
Contract/Purchase Order/Quote No.	1	Matrix	Containers & Preservatives		Special Instructions/ Conditions of Receipt
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Hina Agueous Sed. Sed.	Unpres.		
10 - W - 1 - 0 704	1728/09 1050	X 25			
1C-W-8-0709	07/12/09 114	メッナニ	×		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t
K-W-7-0709	57128/09 12	30 X	×		
CIX-2-0709	07/12/409/14/30	> × ×	×		
CIN-20-0709	07/28/09 1336	×, ×,	  X		
					<i>(</i> 4)
	Iden		_	osal 🗀 Disposal By Lab	of for may be become of your cody
Time Annual Time Power Temp:	Hazard 🔲 Flammable	Skin Irritant	□ Poison B □ Unknown □ Return To Client	☐ Archive For	Months are retained longer than 1 month)
10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 Days   10 D	☐ 15 Days	□ Other	QC Requirements (Specify)		
1. Kelinquished By	70	107   Date   Time   09 3 c	1. Received By	W. A.	Date Time 8 2
Z. Kelinquished By	7	Date Time	2. Received By		Date Time
3. Relinquished By	7	Date Time	3. Received By		Date Time
Comments					

								, .		AEC
Project Na		Skykomi				Well ID:		16-6		<del></del>
Project Nu	mber:	01140-28			_	Sample ID		1C-U	29	
Date:		7/2:	8/09		_	Well Condition: Notens 130LTS				
Weather:		85 1	HOT-8	Sunny	_					
	SE INFORM		۰.	<i>~</i>						
	to Water* (	r:	/ <u>/</u> S.	97	_		nple Method			low-flow
	roduct* (ft) : ickness (ft):					Purge/Sample Equipment				
Vater Colu					_	Screened Interval Depth Range* (ft)			(H)	141047
	ng Diameter	(Inch):				Tubing Inlet Depth* (ft): Total Well Depth* (feet):				14.97
	me in Well (				_		ube materia			polyethylene, sile
	g Material:	<b>,</b>								porjourijiono, om
Start Purge	Time:		1015	1013	_					
URGING	INFORMAT	ION								
	purge	depth to	1			Dissolved				
<b>T</b> :	rate	water	purged	Temp	Conductivity	Oxygen	pН	ORP	Turbidity	_
Time	(mL/min)	(ft)	(gal)	(°C)	(mS/px/Cn		(SI Unites	<del></del>	(NTU)	Comments
1024	300	13.97	ļ	12.03	0.055	7.12	5.15	129.5	MM	
1027	300	13.97		11.33	0-044	7.00	5.18	149.2	4.22	
030	250	13.97		11.17	0.043	6-95	5.21	174.0	3.33	
1033	250	13.97		10.98	0.047	6.74	5.20	200.6	3.13	
1036	250	13.97		10.95	0.0 47	6.67	5-23	219.8	2.51	
039	250	13.97	,	11.00	0.047	6.66	5.19	234.8	1.96	
1042	250	T		11.07	0-048					
		13.97				6.51	5.25	2467	1.62	
1045	750	13.97		11.10	0-048	6.46	5.27	254.1	1.41	
	ļ									
									<del></del>	
	<u> </u>									
	<del> </del>									
	<u> </u>	<u></u>						11		
MPLING	INFORMAT		<b>***</b>							
Samp	le ID	sample time	Anal	lvsis	Metho	nd	Contr	iner	No. of bottles	Preservative
	1-0701		NWTPH-Dx	·	low Flo				2	HCI
70 00	1-9.10.1			,,,,	2010 1 12					
<del> </del>										
ABILIZAT	ION RANGI	ES (	COMMENT	S & OBSE	RVATIONS: (	slow recha	rae, turbidi	itv. odor. sl	neen. PID re	adings)
	ygen: +/- 10		0		ASTER		-		•	• ,
nductivity:			Sport	adir.		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	/5 /	C 677()/N 6	15 HT/	111/2
mperature		_	Space	MCKIC					V	
: +/- 0.1 ur		-								
							<del></del>			
	tial: +/- 10%									
bidity: +/-									~~~~	
	ORMATION						<del></del>			
Measitred	from top of	inner cacir	na							

Measured from top of inner casing

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L 4" casing: 1 ft = 0.656 gal = 2.48 L

1 gal = 3785.4 mL

AECOM

Project Name: Skykomish Project Number: 01140-284-0540						Well ID: Sample ID	<b>):</b>	1C-U	ACCO	
Date: Weather:			8/09	sumy		Well Cond				
Initial Depth	GE INFORM  to Water* (	(f :		55 <u> </u>			nple Method			low-flow
Product Th Water Colu	mn (ft):					Purge/Sample Equipment Screened Interval Depth Range* (ft) Tubing Inlet Depth* (ft): Total Well Depth* (feet):				14.55
Inner Casin Water Volu Inner Casin	me in Well (					Total Well Depth* (feet): sampling tube material				polyethylene, silcone
Start Purge PURGING	Time:	ION	1015							
Time	purge rate (mL/min)		purged (gal)	Temp (°C)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	pH (SI Unites)		Turbidity (NTU)	Comments
1125	250	13.57		10.15	0-038	0.43	5.56	74.2	2.52	0.047 - Coni
1128	250	1/3.57		10.22	0,047	0.36	5.48	60.6	1,97	
1131	250	13,57	-	10-35	0-0650	0-31	5.50	49.7	2.20	0.050
1134	250	13.57		10.48	0.046	0.30	5.48	45.7	1.93	
1137	250	13.57		10.37	0.045	0.30	5.48	44.2	2.42	
1140	250	13.57	<b>-</b>		0.046	0.29	5.49	43.9		
	-		·							
	. , //									
				· · · · · · · · · · · · · · · · · · ·						
SAMPLING	INFORMAT	TION								
Samp	Io ID	sample time	Ana	lycic	Meth	od	Cont	iner	No. of bottles	Preservative
/C~W·8		1145	NWTPH-Dx		Low Fla				2	HCI
						•				
STABILIZAT			•		RVATIONS: (					eadings) DIC & TIMES
Conductivity:					<i>'</i>					
Temperature										
pH: +/- 0.1 ur										
Redox Poten										
Turbidity: +/- USEFUL INF		√J								
* = Measured			ina							

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L 4" casing: 1 ft = 0.656 gal = 2.48 L 1 gal = 3785.4 mL

AECOM

										ARCO
Project Nar		Skykomi			_	Well ID:		10-	<i>ω</i> -7	)-7-01-0 (0)
Project Nur	nber:	01140-2			-	Sample ID		_600I	16-u	1-7-01090:
Date: Weather:			8/09	10	-	Well Cond	lition:	600	<b>&gt;</b>	
vvedulei.		-0-5:	HOI	1 Simy	<u>!</u>					
PRE-PURG	E INFORM	IATION		/						
Initial Depth		f:	122	112.12	_		nple Method			low-flow
Depth to Pr			·		-		nple Equipm			
Product Thi					-		Interval Dep		ft)	
Water Colu	. ,	(Inch):			-		et Depth* (ft Depth* (fee			
Water Volum					-		ube materia	•		polyethylene, silcor
inner Casin		gui).			-	Sumpling (	abe materia	,		polyownylotto, oncorn
Start Purge	-		1210		-					
PURGING	NFORMAT	ION								<del></del>
	purge	depth to	1			Dissolved				
<b></b> :	rate	water	purged	Temp	Conductivity	Oxygen	pH	ORP	Turbidity	O-mmanta
Time	(mL/min)	<del></del>	(gal)	(°C)	(mS/m)	(mg/L)	(SI Unites)		(NTU)	Comments
1220	2,50	12-12	1	15.63	0.100	6.39	6.76	29.6	11-89	
1223	250	12.12		15.61	0.095	6-46	6.83	23.8	8.09	
1226	250	1212	1	15.43			6.87	22.5	6.90	
1229	250	12.12		15.44	0-090	6.30	6.89	24.2	5.65	
· · · · · · · · · · · · · · · · · · ·										
-										
										,
SAMPLING	NEODMAT	TON								
SAIVIT LING	MEORMA	sample							No. of	
Sampl	e ID	time	Anai	ysis	Metho	bc	Conta	niner	bottles	Preservative
1C-W-7	-0709	1230	NWTPH-Dx	w/o SGCU			1 L Gl. /	Amber	2	HCI
		,		T						
STABILIZAT	ION RANG	ES	COMMENT	S & OBSER	VATIONS: (	slow recha	ırge, turbidi	ty, odor, sl	reen, PID re	eadings)
Dissolved Ox	ygen: +/- 10	)%								
Conductivity:	+/- 10%	_								
Temperature:	+/- 10 %									· · · · · · · · · · · · · · · · · · ·
H: +/- 0.1 un	it	_								
Redox Potent	ial: +/- 10%									
urbidity: +/-	10%	-								
SEFUL INF		1								
- Magazirad	fram tan af	inner seel								

\* = Measured from top of inner casing

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book.

2" casing: 1 ft = 0.164 gal = 0.62 L 4" casing: 1 ft = 0.656 gal = 2.48 L

1 gal = 3785.4 mL

					YOUND W					AEC
Project Nar		Skykomis 01140-28			_	Well ID: 6 W - 2 - 070			- di 20 27	
Project Nur ⊃ate:	nper:	01140-28	4-0540		-	Well Condi		- ow-	040	1 9600-20-07
Veather:		94 °F	HOT SI	my	-					
RE-PURG	SE INFORM	ATION								
Initial Depth to Water* (f: 9-80			and .		ple Method			low-flow		
•	oduct* (ft):				-	•	ple Equipm	ent th Range* (f	41	
Vater Colu	ickness (ft):				_		t Depth* (ft)		.,	
	g Diameter	(Inch):			-		Depth* (feet			***************************************
	me in Well (	gai):			-	sampling to	ube material			polyethylene, silo
	g Material:				er.					
tart Purge	i ime: INFORMATI	ION			-					
	purge	depth to	volume			Dissolved				
Time	rate (mL/min)	water (ft)	purged (gal)	Temp (°C)	Conductivity (mS/m)	Oxygen (mg/L)	pH (SI Unites)	ORP mV	Turbidity (NTU)	Comments
1412	250	9-80	(34.7)	13.50	0.072	0.66	5.63	129.9	2.56	
1415	250	9. ₹0		13.05	0-071	0.36	5.58	128.4	2.06	
1418	250	9.80		17.81	0.067	0.28	5.56	177.9	2.20	
1421	250	9. 81		12.85	0.069	0.23	5.56	1279	1.32	
1424	250	9.81		12.92	0.071	0.21	\$.58	130.4	0.84	
1427	250	9.81		12.88	0.071	0.21	558	100	0.84	1297-020
	230	1.0		17	U: = I	,		, 1 to 1		
-										
								1.00		
						-				
										J
			-							
AMPLING	INFORMAT	TION								
		sample	_						No. of	Describe
	ole ID	time		lysis (w/o SGCU	Meth とりない 6		1 L Gl.	ainer Amher	bottles 2	Preservative HCl
	-070 <u>₹</u>	1430 1330	1144 I F F F - D)	( W/0 3GC0	11	1000	1/	Allibor	2	1461
900 3	o Cyor	,550								
1.									. 515	(t.,)
	TION RANG		COMMENT	rs & obse	RVATIONS:	( slow rech	arge, turbid	ity, odor, s	heen, PID	readings)
	xygen: +/- 1	0%								
onductivity										
	e: +/- 10 %	-								
1: +/- 0.1 u				,						
	ntial: +/- 10%	'o								
urbidity: +/	- 10% FORMATIO									

USEFUL INFORMATION

\* = Measured from top of inner casing

DTW - Depth to Water

Initial purge 15 minutes, then measure at 3 minute intervals Water Levels Measured with an Electronic Water Level Meter Field parameter meter calibration results are recorded in the field book. 2" casing: 1 ft = 0.164 gal = 0.62 L 4" casing: 1 ft = 0.656 gal = 2.48 L 1 gal = 3785.4 mL

Rev 10/02/05 LAB USE Cin SHIPMENT INFORMATION 5900-51016el Charup Comments and Special Analytical Requirements: BNSF COC No. 0.1170 mg/2 COMMENTS 0440 7000 Shipment Method: LAB WORK ORDER: 2001 Tracking Number Project Manager: Project Number Phone: Custody Seal No. METHODS FOR ANALYSIS (252) 272-2216 Lab: Custody Intact? カピムヴ Favi (connent CONSULTANT INFORMATION Date/Time: Date/Time: Q( ;) <u>w/o 2000</u> hmu bH - Dx 22 LABORATORY INFORMATION 100 HI AFICANI Matrix DUPLICATE - CONSULTANT 3 3  $\leq$ Type (Comp/ Grab) City/State/ZIP: FOLLS Other Deliverables? 💟 EDD Req, Format? Filtered ompany: 7 Sampler 1.1 W.)A 957 BNSF Work Order No.:

7 10 100 - 107 1,000 2501 Received By: Time 1 ya) eceived By: ab Remarks: Sample Collection 1330 Received By: 1455 1631 0 50 A 100 = 1 : CG P175/69 1725/04 6915018 DELIVERABLES F125/60 £120/09 59543 57543 BNSF Standard (Level II) Date SAMPLE INFORMATION Level III ☐ Level IV Containers Date/Time: N 67 (c)NN N 1 RAILWAY ORIGINAL - RETURN TO LABORATORY WITH SAMPLES She apac BNSF PROJECT INFORMATION CHAIN OF CUSTODY Standard 10-Day Skykomish 5- to 8-day Rush しつダフ・コー TURNAROUND TIME - 080C - X - 0809 080 · ST - W-43-0809 - 0X0 9 Sample identification 42-0809 Other 7 eceived by Laboratory T-day Rush 2-day Rush 3-day Rush linquished By:

GROUNDWATER	SAMPLING/LOG
Project name BNSF-Skykomish	Well No. GW-Z
Project No. 01140-204-0340	Sampled By Jim Schmale
Date 8 (25/00	weather Classy 65°F
WELL INFORMATION	COMMENTS
Depth to water 0.5 (ft)	
Depth of well: 2 <sup>tl</sup> (ft)	
Well diameter: 7 u (in)	
Feet of water: (ft)	
Product thickness: (ft)	
Screen interval:	
well condition: (300)	
·	

			PURGE	DATA			un la	
start purge time	160807 10	11 1621	1624					
time		1614	3	1627	1630	16 33	1636	1639
DTW	(ft)	10.51	10.51	17.01	10,51	10.51	12.51	10.51
purge rate	(L/min)	,25	.25	.25	-25	.યડ	·2S	.25
рН	(Units)	6.19	6.21	0.19	(17	6.21	G.28	(,30
conductivity	(umhos/cm)	0.174	0.181	0.180	0.180	6.177	0.177	0.00
temperature	(deg C)	13.8	13.73	13.65	13-88	14,05	14.01	14.9
D.O.	(mg/L)	7.80	1.05	0.82	0.60	0,52	0,48	24.0
ORP	(mv)	74.4	64.0	6.00	187.6	41.9	55.7	53.8
turbidity	(NTU)	1.54	1.84	1,93	0.94	08.0	0.74	6,77
purge and sample equip. Peristaltic pump and silicone/polyethylene tubing								

		SAMPLE INFO	DRMATION		
sample number	time	analysis	container	# bottles	preservative
GW-2-0809	140	NWTPH-Dx	1L Gl. Amber	.2	HCI
				+	
				+	

Project name BNSF-Skykomish		Well No. 3-W 43
Project No. 01140-204-0340	······································	Sampled By Jin Shrear
Date 8/25 / 109		weather party claudy 65 °F
WELL INFORMATION		COMMENTS
Depth to water 🍿 6.11	(ft)	
Depth of well:	(ft)	
Well diameter: 2 <sup>11</sup>	(in)	
Feet of water:	(ft)	
Product thickness:	(ft)	
Screen interval:		
well condition: Good . No louc		

			PURGE	DATA				
start purge time								
time		1511	1519	1517	15 20			
DTW	(ft)	6.11	6.11	6.ll	6.[1			·
purge rate	(L/min)	,25	.25	. 25	7.5.			
рН	(Units)	20.2	6.06	6.00	6.06			
conductivity	(umhos/cm)	0.053	0.064	0.087	0.691			
temperature	(deg C)	14,09	14.08	14.08	14.08			
D.O.	(mg/L)	3.45	2.17	1.87	1.81			
ORP	(mv)	77.3	75.7	75.6	75.6			
turbidity	(NTU)	0.00	0.17	1.66	1.72			
purge and samp	le equip.	Peristalt	lic pump a	and silicor	ne/polyethyl	ene tubir	ng	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
3-W-43-0809	(521	NWTPH-Dx	1L Gl. Amber	2	HCI
	v				·

Project name BNSF-Skykomish	Well No. 3-W-42
Project No. 01140-204-0340	Sampled By
Date \$ 25 /09	weather pty clady 65°F
WELL INFORMATION	COMMENTS
Depth to water     (ft)	
Depth of well: 4#55 (ft)	
Well diameter: 21 (in)	
Feet of water: (ft)	
Product thickness: (ft)	
Screen interval:	
well condition: (au) - 100 ds (al	

			PURGE	DATA			and the second	
start purge time	1413	_						
time		1423	1426	1420	1432			
DTW	(ft)	10.01	10.01	10.01	10.01			
purge rate	(L/min)	نرح	.25	.25	25.'			
purge rate pH	(Units)	٢- ١٦	6.14	6.12	6.13			
conductivity	(umhos/cm)	0.05	0.052	0.052	0.052			
temperature	(deg C)	13.80	13.83	13.83	13.81			
D.O.	(mg/L)	5.47	3.91	3.11	3.62	-		
ORP	(mv)	45.4	47.7	50.1	52.3			
turbidity	(NTU)	2.21	87.0	0.84	0.86			
purge and sampl	e equip.	Peristalt	ic pump a	nd silicon	e/polyethy	ylene tub	ing	

		SAMPLE INF	ORMATION		
sample number	time	analysis	container	# bottles	preservative
3-W-4Z-0809	1433	NWTPH-Dx	1L Gl. Amber	2	HCI

	GROUND	NATER SAN	IPLING LOG
Project name Project No. Date	BNSF-Skykomish 01140-204-0340 425/09		Well No. 3-W-4-1 Sampled By J.M Columbur weather Mostly closy 65 °F
W	ELL INFORMATION		COMMENTS
Depth to water	6.91	(ft)	
Depth of well:		(ft)	
Well diameter:	7.60	<u>(in)</u>	
Feet of water:		(ft)	
Product thickne	ess:	(ft)	
Screen interval	•		
well condition:	De lade on i-ola		
	deal coult		
L	"Sean CONT.		

	s Švenski se izlencija		PURGE	DATA	Andrews Liver and			
start purge time	1303					<b>,</b>		
time		1343	1306	1300	1312	1325	1328	
DTW	(ft)	6.92	6.92	6.92	6,92	6.92	6.92	
purge rate	(L/min)	٠ ك	.25	.25	,25	,25	.25	
рН	(Units)	6.09	6.13	6.15	ها.	6.17	6.17	
conductivity	(umhos/cm)	0.086	2.694	0.048	0.100	0.101	0,102	
temperature	(deg C)	12.03	11/81.	11.71	11.62	11.58	11.55	
D.O.	(mg/L)	40	6.6	0,84	0.73	0.67	0.64	
ORP	(mv)	97.3	67.6	60.0	51.2	45.3	43.2	
turbidity	(NTU)	3.71	2.76	2.49	3,55	1.85	1,75	
purge and sampl	e equip.	Peristalti	c pump a	nd silicon	e/polyeth	ylene tub	ing	

SAMPLE INFORMATION									
sample number	time	analysis	container	# bottles	preservative				
3-W-U1	1330	NWTPH-Dx	1L Gl. Amber	2	HCI				
3-W-410	1400	١.	ι(	1 2	V .				
(Dudicate)									

		GROUND	DWATER	SAMPLI	NG LOG			
	DMOE Object	!I-			Mall No	10.	-W-7	?
Project name	BNSF-Skyko			-	Well No.	. IV	<u> </u>	
Project No.	01,140-204-0	1340		-				°F
Date	8/ /09	<del></del>		-	weather			<u> </u>
WE	LL INFORMA	TION		]		COM	MENTS	
Depth to water	12-24		(ft)					
Depth of well:	_ v Cv		(ft)	1				
Well diameter:	2 h		(in)	1	,			
Feet of water:			(ft)	1				
Product thickness	 3S:		(ft)					
Screen interval:				]				
well condition:	Cond No lac	<u> </u>		]			,	
			To be a feet a support of the policy of the	an water o the control of the con-				2 27.85%
			PURGE	DATA	<u>كان دوير</u> ويعادا القاري			
start purge time	1137	·		r		<del></del>	<del></del>	
time		1147	1180	453	1156		<u> </u>	
DTW	(ft)	12.24	12.24	12.24	12.24			
purge rate	(L/min)	-25	.25	.25	125			
рН	(Units)	6.39	6.44	6,47	6.51	<u> </u>		
conductivity	(umhos/cm)	3.074	0.080	0.079	0.083	1		<del></del>
temperature	(deg C)	11.73	11.69	11.77	11.81			
D.O.	(mg/L)	8.42	₹.20	7.97	7,70	-		
ORP	(mv)	168.6	163.1	161.2	157.0			
turbidity	13	4.67	4.72	2.50	2.35	1	<u> </u>	
purge and samp	le equip.	Peristalt	ic pump a	nd silicor	ie/poiyetn	ylene tubi	ng	
Parameter and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon				~~****	A.1.	. 1		makin kepinggang (
			IPLE INF			12.72.1		
	T T			cont	tainer	# bottles	nracarv	74. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
sample number	time	anal			2000,100,00	1		ative
sample number			PH-Dx		Amber	2	HCI	
sample number					2000,100,00	1		
sample number					2000,100,00	1		

		GROUNL	JWAIER	SAMPLI	NG LUG			
Project name	BNSF-Skyko	mish			Well No.	. 16-1	M-8	
Project No.	01140-204-0			-	Sampled		<u> </u>	
	01140 20°. 0	09		-	weather	, , , , ,	ricze (	(ρ()°F
Date	<u> </u>	6)		-	Weather	claryy a	11,020	<i>v</i> · · · · · · · · · · · · · · · · · · ·
WE	LL INFORMA	TION		]		COMI	MENTS	
Depth to water	13.71		(ft)					
Depth of well:			(ft)	]				
Well diameter:	211		(in)					
Feet of water:			(ft)	]				
Product thicknes	s:		(ft)					
Screen interval:								
well condition: ,	I plug not seat	ted cultual	4					
top of puc	broken		<u> </u>		L			
· · ·			SUBSE	- AA		4 1 - Mai 1 - Mai 1 - 1		
			PURGE	DAIA			<u>kim Alda alda</u>	4.54
start purge time	1033	г <del> </del>		T	T	T	T	
time	1.2	10:43	10:46	10:49	10:52	10:55	-	
DTW	(ft)	13.71	13,71	13.71	13.71	13.7/		
purge rate	(L/min)	.21	. 21	.21	.21	-21 5-31		
pН	(Units)	5.33	5.25	5.28	5.29	0.063	<del>  -</del>	
conductivity	(umhos/cm)	0.063	0.064	0.065	- · · · · · · · · · · · · · · · · · · ·	12.05	<del> </del>	
temperature	(deg C)	12.25	12.10	12.10	12.13	0.67	<del>        -</del>	
D.O.	(mg/L)	1.05	0.82	0.76	184.0	179.0	<del>                                     </del>	
ORP	(mv)	195.9	191.9	188.1	1.46	1.34	<del>  </del>	
turbidity	(NTU)	7.28	4.19	2.38		1 1 1	ina	·
purge and sampl	e equip.	Perisiani	ic pump a	ina silicon	e/poryeur	ylene tubi	iig	
		SAN	IPLE INF	ORMATIC	NC			
sample number	time	anal	lysis	cont	ainer	# bottles	préserv	
1C-W-8-0809	1054	NWT	PH-Dx	1L GI.	Amber	2	HC	<u> </u>

1054

		GROUND	WATER	SAMPLI	NG LOG			**
Project name	BNSF-Skyko			-	Well No.		-W-1	
Project No.	01140-2 <b>9</b> 4-0	<b>4</b> 0			Sampled		, Schneide C	
Date	8/ /0	9		_	weather	Clardy	(O) °I	F
	<del>-                                    </del>							
WE	LL INFORMA	TION		٠		COMN	IENTS	<u> </u>
Depth to water	14.22		(ft)					
Depth of well:	211/18		(ft)					
Well diameter:	2"		(in)					
Feet of water:			(ft)					<del></del>
Product thicknes	s:		(ft)					
Screen interval:								
well condition:	well vault has	no bolts						
	no lock preant		·					
			PURGE	DATA				
start purge time	9140			3.3754 S. 1840 C. F. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1870 C. 1				
time		9:50	9:53	9:56	9:59			
DTW	(ft) 14.22	14,23	14.23	14.23	14.23			
purge rate	(L/min)	, 25	, 25	.25	.25			
pH	(Units)	6.52	6.144	6 4.59	4.91			
conductivity	(umhos/cm)	0.045	0.044	0.044	0.044			
temperature	(deg C)	10.79	10.59	10.53	10.50			
D.O.	(mg/L)	6.56	6.11	5.99	5.82			
ORP	(mv)	209.2	20S.3	204.3	204.0			
turbidity	(NTU)	11.68	8.84	4.96	4.91	<u> </u>		
purge and sampl	e equip.	Peristalt	ic pump a	ınd silico	ne/polyeth	ylene tubi	ng	
				and the company of Section where	established to	The second second	garan ya ganganya ya ga	. e
		SAN	IPLE INF					
sample number	time		lysis	337 355	tainer	# bottles	preservative	<u>)</u>
1K-W-1-0809	1000	NWT	PH-Dx	1L GI	. Amber	2	HCI	

LAB USE Project Number: 01140-284-0546 Project Manager Sarah Albano SHIPMENT INFORMATION Date Time. 19 Comments and Special Analytical Requirements: Del SAMASSQ 1485 BNSF COC No Phone: 206-624.931 Fax COMMENTS Shipment Method: Head LAB WORK ORDER: Tracking Number: Sustody Seal No.. METHODS FOR ANALYSIS 253-922-2310 Project Manager, Kata Honey 9 Bist AECOM ELVIVORGIONT ab: Custody Intact? CONSULTANT INFORMATION Date/Time: AVE 7.4 26. MATPH-DX SECU 1000 LABORATORY INFORMATION 3 Matrix 3 3 DUPLICATE - CONSULTANT OF 98424. 1317 Type (Comp/ Grab) Clty/State/ZIP: Company: Other Deliverables? EDD Req, Format? Filtered Address: Sampler 10/27/19 1105 Fm 10/27/04 1545 FM 10/97/09 2495 FM 10/27/69 1155 FM 10/04/69 1255 FM 10 A LA Received By: ab Remarks: 3 Sample Collection 4 Time Address r - C & H Projectivy SKy Konish 4 DELIVERABLES R BNSF Standard (Level II) Date BNSF Work Order No.: SAMPLE INFORMATION Project State of Origin: Level III Level IV City/State/ZIP: Containers Date/Time: 48484 Date/Time: BF GG Shepperol RAILWAY ORIGINAL - RETURN TO LABORATORY WITH SAMPLES SKyKomish BNSF PROJECT INFORMATION **CHAIN OF CUSTODY** Standard 10-Day 5- to 8-day Rush 1-1009 18-1009 5001-8-M.J. -W-7-1009 Sample Identification P2-1-1009 Other NSF Project Number: O//L/LO Relinquished By: Received by Laboratory: NSF Project Name: 1-day Rush 2-day Rush 3-day Rush Relinquished By: SNSF Contact:

TAL-1001 (06/08)

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- 23.	·~	5 5	1 6	Pe /
Α	۸.	·.	٠.,	( >

							AWPLING	_		AE	
Project Nam		Skykomis			_	Well ID:		P-Z-	1-1009	70	
Project Num Date:	nber:	01140-28	4-0540 2チ/ OG			Sample ID		P7-	1-1009		
Veather:				D 1457	_ _	Well Condi	tion:	-			
PRE-PURG nitial Depth Depth to Pro	to Water* (f oduct* (ft) :		<u> </u>	75	- -	Purge/Sample Method: Purge/Sample Equipment					
roduct Thic	nn (ft):	de la Sa			_	Tubing Inle	nterval Depth t Depth* (ft):	Range* (ft)	•	polyethylene, silco	
nner Casing Vater Volum nner Casing	ne in Well (	. ,			<del>-</del> -		Depth* (feet): ube material				
tart Purge URGING II		ION	<u>i52</u>	٥	-						
Time	purge. rate (mL/min)	depth to water (ft)	volume purged (gal)	Temp (°C)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	pH (SI Unites)	ORP mV	Turbidity (NTU)	Comments	
1530		8.75		9.87	0.089	0.43	5.72	148.5	2.66		
1533		8.75		9.99	0.086	0.37	5.74	1485	1.23		
1536		8.75		10,01	0.086	0.34	5.74	148.1	037		
1539		8.75		10.03	0.086	031	5.72	149.0	0.62		
1542		8.75		10.03	0.087	0.31	5.71	149.7	1.83		
								,			
										-	
						1000		******			
									WANT 2 11 1 1		
					·						
MPLING I	NFORMAT	ION sample					,		No. of		
Sample		time	Ana	lysis	Meth	od	Conta	iner	bottles	Preservative	
2-1-10	009	1545	NWTPH-Dx				1L GI. A	mber	2	HCL	
<del>. 5</del>			HWTPH-D	x w/ SGCU			1L OI. A	mber		— HCL	
							3777			***********	

Project Nam Project Num		Skykomish 01140-284	0540			Well ID: Sample ID	:	Well ID: / C − ω   Sample ID: / C − ω			
Date: Weather:		10/2 36 °F	7/09	~	_	Well Cond					
PRE-PURG	E INFORM		,	/	<del>-</del>						
Initial Depth Depth to Pro		<b>:</b>	//.	91	_		nple Method: nple Equipmer	nt		low-flow	
Product Thic Water Colum				7771	_		Interval Depth et Depth* (ft):	Range* (ft)		12.91	
Inner Casing Water Volum					_	Total Well	Depth* (feet): ube material			polyethylene, silo	
Inner Casing Start Purge	Material: Гіте:		1229		- - -					polyoutylene, c	
PURGING IN	purge rate	depth to water	volume purged	Temp	Conductivity	Dissolved Oxygen	рH	ORP -	Turbidity		
1239	(mL/min)	(ft)	(gal)	10.96	(mS/m) 0.103	(mg/L)	(SI Unites)	mV 105.3	(NTU)	Comment	
1243		11.91		10.76		8.13	5.96	1/2.1	2.51		
1246		11.91		10.47	0.101	5.16	5.85		1		
1249		11.91		1 -	0.101	8.09	5.78	115.9	0.76		
1252		11.91		10.99	0.100	8.11	5.75	120.1	<del> </del>		
1000		11.71		11.00	0.100	8.13	5.55	120.5	0.69		
			<del></del>					ļ			
				!							
										75.47400	
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										mart.	
							*****				
							******			7.00	
				-						· · · · · · · · · · · · · · · · · · ·	
SAMPLING II	NFORMAT	ION									
Sample		sample time	Ana	lveje	NACH	od	0	inas	No. of	D	
11-W.1-		.03		lysis	Meth	ou	Conta 1L Gl. A		bottles 2	Preservative HCL	
16 moor	5	ا روی	4441 HH-D	( w/o SGCU			IL GI. A	numei	2	TICL	
7000	+										
							· · · · · · · · · · · · · · · · · · ·			····	
					****						
STABILIZATION  Dissolved Oxy  Conductivity: +  Femperature:	rgen: +/- 10 -/- 10%		OMMENT	S & OBSER	VATIONS: (s	slow rechar	ge, turbidity,	odor, shee	n, PID reading	js)	
remperature: oH: +/- 0.1 uni		_									
	ι										

					•			11	,	AE	
Project Nam Project Num		Skykomisl 01140-284				Well ID:		10	·W-7 W-7-10		
ate:	ibei.	10/	27/07			Sample ID Well Cond		10-	W-7-70	<u>01</u>	
/eather:		36 °1	F		_			***************************************	***************************************		
	E INFORM		3 6	- 2							
epth to Pro	to Water* (f oduct* (ft) :	•		, <u>)</u>		_	nple Method: nple Equipmer	nt		low-flow	
roduct Thic				***	_	Screened I	Interval Depth				
Vater Colun iner Casing	nn (π): g Diameter :	(Inch):			Tubing Inlet Depth* (ft): Total Well Depth* (feet):						
	ne in Well (	gal):		300	sampling tube material					polyethylene, silco	
ner Casing tart Purge <sup>-</sup>			1035		_						
URGING II	NFORMATI										
	purge rate	depth to water	volume purged	Temp	Conductivity	Dissolved Oxygen	pH	ORP	Turbidity		
Time	(mL/min)	(ft)	(gal)	(°C)	(mS/m)	(mg/L)	(SI Unites)	mV	(NTU)	Comments	
1048		9.54		10.32	0.077	1.07	5.64	85.2	1.96		
1051		9.54		10.32	0.073	0.96	5.68	84.6	1.91		
054		9.54		1032	0.075	0.92	5.69	84.9	1.91		
1057		954		10.34	0.076	0.79	5.70	84.0	1.61		
1100		9.84		1033	0.076	0.74	5.69	83.7	1.88		
1103		9.54		1038	0.076	0.73	5.70	83.6	1.34		
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										****	
					· · · · · · · · · · · · · · · · · · ·						
MPING	NFORMAT	ION									
		sample			·				No. of		
Sample		time		lysis	Meth	od	Conta		bottles	Preservative	
CW-7-	1009	1105	NWTPH-D>	w/o SGCU			1L GI. A	mber	2	HCL	
						,				10. 1	
	-				****						
							PAGE 1				

roject Nam	ne:	Skykomish	ı			Well ID:		1R.	w-23.	AEC
roject Num		01140-284	-0540		-	Sample ID:		113-0	w-23. v-23-11	209
ate: /eather:		10/2°	7/0×1		-	Well Condi	tion:			
nitial Depth epth to Pro roduct Thio /ater Colun	ckness (ft): nn (ft):	:		35	- - -	Purge/Sam Screened I Tubing Inle	ple Method: ple Equipmen nterval Depth t Depth* (ft):			low-flow
/ater Volun iner Casing tart Purge	Time:	gal):	1137		- -		Depth* (feet): be material			polyethylene, silo
URGING II	NFORMATI		T	1		Te:	·		1	T
Time	purge rate (mL/min)	depth to water (ft)	volume purged (gal)	Temp (°C)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	pH (SI Unites)	ORP mV	Turbidity (NTU)	Comments
1148	(1112/11111)	13.86	(gui)	10.75	0 234	5.07	6.54	69.2	238	Comments
151		13.86		10,58	0.230	5.36	6.56	68.5	1.53	
154		13.86		10.35	0.220	5.43		68.6	1.17	
13	-	13.30		70.53	0.230	3.43	6.57	65.6	1.17	
				1						
	ļ									
										· · · · · · · · · · · · · · · · · · ·
MEN ING									*	
MPLING	INFORMAT	sample				<del>- 1</del>		T	No. of	
Sampl	le ID	time	Ana	lysis	Meth	od	Conta	iner	bottles	Preservative
1B-W=		1155		w/o SGCU			1L GI. A		2	HCL
B W 7	23.1004	1155		,5 0000						
	- /								i	
										4449
			COMMENT	S & OBSER	EVATIONS: (	slow rechar	ge, turbidity,	odor, shee	n, PID readin	gs)
		-								
	111									
: +/- 0.1 un	m tial: +/- 10%	-								

Project Nam Project Num Date: Weather:		Skykomish 01140-284 10/9-7 °F	-0540 -109		Well ID: Sample ID: Well Condition:		16-0 16-0	J-8 <del>-10</del> U-8-102	AECO	
PRE-PURG Initial Depth Depth to Pro Product Thio Water Colun Inner Casing	to Water* (fooduct* (ft) : ckness (ft): nn (ft): g Diameter	f: (Inch):		10	 - -	Purge/Sam Screened I Tubing Inle Total Well I	ple Method: ple Equipmen nterval Depth t Depth* (ft): Depth* (feet):			low-flow
Water Volun Inner Casing Start Purge PURGING II	g Material: `` Time:	,	1429		- -	sampling tu	ibe material			polyethylene, silcor
Time	purge rate (mL/min)	depth to water (ft)	volume purged (gal)	Temp (°C)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	pH (SI Unites)	ORP mV	Turbidity (NTU)	Comments
1439		11.11		8.27	0.137	1.07	4.98	180.7	8.72	
1442		j[.1]		8,30	0.138	092	5.00	179.6	8.43	
1445		11.11		8.41	0.138	0.89	5.03	178.0	8.75	·.
1448		[1. ]]		8.29	0.139	0.82	5.01	179.0	8.49	
1451		1141		8.50	0.140	0.83	5.00	179.9	8.34	
		,								
		-								
3 to										
AMPLING	INFORMAT	ION							-	
Sampl		sample time	Ana	lysis	Meth	od	Conta	iner	No. of bottles	Preservative
1C-W-3	-1009	1455	NWTPH-D	cw/o SGCU			1L GI. A	mber	2	HCL
TABILIZAT issolved Ox onductivity: emperature:	ygen: +/- 10 +/- 10%		COMMENT	S & OBSEF	RVATIONS: (	slow rechar	ge, turbidity,	odor, shee	n, PID readin	gs)
H: +/- 0.1 ur edox Potent		- )								
rbidity: +/-	10%	-								

# Appendix D

**Laboratory and Data Validation Reports** 





December 31, 2008

Halah Voges AECOM - Seattle 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 12/18/08 10:50. The following list is a summary of the Work Orders contained in this report, generated on 12/31/08 13:32.

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

Work Order	<u>Project</u>	<u>ProjectNumber</u>	
BRL0207	BNSF-Skykomish	01140-204-0340	

TestAmerica Seattle

Kate Haney, Project Manager







BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

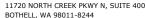
# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5-W-42-1208	BRL0207-01	Water	12/17/08 08:55	12/18/08 10:50
5-W-420-1208	BRL0207-02	Water	12/17/08 08:50	12/18/08 10:50
5-W-20-1208	BRL0207-03	Water	12/17/08 10:25	12/18/08 10:50
5-W-19-1208	BRL0207-04	Water	12/17/08 11:25	12/18/08 10:50
5-W-14-1208	BRL0207-05	Water	12/17/08 12:50	12/18/08 10:50
5-W-16-1208	BRL0207-06	Water	12/17/08 14:10	12/18/08 10:50
5-W-18-1208	BRL0207-07	Water	12/17/08 15:45	12/18/08 10:50
5-W-180-1208	BRL0207-08	Water	12/17/08 15:50	12/18/08 10:50
5-W-17-1208	BRL0207-09	Water	12/17/08 13:25	12/18/08 10:50
5-W-15-1208	BRL0207-10	Water	12/17/08 14:40	12/18/08 10:50
MW-500-1208	BRL0207-11	Water	12/17/08 13:45	12/18/08 10:50
S1-1208	BRL0207-12	Water	12/17/08 10:00	12/18/08 10:50
S2-1208	BRL0207-13	Water	12/17/08 11:00	12/18/08 10:50
S3-1208	BRL0207-14	Water	12/17/08 11:45	12/18/08 10:50

TestAmerica Seattle







PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

1011 SW Klickitat Way, Suite 207Project Number:01140-204-0340Report Created:Seattle, WA 98134Project Manager:Halah Voges12/31/08 13:32

## **Analytical Case Narrative**

TestAmerica - Seattle, WA

## **BRL0207**

SAMPLE RECEIPT

The samples were received December 18th, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 2.7 degrees Celsius.

# PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Kate Haney, Project Manager





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0207-01 (5-W-42-1208)		Wa	Water Sampled: 12/17/08 08:55							
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 17:56	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	#	
Surrogate(s): 2-FBP			66.8%		53 - 125 %	"			"	
Octacosane			98.1%		68 - 125 %	"			"	
BRL0207-02 (5-W-420-1208)		Wa	iter		Sampl	ed: 12/1	17/08 08:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 19:44	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			91.2%		53 - 125 %	"			"	
Octacosane			93.5%		68 - 125 %	"			"	
BRL0207-03 (5-W-20-1208)		Wa	iter		Sampl	ed: 12/1	17/08 10:25			
Diesel Range Hydrocarbons	NWTPH-Dx	1.58		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 20:26	Q1
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	**	
Surrogate(s): 2-FBP			87.9%		53 - 125 %	"			"	
Octacosane			95.2%		68 - 125 %	"			"	
BRL0207-04 (5-W-19-1208)		Wa	iter		Sampled: 12/17/08 11:25					
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 21:09	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			93.4%		53 - 125 %	"			"	
Octacosane			98.6%		68 - 125 %	"			"	
BRL0207-05 (5-W-14-1208)		Wa	iter		Sampl	ed: 12/1	17/08 12:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 21:52	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.5%		53 - 125 %	"			"	
Octacosane			89.2%		68 - 125 %	"			"	
BRL0207-06 (5-W-16-1208)		Wa	Sampled: 12/17/08 14:10			17/08 14:10				
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 22:34	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	#	
Surrogate(s): 2-FBP			92.2%		53 - 125 %	"			"	
Octacosane			96.1%		68 - 125 %	"			"	

TestAmerica Seattle





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0207-07 (5-W-18-1208)		Wa	iter		Sampl	ed: 12/	17/08 15:45			
Diesel Range Hydrocarbons	NWTPH-Dx	1.94		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 00:22	Q12
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			96.8%		53 - 125 %	"			"	
Octacosane			95.7%		68 - 125 %	"			"	
BRL0207-08 (5-W-180-1208)		Wa	iter		Sampl	ed: 12/	17/08 15:50			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.472	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 01:04	
Surrogate(s): Octacosane			76.5%		68 - 125 %	"			"	
BRL0207-08RE1 (5-W-180-1208)		Water			Sampled: 12/17/08 15:50					
Diesel Range Hydrocarbons	NWTPH-Dx	1.58		0.236	mg/l	1x	8L29024	12/29/08 13:15	12/30/08 19:14	Q12
Surrogate(s): 2-FBP			86.9%		53 - 125 %	"			"	
BRL0207-09 (5-W-17-1208)		Wa	iter		Sampl	ed: 12/	17/08 13:25			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 01:47	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			89.6%		53 - 125 %	"			"	
Octacosane			97.5%		68 - 125 %	"			"	
BRL0207-10 (5-W-15-1208)		96.8%								
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 02:30	
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			91.4%		53 - 125 %	"			"	
Octacosane			93.3%		68 - 125 %	"			"	
BRL0207-11 (MW-500-1208)		Wa	iter		Sampl	ed: 12/	17/08 13:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.236	-					
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			86.3%		53 - 125 %	"			"	
Octacosane			96.1%		68 - 125 %	"			"	

TestAmerica Seattle





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0207-12 (S1-1208)		W	ater		Sampled: 12/17/08 10:00					
Diesel Range Hydrocarbons	NWTPH-Dx	0.310		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 05:00	Q12
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			93.6%		53 - 125 %	"			"	
Octacosane			94.7%		68 - 125 %	"			"	
BRL0207-13 (S2-1208)		W	ater		Sampl	ed: 12/1	17/08 11:00			
Diesel Range Hydrocarbons	NWTPH-Dx	1.02		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 05:43	Q12
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			102%		53 - 125 %	"			"	
Octacosane			102%		68 - 125 %	"			"	
BRL0207-14 (S3-1208)		W	ater		Sampl	ed: 12/1	17/08 11:45			
Diesel Range Hydrocarbons	NWTPH-Dx	0.913		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 06:26	Q12
Lube Oil Range Hydrocarbons	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			91.1%		53 - 125 %	"			"	
Octacosane			90.0%		68 - 125 %	"			"	

TestAmerica Seattle





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0207-01 (5-W-42-1208)		Water Sampled: 12/17/08 08:55								
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 18:17	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			62.6%		53 - 125 %	"			"	
Octacosane (SGCU)			93.3%		68 - 125 %	"			"	
BRL0207-02 (5-W-420-1208)		Wa	iter		Sampled: 12/17/08 08:50					
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 20:05	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			83.8%		53 - 125 %	"			"	
Octacosane (SGCU)			88.7%		68 - 125 %	"			"	
BRL0207-03 (5-W-20-1208)		Wa	iter		Sampl	ed: 12/1	17/08 10:25			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 20:47	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			84.5%		53 - 125 %	"			"	
Octacosane (SGCU)			97.3%		68 - 125 %	"			"	
BRL0207-04 (5-W-19-1208)		Water		Sampled: 12/17/08 11:25						
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 21:31	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			86.8%		53 - 125 %	"			"	
Octacosane (SGCU)			94.5%		68 - 125 %	"			"	
BRL0207-05 (5-W-14-1208)		Wa	iter	Sampled: 12/17/08 12:50						
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 22:13	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			76.5%		53 - 125 %	"		<del></del>	"	
Octacosane (SGCU)			89.7%		68 - 125 %	"			"	
BRL0207-06 (5-W-16-1208)		Water		Sampled: 12/17/08 14:10						
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/29/08 22:56	_
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			88.2%		53 - 125 %	"			"	
3 1/			96.9%		68 - 125 %	,,			,,	

TestAmerica Seattle





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte	Method Result MDL* MRL Units Dil Batch P		Prepared	Analyzed	Notes					
BRL0207-07 (5-W-18-1208)		Wa	ter		Sampl	ed: 12/1	17/08 15:45			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 00:43	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			87.7%		53 - 125 %	"			"	
Octacosane (SGCU)			92.5%		68 - 125 %	"			"	
BRL0207-08 (5-W-180-1208)		Wa	ter		Sampl	ed: 12/1	17/08 15:50			
Lube Oil Range (SGCU)	NWTPH-Dx	ND		0.472	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 01:25	
Surrogate(s): Octacosane (SGCU)			78.4%		68 - 125 %	"			"	
BRL0207-08RE1 (5-W-180-1208)		Wa	ter		Sampl	ed: 12/1	17/08 15:50			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L29024	12/29/08 13:15	12/30/08 19:37	
Surrogate(s): 2-FBP (SGCU)			82.6%		53 - 125 %	"			"	
BRL0207-09 (5-W-17-1208)		Wa	Water Sampled: 12/17/08 13:25							
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 02:08	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			90.6%		53 - 125 %	"			"	
Octacosane (SGCU)			100%		68 - 125 %	"			"	
BRL0207-10 (5-W-15-1208)		Wa	ter		Sampl	ed: 12/1	17/08 14:40			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 02:51	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			83.3%		53 - 125 %	"			"	
Octacosane (SGCU)			91.4%		68 - 125 %	"			"	
BRL0207-11 (MW-500-1208)		Wa	ter		Sampl	ed: 12/1	17/08 13:45			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 03:34	
Lube Oil Range (SGCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			82.0%		53 - 125 %	"			"	
Octacosane (SGCU)			93.1%		68 - 125 %	"			"	

TestAmerica Seattle







**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Report Created: Project Number: Seattle, WA 98134 Project Manager: Halah Voges 12/31/08 13:32

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte		Method Result MDL*		MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRL0207-12	(S1-1208)		Wa	iter		Sampl	ed: 12/1	17/08 10:00			
Diesel Range (SGC	U)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 05:22	
Lube Oil Range (SO	GCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s):	2-FBP (SGCU)			86.4%		53 - 125 %	"			"	
	Octacosane (SGCU)			92.9%		68 - 125 %	"			"	
BRL0207-13	(S2-1208)		Wa	iter		Sampl	ed: 12/1	17/08 11:00			
Diesel Range (SGC	U)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 06:05	
Lube Oil Range (SO	GCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s):	2-FBP (SGCU)			91.7%		53 - 125 %	"			"	
	Octacosane (SGCU)			99.0%		68 - 125 %	"			"	
BRL0207-14	(S3-1208)		Wa	iter		Sampl	ed: 12/1	17/08 11:45			
Diesel Range (SGC	U)	NWTPH-Dx	ND		0.236	mg/l	1x	8L26010	12/26/08 09:46	12/30/08 06:47	
Lube Oil Range (SO	GCU)	"	ND		0.472	"	"	"	"	"	
Surrogate(s):	2-FBP (SGCU)			86.5%		53 - 125 %	"			"	
	Octacosane (SGCU)			91.5%		68 - 125 %	"			"	

TestAmerica Seattle







AECOM - Seattle Project Name: BNSF-Skykomish

1011 SW Klickitat Way, Suite 207Project Number:01140-204-0340Report Created:Seattle, WA 98134Project Manager:Halah Voges12/31/08 13:32

Semivolatile P	etroleum Pro	ducts by I		(w/o Acid		l Clea	ın-up) -	Labor	atory	<b>Quality</b>	Cont	trol Res	sults	
QC Batch: 8L26010	Water l	Preparation	n Method: E	PA 3520C	2									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L26010-BLK1)								Extr	acted:	12/26/08 09	:46			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.250	mg/l	1x							12/29/08 15:04	
Lube Oil Range Hydrocarbons	"	ND		0.500	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	86.1% 89.0%	Lin	mits: 53-125% 68-125%	"							12/29/08 15:04	
LCS (8L26010-BS1)								Extr	acted:	12/26/08 09	:46			
Diesel Range Hydrocarbons	NWTPH-Dx	1.52		0.250	mg/l	1x		2.00	76.1%	(61-132)			12/29/08 15:47	
Surrogate(s): 2-FBP Octacosane		Recovery:	84.6% 96.2%	Lir	mits: 53-125% 68-125%	"							12/29/08 15:47	
Matrix Spike (8L26010-MS1)				QC Source:	: BRL0207-10			Extr	acted:	12/26/08 09	:46			
Diesel Range Hydrocarbons	NWTPH-Dx	1.80		0.236	mg/l	1x	0.202	1.89	84.6%	(32-143)			12/29/08 16:30	
Surrogate(s): 2-FBP Octacosane		Recovery:	87.0% 100%	Lin	mits: 53-125% 68-125%	"							12/29/08 16:30	
Matrix Spike Dup (8L26010-MS	SD1)			QC Source:	: BRL0207-10			Extr	acted:	12/26/08 09	:46			
Diesel Range Hydrocarbons	NWTPH-Dx	1.76		0.236	mg/l	1x	0.202	1.89	82.4%	(32-143)	2.38%	6 (40)	12/29/08 17:12	
Surrogate(s): 2-FBP Octacosane		Recovery:	87.3% 92.8%	Lir	68-125%	"							12/29/08 17:12 "	
QC Batch: 8L29024	Water 1	Preparation	n Method: E	PA 3520C	}									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L29024-BLK1)								Extr	acted:	12/29/08 13	:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.250	mg/l	1x				-			12/30/08 17:02	-
Surrogate(s): 2-FBP		Recovery:	82.1%	Lin	mits: 53-125%	"							12/30/08 17:02	
LCS (8L29024-BS1)								Extr	acted:	12/29/08 13	:15			
Diesel Range Hydrocarbons	NWTPH-Dx	1.64		0.250	mg/l	1x		2.00	81.8%	(61-132)			12/30/08 17:46	
Surrogate(s): 2-FBP		Recovery:	74.0%	Lii	nits: 53-125%	"							12/30/08 17:46	
LCS Dup (8L29024-BSD1)								Extr	acted:	12/29/08 13	:15			
Diesel Range Hydrocarbons	NWTPH-Dx	1.66		0.250	mg/l	1x		2.00	83.0%	(61-132)	1.47%	6 (40)	12/30/08 18:30	

TestAmerica Seattle

Surrogate(s): 2-FBP

Vota Hanay Draiget Manager

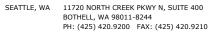
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



12/30/08 18:30

Limits: 53-125%

Recovery: 76.2%





AECOM - Seattle Project Name: BNSF-Skykomish

1011 SW Klickitat Way, Suite 207Project Number:01140-204-0340Report Created:Seattle, WA 98134Project Manager:Halah Voges12/31/08 13:32

	Semivolatile P	etroleum Pro	ducts by I	NWTPH-D	Ox with Aci TestAmer		el Cle	an-up -	Labor	atory	Quality	Cont	rol Res	ults	
QC Batch	: 8L26010	Water I	Preparation	Method:	EPA 35200	C									
Analyte		Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L2601	0-BLK1)								Extr	acted:	12/26/08 09	:46			
Diesel Range (SGCU)		NWTPH-Dx	ND		0.250	mg/l	1x							12/29/08 15:24	
Lube Oil Range (SGC	U)	"	ND		0.500	"	"							"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	83.6% 90.2%	Li	mits: 53-125% 68-125%	"							12/29/08 15:24	
LCS (8L26010-	·BS1)								Extr	acted:	12/26/08 09	:46			
Diesel Range (SGCU)		NWTPH-Dx	1.47		0.250	mg/l	1x		2.00	73.3%	(61-132)			12/29/08 16:08	
=	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	80.1% 94.8%	Li	mits: 53-125% 68-125%	"							12/29/08 16:08	
Matrix Spike (	8L26010-MS1)				QC Source	: BRL0207-10			Extr	acted:	12/26/08 09	:46			
Diesel Range (SGCU)		NWTPH-Dx	1.55		0.236	mg/l	1x	ND	1.89	81.9%	(32-143)			12/29/08 16:51	
=	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	85.5% 101%	Li	mits: 53-125% 68-125%	"							12/29/08 16:51	
Matrix Spike Du	ip (8L26010-MS	D1)			QC Source	: BRL0207-10			Extr	acted:	12/26/08 09	:46			
Diesel Range (SGCU)		NWTPH-Dx	1.46		0.236	mg/l	1x	ND	1.89	77.5%	(32-143)	5.50%	(40)	12/29/08 17:34	
0 17	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	79.5% 89.9%	Li	mits: 53-125% 68-125%	"							12/29/08 17:34	
QC Batch	: 8L29024	Water I	Preparation	Method:	EPA 35200	2									
Analyte		Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L2902	4-BLK1)								Extr	acted:	12/29/08 13	:15			
Diesel Range (SGCU)		NWTPH-Dx	ND		0.250	mg/l	1x				-			12/30/08 17:24	
Surrogate(s):	2-FBP (SGCU)		Recovery:	77.3%	Li	mits: 53-125%	"							12/30/08 17:24	
LCS (8L29024-	·BS1)								Extr	acted:	12/29/08 13	:15			
Diesel Range (SGCU)		NWTPH-Dx	1.57		0.250	mg/l	1x		2.00	78.5%	(61-132)			12/30/08 18:08	
Surrogate(s):	2-FBP (SGCU)		Recovery:	68.4%	Li	mits: 53-125%	"							12/30/08 18:08	
LCS Dup (8L2	9024-BSD1)								Extr	acted:	12/29/08 13	:15			
Diesel Range (SGCU)		NWTPH-Dx	1.57		0.250	mg/l	1x		2.00	78.7%	(61-132)	0.190%	6 (35)	12/30/08 18:52	

TestAmerica Seattle

Man Linning

Surrogate(s): 2-FBP (SGCU)

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12/30/08 18:52

Limits: 53-125%

Recovery: 69.7%



SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

AECOM - Seattle Project Name: BNSF-Skykomish

1011 SW Klickitat Way, Suite 207Project Number:01140-204-0340Report Created:Seattle, WA 98134Project Manager:Halah Voges12/31/08 13:32

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Kate Haney, Project Manager





11720 NORTH CREEK PKWY N. SUITE 400 BOTHELL, WA 98011-8244

PH: (425) 420.9200 FAX: (425) 420.9210

Report Created:

12/31/08 13:32

THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

1011 SW Klickitat Way, Suite 207 01140-204-0340 Project Number: Seattle, WA 98134 Project Manager: Halah Voges

#### **Notes and Definitions**

#### Report Specific Notes:

Q12 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.

## <u>Laboratory Reporting Conventions:</u>

Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only. DET

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL\* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic Signature

Dil

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle



	LABORATORY INFORMATION								LAB WORK	ORDER: É	RLO	207	
BNSF	Laboratory: Tost Arr	odea			Project Man	ager:				SHIPMI	ENT INFORMAT	ION	
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BNSF Project Number:	Project City:		Company:	7V5 V	2 /A	EC	em		Project Manag		Talab	1/0005	
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DNOT Contact	BNSF Work Order No.	-1100	City/State/ZIP: -	earlt 6	11/	A 9	8134	by Co	Phone:	211-93	1.0 Fax:	674-783	
TURNAROUND TIME	DELIVERABLES	Other De		early o	1	,,,,	METHODS FOR	ANALYSIS	NO 10		79 (100)	1027-20	
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2-day Rush Standard 10-Day	Level III	EDD Red	, Format?										
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3-day Rush Other	PLE INFORMATION				43	13							
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15 Relinquished By:	Date/Time: / R	eceived By: 14a	-44				Date/Time: 12-18-03/1050	Comm	ents and S	eçişi,Analytic	al Requirement	<u> </u> :s:	
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Relinquished By:	Date/Time: Received By:				·	Date/Time:							
Received by Laboratory:	Date/Time: Lab Remarks:						Lab: Custody Intact?		Seal No.:		BNSF COC N	o :	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES	Duplicate - consultan					Yes No				Rev 10/02/0			

ГАТ:	Paperwork to	PM – Date: T	ime:	Non-Conformances?
Page Time & Initials:	- Fire	id 4 rooters	, not 5 Ch 123	Circle Y or N
	2/12/00/00	•	14	(If Y, see other side)
	TEST AMERICA SA	AMPLE RECEIPT	CHECKLIST	601.207
Received By: applies to temp at receipt)	Logged-in By:	Unpacked/Labeled Fun	By: Cooler ID: 18 Lad filling out 12.2608. Work Order No	BRLOXOI
Date: 12-18-08	Date: <u>Q-19-0</u> 8	Date: 1219-08 109	Work Order No	
Time: <u>10 5 0</u>	Time: 10:57	Time: <u>152</u> 00_	Client:	
nitials: <u>DS</u>	Initials: <u>CMS</u>	Initials:_C∏S	Project:	
Container Type:	cocs	Seals:	Packing Material	
<u></u> Cooler	Ship Container	Sign By	1	Styrofoam
Box		Date	Foam Packs	
None/Other		lone	None/Other	<u> </u>
Refrigerant:			Received Via: Bill#Fed Ex	Client
Loose Ice			UPS	
None/Other			DHL	_ Mid Valley
			Senvoy	_ TDP
			GS	Other
BP, OPLC,ARCO-Te	27, °C or NAW 13,01, mperature monitoring ever	ry 15 minutes:	ттр Біалік	? Y or N or(NA)
Sample Containers:	<u>ID</u>			<u> ID</u>
Intact?	(Y) or N	Metals Preser	ved? Y or N or	r 😡
Provided by TA?	<b>⊘</b> or N	Client QAPP F	Preserved? Y or No	r (V)
Correct Type?	<b>⊘</b> or N	Adequate Volu		
#Containers match C	OC? (Y) or N		Headspace? Y or N or	r(NA)
IDs/time/date match	$\sim$			
Hold Times in hold?				
PROJECT MANAGE	MENT			
Is the Chain of Custo	dy complete?		Y or N If N, circle the	items that were incomplete
Comments,Problems				
Total access set up?	regarding non-conformance?		Y or N Y or N If Y,/	
	regarding non-conformances?  Date:	Time:	Date	e Time
PM Initials:	Dalt.	1 II I I Ç.		



March 10, 2009

Jennifer Wald AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 03/05/09 17:25. The following list is a summary of the Work Orders contained in this report, generated on 03/10/09 12:49.

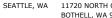
If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
BSC0054	BNSF-Skykomish	01140-222-0230

TestAmerica Seattle

Kate Haney, Project Manager









**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0230 Report Created: Project Number: Seattle, WA 98104 Project Manager: Jennifer Wald 03/10/09 12:49

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1C-W-1-0309	BSC0054-01	Water	03/05/09 13:10	03/05/09 17:25
1B-W-3-030509	BSC0054-02	Water	03/05/09 14:10	03/05/09 17:25

TestAmerica Seattle





TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0230
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Jennifer Wald
 03/10/09 12:49

## **Analytical Case Narrative**

TestAmerica - Seattle, WA

## BSC0054

SAMPLE RECEIPT

The samples were received 03/05/2009 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 5.7 degrees Celsius.

## PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Kate Haney, Project Manager







**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0230 Report Created: Project Number: Seattle, WA 98104 Project Manager: Jennifer Wald 03/10/09 12:49

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0054-01 (1C-W-1-0309)		Wa	ater		Sampl	ed: 03/0	05/09 13:10			
Diesel Range Hydrocarbons	NWTPH-Dx	0.120	0.0943	0.236	mg/l	1x	9C06014	03/06/09 10:53	03/09/09 20:23	J, Q12
<b>Lube Oil Range Hydrocarbons</b>	"	0.159	0.142	0.472	"	"	"	"	"	J, Q1.
Surrogate(s): 2-FBP			79.5%		53 - 120 %	"			"	
Octacosane			96.9%		68 - 123 %	"			"	
BSC0054-02 (1B-W-3-030509)		Wa	ater		Sampled: 03/05/09 14:10					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C06014	03/06/09 10:53	03/09/09 20:45	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.5%		53 - 120 %	"			"	
Octacosane			96.4%		68 - 123 %	"			"	

TestAmerica Seattle







**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0230 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Jennifer Wald 03/10/09 12:49

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

				TestAmeri	ca Seattle									
QC Batch: 9C06014	Water I	Preparation	Method:	EPA 3520C	1									
Analyte	Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9C06014-BLK1)								Extra	acted:	03/06/09 10	:53			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/09/09 17:27	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	78.9% 95.7%	Lin	nits: 53-120% 68-123%	"							03/09/09 17:27	
LCS (9C06014-BS1)								Extra	acted:	03/06/09 10	:53			
Diesel Range Hydrocarbons	NWTPH-Dx	1.98	0.100	0.250	mg/l	1x		2.00	99.2%	(65-120)			03/09/09 17:49	
Lube Oil Range Hydrocarbons	"	2.32	0.150	0.500	"	"		"	116%	(70-120)			"	
Surrogate(s): 2-FBP Octacosane		Recovery:	78.0% 95.2%	Lin	nits: 53-120% 68-123%	"							03/09/09 17:49 "	
LCS Dup (9C06014-BSD1)								Extra	acted:	03/06/09 10	:53			MNR1
Diesel Range Hydrocarbons	NWTPH-Dx	1.94	0.100	0.250	mg/l	1x		2.00	97.1%	(65-120)	2.14%	(25)	03/09/09 18:11	
Lube Oil Range Hydrocarbons	"	2.40	0.150	0.500	"	"		"	120%	(70-120)	3.33%	(40)	"	
Surrogate(s): 2-FBP Octacosane		Recovery:	75.7% 93.1%	Lin	nits: 53-120% 68-123%	"							03/09/09 18:11	

TestAmerica Seattle





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0230 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Jennifer Wald 03/10/09 12:49

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle









**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0230 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Jennifer Wald 03/10/09 12:49

#### **Notes and Definitions**

#### Report Specific Notes:

J Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

MNR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.

Q12 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.

Q13 Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.

## **Laboratory Reporting Conventions:**

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

**RPD** RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. MDL\* \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Electronic

Signature



# **TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

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

503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290

CHAIN OF CUSTODY REPORT

TA WO ID \* Turnaround Requests less than standard may incur Rush Charges  $\overset{\sim}{\gamma}$ 9 DATE: 3/5/69 TIME: 1725 DATE: 7 PAGE OF Work Order #: BSCCOSHTURNAROUND REQUEST LOCATION/ COMMENTS Organic & Inorganic Analyses in Business Days \* OTHER | Specify: # OF CONT. 4 CIN 7 MATRIX (W, S, O) Ø Ø 10 STD. PRINT NAME: Francisco Luna, Jr RECEIVED BY: RECEIVED BY: REQUESTED ANALYSES PRESERVATIVE INVOICE TO: RASP 03/05/09. P.O. NUMBER TIME: TIME: 2nd Ave, seattle WA 98104 HELMA HALMACO HCL 16-W-1-0309 03/05/09@ 1310 218-W-3-030509 03/05/09(01410 PROJECT NUMBER: 6 11 40 - 221 - 0230. SAMPLING DATE/TIME ADDRESS: 710 010 AVA SAMPLED BY: Gold, Subsame PROJECT NAME: S KY KO MISH PHONE: 2 06 624-9349 FAX: CLIENT SAMPLE IDENTIFICATION ADDITIONAL REMARKS RELEASED BY: PRINT NAME: PRINT NAME: CLIENT:

TAL-1000(0408)

TAT:	Paperwo	rk to PM – Date: Ti	me:Non-Conform	nances?
Page Time & Initials:_		Rush	Circle	Y or 🕥
			(If Y, see oth	ner side
	TEST AMERICA	SAMPLE RECEIPT	CHECKLIST	
Received By: applies to temp at receipt)	Logged-in By:		By: Cooler ID:	
Date: <u>3/5/09</u>	Date: <u>3/5/04</u>	Date: 3/5/09	Work Order NoBSC d054	
Time: <u>1725</u>	Time: <u>1734</u>	Time: 1739	Client:	
nitials: FL	Initials: <u>F.L.</u>	Initials: F.C.	Project:	<del></del> ,
Container Type:	CO	C Seals:	Packing Material	<u>:</u>
X Cooler	Ship Contai	nerSign By		
Box	On Bottles	Date	Foam Packs	
None/Other	X	None	None/Other	
Refrigerant: Gel Ice Pack			Received Via: Bill# Fed Ex Client	
X Loose Ice			UPS TA Courier	
None/Other			DHL Mid Valley	
	***************************************		Senvoy TDP	
			GS Other	
Cooler Temperature (I	R): 5.7 °C Plastic	Glass (Frozen filters Te	edlars and aqueous Metals exempt)	
Temperature Blank? _ BP, OPLC,ARCO-Tem initial/date/time):	nperature monitoring e		Trip Blank? Y or N or	(JA)
			· · · · · · · · · · · · · · · · · · ·	
Sample Containers:	<u>ID</u>		<u>ID</u>	
ntact?	Ø or N	Metals Preserv	ed? Y or N or NA	
Provided by TA?	· Ø or N		eserved? Y or N or NA	
Correct Type?	Ø or N	Adequate Volur	me? Øor N	
#Containers match CC	C? (Vor N	(for tests requested Water VOAs: H	l) Headspace? Y or N or MAZ	
Ds/time/date match C				
	_			
PROJECT MANAGEN	MENT			
s the Chain of Custod			Y or N If N, circle the items that were in	ncomplete
Total access set up?	oggyding non conference	22	Y or N	<del></del>
Has client been contacted re	-		Y or N If Y,/ Date Time	
PM Initials:	Date:	_ Time:		





March 31, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 03/24/09 17:40. The following list is a summary of the Work Orders contained in this report, generated on 03/31/09 15:53.

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

Work Order	<u>Project</u>	<u>ProjectNumber</u>
BSC0252	BNSF-Skykomish	01140-204-0340

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager









**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: 03/31/09 15:53 Halah Voges

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-W-4-0309	BSC0252-01	Water	03/23/09 16:20	03/24/09 17:40
1A-W-3-0309	BSC0252-02	Water	03/23/09 17:40	03/24/09 17:40
MW-38R-0309	BSC0252-03	Water	03/24/09 09:00	03/24/09 17:40
1A-W-5-0309	BSC0252-04	Water	03/24/09 10:05	03/24/09 17:40
1A-W-4-0309	BSC0252-05	Water	03/24/09 10:55	03/24/09 17:40
1A-W-1-0309	BSC0252-06	Water	03/24/09 11:55	03/24/09 17:40
1B-W-3-0309	BSC0252-07	Water	03/24/09 13:00	03/24/09 17:40
1B-W-2-0309	BSC0252-08	Water	03/24/09 14:05	03/24/09 17:40
5-W-55-0309	BSC0252-09	Water	03/24/09 09:15	03/24/09 17:40
1C-W-3-0309	BSC0252-10	Water	03/24/09 11:00	03/24/09 17:40
1C-W-4-0309	BSC0252-11	Water	03/24/09 11:45	03/24/09 17:40
2A-W-10-0309	BSC0252-12	Water	03/24/09 12:55	03/24/09 17:40
2B-W-46-0309	BSC0252-13	Water	03/24/09 14:35	03/24/09 17:40
2B-W-45-0309	BSC0252-14	Water	03/24/09 15:15	03/24/09 17:40
5-W-53-0309	BSC0252-15	Water	03/24/09 09:50	03/24/09 17:40
MW-500-0309	BSC0252-16	Water	03/24/09 14:15	03/24/09 17:40
2A-W-11-0309	BSC0252-17	Water	03/24/09 14:40	03/24/09 17:40
MW-39-0309	BSC0252-18	Water	03/24/09 15:00	03/24/09 17:40
5-W-51-0309	BSC0252-19	Water	03/24/09 15:20	03/24/09 17:40

TestAmerica Seattle

Carlling Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244

PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 03/31/09 15:53

## **Analytical Case Narrative**

TestAmerica - Seattle, WA

## **BSC0252**

SAMPLE RECEIPT

The samples were received 03/24/09 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 10.1 degrees Celsius.

## PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

selling





**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0252-01 (2B-W-4-0309)		Wa	ater		Sampl	ed: 03/2	23/09 16:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 20:51	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			74.9%		53 - 120 %	"			"	
Octacosane			101%		68 - 123 %	"			"	
BSC0252-02 (1A-W-3-0309)		Wa	ater		Sampl	ed: 03/2	23/09 17:40			
Diesel Range Hydrocarbons	NWTPH-Dx	0.818	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 21:14	Q4
Lube Oil Range Hydrocarbons	"	1.54	0.142	0.472	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			86.9%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	"			"	
BSC0252-03 (MW-38R-0309)		Wa	ater		Sampl	ed: 03/2	24/09 09:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 21:36	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			74.3%		53 - 120 %	"			"	
Octacosane			95.3%		68 - 123 %	"			"	
BSC0252-04 (1A-W-5-0309)		Wa	ater		Sampl	ed: 03/2	24/09 10:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 21:58	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			71.7%		53 - 120 %	"			"	
Octacosane			95.5%		68 - 123 %	"			"	
BSC0252-05 (1A-W-4-0309)		Wa	iter		Sampl	ed: 03/2	24/09 10:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 22:20	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.0%		53 - 120 %	"			"	
Octacosane			96.9%		68 - 123 %	"			"	
BSC0252-06 (1A-W-1-0309)		Wa	iter		Sampl	ed: 03/2	24/09 11:55			
Diesel Range Hydrocarbons	NWTPH-Dx	0.137	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 22:41	Q3, J
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			74.0%		53 - 120 %	"			"	
Octacosane			99.2%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager







**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0252-07 (1B-W-3-0309)		W	ater		Sampl	ed: 03/2	24/09 13:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/27/09 23:03	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			76.7%		53 - 120 %	"			"	
Octacosane			99.6%		68 - 123 %	"			"	
BSC0252-08 (1B-W-2-0309)		W	ater		Sampl	ed: 03/2	24/09 14:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 00:32	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			78.5%		53 - 120 %	"			"	
Octacosane			101%		68 - 123 %	"			"	
BSC0252-09 (5-W-55-0309)		W	ater		Sampl	ed: 03/2	24/09 09:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 00:54	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			74.6%		53 - 120 %	"			"	
Octacosane			96.7%		68 - 123 %	"			"	
BSC0252-10 (1C-W-3-0309)		W	ater		Sampl	ed: 03/2	24/09 11:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 01:16	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			73.5%		53 - 120 %	"			"	
Octacosane			95.6%		68 - 123 %	"			"	
BSC0252-11 (1C-W-4-0309)		W	ater		Sampl	ed: 03/2	24/09 11:45			
Diesel Range Hydrocarbons	NWTPH-Dx	0.359	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 01:37	Q
Lube Oil Range Hydrocarbons	"	0.143	0.142	0.472	"	"	"	"	"	Q1,
Surrogate(s): 2-FBP			83.3%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	"			"	
BSC0252-12 (2A-W-10-0309)		W	ater		Sampl	ed: 03/2	24/09 12:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0962	0.240	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 01:59	
Lube Oil Range Hydrocarbons	#	0.192	0.144	0.481	"	"	"	"	"	
Surrogate(s): 2-FBP			81.6%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	,,			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			T CSt2 HIII	•11•u 5•						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0252-13 (2B-W-46-0309)		Wa	ater		Sampl	ed: 03/2	24/09 14:35			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 02:22	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			76.3%		53 - 120 %	"			"	
Octacosane			98.8%		68 - 123 %	"			"	
BSC0252-14 (2B-W-45-0309)		Wa	ater		Sampl	ed: 03/2	24/09 15:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 02:44	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			76.5%		53 - 120 %	"			"	
Octacosane			103%		68 - 123 %	"			"	
BSC0252-15 (5-W-53-0309)		Wa	ater		Sampl	ed: 03/2	24/09 09:50			
Diesel Range Hydrocarbons	NWTPH-Dx	0.119	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 03:06	Q3,
Lube Oil Range Hydrocarbons	"	0.144	0.142	0.472	"	"	"	"	"	Q1,
Surrogate(s): 2-FBP			87.2%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	"			"	
BSC0252-16 (MW-500-0309)		Wa	ater		Sampl	ed: 03/2	24/09 14:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 03:27	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			72.7%		53 - 120 %	"			"	
Octacosane			97.7%		68 - 123 %	"			"	
BSC0252-17 (2A-W-11-0309)		Wa	ater		Sampl	ed: 03/2	24/09 14:40			
Diesel Range Hydrocarbons	NWTPH-Dx	0.686	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 03:49	Q
Lube Oil Range Hydrocarbons	"	0.727	0.142	0.472	"	"	"	"	"	Q
Surrogate(s): 2-FBP			82.9%		53 - 120 %	"			"	
Octacosane			100%		68 - 123 %	"			"	
BSC0252-18 (MW-39-0309)		Wa	ater		Sampl	ed: 03/2	24/09 15:00			
Diesel Range Hydrocarbons	NWTPH-Dx	0.894	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 05:17	Q
Lube Oil Range Hydrocarbons	"	1.13	0.142	0.472	"	"	"	"	"	Q
Surrogate(s): 2-FBP			88.0%		53 - 120 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0252-19 (5-W-51-030	9)	W	ater		Sampl	ed: 03/2	24/09 15:20			
Diesel Range Hydrocarbons	NWTPH-Dx	4.31	0.0943	0.236	mg/l	1x	9C27008	03/27/09 11:37	03/28/09 05:39	Q4
Lube Oil Range Hydrocarbons	"	3.43	0.142	0.472	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			84.2%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

Report Created: 710 2nd Ave. Ste. 1000 01140-204-0340 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0252-16 (	(MW-500-0309)		Wa	iter		Sampl	ed: 03/2	4/09 14:15			
Diesel Range (SGCI	U)	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	9C26013	03/26/09 10:16	03/27/09 21:28	
Lube Oil Range (SG	GCU)	"	ND	0.151	0.472	"	"	"	"	"	
Surrogate(s):	2-FBP (SGCU)			67.7%		53 - 125 %	"			"	
	Octacosane (SGCU)			90.3%		68 - 125 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager







**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

## Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

TestAmerica Seattle

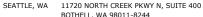
QC Batch: 9C27008	Water I	Preparation	Method: E	PA 3510C	2									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (9C27008-BLK1)								Ext	racted:	03/27/09 11	:37			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/27/09 19:46	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP		Recovery:	82.9%	Li	mits: 53-120%	"							03/27/09 19:46	
Octacosane			99.5%		68-123%	"							"	
LCS (9C27008-BS1)								Ext	racted:	03/27/09 11	:37			
Diesel Range Hydrocarbons	NWTPH-Dx	1.96	0.100	0.250	mg/l	1x		2.00	97.9%	(65-120)			03/27/09 20:08	
Lube Oil Range Hydrocarbons	"	2.08	0.150	0.500	"	"		"	104%	(70-120)			"	
Surrogate(s): 2-FBP		Recovery:	80.9%	Li	mits: 53-120%	"							03/27/09 20:08	
Octacosane			103%		68-123%	"							"	
LCS Dup (9C27008-BSD1)								Ext	racted:	03/27/09 11	:37			
Diesel Range Hydrocarbons	NWTPH-Dx	1.98	0.100	0.250	mg/l	1x		2.00	98.8%	(65-120)	0.9339	% (25)	03/27/09 20:30	
Lube Oil Range Hydrocarbons	"	2.03	0.150	0.500	"	"		"	101%	(70-120)	2.70%	(40)	"	
Surrogate(s): 2-FBP		Recovery:	80.4%	Li	mits: 53-120%	"							03/27/09 20:30	
Octacosane			101%		68-123%	"							"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

Carlling







**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

## Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results

TestAmerica Seattle

QC Batcl	h: 9C26013	Water I	Preparation	Method: El	PA 3520C	}									
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9C260	13-BLK1)								Ext	racted:	03/26/09 10	:16			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x							03/27/09 18:56	
Lube Oil Range (SG	CU)	•	ND	0.160	0.500	"	"							"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	86.0% 103%	Lii	nits: 53-125% 68-125%	"							03/27/09 18:56	
LCS (9C26013	3-BS1)								Ext	racted:	03/26/09 10	:16			
Diesel Range (SGCU	J)	NWTPH-Dx	1.90	0.0400	0.250	mg/l	1x		2.00	94.9%	(61-132)			03/27/09 19:18	
Lube Oil Range (SG	CU)	•	1.79	0.160	0.500	"	"		"	89.5%	(50-150)			"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	81.4% 95.3%	Lin	nits: 53-125% 68-125%	"							03/27/09 19:18	
LCS Dup (9C2	26013-BSD1)								Ext	racted:	03/26/09 10	:16			
Diesel Range (SGCU	J)	NWTPH-Dx	2.16	0.0400	0.250	mg/l	1x		2.00	108%	(61-132)	13.1%	(35)	03/27/09 19:40	
Lube Oil Range (SG	CU)	"	1.97	0.160	0.500	"	"		"	98.3%	(50-150)	9.32%	(50)	"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	92.9% 101%	Lii	nits: 53-125% 68-125%	"							03/27/09 19:40	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

Carlling





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: 03/31/09 15:53 Halah Voges

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington
NWTPH-Dx	Water		X

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N. SUITE 400 BOTHFIL. WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

est**A**mer THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 03/31/09 15:53

#### **Notes and Definitions**

#### Report Specific Notes:

J Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

Q1 Does not match typical pattern

Q3 The chromatographic pattern is not consistent with diesel fuel.

O4 The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.

#### <u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

Not Reported / Not Available NR/NA \_

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL\* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Signature

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager



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	Project City. Skylomic	_	AECON	تتسيد		Manager:	Halah Voga	. 27
BNSF Project Name: SCOOP SS		Address:	#2 Olt	* AVE	1540 1000	Email:	halah, Vogés 6 AEam	6 AEOMAN
Sharofich	BNSF Work Order No.:	HDS City/State/ZIF	Spattle	6 AM,	98104	(206) 624	624-9349 Fax	
AROUND TIME	DELIVERABLES	Other Deliverables?	٠	W	METHODS FOR ANALYSIS	) Sig	,	
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)							
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ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICAT	DUPLICATE - CONSULTANT				**************************************	/ Rev 10/02/05

10.1 w/a

		4	LABORATORY INFORMATION			LAB WORK OF	LAB WORK ORDER: BM 1752 P	Pa 25t 2
	Laboratopy	Anolica	Pro	Project Manager:			SHIPMENT INFORMATION	NC
BAILWAY	Address: Address:	Crack Play	.33	40 4m (42 ×) 470	0025-02	Shipment Method:	po:	
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z				CONSULTANT INFORMATION	RMATION	Project Number:	402-04110	-034n
	Project City:		Company: AECON	7		Project Manager.	Project Manager, Halah 1899.5	•
BNSF Project Name SKU KOON, SK	1		Address: 710 224	Ave.,	Ste 1000	Emaili, hala	400	ACCON COM
Co Showard	BNSF Work Order No.:	-408	Swissate ZIP: 8-16-15	, The	98ml	Phone: A	524-9349	
UND TIME	DELIVERABLES	Other De	Other Deliverables?		METHODS FOR ANALYSIS			***************************************
1-dāy Rush	NSF Standard (Level II)							
	Level III	X EDD Req, Format?		N N N X				
	Level IV	RETUCA	-EDUES	79 79				
	SAMPLE INFORMATION		7/3	95 110				
	Sample	Sample Collection	Type	3/				
Sample identification	Containers	Time Sampler	Filtered (Comp/ Matrix Y/N Grab)	MN MN MN	•		COMMENTS	LAB USE
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ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		ū	DUPLICATE - CONSULTANT					Rev 10/02/05

TAT:	Paperwor	K to Pivi – Date 11		$\sim$
Page Time & Initials:				le(Y)or N
	· ·			other side)
	TEST AMERICA	SAMPLE RECEIPT	CHECKLIST	7 297
Received By: applies to temp at receipt)	Logged-in By: /	Unpacked/Labeled I	By: Cooler ID: $\frac{300,35}{400,335}$	1330,30
Date: 3/24	Date: 3/25	Date: <u>3/25/</u> 9	Work Order No. BAN 252	
Fime: 17:40	Time: <u>3:12</u>	Time: 1445	Client:	
nitials:	Initials:	Initials: <i>Ao</i>	Project:	
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IDs/time/date match C		252-09 Comments:		Parameter and the second
Hold Times in hold?	(P) or N			
PROJECT MANAGE	MENT			
Is the Chain of Custoo	dy complete?		Y or N If N, circle the items that we	ere incomplete
Comments, Problems				
Total access set up? Has client been contacted	regarding non-conformanc	es?	Y or N Y or N If Y, / Date Time	
	Date:		Date Time	





April 07, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 03/24/09 17:40. The following list is a summary of the Work Orders contained in this report, generated on 04/07/09 16:37.

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

Work Order	Project	<u>ProjectNumber</u>
BSC0255	BNSF-Skykomish	01140-222-0100

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0100 Report Created: Project Number: Seattle, WA 98104 Project Manager: 04/07/09 16:37 Halah Voges

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S1-AU-0309	BSC0255-01	Water	03/24/09 08:40	03/24/09 17:40
S1-AD-0309	BSC0255-02	Water	03/24/09 08:50	03/24/09 17:40
S1-BU-0309	BSC0255-03	Water	03/24/09 09:00	03/24/09 17:40
S1-BD-0309	BSC0255-04	Water	03/24/09 09:05	03/24/09 17:40
S2-AU-0309	BSC0255-05	Water	03/24/09 09:30	03/24/09 17:40
S2-AD-0309	BSC0255-06	Water	03/24/09 09:40	03/24/09 17:40
S2-BU-0309	BSC0255-07	Water	03/24/09 10:05	03/24/09 17:40
S2-BD-0309	BSC0255-08	Water	03/24/09 10:15	03/24/09 17:40
S3-AU-0309	BSC0255-09	Water	03/24/09 11:05	03/24/09 17:40
S10-BD-0309	BSC0255-10	Water	03/24/09 09:10	03/24/09 17:40
S30-AU-0309	BSC0255-11	Water	03/24/09 11:15	03/24/09 17:40
S3-AD-0309	BSC0255-12	Water	03/24/09 11:25	03/24/09 17:40
S3-BU-0309	BSC0255-13	Water	03/24/09 11:40	03/24/09 17:40
S3-BD-0309	BSC0255-14	Water	03/24/09 11:50	03/24/09 17:40
S3-CU-0309	BSC0255-15	Water	03/24/09 12:00	03/24/09 17:40
S3-CD-0309	BSC0255-16	Water	03/24/09 12:10	03/24/09 17:40
S4-AU-0309	BSC0255-17	Water	03/24/09 12:55	03/24/09 17:40
S4-AD-0309	BSC0255-18	Water	03/24/09 13:05	03/24/09 17:40
S4-BU-0309	BSC0255-19	Water	03/24/09 13:15	03/24/09 17:40
S4-BD-0309	BSC0255-20	Water	03/24/09 13:30	03/24/09 17:40
S4-CU-0309	BSC0255-21	Water	03/24/09 13:45	03/24/09 17:40
S4-CD-0309	BSC0255-22	Water	03/24/09 13:55	03/24/09 17:40

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244

PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/07/09 16:37

## **Analytical Case Narrative**

TestAmerica - Seattle, WA

## BSC0255

SAMPLE RECEIPT

The samples were received 03/24/09 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 10.1 degrees Celsius.

## PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

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11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0255-01 (S1-AU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 08:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 17:08	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			80.2%		53 - 120 %	"			"	
Octacosane			93.3%		68 - 123 %	"			"	
BSC0255-02 (S1-AD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 08:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 17:30	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.8%		53 - 120 %	"			"	
Octacosane			89.1%		68 - 123 %	"			"	
BSC0255-03 (S1-BU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 09:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 17:52	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			83.0%		53 - 120 %	"			"	
Octacosane			96.7%		68 - 123 %	"			"	
BSC0255-04 (S1-BD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 09:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 18:15	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			83.7%		53 - 120 %	"			"	
Octacosane			98.6%		68 - 123 %	"			"	
BSC0255-05 (S2-AU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 09:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 18:37	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.7%		53 - 120 %	"			"	
Octacosane			90.3%		68 - 123 %	"			"	
BSC0255-06 (S2-AD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 09:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 18:59	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.6%		53 - 120 %	"			"	
Octacosane			90.0%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0255-07 (S2-BU-0309)		W	ater		Sampl	ed: 03/	24/09 10:05			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND	0.142	0.472	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 20:28	
Surrogate(s): 2-FBP			41.1%		53 - 120 %	"			"	Z6
Octacosane			79.8%		68 - 123 %	"			"	
BSC0255-07RE2 (S2-BU-0309)		W	ater		Sampl	ed: 03/	24/09 10:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C30018	03/30/09 10:29	03/31/09 12:47	
Surrogate(s): 2-FBP			96.9%		53 - 120 %	"			"	
Octacosane			105%		68 - 123 %	"			"	
BSC0255-08 (S2-BD-0309)		W	ater		Sampl	ed: 03/	24/09 10:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 20:51	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			78.1%		53 - 120 %	"			"	
Octacosane			85.4%		68 - 123 %	"			"	
BSC0255-09 (S3-AU-0309)		W	ater		Sampl	ed: 03/	24/09 11:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 21:13	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			77.4%		53 - 120 %	"			"	
Octacosane			85.6%		68 - 123 %	"			"	
BSC0255-10 (S10-BD-0309)		W	ater		Sampl	ed: 03/	24/09 09:10			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 21:35	
Lube Oil Range Hydrocarbons	"	0.162	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			77.2%		53 - 120 %	"			"	
Octacosane			87.8%		68 - 123 %	"			"	
BSC0255-11 (S30-AU-0309)		W	ater		Sampl	ed: 03/	24/09 11:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 21:57	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	**	
Surrogate(s): 2-FBP			78.3%		53 - 120 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0255-12 (S3-AD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 11:25			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 22:19	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.6%		53 - 120 %	"			"	
Octacosane			86.9%		68 - 123 %	"			"	
BSC0255-13 (S3-BU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 11:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 22:41	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			82.1%		53 - 120 %	"			"	
Octacosane			97.2%		68 - 123 %	"			"	
BSC0255-14 (S3-BD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 11:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 23:03	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	**	
Surrogate(s): 2-FBP			82.2%		53 - 120 %	"			"	
Octacosane			101%		68 - 123 %	"			"	
BSC0255-15 (S3-CU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 12:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 23:24	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			82.6%		53 - 120 %	"			"	
Octacosane			101%		68 - 123 %	"			"	
BSC0255-16 (S3-CD-0309)		Wa	iter		Sampl	ed: 03/2	24/09 12:10			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/26/09 23:46	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			78.5%		53 - 120 %	"			"	
Octacosane			89.6%		68 - 123 %	"			"	
BSC0255-17 (S4-AU-0309)		Wa	iter		Sampl	ed: 03/2	24/09 12:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/27/09 01:15	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			76.7%	-	53 - 120 %	"			"	
Octacosane			87.8%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager



11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0255-18 (S4-AD-0309)		Wa	ater		Sampl	ed: 03/2	24/09 13:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/27/09 01:37	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			80.9%		53 - 120 %	"			"	
Octacosane			93.9%		68 - 123 %	"			"	
BSC0255-19 (S4-BU-0309)		Wa	ater		Sampl	ed: 03/2	24/09 13:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/27/09 01:59	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	#	
Surrogate(s): 2-FBP			80.6%		53 - 120 %	"			"	
Octacosane			96.1%		68 - 123 %	"			"	
BSC0255-20 (S4-BD-0309)		Wa	ater		Sampl	ed: 03/2	24/09 13:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25027	03/25/09 12:33	03/27/09 02:21	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	#	
Surrogate(s): 2-FBP			74.0%		53 - 120 %	"			"	
Octacosane			95.4%		68 - 123 %	"			"	
BSC0255-21 (S4-CU-0309)		Wa	ater		Sampl	ed: 03/2	24/09 13:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25028	03/25/09 12:36	03/26/09 16:45	
Lube Oil Range Hydrocarbons	"	0.173	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			87.6%		53 - 120 %	"			"	
Octacosane			95.5%		68 - 123 %	"			"	
BSC0255-22 (S4-CD-0309)		Wa	ater		Sampl	ed: 03/2	24/09 13:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C25028	03/25/09 12:36	03/26/09 17:08	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP		<u> </u>	92.6%		53 - 120 %	"		<u> </u>	"	
Octacosane			104%		68 - 123 %	"			"	

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

Project Number: 01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Seattle, WA 98104 Project Manager: Halah Voges 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9C25027	Water 1	Preparation	n Method:	EPA 3520C	1									
Analyte	Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	s) Analyzed	Notes
Blank (9C25027-BLK1)								Extr	acted:	03/25/09 12	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/26/09 15:38	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"								"	
Surrogate(s): 2-FBP		Recovery:	77.4%	Lii	nits: 53-120%	"							03/26/09 15:38	
Octacosane			93.3%		68-123%	"							"	
LCS (9C25027-BS1)								Extr	acted:	03/25/09 12	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	1.91	0.100	0.250	mg/l	1x		2.00	95.5%	(65-120)			03/26/09 16:00	
Lube Oil Range Hydrocarbons	"	1.93	0.150	0.500	"			"	96.6%	(70-120)			"	
Surrogate(s): 2-FBP		Recovery:	80.8%	Lin	nits: 53-120%	"							03/26/09 16:00	
Octacosane			95.8%		68-123%	"							"	
Duplicate (9C25027-DUP1)				QC Source	BSC0255-15			Extr	acted:	03/25/09 12	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x	ND				NR	(40)	03/26/09 16:23	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"	ND				NR	"	"	
Surrogate(s): 2-FBP		Recovery:	81.2%	Lii	nits: 53-120%	"							03/26/09 16:23	
Octacosane			92.4%		68-123%	"							"	
Matrix Spike (9C25027-MS1)				QC Source	BSC0255-15			Extr	acted:	03/25/09 12	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	1.83	0.100	0.250	mg/l	1x	ND	2.00	91.5%	(32-143)		-	03/26/09 16:45	
Lube Oil Range Hydrocarbons	"	1.87	0.150	0.500	"	"	ND	"	93.4%	(50-150)			"	
Surrogate(s): 2-FBP		Recovery:	77.1%	Lii	nits: 53-120%	"							03/26/09 16:45	
Octacosane			89.9%		68-123%	"							"	

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager





99.3%

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/07/09 16:37

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results TestAmerica Seattle

QC Batch: 9C25028 Water Preparation Method: EPA 3520C REC (Limits) Source Spike Analyte Method Result MDL\* MRL Units Dil (Limits) Analyzed Blank (9C25028-BLK1) Extracted: 03/25/09 12:36 Diesel Range Hydrocarbons NWTPH-Dx 0.100 0.250 03/26/09 15:38 ND 1x mg/l Lube Oil Range Hydrocarbons ND 0.150 0.500 Surrogate(s): 2-FBP Recovery: Limits: 53-120% 03/26/09 15:38 68-123% Octacosane 108% LCS (9C25028-BS1) Extracted: 03/25/09 12:36 NWTPH-Dx 1 93 0.100 0.250 03/26/09 16:00 Diesel Range Hydrocarbons mg/l 1x 2.00 96.6% (65-120)Lube Oil Range Hydrocarbons 2.11 0.150 0.500 106% (70-120)Surrogate(s): 2-FBP Recovery: 94.3% Limits: 53-120% 03/26/09 16:00 Octacosane 98.3% 68-123% LCS Dup (9C25028-BSD1) Extracted: 03/25/09 12:36 Diesel Range Hydrocarbons NWTPH-Dx 1.90 0.1000.250 mg/l 1x 95.2% (65-120) 1.44% (25) 03/26/09 16:23 Lube Oil Range Hydrocarbons 2.22 0.150 0.500 111% (70-120) 4.88% (40) 03/26/09 16:23 Surrogate(s): 2-FBP Recovery: 92.5% Limits: 53-120%

68-123%

QC Batch: 9C30018	Water 1	Preparation	Method: EF	PA 3510C	!									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9C30018-BLK1)								Ext	racted:	03/30/09 10	:29			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/31/09 11:38	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP		Recovery:	100%	Lin	nits: 53-120%	"							03/31/09 11:38	
Octacosane			102%		68-123%	"							"	
LCS (9C30018-BS1)								Ext	racted:	03/30/09 10	:29			
Diesel Range Hydrocarbons	NWTPH-Dx	2.28	0.100	0.250	mg/l	1x		2.00	114%	(65-120)			03/31/09 12:01	
Lube Oil Range Hydrocarbons	"	2.13	0.150	0.500	"	"		"	107%	(70-120)			"	
Surrogate(s): 2-FBP		Recovery:	111%	Lin	nits: 53-120%	"							03/31/09 12:01	
Octacosane			115%		68-123%	"							"	
LCS Dup (9C30018-BSD1)								Ext	racted:	03/30/09 10	:29			
Diesel Range Hydrocarbons	NWTPH-Dx	2.10	0.100	0.250	mg/l	1x		2.00	105%	(65-120)	8.24%	6 (25)	03/31/09 12:24	
Lube Oil Range Hydrocarbons	"	1.99	0.150	0.500	"	"		"	99.6%	(70-120)	6.71%	6 (40)	"	
Surrogate(s): 2-FBP		Recovery:	98.6%	Lin	nits: 53-120%	"							03/31/09 12:24	
Octacosane			101%		68-123%	"							"	

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: 04/07/09 16:37 Halah Voges

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington				
NWTPH-Dx	Water	•	X	•	•	•	

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/07/09 16:37

#### **Notes and Definitions**

#### Report Specific Notes:

Z3

A-01 - Over Dilution

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).

- The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Z6 - Surrogate recovery was below acceptance limits.

### **Laboratory Reporting Conventions:**

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported

on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL\* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Dil

Curtis D. Armstrong For Kate Haney, Project Manager

agent Corre



		FABORATORY INFORMATION		LAB WORK ORDER: AM 1055 Felt &	£7/
	Laboratory Tost Arnor Co.	Project Manager:		IPMENT INFORMATION	
RAILWAY	750 NoFh	Greet Phus N 40 400 (23) 420-	0026-6	Shipment Method:	
CHAIN OF CUSTODY		Fax:	•	Tracking Number:	
Z	Origin:	CONSULTANT INFORMATION	ION	Project Number:	
BNSF Project Number:	Project City:	Company: AECOM		X Manager:	
BNSF Project Name: S KU L D SN SC		1 AVe	Ste 1000	📆	
<b>[</b>	BNSF Work Order No.: TO 100 - HOX	WA.	92104		
NAROUND	RABLES	Other Deliverables? . MET	METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)				
	¥				
3-day Rush Otther	Level IV &C	RETEC- KRINIS INDAN			•
SAMP	SAMPLE INFORMATION	7999 - H 1999 Ma			<del></del>
Sample identification	Sample Collection Containers Date Time Sampler	Filtered Comp/ Matrix 700 Comp/ Grab)	4		
1 (V	C480 60	V		COMMENIS LAB USE	
1 40 1	500	X		03	
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		X		1,0	
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5 N 1 C C 1 S	6 17001	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1 1	140 BC B	
ReinquigherTay	State Time:  State 196   12 Ch.   Barelver By	CHUBA DateTing	1/03 17:4	Comments and Special Analytical Requirements:	
Relinquished By:		:			
Relinquished By:		Date/Time:			
Received by Laboratory:	Date/Time: Lab Remarks:	-	Lab: Custody Intact? Custody Seal No.:	BNSF COC No.:	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICATE - CONSULTANT		Rev 10/02/05	102/05

Email halah, Wagas & agren, Com Project Number 01140 - 20450340 LAB USE BAN 255 LAB WORK ORDER: Pa 256 3 3 Ġ.; 1 3 5 SHIPMENT INFORMATION Project Manageri Hajah Vogo S COMMENTS Phone: 206)624-9349 Shipment Method: Tracking Number: METHODS FOR ANALYSIS Ste 400 (425) 420 -9700 8 40186 CONSULTANT INFORMATION MD55/M MJ-HHLMN MD95 9/M MJ-HHLMN LABORATORY INFORMATION
Project Manager. City/State/ZIP: Son HE , WH Company: AECON RETEX - EQUES Matrix Type (Comp/ Grab) Other Deliverables? EDD Req, Format? Filtered Y/N NAMO 0121 BOHZ/E Time Sampler 1345 1530 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 13.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 15.05 Sample Collection BNSF Work Order No.:
TTO 100-HOS Project City. Laboratory: 105-t DELIVERABLES K BNSF Standard (Level II) Date SAMPLE INFORMATION Level IV Level III Containers 0300 RAILWAY BNSF PROJECT INFORMATION 5- to 8-day Rush CHAIN OF CUSTODY TURNAROUND TIME 1 Sample identification BNSF Project Name! KOMSK Other \ \ \ \ \ \ BU NSF Project Number: 1-day Rush 2-day Rush 3-day Rush

BNSF COC No.: Sustody Seal No.: Lab: Custody Intact? DUPLICATE - CONSULTANT ORIGINAL - RETURN TO LABORATORY WITH SAMPLES eceived by Laboratory:

Comments and Special Analytical Requirements:

56 CM - St 1 ca gol Clanup

Date/Time:

Received By:

Received By:

elinquished By:

TAT:	Paperwork	to PM – Date:	Time:	Non-Conformances?
Page Time & Initials:			•	Circle Y or N
				(If Y, see other side)
	TEST AMERICA	SAMPLE RECEI		2070 357,397 341
Received By: (applies to temp at receipt)	Logged-in By:	Unpacked/Labe	eled By: Coole	er ID: 30k, 357,397,341 400, 335, 330, 322
Date: 3/24	Date: 3/25	Date: <u>3/25/</u> 9	Work Order N	o <i>BNO255</i>
Time: 11;40	Time: <u>/ / / /</u>	Time: <u>1445</u>	Client:	
Initials:()	Initials: ("W	Initials: 🔑	Project:	
Container Type:	coc	Seals:	Packing Mate	<u>ial:</u>
/Cooler	Ship Contain	erSign B	ByBubble E	Bags Styrofoam
Box	On Bottles	Date	Foam Pa	acks
None/Other		None	None/Ot	her
Refrigerant:		tir Bars/Encores:	Received Via:	Bill#: Client
Gel Ice Pack Loose Ice		ed in freezer #46: N or NA	UPS	TA Courier
None/Other		/date/time	DHL	
None/Other	IIIIIIai	/date/time	Senvoy	
			GS	Other
Cooler Temperature (	<i>IR):</i> °C Plastic (	Class (Frozen filter	-	
·	(circle o	one)	Trin	Blank? Y or N or NA
	mperature monitoring ev	ery 15 minutes:	•	· · · · · · · · · · · · · · · · · · ·
Sample Containers:	<u>ID</u>			ID
Intact?		Metals Pre	eserved? Y o	r N or(NA)
Provided by TA?	(Y) or N	Client QAF		r N or NA
Correct Type?	$\stackrel{\frown}{G}$ or N $\_\_\_$	Adequate	Volume?	r N
#Containers match C	OC? Øor N	(for tests requested Water VO	uested) As: Headspace? Y o	r N or(NA)
IDs/time/date match 0			s:	
Hold Times in hold?				
PROJECT MANAGE	MENT			
Is the Chain of Custo	dy complete?		Y or N If N, c	rcle the items that were incomplete
Comments, Problems				
Total access set up?			Y or N	
	regarding non-conformances	•	Y or N If Y,	/ Date Time
PM Initials:	Date:	Time:		·····





April 09, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 03/26/09 09:45. The following list is a summary of the Work Orders contained in this report, generated on 04/09/09 17:14.

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

Work Order	Project	ProjectNumber
BSC0267	BNSF-Skykomish	01140-204-0340

TestAmerica Seattle

Kate Haney, Project Manager









 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

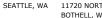
# ANALYTICAL REPORT FOR SAMPLES

2A-W-9-0309         BSC0267-01         Water         03/25/09 09:10         03/26/09 09:45           2A-W-90-0309         BSC0267-02         Water         03/25/09 09:20         03/26/09 09:45           1C-W-2-0309         BSC0267-03         Water         03/25/09 11:40         03/26/09 09:45           1C-W-1-0309         BSC0267-04         Water         03/25/09 12:45         03/26/09 09:45           MW-16-0309         BSC0267-05         Water         03/24/09 17:05         03/26/09 09:45           MW-40309         BSC0267-06         Water         03/24/09 17:05         03/26/09 09:45           MW-30309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           MW-400-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-20-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water	Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1C-W-2-0309         BSC0267-03         Water         03/25/09 11:40         03/26/09 09:45           1C-W-1-0309         BSC0267-04         Water         03/25/09 12:45         03/26/09 09:45           MW-16-0309         BSC0267-05         Water         03/25/09 10:45         03/26/09 09:45           MW-40309         BSC0267-06         Water         03/24/09 17:05         03/26/09 09:45           MW-3-0309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/25/09 13:45         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-70-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-15         Water         03/25/09 15:40         03/26/09 09:45           5-W-50-0309         BSC0267-15         Water	2A-W-9-0309	BSC0267-01	Water	03/25/09 09:10	03/26/09 09:45
IC-W-1-0309         BSC0267-04         Water         03/25/09 12:45         03/26/09 09:45           MW-16-0309         BSC0267-05         Water         03/25/09 10:45         03/26/09 09:45           MW-40309         BSC0267-06         Water         03/24/09 17:05         03/26/09 09:45           MW-3-0309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-70-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 14:50         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water	2A-W-90-0309	BSC0267-02	Water	03/25/09 09:20	03/26/09 09:45
MW-16-0309         BSC0267-05         Water         03/25/09 10:45         03/26/09 09:45           MW-4-0309         BSC0267-06         Water         03/24/09 17:05         03/26/09 09:45           MW-3-0309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-42-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-50-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-56-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water	1C-W-2-0309	BSC0267-03	Water	03/25/09 11:40	03/26/09 09:45
MW-4-0309         BSC0267-06         Water         03/24/09 17:05         03/26/09 09:45           MW-3-0309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-50-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-18-0309         BSC0267-19         Water	1C-W-1-0309	BSC0267-04	Water	03/25/09 12:45	03/26/09 09:45
MW-3-0309         BSC0267-07         Water         03/24/09 16:00         03/26/09 09:45           MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-50-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-50-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-19         Water         03/25/09 13:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water	MW-16-0309	BSC0267-05	Water	03/25/09 10:45	03/26/09 09:45
MW-400-0309         BSC0267-08         Water         03/24/09 17:10         03/26/09 09:45           5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-18-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water	MW-4-0309	BSC0267-06	Water	03/24/09 17:05	03/26/09 09:45
5-W-4-0309         BSC0267-09         Water         03/25/09 13:45         03/26/09 09:45           5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-18-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-18-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-14-0309         BSC0267-21         Water	MW-3-0309	BSC0267-07	Water	03/24/09 16:00	03/26/09 09:45
5-W-20-0309         BSC0267-10         Water         03/25/09 15:20         03/26/09 09:45           5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-50-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-18-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-18-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-19-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-19-0309         BSC0267-21         Water         03/25/09 12:10         03/26/09 09:45           5-W-19-0309         BSC0267-22         Water	MW-400-0309	BSC0267-08	Water	03/24/09 17:10	03/26/09 09:45
5-W-42-0309         BSC0267-11         Water         03/25/09 16:30         03/26/09 09:45           5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-56-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-180-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-14-0309         BSC0267-21         Water         03/24/09 09:20         03/26/09 09:45           5-W-19-0309         BSC0267-21         Water         03/25/09 14:05         03/26/09 09:45	5-W-4-0309	BSC0267-09	Water	03/25/09 13:45	03/26/09 09:45
5-W-16-0309         BSC0267-12         Water         03/25/09 10:05         03/26/09 09:45           5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-56-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-180-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-14-0309         BSC0267-21         Water         03/24/09 09:20         03/26/09 09:45           5-W-19-0309         BSC0267-21         Water         03/25/09 14:05         03/26/09 09:45	5-W-20-0309	BSC0267-10	Water	03/25/09 15:20	03/26/09 09:45
5-W-17-0309         BSC0267-13         Water         03/25/09 16:20         03/26/09 09:45           5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-56-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-180-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-14-0309         BSC0267-21         Water         03/24/09 09:20         03/26/09 09:45           5-W-19-0309         BSC0267-22         Water         03/25/09 14:05         03/26/09 09:45	5-W-42-0309	BSC0267-11	Water	03/25/09 16:30	03/26/09 09:45
5-W-50-0309         BSC0267-14         Water         03/25/09 15:40         03/26/09 09:45           5-W-54-0309         BSC0267-15         Water         03/25/09 14:50         03/26/09 09:45           5-W-56-0309         BSC0267-16         Water         03/24/09 17:00         03/26/09 09:45           5-W-500-0309         BSC0267-17         Water         03/24/09 16:00         03/26/09 09:45           5-W-18-0309         BSC0267-18         Water         03/25/09 13:05         03/26/09 09:45           5-W-180-0309         BSC0267-19         Water         03/25/09 12:05         03/26/09 09:45           5-W-15-0309         BSC0267-20         Water         03/25/09 12:10         03/26/09 09:45           5-W-14-0309         BSC0267-21         Water         03/24/09 09:20         03/26/09 09:45           5-W-19-0309         BSC0267-22         Water         03/25/09 14:05         03/26/09 09:45	5-W-16-0309	BSC0267-12	Water	03/25/09 10:05	03/26/09 09:45
5-W-54-0309       BSC0267-15       Water       03/25/09 14:50       03/26/09 09:45         5-W-56-0309       BSC0267-16       Water       03/24/09 17:00       03/26/09 09:45         5-W-500-0309       BSC0267-17       Water       03/24/09 16:00       03/26/09 09:45         5-W-18-0309       BSC0267-18       Water       03/25/09 13:05       03/26/09 09:45         5-W-180-0309       BSC0267-19       Water       03/25/09 12:05       03/26/09 09:45         5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-17-0309	BSC0267-13	Water	03/25/09 16:20	03/26/09 09:45
5-W-56-0309       BSC0267-16       Water       03/24/09 17:00       03/26/09 09:45         5-W-500-0309       BSC0267-17       Water       03/24/09 16:00       03/26/09 09:45         5-W-18-0309       BSC0267-18       Water       03/25/09 13:05       03/26/09 09:45         5-W-180-0309       BSC0267-19       Water       03/25/09 12:05       03/26/09 09:45         5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-50-0309	BSC0267-14	Water	03/25/09 15:40	03/26/09 09:45
5-W-500-0309       BSC0267-17       Water       03/24/09 16:00       03/26/09 09:45         5-W-18-0309       BSC0267-18       Water       03/25/09 13:05       03/26/09 09:45         5-W-180-0309       BSC0267-19       Water       03/25/09 12:05       03/26/09 09:45         5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-54-0309	BSC0267-15	Water	03/25/09 14:50	03/26/09 09:45
5-W-18-0309       BSC0267-18       Water       03/25/09 13:05       03/26/09 09:45         5-W-180-0309       BSC0267-19       Water       03/25/09 12:05       03/26/09 09:45         5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-56-0309	BSC0267-16	Water	03/24/09 17:00	03/26/09 09:45
5-W-180-0309       BSC0267-19       Water       03/25/09 12:05       03/26/09 09:45         5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-500-0309	BSC0267-17	Water	03/24/09 16:00	03/26/09 09:45
5-W-15-0309       BSC0267-20       Water       03/25/09 12:10       03/26/09 09:45         5-W-14-0309       BSC0267-21       Water       03/24/09 09:20       03/26/09 09:45         5-W-19-0309       BSC0267-22       Water       03/25/09 14:05       03/26/09 09:45	5-W-18-0309	BSC0267-18	Water	03/25/09 13:05	03/26/09 09:45
5-W-14-0309 BSC0267-21 Water 03/24/09 09:20 03/26/09 09:45 5-W-19-0309 BSC0267-22 Water 03/25/09 14:05 03/26/09 09:45	5-W-180-0309	BSC0267-19	Water	03/25/09 12:05	03/26/09 09:45
5-W-19-0309 BSC0267-22 Water 03/25/09 14:05 03/26/09 09:45	5-W-15-0309	BSC0267-20	Water	03/25/09 12:10	03/26/09 09:45
	5-W-14-0309	BSC0267-21	Water	03/24/09 09:20	03/26/09 09:45
5-W-52-0309 BSC0267-23 Water 03/24/09 16:05 03/26/09 09:45	5-W-19-0309	BSC0267-22	Water	03/25/09 14:05	03/26/09 09:45
	5-W-52-0309	BSC0267-23	Water	03/24/09 16:05	03/26/09 09:45

TestAmerica Seattle

Kate Haney, Project Manager







11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

TestAmerico THE LEADER IN ENVIRONMENTAL TESTING

BNSF-Skykomish **AECOM - Seattle** Project Name:

710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Report Created: Seattle, WA 98104 Project Manager: 04/09/09 17:14 Halah Voges

#### **Analytical Case Narrative**

TestAmerica - Seattle, WA

### **BSC0267**

#### SAMPLE RECEIPT

The samples were received 03/26/2009 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.0 degrees Celsius. For samples 5-W-16-0309 and 5-W-15-0309, the COC lists the sampled date as 03/25/2009, however the containers list the sampled date of 03/24/2009. The samples were logged in with the sampled date on the COC.

#### PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle





**AECOM - Seattle** 

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

Project Name:

**BNSF-Skykomish** 

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-01 (2A-W-9-0309)		Wa	iter		Sampl	ed: 03/2	25/09 09:10			
Diesel Range Hydrocarbons	NWTPH-Dx	0.927	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 13:58	Q
Lube Oil Range Hydrocarbons	"	0.799	0.142	0.472	"	"	"	"	"	Q1
Surrogate(s): 2-FBP			87.0%		53 - 120 %	"			"	
Octacosane			96.5%		68 - 123 %	"			"	
BSC0267-02 (2A-W-90-0309)		Wa	iter		Sampl	ed: 03/2	25/09 09:20			
Diesel Range Hydrocarbons	NWTPH-Dx	0.902	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 14:21	Q3
Lube Oil Range Hydrocarbons	"	0.772	0.142	0.472	"	"	"	"	"	Q1
Surrogate(s): 2-FBP			89.2%		53 - 120 %	"			"	_
Octacosane			99.6%		68 - 123 %	"			"	
BSC0267-03 (1C-W-2-0309)		Wa	ater		Sampl	ed: 03/2	25/09 11:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 14:44	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	**	
Surrogate(s): 2-FBP			82.9%		53 - 120 %	"			"	
Octacosane			104%		68 - 123 %	"			"	
BSC0267-04 (1C-W-1-0309)		Wa	iter		Sampl	ed: 03/2	25/09 12:45			
Diesel Range Hydrocarbons	NWTPH-Dx	0.273	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 15:07	Q3
Lube Oil Range Hydrocarbons	"	0.162	0.142	0.472	"	"	"	"	"	J, Q1
Surrogate(s): 2-FBP			92.3%		53 - 120 %	"			"	
Octacosane			109%		68 - 123 %	"			"	
BSC0267-05 (MW-16-0309)		Wa	ater		Sampl	ed: 03/2	25/09 10:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 17:29	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			87.2%		53 - 120 %	"			"	
Octacosane			104%		68 - 123 %	"			"	
BSC0267-06 (MW-4-0309)		Wa	iter		Sampl	ed: 03/2	24/09 17:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 17:53	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			68.7%		53 - 120 %	"			"	
Octacosane			74.2%		68 - 123 %	"			"	

TestAmerica Seattle

Man Linning





FII. (423) 420.9200 FAX. (423) 420

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			TestAm	crica Sca	ш					
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-07 (MW-3-0309)		Wa	iter		Sampl	ed: 03/2	24/09 16:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 18:16	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			83.3%		53 - 120 %	"			"	
Octacosane			95.2%		68 - 123 %	"			"	
BSC0267-08 (MW-400-0309)		Wa	iter		Sampl	ed: 03/2	24/09 17:10			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 18:39	
Lube Oil Range Hydrocarbons	"	0.186	0.142	0.472	"	"	"	"	"	J, Q
Surrogate(s): 2-FBP			86.0%		53 - 120 %	"			"	
Octacosane			104%		68 - 123 %	"			"	
BSC0267-09 (5-W-4-0309)		Wa	iter		Sampl	ed: 03/2	25/09 13:45			
Diesel Range Hydrocarbons	NWTPH-Dx	0.485	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 19:02	Q
Lube Oil Range Hydrocarbons	"	0.596	0.142	0.472	"	"	"	"	"	Q
Surrogate(s): 2-FBP			91.6%		53 - 120 %	"			"	
Octacosane			106%		68 - 123 %	"			"	
BSC0267-10RE2 (5-W-20-0309)		Wa	iter		Sampl	ed: 03/2	25/09 15:20			
Diesel Range Hydrocarbons	NWTPH-Dx	0.811	0.0943	0.236	mg/l	1x	9D01044	04/01/09 17:04	04/02/09 23:14	Q1
Lube Oil Range Hydrocarbons	"	0.229	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			75.9%		53 - 120 %	"			"	
Octacosane			95.5%		68 - 123 %	"			"	
BSC0267-11 (5-W-42-0309)		Wa	iter		Sampl	ed: 03/2	25/09 16:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	03/31/09 23:20	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			73.7%		53 - 120 %	"			"	
Octacosane			98.6%		68 - 123 %	"			"	
BSC0267-12 (5-W-16-0309)		Wa	iter		Sampl	ed: 03/2	25/09 10:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 00:04	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			82.8%		53 - 120 %	"			"	
Octacosane			97.8%		68 - 123 %	"			"	

TestAmerica Seattle

Manching





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			TCStAIII	erreu bet						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-13 (5-W-17-0309)		Wa	iter		Sampl	ed: 03/2	25/09 16:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 00:49	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			82.7%		53 - 120 %	"			"	
Octacosane			95.0%		68 - 123 %	"			"	
BSC0267-14 (5-W-50-0309)		Wa	iter		Sampl	ed: 03/2	25/09 15:40			
Diesel Range Hydrocarbons	NWTPH-Dx	3.57	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 19:25	Q
Lube Oil Range Hydrocarbons	"	1.51	0.142	0.472	"	"	"	"	"	Q
Surrogate(s): 2-FBP			89.2%		53 - 120 %	"			"	
Octacosane			99.2%		68 - 123 %	"			"	
BSC0267-15 (5-W-54-0309)		Wa	iter		Sampl	ed: 03/2	25/09 14:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	03/31/09 19:48	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			83.1%		53 - 120 %	"			"	
Octacosane			99.3%		68 - 123 %	"			"	
BSC0267-16 (5-W-56-0309)		Wa	iter		Sampl	ed: 03/2	24/09 17:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	04/01/09 10:32	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			80.4%		53 - 120 %	"			"	
Octacosane			101%		68 - 123 %	"			"	
BSC0267-17 (5-W-500-0309)		Wa	iter		Sampl	ed: 03/2	24/09 16:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	04/01/09 10:54	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			79.3%		53 - 120 %	"			"	
Octacosane			82.9%		68 - 123 %	"			"	
BSC0267-18 (5-W-18-0309)		Wa	iter		Sampl	ed: 03/2	25/09 13:05			
Diesel Range Hydrocarbons	NWTPH-Dx	1.54	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 01:33	Q1
Surrogate(s): 2-FBP			89.3%		53 - 120 %	"			"	
Octacosane			93.7%		68 - 123 %	"			"	

TestAmerica Seattle





**AECOM - Seattle BNSF-Skykomish** 

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/09/09 17:14

Project Name:

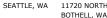
# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

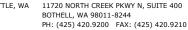
TestAmerica Seattle

			TestAm	crica Sca	11110					
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-18RE1 (5-W-18-0309)		Wa	nter		Sampl	ed: 03/2	25/09 13:05			
Lube Oil Range Hydrocarbons	NWTPH-Dx	0.452	0.142	0.472	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 15:44	
Surrogate(s): 2-FBP			83.6%		53 - 120 %	"			"	
Octacosane			99.3%		68 - 123 %	"			"	
BSC0267-19 (5-W-180-0309)		Wa	ater		Sampl	ed: 03/2	25/09 12:05			
Diesel Range Hydrocarbons	NWTPH-Dx	1.57	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 02:17	Q1
Surrogate(s): 2-FBP			91.4%		53 - 120 %	"			"	
Octacosane			94.2%		68 - 123 %	"			"	
BSC0267-19RE1 (5-W-180-0309)		Wa	ater		Sampl	ed: 03/2	25/09 12:05			
Lube Oil Range Hydrocarbons	NWTPH-Dx	0.487	0.142	0.472	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 16:06	Q
Surrogate(s): 2-FBP			83.3%		53 - 120 %	"			"	
Octacosane			97.9%		68 - 123 %	"			"	
BSC0267-20 (5-W-15-0309)		Wa	iter		Sampl	ed: 03/2	25/09 12:10			
Diesel Range Hydrocarbons	NWTPH-Dx	0.183	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 04:06	J, Q1
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			84.4%		53 - 120 %	"			"	
Octacosane			104%		68 - 123 %	"			"	
BSC0267-21 (5-W-14-0309)		Wa	ater		Sampl	ed: 03/2	24/09 09:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 04:50	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			81.3%		53 - 120 %	"			"	
Octacosane			96.7%		68 - 123 %	"			"	
BSC0267-22 (5-W-19-0309)		Wa	ater		Sampl	ed: 03/2	25/09 14:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 05:34	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			82.8%		53 - 120 %	"			"	
									"	

TestAmerica Seattle









**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-23 (5-W-52-0309)		W	ater		Sampl	ed: 03/2	24/09 16:05			
Diesel Range Hydrocarbons	NWTPH-Dx	0.982	0.0943	0.236	mg/l	1x	9C27009	03/27/09 11:39	04/01/09 11:16	Q3
Lube Oil Range Hydrocarbons	"	0.455	0.142	0.472	"	"	"	"	"	Q1, J
Surrogate(s): 2-FBP			86.7%		53 - 120 %	"			"	
Octacosane			98.1%		68 - 123 %	"			"	

TestAmerica Seattle





 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

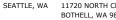
TestAmerica Seattle

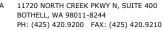
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-10RE2 (5-W-20-0309)		Wa	iter		Sampl	ed: 03/2	25/09 15:20			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D01044	04/01/09 17:04	04/03/09 16:55	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			68.4%		53 - 125 %	"			"	
Octacosane (SGCU)			86.9%		68 - 125 %	"			"	
BSC0267-11 (5-W-42-0309)		Wa	iter		Sampl	ed: 03/2	25/09 16:30			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	03/31/09 23:42	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	C
Surrogate(s): 2-FBP (SGCU)			68.6%		53 - 125 %	"			"	
Octacosane (SGCU)			93.2%		68 - 125 %	"			"	
BSC0267-12 (5-W-16-0309)		Wa	iter		Sampl	ed: 03/2	25/09 10:05			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 00:26	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	c
Surrogate(s): 2-FBP (SGCU)			71.0%		53 - 125 %	"			"	
Octacosane (SGCU)			86.2%		68 - 125 %	"			"	
BSC0267-13 (5-W-17-0309)		Wa	iter		Sampl	ed: 03/2	25/09 16:20			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 01:11	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	C
Surrogate(s): 2-FBP (SGCU)			70.8%		53 - 125 %	"			"	
Octacosane (SGCU)			84.5%		68 - 125 %	"			"	
BSC0267-18 (5-W-18-0309)		Wa	iter		Sampl	ed: 03/2	25/09 13:05			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 01:55	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	C
Surrogate(s): 2-FBP (SGCU)			76.4%		53 - 125 %	"			"	
Octacosane (SGCU)			91.7%		68 - 125 %	"			"	
BSC0267-19 (5-W-180-0309)		Wa	iter		Sampl	ed: 03/2	25/09 12:05			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 02:39	
Lube Oil Range (SGCU)	"	ND	0.142	0.472	"	"	"	"	"	C
Surrogate(s): 2-FBP (SGCU)			74.8%		53 - 125 %	"			"	
Octacosane (SGCU)			87.9%		68 - 125 %	"			"	

TestAmerica Seattle

Manching









**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSC0267-20 (5-V	V-15-0309)		Wa	ater		Sampl	ed: 03/2	25/09 12:10			
Diesel Range (SGCU)		NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 04:28	
Lube Oil Range (SGCU)		"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-1	FBP (SGCU)			72.9%		53 - 125 %	"			"	
Oc	ctacosane (SGCU)			90.1%		68 - 125 %	"			"	
BSC0267-21 (5-V	W-14-0309)		Wa	ater		Sampl	ed: 03/2	24/09 09:20			
Diesel Range (SGCU)		NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 05:12	
Lube Oil Range (SGCU)		"	ND	0.142	0.472	"	"	"	"	**	
Surrogate(s): 2-1	FBP (SGCU)			72.9%		53 - 125 %	"			"	
Oc	ctacosane (SGCU)			89.5%		68 - 125 %	"			"	
BSC0267-22 (5-V	W-19-0309)		Wa	ater		Sampl	ed: 03/2	25/09 14:05			
Diesel Range (SGCU)		NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9C27010	03/30/09 11:40	04/01/09 05:56	
Lube Oil Range (SGCU)		"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-1	FBP (SGCU)			75.5%		53 - 125 %	"			"	
Oc	ctacosane (SGCU)			95.2%		68 - 125 %	"			"	

TestAmerica Seattle





 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

Semivolatile l	Petroleum Pro	ducts by N			d/Silica Ge ca Seattle	el Clea	n-up) -	Labor	atory	<b>Quality</b>	Cont	trol Res	ults	
QC Batch: 9C27009	Water 1	Preparation	Method: El	PA 3520C										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9C27009-BLK1)								Extr	acted:	03/27/09 11	:39			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/31/09 16:18	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	85.3% 96.3%	Lin	mits: 53-120% 68-123%								03/31/09 16:18	
LCS (9C27009-BS1)								Extr	acted:	03/27/09 11	:39			
Diesel Range Hydrocarbons	NWTPH-Dx	1.96	0.100	0.250	mg/l	1x		2.00	98.0%	(65-120)			03/31/09 16:42	
Lube Oil Range Hydrocarbons	"	1.93	0.150	0.500	"	"		"	96.7%	(70-120)			"	
Surrogate(s): 2-FBP Octacosane		Recovery:	89.2% 99.3%	Lii	mits: 53-120% 68-123%								03/31/09 16:42	
LCS Dup (9C27009-BSD1)								Extr	acted:	03/27/09 11	1:39			MNI
Diesel Range Hydrocarbons	NWTPH-Dx	1.75	0.100	0.250	mg/l	1x		2.00	87.7%	(65-120)	11.19	6 (25)	03/31/09 17:05	
Lube Oil Range Hydrocarbons	"	1.68	0.150	0.500	"	"		"	83.9%	(70-120)	14.2%	<sub>6</sub> (40)	"	
Surrogate(s): 2-FBP		Recovery:	85.4%	Lii	nits: 53-120%	"							03/31/09 17:05	
Octacosane			84.5%		68-123%	5 "							"	
QC Batch: 9C27010	Water I	Preparation	Method: El	PA 3520C	2									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Note
Blank (9C27010-BLK1)								Extr	acted:	03/27/09 11	:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/31/09 18:32	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP		Recovery:	80.4%	Lii	nits: 53-120%	"							03/31/09 18:32	
Octacosane			95.3%		68-123%	<i>"</i>							"	
Blank (9C27010-BLK2)								Extr	acted:	03/27/09 11	:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							04/01/09 13:36	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	79.5% 97.2%	Lii	mits: 53-120% 68-123%								04/01/09 13:36	
LCS (9C27010-BS1)								Extr	acted:	03/27/09 11	:40			
Diesel Range Hydrocarbons	NWTPH-Dx	1.80	0.100	0.250	mg/l	1x		2.00	89.8%				03/31/09 19:17	
		1.00		200				00		(55 120)				

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Lube Oil Range Hydrocarbons

Surrogate(s): 2-FBP

Manching

Octacosane

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105% (70-120)



03/31/09 19:17

Limits: 53-120%

68-123%

2.11

Recovery:

0.150

80.7%

91.7%



1.85

2.09

1.99

Recovery:

Recovery:

NWTPH-Dx

0.150

0.100

0.150

85.9%

96.7%

86.3%

0.500

0.250

0.500

Limits: 53-120%

mg/l

Limits: 53-120%

68-123%

68-123%

1x

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

#### Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results TestAmerica Seattle QC Batch: 9C27010 Water Preparation Method: EPA 3520C Source Spike Analyte Method Result MDL\* MRL Units Dil (Limits) REC LCS (9C27010-BS2) Extracted: 03/27/09 11:40 NWTPH-Dx 2.00 0.100 0.250 04/01/09 14:19 1x 2.00 100% Diesel Range Hydrocarbons mg/l (65-120)Lube Oil Range Hydrocarbons 1.90 0.150 0.500 95.1% (70-120)Surrogate(s): 2-FBP Recovery: 83.8% Limits: 53-120% 04/01/09 14:19 Octacosane 97.5% 68-123% Matrix Spike (9C27010-MS1) QC Source: BSC0267-12 Extracted: 03/27/09 11:40 NWTPH-Dx 1 74 0.0943 03/31/09 20:01 Diesel Range Hydrocarbons 0.236 mg/l 1x ND 1 89 92.3% (32-143)Lube Oil Range Hydrocarbons 2.03 0.142 0.472 ND 107% (50-150)Surrogate(s): 2-FBP 80.7% Limits: 53-120% 03/31/09 20:01 Recovery: 89.7% 68-123% Octacosane QC Source: BSC0267-12 Extracted: 03/27/09 11:40 Matrix Spike Dup (9C27010-MSD1) Diesel Range Hydrocarbons NWTPH-Dx 1.78 0.0943 0.236 1x ND 94.1% (32-143) 1.90% (40) 03/31/09 20:46 0.142 0.472 ND 6.49% Lube Oil Range Hydrocarbons 2.16 (50-150)Surrogate(s): 2-FBP 03/31/09 20:46 Recovery: 78.6% Limits: 53-120% 94.1% 68-123% QC Batch: 9D01044 Water Preparation Method: EPA 3520C Spike MDL\* MRL Source Analyte Method Result (Limits) RPD (Limits) Analyzed Notes REC Result Blank (9D01044-BLK1) Extracted: 04/01/09 17:04 NWTPH-Dx Diesel Range Hydrocarbons ND 0.100 0.250 mg/l 1x04/03/09 05:20 Lube Oil Range Hydrocarbons ND 0.150 0.500 04/03/09 05:20 2-FBP Limits: 53-120% Surrogate(s): Recovery: 94.7% 68-123% Octacosane LCS (9D01044-BS1) Extracted: 04/01/09 17:04 Diesel Range Hydrocarbons NWTPH-Dx 1 95 0.100 0.250 mg/l 1x 2.00 97.3% (65-120) 04/03/09 05:41

TestAmerica Seattle

Lube Oil Range Hydrocarbons

Surrogate(s): 2-FBP

LCS Dup (9D01044-BSD1)

Diesel Range Hydrocarbons

Surrogate(s):

Lube Oil Range Hydrocarbons

Octacosane

Mall Duly

2-FBP

Octacosane

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

7.07% (25)

7.55% (40)

92.4%

104%

2.00

Extracted: 04/01/09 17:04

(70-120)

(70-120)



04/03/09 05:41

04/03/09 06:02

04/03/09 06:02





 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

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

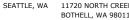
QC Batch: 9C27010	Water 1	Preparation	n Method: E	PA 3520C	<u> </u>									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Not
Blank (9C27010-BLK1)								Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							03/31/09 18:55	
Lube Oil Range (SGCU)	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)		Recovery:	72.4% 88.9%	Lir	mits: 53-125% 68-125%	"							03/31/09 18:55	
Blank (9C27010-BLK2)								Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							04/01/09 13:57	
Lube Oil Range (SGCU)	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP (SGCU)		Recovery:	72.9%	Lin	mits: 53-125%	"							04/01/09 13:57	
Octacosane (SGCU)		•	93.0%		68-125%	"							"	
LCS (9C27010-BS1)								Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	1.63	0.100	0.250	mg/l	1x		2.00	81.6%	(61-132)			03/31/09 19:39	
Lube Oil Range (SGCU)	"	1.95	0.150	0.500	"	"		"	97.4%	(50-150)			"	
Surrogate(s): 2-FBP (SGCU)		Recovery:	72.1%	Lin	nits: 53-125%	"							03/31/09 19:39	
Octacosane (SGCU)			85.2%		68-125%	"							"	
LCS (9C27010-BS2)								Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	1.84	0.100	0.250	mg/l	1x		2.00	91.9%	(61-132)			04/01/09 14:40	
Lube Oil Range (SGCU)	"	1.76	0.150	0.500	"	"		"	87.9%	(50-150)			"	
Surrogate(s): 2-FBP (SGCU)		Recovery:	75.4%	Lin	nits: 53-125%	"							04/01/09 14:40	
Octacosane (SGCU)			91.5%		68-125%	"							"	
Matrix Spike (9C27010-MS1)				QC Source	: BSC0267-12			Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	1.55	0.0943	0.236	mg/l	1x	ND	1.89	82.0%	(32-143)			03/31/09 20:24	
Lube Oil Range (SGCU)	"	1.87	0.142	0.472	"	"	ND	"	98.9%	(50-150)			"	
Surrogate(s): 2-FBP (SGCU)		Recovery:	70.8%	Lii	nits: 53-125%	"							03/31/09 20:24	
Octacosane (SGCU)			83.6%		68-125%	"							"	
Matrix Spike Dup (9C27010-M	SD1)			QC Source	: BSC0267-12			Extr	acted:	03/27/09 11	:40			
Diesel Range (SGCU)	NWTPH-Dx	1.55	0.0943	0.236	mg/l	1x	ND	1.89	82.0%	(32-143)	0.0799	% (40)	03/31/09 21:08	
Lube Oil Range (SGCU)	"	1.95	0.142	0.472	"	"	ND	"	103%	(50-150)	4.22%	6 (50)	"	
Surrogate(s): 2-FBP (SGCU)		Recovery:	67.8%	Lin	mits: 53-125%	"							03/31/09 21:08	
Octacosane (SGCU)			85.2%		68-125%	"							"	

TestAmerica Seattle

Manching

Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Report Created: Seattle, WA 98104 Project Manager: Halah Voges 04/09/09 17:14

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch	n: 9D01044	Water I	Preparation	Method: El	PA 3520C										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D0104	14-BLK2)								Ext	racted:	04/01/09 17	:04			
Diesel Range (SGCU		NWTPH-Dx	ND	0.100	0.250	mg/l	1x							04/03/09 15:48	
Lube Oil Range (SGC	CU)	"	ND	0.150	0.500	"	"							"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	61.1% 76.8%	Lin	nits: 53-125% 68-125%								04/03/09 15:48	
LCS (9D01044	-BS2)								Ext	racted:	04/01/09 17	:04			
Diesel Range (SGCU	()	NWTPH-Dx	1.79	0.100	0.250	mg/l	1x		2.00	89.3%	(61-132)	-		04/03/09 16:11	
Lube Oil Range (SGC	CU)	"	1.72	0.150	0.500	"	"		"	85.9%	(50-150)			"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	77.5% 90.3%	Lir	nits: 53-125% 68-125%								04/03/09 16:11	
LCS Dup (9D0	01044-BSD2)								Ext	racted:	04/01/09 17	:04			
Diesel Range (SGCU	)	NWTPH-Dx	1.64	0.100	0.250	mg/l	1x		2.00	81.8%	(61-132)	8.82%	6 (35)	04/03/09 16:33	
Lube Oil Range (SGC	CU)	"	1.56	0.150	0.500	"	"		"	77.8%	(50-150)	9.87%	(50)	"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	70.3% 82.9%	Lii	nits: 53-125% 68-125%								04/03/09 16:33	

TestAmerica Seattle





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

THE LEADER IN ENVIRONMENTAL TESTING

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/09/09 17:14

#### **Notes and Definitions**

#### Report Specific Notes:

C - Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

MNR1 - There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.

Q1 - Does not match typical pattern

Q12 - Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.

Q13 - Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.

Q3 - The chromatographic pattern is not consistent with diesel fuel.

### **Laboratory Reporting Conventions:**

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

Wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL\* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
 \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Mall Dhurg

Kate Haney, Project Manager

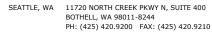


		LABORATORY INFORMATION		TLAB WORK ORDER: $OXO26$
	Laboratory Post America	Project Man	ager.	SHIPMENT INFORMATION
RAILWAY	shit Crash	PENVNISTE 400 1475	5) 420-9200	Shipment Method:
CHAIN OF CUSTODY	H. M.		•	Tracking Number:
BNSF PROJECT INFORMATION	, Jugin		CONSULTANT INFORMATION	Project Number:
BNSF Project Number	Project City.	1 11		Project Manager.
BNSF Project Name; KL LOPPICA	2	Address: 710 204 AVE	, ste, 1000	Emails Halah WOOOS O ARCOM, COM
	BNSF Work Order No.: TO 100 - HOX	~ 000	f 98104	Pyone: (224-5340) Fax:
ARC .	RABLES	Other Deliverables?	METHODS FOR ANALYSIS	
1-day Rush 5- to 8-day Rush	X BNSF Standard (Level II)			
	×	EDD Req, Format?		
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SAM	SAMPLE INFORMATION	S Hd	Jes Ma	
C. Sport High and F. C. C. C. C. C. C. C. C. C. C. C. C. C.	Sample Collection	Filtered Type Matrix		
Sample Identification	Date Time Sampler	Y/N Grab)		COMMENTS LAB USE
2A-Wg-0309	2.25/09/29/10 G.S	X M N S		10-
24-W-90-0300	2 3/25/09/09/20 67.5	XX M ZS:		702
1C-W-2	2 3/25/09 1140 BS	X M NS		-03
1C-W-1-0309	3/25/69/1245	Z 3		50
15-16-030g	2 3/25/09 10 US CAS	ユ		9
	2 3/24/69/1705/63	× × ×		90-
, MW-3-0309	3/22/pg 1600	× × ×		707
6050-004-MM.	2 3/24/69 1710 655	XX		30
5-W-4-0309	2 3/25/09/134565	XXX		60-
-W-20-	4 3/25/91152065	XXX	X	07
1	4 3/25/09/1630 635	N N N	X	7
25-W-16-0309	12 3/25/09 1005 FM	X 3 2 2	X	47
1	4 3/25/09 1620 FM	X X	X	1
- M	3/25/69 1540	FM M W X		1
5-W-54-030g	Manage	2 Z Z X		<u>,                                    </u>
Relinquished Br. 4 balalahani Kitsam	Date Time 3/26/09 Received By: William A	Jante	13-20-04/0945 Com	Comments and Special Analytical Requirements:
Relinquished By:				4 m2 A 600
Relinquished By:				
Received by Laboratory:	Date/Time: Lab Remarks:		Lab: Custody Intact? Custor	Custody Seal No.: BNSF COC No.:
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICATE - CONSULTANT		1) 5.2 W/s Rev 10/02/05

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	Laboratory:	Arotta		α.	Project Manager:			SHIPMENT	SHIPMENT INFORMATION	z
RAILWAY	Address: Address:	Cook Pewig	1 N. Ste.	dit.	Phone: 425	0026-024		Shipment Method:		
CHAIN OF CUSTODY	City/State/ZIPBotholl	WA 980	21,	1	 XX.		Trac	Tracking Number:		
BNSF PROJECT INFORMATION	Project State of Origin:			Ö	CONSULTANT INFORMATION	-ORMATION	Proje	Project Number: 01140	-204-	-084D
BNSF Project Number:	Project Elty.		Company:	AFFLOR	3.		Proje	Project Manager: $Halah$	Vocas	
BNSF Project Name: SELL EON SC			OIE SADDE	p02 (	4 AVE	; ste., 1000		" halah, Voges of accom	ges 6 c	iocom,com
BNSF Contact. BCit CO Shopes	BNSF Work Order No.:	KOH	City/State/ZIB:	#16	AIN,	98011	Pho	20x ) 624-9349	Fax:	
NAR	B.E.		Other Deliverables?		,	METHODS FOR ANALYSIS	/	)		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)									
4	Level III	EDD Req, Format?	EDD Req, Format?		XII			-		
3-day Rush Other	Level IV			7 T X	7-					
SAM	SAMPLE INFORMATION				Ho DS Ha	<del>()</del>			-	
	elames	Sample Collection								
Sample identification	Containers	Time Sampler	Filtered (Comp/ Y/N Grab)	Matrix	/M MN 0/M MN	100		COMIN	COMMENTS	LAB USE
5-W-56-0309	po/42/5 2	1700 FM	N	3	X					-ili
N 11- Noo-0400	3/24/69	1600 FM	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		W X		-			-
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1. 1		1205 FM	According to	-	X					-[9
1510					XX					-20
-W-14-03	4 3/24/09	0920 FM	wayiya birakan		<i>X</i> , <i>X</i>					-21
- W/- 19 -	3/25/04	140 SIFM	Metal-vicings		X X					-22
- W-52	3/24/09	1605 FM	<b>-</b>	$\overline{\Rightarrow}$	X	9		,	,	-23
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Relinquished By Apolo Chani Seld am	Date/Time:	Received By:	1 and			Date/Time:		Comments and Special Analytical Requirements:	equirements:	
		Received By:				Date/Time:	) \ 	2011C	さま	A PARA
Relinquished By:	Date/Time:	Received By:				Date/Time:				
Received by Laboratory:	Date/Time:	Lab Remarks:				Lab: Custody Intact?	Custody Seal No.:	lo.:	BNSF COC No.:	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		חם	DUPLICATE - CONSULTANT	SULTANT						Rev 10/02/05

TAT:	·	k to PM – Date:_	Time	):	Non-Conformances?  Circle (Y) or N
Page Time & Initials:_					(If Y, see other side)
	TEST AMERICA	SAMPLE RE	ECEIPT CH	HECKLIST	(II 1, see office side)
Received By:	Logged-in By:	Unpacked/	Labeled By:	Cooler ID:	
(applies to temp at receipt)  Date: 03:26:09	Date: <u>03:24</u>	Date: <u>03</u>		Work Order No	
Time: <u>0945</u>	Time:	Time: 120			
Initials: <u>CW</u>	Initials: <u>CW</u>	Initials: $\underline{\mathcal{C}}$	<u>W</u>	Project:	
Container Type:	CO	C Seals:		Packing Material:	
X Cooler	Ship Contair	nerS	Sign By		Styrofoam
Box	On Bottles		Date	Foam Packs	
None/Other		None		None/Other _	
Refrigerant: Gel Ice Pack	Soil : Plac	Stir Bars/Encore	<u>es:</u> 6:	Received Via: Bill#	t: Client
Loose Ice		N or NA		UPS	TA Courier
None/Other		al/date/time		DHL	Mid Valley
				Senvoy	TDP
	• ′			GS	Other
Temperature Blank? BP, OPLC,ARCO-Ter (initial/date/time):	IR):°C Plastic (circle 나.O_°C or NA comm mperature monitoring e	ents <u>3.62, 3.4</u>	10,330,3. s:	12,252, Trip Bla	nk? Y or N or NA
Sample Containers:	<u>ID</u>			V N	<u>ID</u>
Intact?	× -		als Preserved		Salva Lo
Provided by TA?	(Y) or N		nt QAPP Pre		~
Correct Type?	(Y) or N	(for te	quate Volume ests requested)	$\circ$	5
#Containers match C IDs/time/date match G	X 1/2/60 1-			adspace? Y or N	
Hold Times in hold?	* **				
PROJECT MANAGE	MENT			-	
Is the Chain of Custo	dy complete?			Y or N If N, circle	the items that were incomplete
Comments, Problems					
Total access set up? Has client been contacted	regarding non-conformance	es?		Y or N Y or N If Y,	_/ late Time
PM Initials:	Date:	Time:			

TAT: \_\_\_\_\_





April 17, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 04/02/09 18:20. The following list is a summary of the Work Orders contained in this report, generated on 04/17/09 16:21.

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

Work Order	Project	ProjectNumber
BSD0044	BNSF-Skykomish	01140-204-0340

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: 04/17/09 16:21 Halah Voges

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2A-W-41-0409	BSD0044-01	Water	04/01/09 09:50	04/02/09 18:20
1B-W-23-0409	BSD0044-02	Water	04/01/09 10:45	04/02/09 18:20
1B-W-123-0409	BSD0044-03	Water	04/01/09 11:05	04/02/09 18:20
GW-3-0409	BSD0044-04	Water	04/01/09 11:55	04/02/09 18:20
2A-W-42-0409	BSD0044-05	Water	04/01/09 13:00	04/02/09 18:20
GW-4-0409	BSD0044-06	Water	04/01/09 14:20	04/02/09 18:20
GW-2-0409	BSD0044-07	Water	04/01/09 16:10	04/02/09 18:20
2A-W-40-0409	BSD0044-08	Water	04/01/09 17:30	04/02/09 18:20
2A-W-400-0409	BSD0044-09	Water	04/01/09 18:00	04/02/09 18:20
GW-1-0409	BSD0044-10	Water	04/02/09 08:45	04/02/09 18:20
5-W-43-0409	BSD0044-11	Water	04/02/09 09:40	04/02/09 18:20
EW-1	BSD0044-12	Water	04/02/09 10:30	04/02/09 18:20

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

Carlling





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244

PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/17/09 16:21

### **Analytical Case Narrative**

TestAmerica - Seattle, WA

### **BSD0044**

SAMPLE RECEIPT

The samples were received 04/02/9 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 5.5 degrees Celsius.

## PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/17/09 16:21

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSD0044-01 (2A-W-41-0409)		Wa	iter		Sampl	ed: 04/0	01/09 09:50			
Diesel Range Hydrocarbons	NWTPH-Dx	0.438	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 18:28	Q1
Lube Oil Range Hydrocarbons	"	0.183	0.142	0.472	"	"	"	"	"	Q7,
Surrogate(s): 2-FBP			74.9%		53 - 120 %	"			"	
Octacosane			96.7%		68 - 123 %	"			"	
BSD0044-02 (1B-W-23-0409)		Wa	iter		Sampl	ed: 04/0	01/09 10:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 18:51	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			75.3%		53 - 120 %	"			"	
Octacosane			91.0%		68 - 123 %	"			"	
BSD0044-03 (1B-W-123-0409)		Wa	iter		Sampl	ed: 04/0	01/09 11:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 19:13	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			75.7%		53 - 120 %	"			"	
Octacosane			92.4%		68 - 123 %	"			"	
BSD0044-04 (GW-3-0409)		Wa	iter		Sampl	ed: 04/0	01/09 11:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 19:36	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			76.4%		53 - 120 %	"			"	
Octacosane			92.9%		68 - 123 %	"			"	
BSD0044-05 (2A-W-42-0409)		Wa	iter		Sampl	ed: 04/0	01/09 13:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 19:58	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			71.7%		53 - 120 %	"			"	
Octacosane			93.6%		68 - 123 %	"			"	
BSD0044-06 (GW-4-0409)		Water Sampled: 04/01/09 14:20								
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 20:21	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	#	
Surrogate(s): 2-FBP			76.2%		53 - 120 %	"			"	
Octacosane			95.0%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager



11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/17/09 16:21

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSD0044-07 (GW-2-0409)		Wa	ater		Sampl	ed: 04/	01/09 16:10			
Diesel Range Hydrocarbons	NWTPH-Dx	0.499	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 21:51	Q1
Lube Oil Range Hydrocarbons	"	0.363	0.142	0.472	"	"	"	"	"	Q7,
Surrogate(s): 2-FBP			77.9%		53 - 120 %	"			"	
Octacosane			99.7%		68 - 123 %	"			"	
BSD0044-08 (2A-W-40-0409)		Wa	ater		Sampl	ed: 04/	01/09 17:30			
Diesel Range Hydrocarbons	NWTPH-Dx	0.220	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 22:14	Q12,
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			75.3%		53 - 120 %	"			"	
Octacosane			97.8%		68 - 123 %	"			"	
BSD0044-09 (2A-W-400-0409)		Wa	ater		Sampl	ed: 04/	01/09 18:00			
Diesel Range Hydrocarbons	NWTPH-Dx	0.191	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 22:36	Q12,
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			77.0%		53 - 120 %	"			"	
Octacosane			97.1%		68 - 123 %	"			"	
BSD0044-10 (GW-1-0409)		Wa	ater		Sampl	ed: 04/	02/09 08:45			
Diesel Range Hydrocarbons	NWTPH-Dx	0.102	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 22:58	Q12,
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			72.7%		53 - 120 %	"			"	
Octacosane			92.7%		68 - 123 %	"			"	
BSD0044-11 (5-W-43-0409)		Wa	ater		Sampl	ed: 04/	02/09 09:40			
Diesel Range Hydrocarbons	NWTPH-Dx	0.151	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/06/09 23:21	Q12,
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			74.7%		53 - 120 %	"			"	
Octacosane			94.8%		68 - 123 %	"			"	
BSD0044-12 (EW-1)		Wa	ater		Sampled: 04/02/09 10:30					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0943	0.236	mg/l	1x	9D03012	04/03/09 11:51	04/07/09 07:40	
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			75.5%		53 - 120 %	"			"	
Octacosane			97.3%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/17/09 16:21

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D03012	Water 1	Preparation	n Method:	EPA 3520C	1									
Analyte	Method	Result	MDL <sup>5</sup>	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9D03012-BLK1)								Extr	acted:	04/03/09 11	:51			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							04/06/09 16:59	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"							"	
Surrogate(s): 2-FBP		Recovery:	77.0%	Lin	nits: 53-120%	"							04/06/09 16:59	
Octacosane			93.3%		68-123%	"							"	
LCS (9D03012-BS1)								Extr	acted:	04/03/09 11	:51			
Diesel Range Hydrocarbons	NWTPH-Dx	1.83	0.100	0.250	mg/l	1x		2.00	91.3%	(65-120)			04/06/09 17:21	
Lube Oil Range Hydrocarbons	"	1.93	0.150	0.500	"	"		"	96.7%	(70-120)			"	
Surrogate(s): 2-FBP		Recovery:	67.2%	Lin	nits: 53-120%	"							04/06/09 17:21	
Octacosane			88.7%		68-123%	"							"	
Matrix Spike (9D03012-MS1)				QC Source:	BSD0044-12			Extr	acted:	04/03/09 11	:51			
Diesel Range Hydrocarbons	NWTPH-Dx	1.83	0.0943	0.236	mg/l	1x	ND	1.89	97.1%	(32-143)			04/06/09 17:43	
Lube Oil Range Hydrocarbons	"	1.95	0.142	0.472	"	"	ND	"	104%	(50-150)			"	
Surrogate(s): 2-FBP		Recovery:	72.7%	Lin	nits: 53-120%	"							04/06/09 17:43	
Octacosane			92.4%		68-123%	"							"	
Matrix Spike Dup (9D03012-MS	SD1)			QC Source:	BSD0044-12			Extr	acted:	04/03/09 11	:51			
Diesel Range Hydrocarbons	NWTPH-Dx	1.84	0.0943	0.236	mg/l	1x	ND	1.89	97.6%	(32-143)	0.521%	6 (40)	04/06/09 18:06	
Lube Oil Range Hydrocarbons	"	1.99	0.142	0.472	"	"	ND	"	106%	(50-150)	2.05%	. "	"	
Surrogate(s): 2-FBP		Recovery:	74.1%	Lin	nits: 53-120%	"							04/06/09 18:06	
Octacosane			93.9%		68-123%	"							"	

TestAmerica Seattle

Carlling

Curtis D. Armstrong For Kate Haney, Project Manager





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

Report Created: 710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Seattle, WA 98104 Project Manager: 04/17/09 16:21 Halah Voges

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dv	Water		Y		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N. SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

estAmer THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

Report Created: 710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Seattle, WA 98104 Project Manager: Halah Voges 04/17/09 16:21

#### **Notes and Definitions**

#### Report Specific Notes:

J Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

Q12 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.

Q7 The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.

#### <u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate). ND

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. drv

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet on a Wet Weight Basis.

RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). RPD

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. MDL\* \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic - Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Dil

re all terror Curtis D. Armstrong For Kate Haney, Project Manager



Project Number: 01140 - 204 - 0340 Email haldh. voges @ AECom. com. LAB USE NWTPHDX Without 3.11.ca g.d. 9 16% 101 2 0 3 Z 8 20-0 <u>-</u> DI "Very BSDW11 SHIPMENT INFORMATION Project Manager. Haloh voges Comments and Special Analytical Requirements: BNSF COC No. ロップ アック Phone: 206.624-9349 COMMENTS Have preservative. Hel LAB WORK ORDER: iddress 1172 O North creek parkway structor 3 affall qear (425-420-920) Shipment Method: Tracking Number METHODS FOR ANALYSIS 425-420-9210 ab: Custody Intact? and Ave swife 1000 48104 50 CONSULTANT INFORMATION A Section WILLOUT Silica SKI AECOM Statte LABORATORY INFORMATION Ž Matrix  $\geq$ 3  $\geq$ 3 3  $\geq$ 3 3 OIL Isaac Type (Comp/ Grab) Other Deliverables? Filtered EDD Req, Format? 04/01/09/16 10 B.S 1 04/01/09 BOO G.S 14 04/01/09 1420 B.S N 04/01/09/1105/25/2 Union 1155 By W 4/01/09 1730 Q.S N U/102/09 104/01/20/40 11086 34/01/04/1300/9.5/2 1 2,0 3 6 480 Popoly 12.15/06/06/10/20 4/0409 1030 GS | 5'6) Shal | 60/10/100 Sampler aboratory. Test America Received By: Received By: Both 11 xx Sample Collection Project City: SKYKe MiSh Date/Time: 64/02/04 1820 Date/Time: Project State of Origin: DELIVERABLES BNSF Standard (Level II) SAMPLE INFORMATION BNSF Work Order No.: Level IV ☐ Level III Containers Date/Time: 90 90 7 4 N N Q d N 2 USF Project Number: 01140-204-0340 1010-01-X-26 のでの「Cot-M-40 30 J 5-W-43-0409 24-W-42-0409 bo bo-1ナースー σ RAILWAY 70409 alinquished By: Abdilghun, Selfzain ORIGINAL - RETURN TO LABORATORY WITH SAMPLES PO DO-1-MF -W-123-040 でのたの一た-から BNSF PROJECT INFORMATION ちったの GW-2-0409 CHAIN OF CUSTODY Standard 10-Day 5- to 8-day Rush SNSF Project Name: SKYKONIS L See Orevious TURNAROUND TIME Sample identification EW-Other -W-23 GW-3 eceived by Laboratory: 1-day Rush 2-day Rush 3-day Rush elinquished By: elinquished By Ćζ NSF Contact:

DUPLICATE - CONSULTANT

TAL-1001 (06/08)

TAT:	Paperwor	k to PM – Date:T	-ime:	Non-Conformances?
Page Time & Initials:				Circle y or N
				(If Y, see other side)
	TEST AMERICA	SAMPLE RECEIPT		. 11 217 205
Received By: (applies to temp/at receipt)	Logged-in By:	Unpacked/Labeled	By: Cooler ID:	
Date: 4/2	Date: 04.03	Date: 04-03-09	Work Order No	3P6044
Time:	Time: <u>1108</u>	Time: 1100	Client:	
Initials:	Initials: <u>(</u> W	Initials:_ <i>CW</i> _	Project:	
Container Type:	<u>CO</u>	C Seals:	Packing Material:	
Cooler	Ship Contair	nerSign By	Bubble Bags	Styrofoam
Box	On Bottles	Date	Foam Packs	
None/Other		None	None/Other	
Refrigerant:	Soil S Plac	Stir Bars/Encores:	Received Via: Bill#: Fed Ex	
	Y or	N or NA	UPS	
None/Other		al/date/time	DHL	
140/10/04/01			Senvoy	
				Other
Cooler Temperature	(IR): °C Plastic	Glass (Frozen filters, T	edlars and aqueous Metal	s exempt)
•				Y or N or (NA)
Temperature blank:	5.5,40,4	ents	The Blank.	
BP, OPLC, ARCO-TE	mperature monitoring e	very 15 minutes:		
Sample Containers:	<u>ID</u>			<u>ID</u>
Intact?	m	Metals Preser	ved? Y or N or/	
Provided by TA?	<u>~</u>	Client QAPP I	Preserved? (Y)or N or N	NA
Correct Type?		Adequate Vol	ume?	
#Containers match C	OC? (Ŷ) or N	(for tests request Water VOAs:	ed) Headspace? Y or N or N	VA)
	COC? Y or (N)			
Hold Times in hold?	$\kappa$			
PROJECT MANAGE	EMENT			
Is the Chain of Custo			Y or N If N, circle the ite	ems that were incomplete
Total access set up? Has client been contacted	regarding non-conformance	s?	Y or N Y or N If Y,/_	
PM Initials:	Date:	_ Time:	Date	Time





April 17, 2009

Sarah Albano AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 04/07/09 15:10. The following list is a summary of the Work Orders contained in this report, generated on 04/17/09 16:46.

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

Work Order	Project	<u>ProjectNumber</u>
BSD0082	BNSF-Skykomish	01140-222-0100

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0100 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 04/17/09 16:46

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IC-W-1-040709	BSD0082-01	Water	04/07/09 09:50	04/07/09 15:10
IC-W-8-040709	BSD0082-02	Water	04/07/09 12:23	04/07/09 15:10
IC-W-7-040709	BSD0082-03	Water	04/07/09 13:21	04/07/09 15:10

TestAmerica Seattle

Carlling Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 04/17/09 16:46

#### **Analytical Case Narrative**

TestAmerica - Seattle, WA

#### **BSD0082**

SAMPLE RECEIPT

The samples were received 04/07/09 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 12.2 degrees Celsius.

#### PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 04/17/09 16:46

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

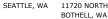
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSD0082-01 (IC-W-1-040709)		W	ater		Sampl	ed: 04/0	07/09 09:50			
Diesel Range Hydrocarbons	NWTPH-Dx	0.141	0.0943	0.236	mg/l	1x	9D09018	04/09/09 10:59	04/10/09 16:11	Q12, J
Lube Oil Range Hydrocarbons	"	ND	0.142	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			89.1%		53 - 120 %	"			"	
Octacosane			107%		68 - 123 %	"			"	
BSD0082-02 (IC-W-8-040709)		W	ater		Sampl	ed: 04/0	07/09 12:23			
Diesel Range Hydrocarbons	NWTPH-Dx	3.50	0.0943	0.236	mg/l	1x	9D09018	04/09/09 10:59	04/10/09 16:33	Q12
<b>Lube Oil Range Hydrocarbons</b>	"	0.424	0.142	0.472	"	"	"	"	"	Q7, J
Surrogate(s): 2-FBP			92.1%		53 - 120 %	"			"	
Octacosane			112%		68 - 123 %	"			"	
BSD0082-03 (IC-W-7-040709)		W	ater		Sampl	ed: 04/0	07/09 13:21			
Diesel Range Hydrocarbons	NWTPH-Dx	1.45	0.0943	0.236	mg/l	1x	9D09018	04/09/09 10:59	04/10/09 16:54	Q12
Lube Oil Range Hydrocarbons	"	0.227	0.142	0.472	"	"	"	"	"	Q7, J
Surrogate(s): 2-FBP			89.1%		53 - 120 %	"			"	
Octacosane			107%		68 - 123 %	"			"	

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0100 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 04/17/09 16:46

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

TestAmerica Seattle

			1	CStAIlicii	ca Scattic									
QC Batch: 9D09018	Water 1	Preparatio	n Method: EF	PA 3520C	1									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9D09018-BLK1)								Extr	acted:	04/09/09 10	):59			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.100	0.250	mg/l	1x							04/10/09 15:08	
Lube Oil Range Hydrocarbons	"	ND	0.150	0.500	"	"								
Surrogate(s): 2-FBP Octacosane		Recovery:	77.3% 101%	Lii	nits: 53-120% 68-123%	"							04/10/09 15:08	
LCS (9D09018-BS1)								Extr	acted:	04/09/09 10	:59			MNR
Diesel Range Hydrocarbons	NWTPH-Dx	2.08	0.100	0.250	mg/l	1x		2.00	104%	(65-120)			04/10/09 15:29	
Lube Oil Range Hydrocarbons	"	2.06	0.150	0.500	"	"		"	103%	(70-120)			"	
Surrogate(s): 2-FBP		Recovery:	84.1%	Lin	nits: 53-120%	"							04/10/09 15:29	
Octacosane			99.9%		68-123%	"							"	
LCS Dup (9D09018-BSD1)								Extr	acted:	04/09/09 10	:59			
Diesel Range Hydrocarbons	NWTPH-Dx	2.16	0.100	0.250	mg/l	1x		2.00	108%	(65-120)	3.47%	6 (25)	04/10/09 15:50	
Lube Oil Range Hydrocarbons	"	2.09	0.150	0.500	"	"		"	104%	(70-120)	1.58%	6 (40)	"	
Surrogate(s): 2-FBP		Recovery:	85.3%	Lin	nits: 53-120%	"							04/10/09 15:50	
Octacosane			102%		68-123%	"							"	

TestAmerica Seattle

Carlling





SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL. WA 98011-8244

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-222-0100
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 04/17/09 16:46

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





11720 NORTH CREEK PKWY N. SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

est**A**mer THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0100 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 04/17/09 16:46

#### **Notes and Definitions**

#### Report Specific Notes:

C Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

MNR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.

O1 Does not match typical pattern

Q12 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.

Q3 The chromatographic pattern is not consistent with diesel fuel.

Q7 The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.

#### **Laboratory Reporting Conventions:**

Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only. DET

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

MDL\* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Electronic Signature Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager

ar Maria



# **Chain of Custody Record**

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3820

The RETEC Group, Inc. 300 Baker Avenue • Concord, IMA 01742 (978) 371-1422 Phone • (978) 371-1448 Fax www.retec.com



Project Name: AVV.	Project Num	her. 5.14.	Project Number 51.45.	1				/ / /			
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Address: 710 2NS ANF ILLUS	Sampler (Print Name):	int Name):			Pels		_	\ \ \			
SEATTLE, WA	Shipment Method:	ethod: 44		DELVEN	Political de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la						
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Phone: 266-624-5345	Laboratory Receiving:		47		/H&/		<u></u>		Order #:		****
Fax:					LA		_				
Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	of   Of				/ Comments, Special / Instructions, etc.	Lab Sample ID (to be completed by lab)	e ID d by lab)
10-10-1-3-01	4/7/09	-	3	2	X					15000000	10-
1c-w-8-040709	-	[223	3	7	X				-	-	8
10-W-7-040709	>	(32)	3	7	X						$\mathcal{Z}$
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			$\setminus$	2/10/14	200	Level			COC Seals Intact?	**	4
Relinquished by: (Signature)	Received by: (Signature)	ignature)		Date:	:: 	Level		1 Week	Received Containers Intact?		0
						Other		Other	Temperature?		6.5
White: Lab Copy Yellow: PM Copy Pink: Field Copy		Gold: PM/QA/QC Copy	C Copy							•	•

TAT: Page Time & Initials:	·	o PM – Date: T	ime:	Non-Conformances?  Circle of N  (If Y, see other side)
	TEST AMERICA S	AMPLE RECEIPT	CHECKLIST	(, 555 55. 55)
Received By: (applies to temp at receipt) Date:  Time: 1570 Initials:   Container Type:	Logged-in By:  Date: 4/7 Time: 11:43 Initials: 12	Unpacked/Labeled  Date: 4/7  Time: 17:50  Initials: W	Work Order No Client: <i>AFcM</i>	BADOUBZ Seaffer Skykomish
Container Type.  Cooler  Box  None/Other	Ship Container On Bottles		Bubble Bag	s Styrofoam
None/Other Cooler Temperature ( <u>IF</u> Temperature Blank?	Placed Y or N	ass (Frozen filters, T	SenvoyGSGlars and aqueous M	Client TA Courier Mid Valley TDP Other Metals exempt)
(initial/date/time): Comments:				······································
Sample Containers: Intact? Provided by TA? Correct Type? #Containers match CO IDs/time/date match CO	2	Client QAPP F Adequate Volume (for tests requested Water VOAs:	Preserved? Ø or Nume? Ø or N	-/
Hold Times in hold?				
PROJECT MANAGEM	IENT			
Is the Chain of Custody Comments,Problems	y complete?			the items that were incomplete
Total access set up? Has client been contacted re			Y or N Y or N If Y,	_/ Date Time
PM Initials:	Date:	Time:		





April 22, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 12/18/08 10:50. The following list is a summary of the Work Orders contained in this report, generated on 04/22/09 10:21.

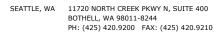
If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
BRL0202	BNSF-Skykomish Remedial D	01140-204-0340

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-W-45-1208	BRL0202-01	Water	12/17/08 08:10	12/18/08 10:50
2B-W-46-1208	BRL0202-02	Water	12/17/08 08:55	12/18/08 10:50

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

#### **Analytical Case Narrative**

TestAmerica - Seattle, WA

#### **BRL0202**

SAMPLE RECEIPT

The samples were received 12/18/08 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 2.7 degrees Celsius. The sample IDs were updated 04/21/2009 per AECOM.

PREPARATIONS AND ANALYSIS

No anomalies were associated with the sample preparation and analysis. All criteria for acceptable QC measurements were met.

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0202-01 (2B-W-45-1208)		Wa	iter		Sampl	ed: 12/1	7/08 08:10			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 00:28	
Lube Oil Range Hydrocarbons	"	ND	0.0849	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			89.5%		53 - 125 %	"			"	
Octacosane			102%		68 - 125 %	"			"	
BRL0202-02 (2B-W-46-1208)		Wa	iter		Sampl	ed: 12/1	7/08 08:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 00:49	
Lube Oil Range Hydrocarbons	"	ND	0.0849	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP			85.8%		53 - 125 %	"			"	
Octacosane			99.6%		68 - 125 %	"			"	

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0202-01 (2B-W-45-1208)		Wa	ater		Sampl	ed: 12/1	17/08 08:10			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 02:57	
Lube Oil Range (SGCU)	"	ND	0.151	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			79.3%		53 - 125 %	"			"	
Octacosane (SGCU)	)		92.5%		68 - 125 %	"			"	
BRL0202-02 (2B-W-46-1208)		Wa	ater		Sampl	ed: 12/1	17/08 08:55			
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 03:18	
Lube Oil Range (SGCU)	"	ND	0.151	0.472	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			66.4%		53 - 125 %	"			"	
Octacosane (SGCU)	)		78.7%		68 - 125 %	"			"	

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

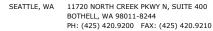
TestAmerica Seattle

QC Batch: 8L18024	Water I	Preparation	Method: EI	PA 3510C										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L18024-BLK1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x							12/18/08 22:19	
Lube Oil Range Hydrocarbons	"	ND	0.0900	0.500	"	"							"	
Surrogate(s): 2-FBP		Recovery:	93.9%	Li	nits: 53-125%	"							12/18/08 22:19	
Octacosane			97.3%		68-125%	"							"	
LCS (8L18024-BS1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range Hydrocarbons	NWTPH-Dx	1.95	0.0400	0.250	mg/l	1x		2.00	97.4%	(61-132)			12/18/08 22:41	
Lube Oil Range Hydrocarbons	"	2.07	0.0900	0.500	"	"		"	103%	(60-125)			"	
Surrogate(s): 2-FBP		Recovery:	98.3%	Li	nits: 53-125%	"							12/18/08 22:41	
Octacosane			101%		68-125%	"							"	
LCS Dup (8L18024-BSD1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range Hydrocarbons	NWTPH-Dx	2.01	0.0400	0.250	mg/l	1x		2.00	101%	(61-132)	3.26%	6 (40)	12/18/08 23:02	
Lube Oil Range Hydrocarbons	"	2.08	0.0900	0.500	"	"		"	104%	(60-125)	0.6179	% "	"	
Surrogate(s): 2-FBP		Recovery:	100%	Li	nits: 53-125%	"							12/18/08 23:02	
Octacosane			100%		68-125%	"							"	

TestAmerica Seattle

Kate Haney, Project Manager







 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results

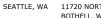
TestAmerica Seattle

QC Batch	n: 8L18024	Water I	Preparation	Method: E	PA 3510C	!									
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L1802	24-BLK1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x							12/19/08 01:53	
Lube Oil Range (SG	CU)	"	ND	0.160	0.500	"	"								
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	95.2% 98.6%	Lii	nits: 53-125% 68-125%	"							12/19/08 01:53	
LCS (8L18024	I-BS1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range (SGCU	J)	NWTPH-Dx	1.98	0.0400	0.250	mg/l	1x		2.00	98.9%	(61-132)			12/19/08 02:15	
Lube Oil Range (SG	CU)	•	2.10	0.160	0.500	"	"		"	105%	(50-150)				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	96.6% 100%	Lin	nits: 53-125% 68-125%	"							12/19/08 02:15	
LCS Dup (8L1	18024-BSD1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range (SGCU	J)	NWTPH-Dx	2.04	0.0400	0.250	mg/l	1x		2.00	102%	(61-132)	3.17%	6 (35)	12/19/08 02:36	
Lube Oil Range (SG	CU)	"	2.10	0.160	0.500	"	"		"	105%	(50-150)	0.0826	% (50)	"	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	99.9% 101%	Lii	nits: 53-125% 68-125%	"							12/19/08 02:36	

TestAmerica Seattle

Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

AECOM - Seattle Project Name: BNSF-Skykomish Remedial Design Investigation

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Halah Voges
 04/22/09 10:21

#### **CERTIFICATION SUMMARY**

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

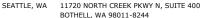
For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

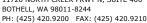
Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Kate Haney, Project Manager









**AECOM - Seattle BNSF-Skykomish Remedial Design Investigation** Project Name:

01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 04/22/09 10:21

#### **Notes and Definitions**

#### Report Specific Notes:

J

Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

#### <u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

MDL\* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting -Limits

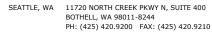
Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature

Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle







June 25, 2009

Sarah Albano AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 06/11/09 13:00. The following list is a summary of the Work Orders contained in this report, generated on 06/25/09 15:02.

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

Work Order	Project	ProjectNumber
BSF0131	BNSF-Skykomish	01140-204-0340

TestAmerica Seattle









THE LEADER IN ENVIRONMENTAL TESTING

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 06/25/09 15:02

# ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IC-W-1-0609	BSF0131-01	Water	06/09/09 16:40	06/11/09 13:00
IC-W-8-0609	BSF0131-02	Water	06/09/09 17:00	06/11/09 13:00
5-W-14-0609	BSF0131-03	Water	06/10/09 09:25	06/11/09 13:00
5-W-16-0609	BSF0131-04	Water	06/10/09 10:15	06/11/09 13:00
5-W-15-0609	BSF0131-05	Water	06/10/09 11:10	06/11/09 13:00
5-W-150-0609	BSF0131-06	Water	06/10/09 11:20	06/11/09 13:00
MW-500-0609	BSF0131-07	Water	06/10/09 11:50	06/11/09 13:00
5-W-17-0609	BSF0131-08	Water	06/10/09 13:20	06/11/09 13:00
5-W-18-0609	BSF0131-09	Water	06/10/09 14:50	06/11/09 13:00
IC-W-7-0609	BSF0131-10	Water	06/09/09 15:40	06/11/09 13:00
5-W-19-0609	BSF0131-11	Water	06/10/09 16:30	06/11/09 13:00
5-W-20-0609	BSF0131-12	Water	06/10/09 17:50	06/11/09 13:00
5-W-42-0609	BSF0131-13	Water	06/10/09 18:00	06/11/09 13:00
EW-1-0609	BSF0131-14	Water	06/10/09 10:00	06/11/09 13:00
5-W-43-0609	BSF0131-15	Water	06/10/09 10:45	06/11/09 13:00
GW-4-0609	BSF0131-16	Water	06/10/09 12:05	06/11/09 13:00
2A-W-42-0609	BSF0131-17	Water	06/10/09 12:55	06/11/09 13:00
GW-2-0609	BSF0131-18	Water	06/10/09 13:45	06/11/09 13:00
2A-W-40-0609	BSF0131-19	Water	06/10/09 14:30	06/11/09 13:00
2A-W-400-0609	BSF0131-20	Water	06/10/09 14:40	06/11/09 13:00
GW-1-0609	BSF0131-21	Water	06/10/09 15:55	06/11/09 13:00
2A-W-41-0609	BSF0131-22	Water	06/10/09 17:00	06/11/09 13:00
GW-3-0609	BSF0131-23	Water	06/11/09 09:30	06/11/09 13:00
GW-30-0609	BSF0131-24	Water	06/11/09 09:40	06/11/09 13:00
2B-W-45-0609	BSF0131-25	Water	06/11/09 09:30	06/11/09 13:00
2B-W-46-0609	BSF0131-26	Water	06/11/09 10:10	06/11/09 13:00
1B-W-23-0609	BSF0131-27	Water	06/11/09 10:30	06/11/09 13:00

TestAmerica Seattle

Male Lynne

Kate Haney, Project Manager







PH: (425) 420.9200 FAX: (425) 420.9210



AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 06/25/09 15:02

#### **Analytical Case Narrative**

TestAmerica - Seattle, WA

#### **BSF0131**

#### SAMPLE RECEIPT

The samples were received 06/11/2009 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 9.9 degrees Celsius which is outside the recommended temperature range of 2-6 Degrees Celsius. The samples are considered acceptable as they were received on-ice within four hours of the collection of the last sampled time on the COC.

#### PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle

Kate Haney, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-01 (IC-W-1-0609)		Wa	ter		Sampl	ed: 06/0	09/09 16:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/17/09 20:21	Q
Surrogate(s): 2-FBP			74.8%		53 - 120 %	"			"	
Octacosane			92.2%		68 - 123 %	"			"	
BSF0131-01RE1 (IC-W-1-0609)		Wa	ter		Sampl	ed: 06/0	09/09 16:40			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 18:29	Q
Surrogate(s): 2-FBP			82.7%		53 - 120 %	"			"	
Octacosane			93.7%		68 - 123 %	"			"	
BSF0131-02 (IC-W-8-0609)		Wa	ter		Sampl	ed: 06/0	09/09 17:00			
Diesel Range Hydrocarbons	NWTPH-Dx	0.434		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/17/09 22:44	Q
Surrogate(s): 2-FBP			78.0%		53 - 120 %	"			"	
Octacosane			94.8%		68 - 123 %	"			"	
BSF0131-02RE1 (IC-W-8-0609)		Wa	ter		Sampl	ed: 06/0	09/09 17:00			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 18:51	Q
Surrogate(s): 2-FBP			81.8%		53 - 120 %	"			"	
Octacosane			93.2%		68 - 123 %	"			"	
BSF0131-03 (5-W-14-0609)		Wa	ter		Sampl	ed: 06/1	10/09 09:25			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 19:16	Q
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			78.7%		53 - 120 %	"			"	
Octacosane			90.9%		68 - 123 %	"			"	
BSF0131-04 (5-W-16-0609)		Wa	ter		Sampl	ed: 06/1	10/09 10:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 19:38	
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			78.8%		53 - 120 %	"			"	
Surrogale(s): 2-r br										

TestAmerica Seattle



11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-05 (5-W-15-0609)		Wa	ater		Sampl	ed: 06/	10/09 11:10			
Diesel Range Hydrocarbons	NWTPH-Dx	0.213		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 20:01	Q
Lube Oil Range Hydrocarbons	"	0.139		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			76.3%		53 - 120 %	"			"	
Octacosane			92.8%		68 - 123 %	"			"	
BSF0131-06 (5-W-150-0609)		Wa	ater		Sampl	ed: 06/	10/09 11:20			
Diesel Range Hydrocarbons	NWTPH-Dx	0.203		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 20:23	Q
Lube Oil Range Hydrocarbons	"	0.135		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			73.2%		53 - 120 %	"			"	
Octacosane			91.2%		68 - 123 %	"			"	
BSF0131-07 (MW-500-0609)		Wa	ater		Sampl	ed: 06/	10/09 11:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 20:46	
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			78.1%		53 - 120 %	"			"	
Octacosane			91.8%		68 - 123 %	"			"	
BSF0131-08 (5-W-17-0609)		Wa	ater		Sampl	ed: 06/	10/09 13:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 02:43	
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	**	Q
Surrogate(s): 2-FBP			68.3%		53 - 120 %	"			"	
Octacosane			88.7%		68 - 123 %	"			"	
BSF0131-09 (5-W-18-0609)		Wa	ater		Sampl	ed: 06/	10/09 14:50			
Diesel Range Hydrocarbons	NWTPH-Dx	0.669		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 03:28	Q
Lube Oil Range Hydrocarbons	"	0.223		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP			89.4%		53 - 120 %	"			"	
Octacosane			95.3%		68 - 123 %	"			"	
BSF0131-10 (IC-W-7-0609)		Wa	ater		Sampl	ed: 06/	09/09 15:40			
Diesel Range Hydrocarbons	NWTPH-Dx	0.287		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/17/09 23:08	Q
Surrogate(s): 2-FBP			74.1%		53 - 120 %	"			"	
Octacosane			91.1%		68 - 123 %	"			"	

TestAmerica Seattle





**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			TCStAIIIC							
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-10RE1 (IC-W-7-0609)		Wa	iter		Sampl	ed: 06/0	09/09 15:40			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 19:13	C
Surrogate(s): 2-FBP			78.5%		53 - 120 %	"			"	
Octacosane			89.1%		68 - 123 %	"			"	
BSF0131-11 (5-W-19-0609)		Wa	iter		Sampl	ed: 06/1	10/09 16:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 04:13	
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	"	Ç
Surrogate(s): 2-FBP			71.3%		53 - 120 %	"			"	
Octacosane			92.1%		68 - 123 %	"			"	
BSF0131-12 (5-W-20-0609)		Wa	iter		Sampl	ed: 06/1	10/09 17:50			
Diesel Range Hydrocarbons	NWTPH-Dx	0.637		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 04:58	C
Lube Oil Range Hydrocarbons	"	0.233		0.118	"	"	"	"	"	C
Surrogate(s): 2-FBP			79.6%		53 - 120 %	"			"	
Octacosane			92.0%		68 - 123 %	"			"	
BSF0131-13 (5-W-42-0609)		Wa	iter		Sampl	ed: 06/1	10/09 18:00			
Diesel Range Hydrocarbons	NWTPH-Dx	0.599		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 05:42	Ç
Lube Oil Range Hydrocarbons	"	0.258		0.118	"	"	"	"	"	C
Surrogate(s): 2-FBP			93.5%		53 - 120 %	"			"	
Octacosane			114%		68 - 123 %	"			"	
BSF0131-14 (EW-1-0609)		Wa	iter		Sampl	ed: 06/1	10/09 10:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/17/09 23:32	Q
Surrogate(s): 2-FBP			67.2%		53 - 120 %	"			"	
Octacosane			95.8%		68 - 123 %	"			"	
BSF0131-14RE1 (EW-1-0609)		Wa	iter		Sampl	ed: 06/1	10/09 10:00			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 19:35	Ç
Surrogate(s): 2-FBP			74.2%		53 - 120 %	"			"	
Octacosane			96.9%		68 - 123 %	,,			"	

TestAmerica Seattle





THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

		Total interior Security									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BSF0131-15 (5-W-43-0609)		Wa	ter		Sampl	ed: 06/	10/09 10:45				
Diesel Range Hydrocarbons	NWTPH-Dx	0.293		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/17/09 23:56	Q	
Surrogate(s): 2-FBP			77.9%		53 - 120 %	"			"		
Octacosane			90.1%		68 - 123 %	"			"		
BSF0131-15RE1 (5-W-43-0609)		Wa	ter		Sampl	ed: 06/	10/09 10:45				
Lube Oil Range Hydrocarbons	NWTPH-Dx	0.217		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 19:58	Q	
Surrogate(s): 2-FBP			85.3%		53 - 120 %	"			"		
Octacosane			95.8%		68 - 123 %	"			"		
BSF0131-16 (GW-4-0609)		Wa	ter		Sampl	ed: 06/	10/09 12:05				
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 00:20	Q	
Surrogate(s): 2-FBP			74.5%		53 - 120 %	"			"		
Octacosane			92.7%		68 - 123 %	"			"		
BSF0131-16RE1 (GW-4-0609)		Wa	ter		Sampl	ed: 06/	10/09 12:05				
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 20:20	Q	
Surrogate(s): 2-FBP			79.7%		53 - 120 %	"			"		
Octacosane			91.2%		68 - 123 %	"			"		
BSF0131-17 (2A-W-42-0609)		Wa	ter		Sampl	ed: 06/	10/09 12:55				
Diesel Range Hydrocarbons	NWTPH-Dx	0.202		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 00:43	Q	
Surrogate(s): 2-FBP			72.2%		53 - 120 %	"			"		
Octacosane			91.6%		68 - 123 %	"			"		
BSF0131-17RE1 (2A-W-42-0609)		Wa	ter		Sampl	ed: 06/	10/09 12:55				
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 20:42	Q	
Surrogate(s): 2-FBP			78.2%		53 - 120 %	"			"		
Octacosane			91.8%		68 - 123 %	"			"		
BSF0131-18 (GW-2-0609)		Wa	ter		Sampl	ed: 06/	10/09 13:45				
Diesel Range Hydrocarbons	NWTPH-Dx	0.688		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 01:07	Q	
Surrogate(s): 2-FBP			79.5%		53 - 120 %	"			"		
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TestAmerica Seattle





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			TestAm	erica sea						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-18RE1 (GW-2-0609)		Wa	iter		Sampl	ed: 06/1	10/09 13:45			
Lube Oil Range Hydrocarbons	NWTPH-Dx	0.360		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 22:12	Q
Surrogate(s): 2-FBP			88.9%		53 - 120 %	"			"	
Octacosane			93.1%		68 - 123 %	"			"	
BSF0131-19 (2A-W-40-0609)		Wa	iter		Sample	ed: 06/1	10/09 14:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 02:43	Q
Surrogate(s): 2-FBP			79.0%		53 - 120 %	"			"	
Octacosane			93.5%		68 - 123 %	"			"	
BSF0131-19RE1 (2A-W-40-0609)		Wa	iter		Sample	ed: 06/1	10/09 14:30			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 22:34	Q
Surrogate(s): 2-FBP			88.7%		53 - 120 %	"			"	
Octacosane			95.7%		68 - 123 %	"			"	
BSF0131-20 (2A-W-400-0609)		Wa	iter		Sample	e <b>d: 06</b> /1	10/09 14:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 03:07	Q
Surrogate(s): 2-FBP			81.0%		53 - 120 %	"			"	
Octacosane			95.6%		68 - 123 %	"			"	
BSF0131-20RE1 (2A-W-400-0609)		Wa	iter		Sample	e <b>d: 06</b> /1	10/09 14:40			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 22:56	Q
Surrogate(s): 2-FBP			88.1%		53 - 120 %	"			"	
Octacosane			94.3%		68 - 123 %	"			"	
BSF0131-21 (GW-1-0609)		Wa	iter		Sample	ed: 06/1	10/09 15:55			
Diesel Range Hydrocarbons	NWTPH-Dx	0.254		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 03:31	Q
Surrogate(s): 2-FBP			79.9%		53 - 120 %	"			"	
Octacosane			100%		68 - 123 %	"			"	
BSF0131-21RE1 (GW-1-0609)		Wa	iter		Sample	ed: 06/1	10/09 15:55			
Lube Oil Range Hydrocarbons	NWTPH-Dx	0.160		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 23:19	Q
Surrogate(s): 2-FBP			87.9%		53 - 120 %	"			"	

TestAmerica Seattle





AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-22 (2A-W-41-0609)		Wat	er		Sampl	ed: 06/1	10/09 17:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 03:55	Q
Surrogate(s): 2-FBP			76.8%		53 - 120 %	"			"	
Octacosane			97.2%		68 - 123 %	"			"	
BSF0131-22RE1 (2A-W-41-0609)		Wat	er		Sampl	ed: 06/1	10/09 17:00			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 23:41	Q
Surrogate(s): 2-FBP			83.1%		53 - 120 %	"			"	
Octacosane			96.5%		68 - 123 %	"			"	
BSF0131-23 (GW-3-0609)		Wat	er		Sampl	ed: 06/1	11/09 09:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 04:19	Q
Surrogate(s): 2-FBP			80.2%		53 - 120 %	"			"	
Octacosane			96.9%		68 - 123 %	"			"	
BSF0131-23RE1 (GW-3-0609)		Wat	er		Sampl	ed: 06/1	11/09 09:30			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/19/09 00:04	Q
Surrogate(s): 2-FBP			88.8%		53 - 120 %	"			"	
Octacosane			97.7%		68 - 123 %	"			"	
BSF0131-24 (GW-30-0609)		Wat	er		Sampl	ed: 06/1	11/09 09:40			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 04:43	Q
Surrogate(s): 2-FBP			72.5%		53 - 120 %	"			"	
Octacosane			98.5%		68 - 123 %	"			"	
BSF0131-24RE1 (GW-30-0609)		Wat	er		Sampl	ed: 06/1	11/09 09:40			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/19/09 00:26	Q
Surrogate(s): 2-FBP			80.3%		53 - 120 %	"			"	
Octacosane			99.0%		68 - 123 %	"			"	
BSF0131-25 (2B-W-45-0609)		Wat	er		Sampl	ed: 06/1	11/09 09:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 05:07	
Surrogate(s): 2-FBP			75.5%		53 - 120 %	"			"	
Octacosane			96.4%		68 - 123 %	"			"	

TestAmerica Seattle

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11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

			TestAm	crica se						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-25RE1 (2B-W-45-060	9)	Wa	ater		Sampl	ed: 06/1	11/09 09:30			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/19/09 00:48	C
Surrogate(s): 2-FBP			81.3%		53 - 120 %	"			"	
Octacosane			93.5%		68 - 123 %	"			"	
BSF0131-26 (2B-W-46-0609)		Wa	ater		Sampl	ed: 06/1	11/09 10:10			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 05:31	
Surrogate(s): 2-FBP			74.9%		53 - 120 %	"			"	
Octacosane			98.8%		68 - 123 %	"			"	
BSF0131-26RE1 (2B-W-46-060	9)	Wa	ater		Sampl	ed: 06/1	11/09 10:10			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/19/09 01:11	Ç
Surrogate(s): 2-FBP			73.1%		53 - 120 %	"			"	
Octacosane			86.3%		68 - 123 %	"			"	
BSF0131-27 (1B-W-23-0609)		Wa	ater		Sampl	ed: 06/1	11/09 10:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16009	06/16/09 09:04	06/18/09 05:54	Q
Surrogate(s): 2-FBP			85.8%		53 - 120 %	"			"	
Octacosane			98.1%		68 - 123 %	"			"	
BSF0131-27RE1 (1B-W-23-060	9)	Wa	ater		Sampl	ed: 06/1	11/09 10:30			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.118	mg/l	1x	9F16009	06/16/09 09:04	06/19/09 01:33	Ç
Surrogate(s): 2-FBP			92.0%		53 - 120 %	"			"	
Octacosane			95.3%		68 - 123 %	"			"	

TestAmerica Seattle





BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-03 (5-W-14-0609)		Wa		Sampl	ed: 06/	10/09 09:25				
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/17/09 23:44	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP (SGCU)			75.4%		53 - 125 %	"			"	
Octacosane (SGCU)			92.0%		68 - 125 %	"			"	
BSF0131-04 (5-W-16-0609)		Wa	ater		Sampl	ed: 06/	10/09 10:15			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 00:07	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			74.3%		53 - 125 %	"			"	
Octacosane (SGCU)			88.0%		68 - 125 %	"			"	
BSF0131-05 (5-W-15-0609)		Wa	iter		Sampl	ed: 06/	10/09 11:10			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 00:29	Q
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP (SGCU)			78.1%		53 - 125 %	"			"	
Octacosane (SGCU)			94.9%		68 - 125 %	"			"	
BSF0131-06 (5-W-150-0609)		Wa	ater		Sampl	ed: 06/	10/09 11:20			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 00:51	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q:
Surrogate(s): 2-FBP (SGCU)			66.5%		53 - 125 %	"			"	
Octacosane (SGCU)			82.3%		68 - 125 %	"			"	
BSF0131-07 (MW-500-0609)		Wa	ater		Sampl	ed: 06/	10/09 11:50			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 01:14	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			69.9%		53 - 125 %	"			"	
Octacosane (SGCU)			83.6%		68 - 125 %	"			"	
BSF0131-08 (5-W-17-0609)		Water			Sampled: 06/10/09 13:20					
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 03:05	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q
Surrogate(s): 2-FBP (SGCU)			64.5%		53 - 125 %	"			"	
Octacosane (SGCU)			87.2%		68 - 125 %	"			"	

TestAmerica Seattle





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-204-0340 Report Created: Project Number: Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

# Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSF0131-09 (5-W-18-0609)		W	ater		Sampl	led: 06/1	10/09 14:50			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 03:50	Q1
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q1
Surrogate(s): 2-FBP (SGCU)			83.9%		53 - 125 %	"			"	
Octacosane (SGCU	"		88.9%		68 - 125 %	"			"	
BSF0131-11 (5-W-19-0609)		W	ater		Sampl	led: 06/1	10/09 16:30			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 04:35	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	#	Q1
Surrogate(s): 2-FBP (SGCU)			63.8%		53 - 125 %	"			"	
Octacosane (SGCU	)		87.8%		68 - 125 %	"			"	
BSF0131-12 (5-W-20-0609)		W		Sampl	ed: 06/1	10/09 17:50				
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 05:20	
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q1
Surrogate(s): 2-FBP (SGCU)			73.8%		53 - 125 %	"			"	
Octacosane (SGCU	)		87.7%		68 - 125 %	"			"	
BSF0131-13 (5-W-42-0609)		W	ater		Sampl	ed: 06/1	10/09 18:00			
Diesel Range (SGCU)	NWTPH-Dx	ND		0.0472	mg/l	1x	9F16008	06/16/09 09:01	06/18/09 06:04	Q1
Lube Oil Range (SGCU)	"	ND		0.118	"	"	"	"	"	Q1
Surrogate(s): 2-FBP (SGCU)			94.6%		53 - 125 %	"			"	
Octacosane (SGCU	")		114%		68 - 125 %	"			"	

TestAmerica Seattle







BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

Project Number: 01140-204-0340 Report Created: 710 2nd Ave. Ste. 1000 Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

## Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results TestAmerica Seattle

QC Batch: 9F16008	Water 1	Preparation	n Method:	EPA 35200	C									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (9F16008-BLK1)								Ext	racted:	06/16/09 09	0:01			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0500	mg/l	1x							06/17/09 17:24	
Lube Oil Range Hydrocarbons	"	ND		0.125	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	76.5% 87.2%	Li	imits: 53-120% 68-123%	, "							06/17/09 17:24 "	
LCS (9F16008-BS1)								Ext	racted:	06/16/09 09	0:01			
Diesel Range Hydrocarbons	NWTPH-Dx	1.92		0.0500	mg/l	1x		2.00	96.0%	(65-120)			06/17/09 17:46	
Lube Oil Range Hydrocarbons		1.75		0.125	"	"		"	87.4%	(70-120)			"	
Surrogate(s): 2-FBP Octacosane		Recovery:	76.5% 90.3%	Li	imits: 53-120% 68-123%	, "							06/17/09 17:46 "	
Duplicate (9F16008-DUP1)				QC Source	e: BSF0131-08			Ext	racted:	06/16/09 09	0:01			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	ND				NR	(40)	06/17/09 18:08	
Lube Oil Range Hydrocarbons		ND		0.118	"	"	ND				50.3%	ó "	"	R
Surrogate(s): 2-FBP Octacosane		Recovery:	74.8% 87.5%	Li	imits: 53-120% 68-123%	, "							06/17/09 18:08	
Duplicate (9F16008-DUP2)				QC Source	e: BSF0131-03			Ext	racted:	06/16/09 09	0:01			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0472	mg/l	1x	ND				NR	(40)	06/17/09 18:31	
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	ND				54.1%	ó "	"	R
Surrogate(s): 2-FBP Octacosane		Recovery:	71.8% 93.9%	Li	imits: 53-120% 68-123%	, "							06/17/09 18:31	
Matrix Spike (9F16008-MS1)				QC Source	e: BSF0131-08			Ext	racted:	06/16/09 09	0:01			
Diesel Range Hydrocarbons	NWTPH-Dx	1.83		0.0472	mg/l	1x	ND	1.89	97.0%	(32-143)			06/17/09 18:54	
Lube Oil Range Hydrocarbons	"	1.72		0.118	"	"	0.0500	"	88.3%	(50-150)			"	
Surrogate(s): 2-FBP Octacosane		Recovery:	77.9% 93.3%	Li	imits: 53-120% 68-123%	"							06/17/09 18:54	

TestAmerica Seattle







AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 06/25/09 15:02

Semivolatile	Petroleum Pro	ducts by I	NWTPH-Dx	(w/o Acid		l Clea	an-up) -	Labor	atory	<b>Quality</b>	Cont	rol Re	esults	
QC Batch: 9F16009	Water I	Preparation	n Method: 1	EPA 3520C	1									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
Blank (9F16009-BLK1)								Extr	acted:	06/16/09 09	9:04			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0500	mg/l	1x							06/17/09 21:33	
Surrogate(s): 2-FBP Octacosane		Recovery:	76.2% 94.2%	Lii	nits: 53-120% 68-123%	"							06/17/09 21:33	
Blank (9F16009-BLK2)								Extr	acted:	06/16/09 09	0:04			
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND		0.125	mg/l	1x							06/18/09 14:22	
Surrogate(s): 2-FBP Octacosane		Recovery:	77.6% 87.8%	Lii	nits: 53-120% 68-123%	"							06/18/09 14:22	
LCS (9F16009-BS1)								Extr	racted:	06/16/09 09	9:04			
Diesel Range Hydrocarbons	NWTPH-Dx	1.89		0.0500	mg/l	1x		2.00	94.7%	(65-120)			06/17/09 21:57	
Surrogate(s): 2-FBP Octacosane		Recovery:	74.0% 91.0%	Lii	nits: 53-120% 68-123%	"							06/17/09 21:57	
LCS (9F16009-BS2)								Extr	acted:	06/16/09 09	9:04			
Lube Oil Range Hydrocarbons	NWTPH-Dx	1.79		0.125	mg/l	1x		2.00	89.3%	(70-120)			06/18/09 17:45	
Surrogate(s): 2-FBP Octacosane		Recovery:	78.9% 93.6%	Lii	nits: 53-120% 68-123%	"							06/18/09 17:45	
LCS Dup (9F16009-BSD1)								Extr	racted:	06/16/09 09	0:04			
Diesel Range Hydrocarbons	NWTPH-Dx	1.98		0.0500	mg/l	1x		2.00	98.8%	(65-120)	4.27%	(25)	06/17/09 22:21	
Surrogate(s): 2-FBP Octacosane		Recovery:	82.0% 93.1%	Lii	nits: 53-120% 68-123%	"							06/17/09 22:21	
LCS Dup (9F16009-BSD2)								Extr	racted:	06/16/09 09	0:04			
Lube Oil Range Hydrocarbons	NWTPH-Dx	1.92		0.125	mg/l	1x		2.00	95.8%	(70-120)	7.02%	(40)	06/18/09 18:07	
Surrogate(s): 2-FBP		Recovery:	88.5%	Lin	nits: 53-120%	"							06/18/09 18:07	

68-123% "

TestAmerica Seattle

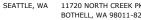
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Octacosane

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



97.4%



11720 NORTH CREEK PKWY N. SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

Recovery:

76.8%

93.8%

710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Report Created: Seattle, WA 98104 06/25/09 15:02 Project Manager: Sarah Albano

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

QC Batch: 9F16008 Water Preparation Method: **EPA 3520C** Source Spike Analyte Method Result MDL\* MRL Units Dil (Limits) (Limits) Analyzed REC Blank (9F16008-BLK1) Extracted: 06/16/09 09:01 NWTPH-Dx 0.0500 06/17/09 21:53 Diesel Range (SGCU) ND 1x mg/l Lube Oil Range (SGCU) ND 0.125 Surrogate(s): 2-FBP (SGCU) Recovery: 75.6% Limits: 53-125% 06/17/09 21:53 68-125% Octacosane (SGCU) 88.8% LCS (9F16008-BS1) Extracted: 06/16/09 09:01 NWTPH-Dx 1 91 0.250 2.00 06/17/09 22:15 Diesel Range (SGCU) mg/l 1x95.6% (61-132)Lube Oil Range (SGCU) 1.81 0.500 90.5% (50-150)Surrogate(s): 2-FBP (SGCU) 75.6% Limits: 53-125% 06/17/09 22:15 Recovery: Octacosane (SGCU) 90.9% 68-125% QC Source: BSF0131-08 Extracted: 06/16/09 09:01 Duplicate (9F16008-DUP1) Diesel Range (SGCU) NWTPH-Dx ND 0.236 1x ND (50)06/17/09 22:37 Lube Oil Range (SGCU) ND 0.472 ND NR 06/17/09 22:37 Surrogate(s): 2-FBP (SGCU) Recovery: 78.3% Limits: 53-125% Octacosane (SGCU) 96.5% 68-125% Duplicate (9F16008-DUP2) QC Source: BSF0131-03 Extracted: 06/16/09 09:01 Diesel Range (SGCU) NWTPH-Dx ND 0.236 mg/l ND NR (50) 06/17/09 23:00 0.472 Lube Oil Range (SGCU) NR Limits: 53-125% Surrogate(s): 2-FBP (SGCU) Recovery: 67.3% 06/17/09 23:00 Octacosane (SGCU) 90.6% 68-125% QC Source: BSF0131-08 Matrix Spike (9F16008-MS1) Extracted: 06/16/09 09:01 Diesel Range (SGCU) NWTPH-Dx 1.85 0.236 mg/l ND 97.8% (32-143)06/17/09 23:22 0.472 0.0410 Lube Oil Range (SGCU) 1.73 (50-150)

Limits: 53-125%

68-125%

TestAmerica Seattle

Surrogate(s):

2-FBP (SGCU)

Octacosane (SGCU)

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



06/17/09 23:22



SEATTLE, WA

11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

AECOM - Seattle Project Name: BNSF-Skykomish

 710 2nd Ave. Ste. 1000
 Project Number:
 01140-204-0340
 Report Created:

 Seattle, WA 98104
 Project Manager:
 Sarah Albano
 06/25/09 15:02

### **CERTIFICATION SUMMARY**

### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

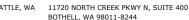
Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Kate Haney, Project Manager







PH: (425) 420.9200 FAX: (425) 420.9210

THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

Report Created: 710 2nd Ave. Ste. 1000 Project Number: 01140-204-0340 Seattle, WA 98104 Project Manager: Sarah Albano 06/25/09 15:02

### **Notes and Definitions**

### Report Specific Notes:

O1 Does not match typical pattern

QP Hydrocarbon result partly due to individual peak(s) in quantitation range.

R4 Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

### **Laboratory Reporting Conventions:**

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). RPD

MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. MDL\* \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and

percent solids, where applicable.

Electronic Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Signature

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Limits



		LABO	LABORATORY INFORMATION		TLAB WORK ORDER: DAFOLS
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BNSF Contact:	BNSF Work Order No.:	City	CIN/State/ZIPS of BOIL INH	(1086	674-9340, Fait
TURNAROUND TIME	DELIVERABLES	Other Deliverables?	ables?	METHODS FOR ANALYSIS	)
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2-day Rush	Level III	EDD Reg, Format?			
3-day Rush Other	Level IV	REFER I	10000	n	,
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Relinquished By:	Date/Time:	Received by:			
Relinquished By:	Date/Time:	Received By:			1.1 20
Received by Laboratory:	Date/Time:	Lab Remarks:	-	Lab: Custody Intact? Custo	Custody Seal No.: BNSF COC No.:
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPL	DUPLICATE - CONSULTANT		Rev 10/02/05

	V	I ABORATORY INFORMATION		I AR WORK ORDER. MALNIST	
		Project Manager	-	SHIPMENT INFORMATION	Γ
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RAILWAY	MAN JOHN (CODE PHWY N	Sta 400	20-999	Shipment Method: Hand All Mond	
CHAIN OF CUSTODY	Chystalest 1940 I WA 9801	rax:		er	
BNSF PROJECT INFORMATION	Project State of Origin:	CONSULTANT INFORMATION	DRMATION	Project Number: 40 - 204 - 0240	
	Project City: 5 LV LDMICL	į.	HARMART	9 min	
BNSF Project Name: SLA KDM SA		t		Email: Sarah, a band @ aolom, Ca	Ę
mac	BNSF Work Order No.:	City/State/ZIP. Dut 9	98iD4	Phone (206) 624-9349 Fax:	
		<b>N</b> .	METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	X BNSF Standard (Level II)				
×	☐ Level III	EDD Req, Format?			
3-day Rush		RETECT AND			
SAMPL	SAMPLE INFORMATION	14 ×			
Sample identification	Sample Collection	Filtered Type Matrix WWY			
	Date Time Sampler	Grab)		COMMENTS LAB USE	Ä
5090- 7-MS	57 2021 60/01/19/2	X M		11	
-47		X		11	
ミツ		<u>X</u>		91	
-04-M-42		<u>X</u>		61	
1 -007-W-A5	****	X		20	
1-N2		X		2//	
1-13-82	1 WEI 1 2			93	
3- (5W-3-	2 C/W na 1930 V	X		933	
/-3		X		400	
" 28-W-45-	My 0580   2			25	
7 R -	MO 0101 7 2	X		24	•
1 1	2 4 1030 15	X		37	
13					
21					
8	Received By:		- 2	omments and Special Analytical Requirements:	
MIKINI an Selvan	O = (1/01 100 CHOTA) WELLY Date/Time:	18	06-11-07 / 1500 Date/Time:	SGCH - Silica gol cleanup	
Relinquished By:	Date/Time: Received By:		Date/Time;		<del></del>
Received by Laboratory:	Date/Time: Lab Remarks:		Lab: Custody Intact? Co	Custody Seal No.: BNSF COC No.:	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICATE - CONSULTANT		Rev 1	Rev 10/02/05

<sub>TAT:</sub> <u>10</u>	•	k to PM – Date:_	Time:		Non-Conformances?
Page Time & Initials:					Circle Y or N
		0.1.101 = 0=1	SEIDT OUE		(If Y, see other side)
	TEST AMERICA	SAMPLE REG			
Received By: (applies to temp at receipt)	Logged-in By:	Unpacked/ Labeled by:			o: 361,393,391,376 357,384,301
Date: 06:11:09	Date: 00/2		Date	Work Order N	10. <u>BSF0131</u>
Time: <u>1300</u>	Time: 1417				· · · · · · · · · · · · · · · · · · ·
Initials: <u>CW</u>	Initials:	Initials: <u>CW</u>	Initials:	Project:	
Container Type:	My CO	C Seals:	<u>Pa</u>	cking Material:	
	Ship Contair	nerS	ign By	✓ Bubble Bags	Styrofoam
Box					
None/Other		None		None/Other _	
Refrigerant: Gel Ice Pack	Soil :	Stir Bars/Encores ed in freezer #46		eceived Via: Bill# Fed Ex	: Client
Loose Ice		N or NA		UPS	
None/Other		al/date/time		DHL	
TONO/OTHO			-	Senvoy	
					Other
Cooler Temperature ( <i>IR</i>	°C Plastic	Glass (Frozen			
Temperature Blank? $\underline{\theta}$					
BP, OPLC,ARCO-Temp (initial/date/time): Comments:					
Sample Containers:	<u>ID</u>				<u>ID</u>
Intact?	(Y) or N	Metals	Preserved?	Y or N	or(NA)
Provided by TA?	(Y) or N	Client	QAPP Preserv	ved? Y or N	or(NA)
Correct Type?	(Y) or N	Adequ	ate Volume?	Y)or N	
#Containers match CO0	C? (Y) or N ·	(for test Water	s requested) VOAs: Heads	pace? Y or N	or (ÑA)
IDs/time/date match CC	OC?(Y) or N	Comn	nents:		
Hold Times in hold?	(Y) or N				
PROJECT MANAGEM	ENT				
Is the Chain of Custody	complete?		Υ	or N If N, circle th	ne items that were incomplete
Comments,Problems			· · · · · · · · · · · · · · · · · · ·	-	
				enger var en en en en en en en en en en en en en	

Total access set up?





May 28, 2009

Halah Voges AECOM - Seattle 710 2nd Ave. Ste. 1000 Seattle, WA 98104

RE: BNSF-Skykomish

Enclosed are the results of analyses for samples received by the laboratory on 05/12/09 18:45. The following list is a summary of the Work Orders contained in this report, generated on 05/28/09 10:41.

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

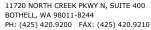
Work Order	<u>Project</u>	<u>ProjectNumber</u>
BSE0122	BNSF-Skykomish	01140-222-0200

TestAmerica Seattle

Kate Haney, Project Manager







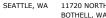


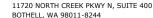
**AECOM - Seattle BNSF-Skykomish** Project Name: 01140-222-0200 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: 05/28/09 10:41 Halah Voges

### ANALYTICAL REPORT FOR SAMPLES Sample ID **Date Received** Laboratory ID Matrix **Date Sampled** 1C-W-7-051209 BSE0122-01 Water 05/12/09 15:20 05/12/09 18:45 1C-W-1-051209 BSE0122-02 Water 05/12/09 16:20 05/12/09 18:45 1C-W-8-051209 BSE0122-03 Water 05/12/09 17:05 05/12/09 18:45

TestAmerica Seattle







PH: (425) 420.9200 FAX: (425) 420.9210



**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0200 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: 05/28/09 10:41 Halah Voges

### **Analytical Case Narrative**

TestAmerica - Seattle, WA

### **BSE0122**

SAMPLE RECEIPT

The samples were received 05/12/2009 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.7 degrees Celsius.

### PREPARATIONS AND ANALYSIS

No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica Seattle







BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**AECOM - Seattle BNSF-Skykomish** Project Name:

710 2nd Ave. Ste. 1000 01140-222-0200 Report Created: Project Number: Seattle, WA 98104 Project Manager: Halah Voges 05/28/09 10:41

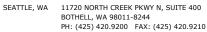
### Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BSE0122-01 (1C-W-7-051209)		Wa	ater		Sampl	ed: 05/1	12/09 15:20			
Diesel Range Hydrocarbons	NWTPH-Dx	0.578		0.0472	mg/l	1x	9E13007	05/13/09 08:05	05/14/09 23:17	Q11
Lube Oil Range Hydrocarbons	"	0.186		0.118	"	"	"	"	"	Q1
Surrogate(s): 2-FBP			79.2%		53 - 120 %	"			"	
Octacosane			91.5%		68 - 123 %	"			"	
BSE0122-02 (1C-W-1-051209)		Wa	ater		Sampl	ed: 05/1	12/09 16:20			
Diesel Range Hydrocarbons	NWTPH-Dx	0.0648		0.0472	mg/l	1x	9E13007	05/13/09 08:05	05/14/09 23:39	Q1
Lube Oil Range Hydrocarbons	"	ND		0.118	"	"	"	"	"	
Surrogate(s): 2-FBP			70.5%		53 - 120 %	"			"	
Octacosane			91.0%		68 - 123 %	"			"	
BSE0122-03 (1C-W-8-051209)		Wa	ater		Sampl	ed: 05/1	12/09 17:05			
Diesel Range Hydrocarbons	NWTPH-Dx	0.901		0.0472	mg/l	1x	9E13007	05/13/09 08:05	05/15/09 00:01	Q11
Lube Oil Range Hydrocarbons	"	0.275		0.118	"	"	"	"	"	Q1
Surrogate(s): 2-FBP			81.0%		53 - 120 %	"			"	
Octacosane			88.2%		68 - 123 %	"			"	

TestAmerica Seattle







THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0200 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 05/28/09 10:41

### Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9E13007	Water 1	Preparation	Method: E	PA 35200	<u> </u>									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (9E13007-BLK1)								Ext	racted:	05/13/09 08	3:05			
Diesel Range Hydrocarbons	NWTPH-Dx	ND		0.0500	mg/l	1x							05/14/09 20:41	
Lube Oil Range Hydrocarbons	"	ND		0.125	"	"							"	
Surrogate(s): 2-FBP Octacosane		Recovery:	74.6% 92.8%	Li	mits: 53-120% 68-123%	"							05/14/09 20:41	
LCS (9E13007-BS1)								Ext	racted:	05/13/09 08	3:05			
Diesel Range Hydrocarbons	NWTPH-Dx	2.02		0.0500	mg/l	1x		2.00	101%	(65-120)			05/14/09 21:03	
Lube Oil Range Hydrocarbons	"	1.99		0.125	"	"		"	99.4%	(70-120)			"	
Surrogate(s): 2-FBP Octacosane		Recovery:	78.7% 89.0%	Li	mits: 53-120% 68-123%	"							05/14/09 21:03	
LCS Dup (9E13007-BSD1)								Ext	racted:	05/13/09 08	3:05			
Diesel Range Hydrocarbons	NWTPH-Dx	2.08		0.0500	mg/l	1x		2.00	104%	(65-120)	2.86%	6 (25)	05/14/09 21:25	
Lube Oil Range Hydrocarbons	"	2.02		0.125	"	"		"	101%	(70-120)	1.43%	(40)	"	
Surrogate(s): 2-FBP Octacosane		Recovery:	82.6% 90.1%	Li	mits: 53-120% 68-123%	"							05/14/09 21:25	

TestAmerica Seattle





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

THE LEADER IN ENVIRONMENTAL TESTING

**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0200 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: 05/28/09 10:41 Halah Voges

### **CERTIFICATION SUMMARY**

### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
NWTPH-Dx	Water		X		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

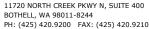
For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle









**AECOM - Seattle BNSF-Skykomish** Project Name:

01140-222-0200 Report Created: 710 2nd Ave. Ste. 1000 Project Number: Seattle, WA 98104 Project Manager: Halah Voges 05/28/09 10:41

### **Notes and Definitions**

### Report Specific Notes:

O1 Does not match typical pattern

Q11 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel.

Q13 Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.

Q6 Results in the diesel organics range are primarily due to overlap from a heavy oil range product.

### <u>Laboratory Reporting Conventions:</u>

DET Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA \_ Not Reported / Not Available

Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry

Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet

on a Wet Weight Basis.

**RPD** RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table. MRL

METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. MDL\* \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported

as Estimated Results.

Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution

found on the analytical raw data.

Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits

percent solids, where applicable.

Electronic Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Signature

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle



# **TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY REPORT

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244

9405 SW Nimbus Ave, Beaverton, OR 97008-7145

425-420-9200 FAX 420-9210 X 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 11922 E. First Ave, Spokane, WA 99206-5302

Turnaround Requests less than standard may incur Rush Charges. TA WO ID 4 Ö 8  $\mathcal{Z}$ 5 4 3 2 1 <1 TURNAROUND REQUEST (10) 7 S 4 3 2 I LOCATION/ COMMENTS TIME DATE: Organic & Inorganic Analyses in Business Days \* OTHER | Specify: Work Order #: #OF CONT. 2 N MATRIX (W, S, O) ≥ ≷ ⋛ RECEIVED BY: PRINT NAME: REQUESTED ANALYSES PRESERVATIVE P.O. NUMBER DATE: XII-HOLMN FIRM: AFTOR X X 029 1705 1520 PROJECT NUMBER: 01140-222-0200 SAMPLING DATE/TIME SPECANT 4/12/09 5/12/09 5 2 2 09 SAMPLED BY: GHAN CLIENT SAMPLE IDENTIFICATION ADDRESS: 10 ADDITIONAL REMARKS. PHONE: (Z/) RELEASED BY: RELEASED BY: PRINT NAME: CLIENT: PRINT NAME:

TAL-1000(0408)

TEMP:

TAT:	Paperv	ork to PM – Date:	Tin	ne:	Non-Conformances?
Page Time & Initials:					Circle Y or N
					(If Y, see other side)
	TEST AMERIC	CA SAMPLE RE	ECEIPT C	CHECKLIST	
Received By:	Logged-in By:	Unpacked/ Labeled by:	Label R	eview by: Cooler I	D: <u>309</u>
(applies to temp at receipt)	ľ				AAKAILO
Date: <u>18:45</u> Time: <u>18:45</u>	Date: 5/K	Date: 05-13		Work Order I	
Time: 18:43	Time: <u>19:14</u>	Time: <u>[215</u>			
Initials: <u>////</u>	Initials: <u></u>	Initials: <u>CW</u>	Initials:_	Project:	
Container Type:	<u>(</u>	COC Seals:		Packing Material:	
Cooler	Ship Con	tainer	Sign By	Bubble Bags	Styrofoam
Box	On Bottle	s	Date	Foam Packs	
None/Other		None		None/Other	
Refrigerant:		oil Stir Bars/Encore		Received Via: Bill#	
Gel Ice Pack		aced in freezer #4	ł6:	Fed Ex	
	•	or N or NA		UPS	
None/Other	Ir	itial/date/time	<del></del>	DHL	
				Senvoy	
					Other
Cooler Temperature ( <u>IF</u>	(cir	rala ana)		•	etals exempt)
Temperature Blank?	7°C or NA com	ments		Trip Bla	nk? Y or N or(NA)
BP, OPLC,ARCO-Temp (initial/date/time): Comments:					
Sample Containers:	<u>ID</u>				<u>ID</u>
Intact?	Or N	Meta	als Preserve	ed? Y or N	
Provided by TA?	Or N	Clier	nt QAPP Pr	eserved? Y or N	or NA
Correct Type?	(Y)or N	Ade	quate Volur	ne? (Yor N	
#Containers match CO	C? (V) or N	(for te Wat	ests requested er VOAs: H	) leadspace? Y or N	or(NA)
IDs/time/date match CC	(X)			•	
Hold Times in hold?	$\sim$				
				3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-	
PROJECT MANAGEM	ENT				
Is the Chain of Custody	complete?			Y or N If N, circle t	the items that were incomplete
Comments, Problems_					·
				<u></u>	
				Address of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the sta	
Total access set up?				Y or N	

Total access set up?



### ANALYTICAL REPORT

Job Number: 580-14365-1

Job Description: BNSF-Skykomish Groundwater Monitoring

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, WA 98104

Attention: Denell Warren

Approved for releas Kate Haney Project Manager II 7/22/2009 2:58 PM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
07/22/2009

cc: Sarah Albano
Mark Havighorst
Aaron Huntington
Karen Kane
Eric Storkerson
Halah Voges

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424 Tel (253) 922-2310 Fax (253) 922-5047 <a href="https://www.testamericainc.com">www.testamericainc.com</a>



### Job Narrative 580-J14365-1

### Comments

No additional comments.

### Receipt

All samples were received in good condition within temperature requirements.

### GC Semi VOA

No analytical or quality issues were noted.

### **Organic Prep**

No analytical or quality issues were noted.

### **METHOD SUMMARY**

Client: AECOM, Inc. Job Number: 580-14365-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-I	Ox
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

### Lab References:

TAL TAC = TestAmerica Tacoma

### **Method References:**

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-14365-1

			Date/Time	Date/Time
Lab Sample ID	Client Sample ID	Client Matrix	Sampled	Received
580-14365-1	GW-2-0709	Water	07/07/2009 1115	07/09/2009 0851
580-14365-2	5-W-43-0709	Water	07/07/2009 1220	07/09/2009 0851

Client: AECOM, Inc. Job Number: 580-14365-1

Client Sample ID: GW-2-0709

Lab Sample ID: 580-14365-1 Date Sampled: 07/07/2009 1115

Client Matrix: Water Date Received: 07/09/2009 0851

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-46788Instrument ID:SEA011Preparation:3510CPrep Batch: 580-46857Lab File ID:AA000538.DDilution:1.0Initial Weight/Volume:1060 mL

 Date Analyzed:
 07/22/2009 0047
 Final Weight/Volume:
 2 mL

 Date Prepared:
 07/21/2009 1724
 Injection Volume:
 1 uL

Analyte Result (mg/L) Qualifier RL

Diesel Range Organics (C12-C24) 0.65 0.047

 Diesel Range Organics (C12-C24)
 0.65
 0.047

 Lube Oil
 0.41
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 127 50 - 150

Client: AECOM, Inc. Job Number: 580-14365-1

Client Sample ID: 5-W-43-0709

Lab Sample ID: 580-14365-2 Date Sampled: 07/07/2009 1220

Client Matrix: Water Date Received: 07/09/2009 0851

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-46788Instrument ID:SEA011Preparation:3510CPrep Batch: 580-46857Lab File ID:AA000539.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 07/22/2009 0112 Final Weight/Volume: 2 mL

 Date Analyzed:
 07/22/2009 0112
 Final Weight/Volume:
 2 mL

 Date Prepared:
 07/21/2009 1724
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.14
 0.047

 Lube Oil
 0.12
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 98 50 - 150

### **Quality Control Results**

Client: AECOM. Inc. Job Number: 580-14365-1

Method: NWTPH-Dx Method Blank - Batch: 580-46857

Preparation: 3510C

50 - 150

Lab Sample ID: MB 580-46857/1-A Analysis Batch: 580-46788 Instrument ID: SEA011 Client Matrix: Water Prep Batch: 580-46857 Lab File ID: AA000535.D Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

07/21/2009 2332 Date Analyzed: Final Weight/Volume: 2 mL Date Prepared: 07/21/2009 1724 Injection Volume: 1 uL

Analyte Result Qual RL Diesel Range Organics (C12-C24) ND 0.050 Lube Oil ND 0.10 Surrogate % Rec Acceptance Limits 106

Lab Control Sample/ Method: NWTPH-Dx Lab Control Sample Duplicate Recovery Report - Batch: 580-46857 Preparation: 3510C

o-Terphenyl

LCS Lab Sample ID: LCS 580-46857/2-A Analysis Batch: 580-46788 Instrument ID: **SEA011** 

Prep Batch: 580-46857 AA000536.D Client Matrix: Water Lab File ID: Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

07/21/2009 2358 Final Weight/Volume: 2 mL Date Analyzed: 07/21/2009 1724 Date Prepared: Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-46857/3-A Analysis Batch: 580-46788 Instrument ID: SEA011 Client Matrix: Prep Batch: 580-46857 AA000537.D Water Lab File ID:

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

Date Analyzed: 07/22/2009 0023 Final Weight/Volume: 2 mL Date Prepared: 07/21/2009 1724 Injection Volume: 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual Diesel Range Organics (C12-C24) 70 - 140 110 110 1 27 100 66 - 125 27 Lube Oil 106 6 Surrogate LCS % Rec LCSD % Rec Acceptance Limits 50 - 150 o-Terphenyl 114 114

Calculations are performed before rounding to avoid round-off errors in calculated results.

SHIPMENT INFORMATION TAL-1001 (06/08) Project Number: 01140-284-0540 LAB USE Project Manager HALAL VOGES Hand Delivery. 00 d 19 1155 Comments and Special Analytical Requirements: BNSF COC No. Phone, 206-624-9349 Fax: COMMENTS LAB WORK ORDER: -420-9249 Shipment Method: Fracking Number: Email: ustody Seal No.. METHODS FOR ANALYSIS holdess 710, 2nd Ave sta 1000 Lab: Custody Intact? 40186 CONSULTANT INFORMATION Date/Time: 1720 A. Creek, PKWY N. Ch Jos 425 CILVSTATE/SEATTS, WA O/M XQ-HOLMN LABORATORY INFORMATION Company: AECOM 328 Type · (Comp/ Matrix Grab) DUPLICATE - CONSULTANT AECOM Other Deliverables? EDD Req, Format? Filtered 1115 G.S N 11086 07/07/09/1220 B.S N Sampler aborators. Test America NSF Project Number: 81140 - 2584-0540 Project City: SKYKE MISh Received By: Lab Remarks: Sample Collection Received By: Time Chystalezip: Ro Hell Project State of Origin: WA DELIVERABLES Date/Time: © 7 (0 7 ( 0 4) | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 4 | 0 BNSF Standard (Level II) SAMPLE INFORMATION BNSF Work Order No.: Level IV Containers Date/Time: 99 elinquished By. Abdelohani Sebbam BNSF CONTACT: BY WE She PRORVED TIME RAILWAY INSF Project Name: SKY Kemish DRIGINAL - RETURN TO LABORATORY WITH SAMPLES BNSF PROJECT INFORMATION CHAIN OF CUSTODY 6010-8h-M-5a 5- to 8-day Rush Standard 10-Day Sample identification GW-2-0709 Other Received by Laboratory: 1-day Rush 3-day Rush 2-day Rush elinquished By: elinquished By οŧ

TB=2,7 4,2 W/CS ice mad. Blue/white, bubble, ice

### **Login Sample Receipt Check List**

Client: AECOM, Inc. Job Number: 580-14365-1

Login Number: 14365 List Source: TestAmerica Tacoma

Creator: Blankinship, Tom

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	



### ANALYTICAL REPORT

Job Number: 580-14651-1

Job Description: BNSF-Skykomish Groundwater Monitoring

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, WA 98104

Attention: Denell Warren

Approved for release Kate Haney Project Manager II 8/6/2009 4:23 PM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
08/06/2009

cc: Sarah Albano
Mark Havighorst
Aaron Huntington
Karen Kane
Eric Storkerson
Halah Voges

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424 Tel (253) 922-2310 Fax (253) 922-5047 <a href="https://www.testamericainc.com">www.testamericainc.com</a>



### Job Narrative 580-J14651-1

### Comments

No additional comments.

### Receipt

All samples were received in good condition within temperature requirements.

### GC Semi VOA

No analytical or quality issues were noted.

### **Organic Prep**

No analytical or quality issues were noted.

### **METHOD SUMMARY**

Client: AECOM, Inc. Job Number: 580-14651-1

Description	Lab Location	Method Preparation Method
Matrix: Water		
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC	SW846 3510C

### Lab References:

TAL TAC = TestAmerica Tacoma

### **Method References:**

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-14651-1

	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
Lab Sample ID				
580-14651-1	1C-W-1-0709	Water	07/28/2009 1050	07/29/2009 1510
580-14651-2	1C-W-8-0709	Water	07/28/2009 1145	07/29/2009 1510
580-14651-3	1C-W-7-0709	Water	07/28/2009 1230	07/29/2009 1510
580-14651-4	GW-2-0709	Water	07/28/2009 1430	07/29/2009 1510
580-14651-5	GW-20-0709	Water	07/28/2009 1330	07/29/2009 1510

Client: AECOM, Inc. Job Number: 580-14651-1

Client Sample ID: 1C-W-1-0709

Lab Sample ID: 580-14651-1 Date Sampled: 07/28/2009 1050

Client Matrix: Water Date Received: 07/29/2009 1510

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-47638Instrument ID:TAC013Preparation:3510CPrep Batch: 580-47665Lab File ID:FA38581.D

Dilution: 1.0 Initial Weight/Volume: 1050 mL

Date Analyzed: 08/04/2009 2119 Final Weight/Volume: 2 mL

 Date Analyzed:
 08/04/2009 2119
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.048

 Lube Oil
 ND
 0.095

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 87 50 - 150

Client: AECOM, Inc. Job Number: 580-14651-1

Client Sample ID: 1C-W-8-0709

Lab Sample ID: 580-14651-2 Date Sampled: 07/28/2009 1145

Client Matrix: Water Date Received: 07/29/2009 1510

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-47638Instrument ID:TAC013Preparation:3510CPrep Batch: 580-47665Lab File ID:FA38582.D

Dilution: 1.0 Initial Weight/Volume: 1050 mL
Date Analyzed: 08/04/2009 2139 Final Weight/Volume: 2 mL

 Date Analyzed:
 08/04/2009 2139
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.33
 0.048

Lube Oil ND 0.095

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 91 50 - 150

Client: AECOM, Inc. Job Number: 580-14651-1

Client Sample ID: 1C-W-7-0709

Lab Sample ID: 580-14651-3 Date Sampled: 07/28/2009 1230

Client Matrix: Water Date Received: 07/29/2009 1510

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-47638Instrument ID:TAC013Preparation:3510CPrep Batch: 580-47665Lab File ID:FA38583.D

Dilution: 1.0 Initial Weight/Volume: 1050 mL
Date Analyzed: 08/04/2009 2159 Final Weight/Volume: 2 mL

 Date Analyzed:
 08/04/2009 2159
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.25
 0.048

 Lube Oil
 ND
 0.095

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 88 50 - 150

Client: AECOM, Inc. Job Number: 580-14651-1

Client Sample ID: GW-2-0709

Lab Sample ID: 580-14651-4 Date Sampled: 07/28/2009 1430

Client Matrix: Water Date Received: 07/29/2009 1510

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-47638Instrument ID:TAC013Preparation:3510CPrep Batch: 580-47665Lab File ID:FA38584.D

Dilution: 1.0 Initial Weight/Volume: 1050 mL

Date Analyzed: 08/04/2009 2220 Final Weight/Volume: 2 mL

 Date Analyzed:
 08/04/2009
 2220
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009
 1545
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.41
 0.048

 Lube Oil
 0.25
 0.095

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 91 50 - 150

Client: AECOM, Inc. Job Number: 580-14651-1

Client Sample ID: GW-20-0709

Lab Sample ID: 580-14651-5 Date Sampled: 07/28/2009 1330

Client Matrix: Water Date Received: 07/29/2009 1510

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-47638Instrument ID:TAC013Preparation:3510CPrep Batch: 580-47665Lab File ID:FA38585.D

Dilution: 1.0 Initial Weight/Volume: 1050 mL Date Analyzed: 08/04/2009 2240 Final Weight/Volume: 2 mL

 Date Analyzed:
 08/04/2009 2240
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.43
 0.048

 Lube Oil
 0.29
 0.095

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 95 50 - 150

### **Quality Control Results**

Client: AECOM. Inc. Job Number: 580-14651-1

Method Blank - Batch: 580-47665 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: MB 580-47665/1-A Analysis Batch: 580-47638 Instrument ID: TAC013

Client Matrix: Water Prep Batch: 580-47665 Lab File ID: FA38578.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 08/04/2009
 2018
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009
 1545
 Injection Volume:
 1 uL

Analyte Result Qual RL

Diesel Range Organics (C12-C24) ND 0.050
Lube Oil ND 0.10

Surrogate % Rec Acceptance Limits

o-Terphenyl 97 50 - 150

Lab Control Sample/ Method: NWTPH-Dx
Lab Control Sample Duplicate Recovery Report - Batch: 580-47665 Preparation: 3510C

LCS Lab Sample ID: LCS 580-47665/2-A Analysis Batch: 580-47638 Instrument ID: TAC013

Client Matrix: Water Prep Batch: 580-47665 Lab File ID: FA38579.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 08/04/2009 2038
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

LCSD Lab Sample ID: LCSD 580-47665/3-A Analysis Batch: 580-47638 Instrument ID: TAC013

Client Matrix: Water Prep Batch: 580-47665 Lab File ID: FA38580 D

Client Matrix: Water Prep Batch: 580-47665 Lab File ID: FA38580.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 08/04/2009 2059
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/04/2009 1545
 Injection Volume:
 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual Diesel Range Organics (C12-C24) 70 - 140 84 87 4 27 101 66 - 125 14 27 Lube Oil 87 Surrogate LCS % Rec LCSD % Rec Acceptance Limits 50 - 150 o-Terphenyl 97 98

Calculations are performed before rounding to avoid round-off errors in calculated results.

## **TestAmerica**

TestAmerica Tacoma 5755 8th Street E. Tacoma, WA 98424 Tel. 253-922-2310 Fax 253-922-5047 www.testamericainc.com

### Chain of Custody Record

Cooler Dsc Bq 8146/vnite Vel/Packs a Lab isio Temps.7 TBu46 (A fee may be assessed if samples are retained longer than 1 month) Conditions of Receipt Special Instructions/ 01.5) Containers Chain of Custody Number 4976 ð acking Bubble wraps Page N Months Date 67/28/09 ☐ Disposal By Lab☐ Archive For nore space is needed) Analysis (Attach list Lab Number ☐ Poison B ☐ Unknown ☐ Return To Client Sample Disposal -HGTWN QC Requirements (Specify) Telephone Number (Area Code)/Fax Number
206-624-9349 Containers & Preservatives 1. Received By Project Manager Sarah Albano Lab Contact
Kafe.# HOEN 3. Received By 2. Received By EONE tOSZI-Date 7/29/09 | 12:35 07/21/09 0830. !!os Carrier/Waybill Number Skin Irritant .bəS noənby Site Contact 116 □ Other 5411 8/08/1145 07/28/09/1330 07/28/09/1050 02/128/04 1430 57/28/09/1230 ☐ Flammable ☐ 15 Days Possible Hazard Identification Zip Code Project Name and Location (State) Date Sult 1000 ☐ Non-Hazard project & 01140-284-0540 ☐ 10 Days Sample I.D. and Location/Description (Containers for each sample may be combined on one line) **\$** 1C-W-7-0709 ☐ 5 Days GW-20-0709 1C-W-8-0709 GW-2-6709 10-W-1-0709 Turn Around Time Required (business days) Address 710 2nd Alle, Contract/Purchase Order/Quote No. ☐ No Cooler Temp:\_ 2. Relinquished By, " ☐ 48 Hours city seathly Client AECOM Relinquished By 3. Relinquished By ☐ 24 Hours Comments 11

### **Login Sample Receipt Check List**

Client: AECOM, Inc. Job Number: 580-14651-1

Login Number: 14651 List Source: TestAmerica Tacoma

Creator: Luna, Francisco

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	no TAT on COC
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	False	no name
Sample Preservation Verified	True	



### **ANALYTICAL REPORT**

Job Number: 580-15126-1

Job Description: BNSF Skykomish Groundwater Monitoring

For: AECOM, Inc. 710 Second Avenue Suite 1000 Seattle, WA 98104

Attention: Denell Warren

ue May

Approved for release Curtis Armstrong Project Manager I 9/10/2009 5:40 PM

Designee for
Kate Haney
Project Manager II
kate.haney@testamericainc.com
09/10/2009

cc: Sarah Albano
Mark Havighorst
Aaron Huntington
Karen Kane
Eric Storkerson
Halah Voges

 $\label{thm:comparison} \textbf{TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.}$ 

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The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

### TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424 Tel (253) 922-2310 Fax (253) 922-5047 <a href="https://www.testamericainc.com">www.testamericainc.com</a>



# **Table of Contents**

Cover Title Page	1
Report Narrative	3
Method Summary	4
Sample Summary	5
Sample Datasheets	6
Qc Reports	14
Client Chain of Custody	15
Sample Receipt Checklist	16

# Job Narrative 580-J15126-1

#### Comments

No additional comments.

#### Receipt

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): 3-W-43-0809, time is not listed on the label. Sample logged in per COC.

All other samples were received in good condition within temperature requirements.

#### GC Semi VOA

No analytical or quality issues were noted.

## Organic Prep

No analytical or quality issues were noted.

## **METHOD SUMMARY**

Client: AECOM, Inc. Job Number: 580-15126-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-	Ox
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC	;	SW846 3510C

#### Lab References:

TAL TAC = TestAmerica Tacoma

#### Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

# **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-15126-1

			Date/Time	Date/Time
Lab Sample ID C	Client Sample ID	Client Matrix	Sampled	Received
580-15126-1	1C-W-1-0809	Water	08/25/2009 1000	08/26/2009 1100
580-15126-2	1C-W-7-0809	Water	08/25/2009 1157	08/26/2009 1100
580-15126-3	1C-W-8-0809	Water	08/25/2009 1056	08/26/2009 1100
580-15126-4	3-W-43-0809	Water	08/25/2009 1521	08/26/2009 1100
580-15126-5	3-W-42-0809	Water	08/25/2009 1433	08/26/2009 1100
580-15126-6	3-W-41-0809	Water	08/25/2009 1330	08/26/2009 1100
580-15126-7	3-W-410-0809	Water	08/25/2009 1400	08/26/2009 1100
580-15126-8	GW-2-0809	Water	08/25/2009 1640	08/26/2009 1100

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 1C-W-1-0809

Lab Sample ID: 580-15126-1 Date Sampled: 08/25/2009 1000 Client Matrix:

Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

**TAC013** Method: NWTPH-Dx Analysis Batch: 580-49786 Instrument ID: Preparation: 3510C Prep Batch: 580-49374 Lab File ID: FA39775.D

Dilution: Initial Weight/Volume: 1060 mL 09/07/2009 1623

Final Weight/Volume: Date Analyzed: 2 mL Date Prepared: 08/30/2009 1302 Injection Volume: 1 uL

Qualifier Analyte Result (mg/L) RL Diesel Range Organics (C12-C24) ND 0.047 Lube Oil ND 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 1C-W-7-0809

Lab Sample ID: 580-15126-2 Date Sampled: 08/25/2009 1157 Client Matrix: Water

Date Received: 08/26/2009 1100

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

**TAC013** Method: NWTPH-Dx Analysis Batch: 580-49786 Instrument ID: Preparation: 3510C Prep Batch: 580-49374 Lab File ID: FA39776.D Dilution: Initial Weight/Volume: 1060 mL

09/07/2009 1643 Final Weight/Volume: Date Analyzed: 2 mL Date Prepared: 08/30/2009 1302 Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.30 0.047 ND Lube Oil 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 109 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 1C-W-8-0809

Lab Sample ID: 580-15126-3 Date Sampled: 08/25/2009 1056

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39777.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 09/07/2009 1703 Final Weight/Volume: 2 mL

 Date Analyzed:
 09/07/2009 1703
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.38
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 105 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 3-W-43-0809

Lab Sample ID: 580-15126-4 Date Sampled: 08/25/2009 1521

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39778.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 09/07/2009 1723 Final Weight/Volume: 2 mL

 Date Analyzed:
 09/07/2009 1723
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 3-W-42-0809

Lab Sample ID: 580-15126-5 Date Sampled: 08/25/2009 1433

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39779.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 09/07/2009 1743 Final Weight/Volume: 2 mL

 Date Analyzed:
 09/07/2009 1743
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 3-W-41-0809

Lab Sample ID: 580-15126-6 Date Sampled: 08/25/2009 1330

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39780.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 09/07/2009 1803 Final Weight/Volume: 2 ml

 Date Analyzed:
 09/07/2009 1803
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.076
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: 3-W-410-0809

Lab Sample ID: 580-15126-7 Date Sampled: 08/25/2009 1400

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39781.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

 Date Analyzed:
 09/07/2009 1823
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.077
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 103 50 - 150

Client: AECOM, Inc. Job Number: 580-15126-1

Client Sample ID: GW-2-0809

Lab Sample ID: 580-15126-8 Date Sampled: 08/25/2009 1640

Client Matrix: Water Date Received: 08/26/2009 1100

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-49786Instrument ID:TAC013Preparation:3510CPrep Batch: 580-49374Lab File ID:FA39783.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 09/07/2009 1908 Final Weight/Volume: 2 mL

Date Analyzed: 09/07/2009 1908 Final Weight/Volume: 2 mL

Date Prepared: 08/30/2009 1302 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.71
 0.047

 Lube Oil
 0.32
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 96 50 - 150

### **Quality Control Results**

Client: AECOM. Inc. Job Number: 580-15126-1

Method Blank - Batch: 580-49374 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: MB 580-49374/1-A Analysis Batch: 580-49786 Instrument ID: TAC013

Client Matrix: Water Prep Batch: 580-49374 Lab File ID: FA39772.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 09/07/2009 1512
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

Analyte Result Qual RL

Diesel Range Organics (C12-C24) ND 0.050
Lube Oil ND 0.10

Surrogate % Rec Acceptance Limits

o-Terphenyl 100 50 - 150

5 Tolphony.

Lab Control Sample/ Method: NWTPH-Dx
Lab Control Sample Duplicate Recovery Report - Batch: 580-49374 Preparation: 3510C

LCS Lab Sample ID: LCS 580-49374/2-A Analysis Batch: 580-49786 Instrument ID: TAC013
Client Matrix: Water Prep Batch: 580-49374 Lab File ID: FA39773.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 09/07/2009 1532
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

LCSD Lab Sample ID: LCSD 580-49374/3-A Analysis Batch: 580-49786 Instrument ID: TAC013
Client Matrix: Water Prep Batch: 580-49374 Lab File ID: FA39774.D

Dilution: 1.0 Units: mg/L Lab File ID: FA397/4.D Initial Weight/Volume: 1000 mL

 Date Analyzed:
 09/07/2009 1557
 Final Weight/Volume:
 2 mL

 Date Prepared:
 08/30/2009 1302
 Injection Volume:
 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual Diesel Range Organics (C12-C24) 70 - 140 93 98 5 27 66 - 125 3 27 Lube Oil 92 95 LCS % Rec LCSD % Rec Surrogate Acceptance Limits 50 - 150 o-Terphenyl 104 112

Calculations are performed before rounding to avoid round-off errors in calculated results.

	LABORATORY INFORMATI	LAB WORK ORDER: 15 K	
	Laboratory: Test Amorica	Project Manager. Kale Hane 1 INFORMATION	TION
RAILWAY	日 ts yth St 匠	253) 922-23/10 Shipment Method: Direct Delivery to	to Lab
<b>-</b>	Te, WA 98424-1317 Fax		
N.		·	
BNSF Project Number:	AECOM	Environment Project Manager Sarah Alloann	0.0
BNSF Project Name: Skukomish	Address: 710 Zr	Email: Sarah, alba	Com. Com
BINSF Contact:	76	(102) HOISB	
18	Other Deliverables?	FOR ANALYSIS	
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)		
	Level V X S		
SAM	SAMPLE INFORMATION		
	Sample Collection Filtered Type		
Sample identification	XI	COMMENTS	LAB USE
M-1-W080	W . N ST 0001 polsz18		
	2 8/25/69 1157 JF N W V		~
- A - / 11 - O	11 56 9501		~
2-11-43-	W V St 1531		*
- 77 - 77	S/25/69 1433 JS		<b>b</b>
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Amonguished By:	Date/Time: Received By:		
Received by Laboratory:	Daie/Time: Lab Remarks:	Lab: Custody Infact? Custody Seal No.: BNSF COC No.:	ло: -
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES	Kg (MULA / Blue Ting : 20. 9 - Bugsble wag	Tom 0 2, 1.7 TB : 51 Bushyl	Rev 10/02/05
	1.7 = 1.1	Ly Bhu White who	\

## **Login Sample Receipt Check List**

Client: AECOM, Inc. Job Number: 580-15126-1

Login Number: 15126 List Source: TestAmerica Tacoma

Creator: Gamble, Cathy List Number: 1

T / F/ NA Question Comment Radioactivity either was not measured or, if measured, is at or below True background The cooler's custody seal, if present, is intact. N/A The cooler or samples do not appear to have been compromised or True tampered with. True Samples were received on ice. Cooler Temperature is acceptable. True Cooler Temperature is recorded. True COC is present. True COC is filled out in ink and legible. True COC is filled out with all pertinent information. True There are no discrepancies between the sample IDs on the containers and True the COC. Samples are received within Holding Time. True Sample containers have legible labels. True Containers are not broken or leaking. True Sample collection date/times are provided. True Appropriate sample containers are used. True Sample bottles are completely filled. True There is sufficient vol. for all requested analyses, incl. any requested True MS/MSDs VOA sample vials do not have headspace or bubble is <6mm (1/4") in N/A diameter. If necessary, staff have been informed of any short hold time or quick TAT True needs Multiphasic samples are not present. True Samples do not require splitting or compositing. True Is the Field Sampler's name present on COC? True Sample Preservation Verified True



# **ANALYTICAL REPORT**

Job Number: 580-15702-1

Job Description: BNSF Skykomish Groundwater Monitoring

For: AECOM, Inc. 710 Second Avenue Suite 1000 Seattle, WA 98104

Attention: Sarah Albano

Approved for release Kate Haney Project Manager II 10/22/2009 5:14 PM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
10/22/2009

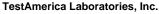
cc: Denell Warren

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.





# Job Narrative 580-15702-1

## Comments

No additional comments.

#### Receipt

All samples were received in good condition within temperature requirements.

#### GC Semi VOA

No analytical or quality issues were noted.

## Organic Prep

No analytical or quality issues were noted.

#### **METHOD SUMMARY**

Client: AECOM, Inc. Job Number: 580-15702-1

Description	Lab Location	Method Preparation Method
Matrix: Water		
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx
Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup	TAL TAC	NWTPH NWTPH-Dx
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC	SW846 3510C
Silica Gel Cleanup	TAL TAC	SW846 3630C
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC	SW846 3510C

## Lab References:

TAL TAC = TestAmerica Tacoma

#### **Method References:**

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

# **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-15702-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-15702-23	1C-W-4-0909	Water	09/22/2009 1355	09/25/2009 1215
580-15702-24	1C-W-3-0909	Water	09/22/2009 1145	09/25/2009 1215
580-15702-25	1C-W-2-0909	Water	09/22/2009 1635	09/25/2009 1215
580-15702-26	GW-4-0909	Water	09/22/2009 1715	09/25/2009 1215
580-15702-27	MW-39-0909	Water	09/22/2009 1640	09/25/2009 1215
580-15702-28	2A-W-11-0909	Water	09/22/2009 1715	09/25/2009 1215
580-15702-29	5-W-51-0909	Water	09/22/2009 1750	09/25/2009 1215
580-15702-30	2B-W-46-0909	Water	09/23/2009 0935	09/25/2009 1215
580-15702-31	2B-W-45-0909	Water	09/23/2009 1015	09/25/2009 1215
580-15702-32	2B-W-450-0909	Water	09/23/2009 1030	09/25/2009 1215
580-15702-33	MW-500-0909	Water	09/23/2009 0825	09/25/2009 1215
580-15702-34	2A-W-9-0909	Water	09/23/2009 1130	09/25/2009 1215
580-15702-35	MW-3-0909	Water	09/23/2009 1320	09/25/2009 1215
580-15702-36	MW-41-0909	Water	09/23/2009 1400	09/25/2009 1215
580-15702-37	3W-41-0909	Water	09/23/2009 1515	09/25/2009 1215
580-15702-38	2A-W-10-0909	Water	09/21/2009 1630	09/25/2009 1215
580-15702-39	2B-W-4-0909	Water	09/21/2009 1625	09/25/2009 1215
580-15702-40	5-W-52-0909	Water	09/22/2009 1005	09/25/2009 1215
580-15702-41	5-W-53-0909	Water	09/22/2009 1055	09/25/2009 1215
580-15702-42	5-W-530-0909	Water	09/22/2009 0955	09/25/2009 1215
580-15702-43	5-W-54-0909	Water	09/22/2009 1150	09/25/2009 1215
580-15702-44	MW-38R-0909	Water	09/22/2009 1345	09/25/2009 1215
580-15702-45	5-W-18-0909	Water	09/22/2009 1455	09/25/2009 1215
580-15702-46	5-W-55-0909	Water	09/22/2009 1640	09/25/2009 1215
580-15702-47	5-W-56-0909	Water	09/22/2009 1550	09/25/2009 1215
580-15702-48	1C-W-1-0909	Water	09/22/2009 0915	09/25/2009 1215
580-15702-49	1C-W-8-0909	Water	09/22/2009 0955	09/25/2009 1215
580-15702-50	1C-W-7-0909	Water	09/22/2009 1500	09/25/2009 1215
580-15702-51	1C-W-70-0909	Water	09/22/2009 1520	09/25/2009 1215
580-15702-52	3-W-42-0909	Water	09/23/2009 1600	09/25/2009 1215
580-15702-53	3-W-43-0909	Water	09/23/2009 1645	09/25/2009 1215
580-15702-54	MW-16-0909	Water	09/23/2009 1745	09/25/2009 1215
580-15702-55	MW-160-0909	Water	09/23/2009 1755	09/25/2009 1215
580-15702-56	5-W-50-0909	Water	09/23/2009 0850	09/25/2009 1215
580-15702-57	5-W-17-0909	Water	09/23/2009 0925	09/25/2009 1215
580-15702-58	5-W-170-0909	Water	09/23/2009 0825	09/25/2009 1215
580-15702-59	5-W-16-0909	Water	09/23/2009 1025	09/25/2009 1215
580-15702-60	5-W-14-0909	Water	09/23/2009 1120	09/25/2009 1215
580-15702-60MS	5-W-14-0909	Water	09/23/2009 1120	09/25/2009 1215
580-15702-60MSD	5-W-14-0909	Water	09/23/2009 1120	09/25/2009 1215
580-15702-61	5-W-15-0909	Water	09/23/2009 1355	09/25/2009 1215
580-15702-62	5-W-42-0909	Water	09/23/2009 1435	09/25/2009 1215
580-15702-63	5-W-19-0909	Water	09/23/2009 1520	09/25/2009 1215
580-15702-64	5-W-20-0909	Water	09/23/2009 1610	09/25/2009 1215
580-15702-65	5-W-43-0909	Water	09/23/2009 1730	09/25/2009 1215
	5-W-4-0909	Water	09/23/2009 1805	09/25/2009 1215

# **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-15702-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-15702-67	2A-W-42-0909	Water	09/23/2009 0900	09/25/2009 1215
580-15702-68	1B-W-23-0909	Water	09/23/2009 1040	09/25/2009 1215
580-15702-69	1B-W-3-0909	Water	09/23/2009 1440	09/25/2009 1215
580-15702-70	GW-3-0909	Water	09/23/2009 1255	09/25/2009 1215
580-15702-71	1B-W-2-0909	Water	09/23/2009 1555	09/25/2009 1215
580-15702-72	1A-W-4-0909	Water	09/23/2009 1740	09/25/2009 1215
580-15702-73	EW-1-0909	Water	09/23/2009 0000	09/25/2009 1215
580-15702-74	2A-W-40-0909	Water	09/24/2009 0915	09/25/2009 1215
580-15702-75	2A-W-41-0909	Water	09/24/2009 1025	09/25/2009 1215
580-15702-76	1A-W-5-0909	Water	09/24/2009 1120	09/25/2009 1215
580-15702-77	GW-2-0909	Water	09/24/2009 0920	09/25/2009 1215
580-15702-78	GW-20-0909	Water	09/24/2009 0930	09/25/2009 1215
580-15702-79	GW-1-0909	Water	09/24/2009 1025	09/25/2009 1215

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-4-0909

Lab Sample ID: 580-15702-23 Date Sampled: 09/22/2009 1355

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01180.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 0346 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0346
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.12
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-3-0909

Lab Sample ID: 580-15702-24 Date Sampled: 09/22/2009 1145

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011
Preparation: 3510C Prep Batch: 580-51378 Lab File ID: AA01181.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0405 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0405
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 97 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-2-0909

Lab Sample ID: 580-15702-25 Date Sampled: 09/22/2009 1635

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01182.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 0423 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0423
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: GW-4-0909

Lab Sample ID: 580-15702-26 Date Sampled: 09/22/2009 1715

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01183.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0442 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0442
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.097
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

MW-39-0909 Client Sample ID:

Lab Sample ID: 580-15702-27 Date Sampled: 09/22/2009 1640

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51378 Lab File ID: AA01184.D

Dilution: Initial Weight/Volume: 1060 mL 2 mL Date Analyzed: 10/20/2009 0501 Final Weight/Volume:

10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.38 0.047 Lube Oil 0.25 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 98 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2A-W-11-0909

Lab Sample ID: 580-15702-28 Date Sampled: 09/22/2009 1715

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01185.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 0520 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 0520 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0906 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.63
 0.047

 Lube Oil
 0.93
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-51-0909

Lab Sample ID: 580-15702-29 Date Sampled: 09/22/2009 1750

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01186.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0538 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0538
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 1.2
 0.047

 Lube Oil
 0.73
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2B-W-46-0909

Lab Sample ID: 580-15702-30 Date Sampled: 09/23/2009 0935

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01187.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0557 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0557
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2B-W-45-0909

Lab Sample ID: 580-15702-31 Date Sampled: 09/23/2009 1015

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01192.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0731 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0731
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2B-W-450-0909

Lab Sample ID: 580-15702-32 Date Sampled: 09/23/2009 1030

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01193.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/20/2009 0750 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0750
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: MW-500-0909

Lab Sample ID: 580-15702-33 Date Sampled: 09/23/2009 0825

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01141.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1531 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1531
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 83 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: MW-500-0909

Lab Sample ID: 580-15702-33 Date Sampled: 09/23/2009 0825

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01157.DDilution:1.0Initial Weight/Volume:100mL

 Date Analyzed:
 10/19/2009 2035
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 84 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

2A-W-9-0909 Client Sample ID:

Lab Sample ID: 580-15702-34 Date Sampled: 09/23/2009 1130

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51378 Lab File ID: AA01194.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/20/2009 0808 Final Weight/Volume:

10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.47 0.047 Lube Oil 0.13 0.094

Surrogate %Rec Qualifier Acceptance Limits

Client: AECOM, Inc. Job Number: 580-15702-1

MW-3-0909 Client Sample ID:

Lab Sample ID: 580-15702-35 Date Sampled: 09/23/2009 1320

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51378 Lab File ID: AA01195.D

Dilution: Initial Weight/Volume: 1060 mL 2 mL Date Analyzed: 10/20/2009 0827 Final Weight/Volume:

10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.64 0.047 Lube Oil 0.29 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 97 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

MW-41-0909 Client Sample ID:

Lab Sample ID: 580-15702-36 Date Sampled: 09/23/2009 1400 Client Matrix:

Water Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51378 Lab File ID: AA01196.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/20/2009 0846 Final Weight/Volume: 10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.077 0.047 Lube Oil ND 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 3W-41-0909

Lab Sample ID: 580-15702-37 Date Sampled: 09/23/2009 1515

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01197.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0904 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0904
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.056
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2A-W-10-0909

Lab Sample ID: 580-15702-38 Date Sampled: 09/21/2009 1630

Client Matrix: Water Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01198.DDilution:1.0Initial Weight/Volume:1060 mL

 Date Analyzed:
 10/20/2009 0923
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.18
 0.047

 Lube Oil
 0.19
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 103 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2B-W-4-0909

Lab Sample ID: 580-15702-39 Date Sampled: 09/21/2009 1625

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01200.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1001 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1001
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-52-0909

Lab Sample ID: 580-15702-40 Date Sampled: 09/22/2009 1005

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01201.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1020 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1020
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.41
 0.047

 Lube Oil
 0.24
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-53-0909

Lab Sample ID: 580-15702-41 Date Sampled: 09/22/2009 1055

Client Matrix: Water Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01202.DDilution:1.0Initial Weight/Volume:1060mL

 Date Analyzed:
 10/20/2009 1038
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.30
 0.047

 Lube Oil
 0.23
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

5-W-530-0909 Client Sample ID:

Lab Sample ID: 580-15702-42 Date Sampled: 09/22/2009 0955

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51379 Lab File ID: AA01203.D

Dilution: Initial Weight/Volume: 1060 mL 2 mL Date Analyzed: 10/20/2009 1057 Final Weight/Volume:

10/05/2009 0911 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.27 0.047 Lube Oil 0.22 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-54-0909

Lab Sample ID: 580-15702-43 Date Sampled: 09/22/2009 1150

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01204.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1116 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1116
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

Analyte Result (mg/L) Qualifier RL

Diesel Range Organics (C12-C24) ND 0.047

Lube Oil ND 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 98 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: MW-38R-0909

Lab Sample ID: 580-15702-44 Date Sampled: 09/22/2009 1345

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01205.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1135 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1135
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.079
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-18-0909

Lab Sample ID: 580-15702-45 Date Sampled: 09/22/2009 1455

Client Matrix: Water Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01142.DDilution:1.0Initial Weight/Volume:1060 mL

 Date Analyzed:
 10/19/2009 1551
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.25
 0.047

 Lube Oil
 0.12
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 87 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-18-0909

Lab Sample ID: 580-15702-45 Date Sampled: 09/22/2009 1455

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011

Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01158.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 2054

 Date Analyzed:
 10/19/2009 2054
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 84 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-55-0909

Lab Sample ID: 580-15702-46 Date Sampled: 09/22/2009 1640

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01206.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1154 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 1154 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0911 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.27
 0.047

 Lube Oil
 0.23
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 96 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-56-0909

Lab Sample ID: 580-15702-47 Date Sampled: 09/22/2009 1550

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01207.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 1213 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1213
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 2.7
 0.047

 Lube Oil
 0.79
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-1-0909

Lab Sample ID: 580-15702-48 Date Sampled: 09/22/2009 0915

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01208.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 1232 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1232
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.086
 0.047

 Lube Oil
 0.11
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 131 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-8-0909

Lab Sample ID: 580-15702-49 Date Sampled: 09/22/2009 0955

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01209.DDilution:1.0Initial Weight/Volume:1060 mL

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 1251 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0911 Injection Volume: 2 mL lu L

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.40
 0.047

 Lube Oil
 0.13
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 98 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-7-0909

Lab Sample ID: 580-15702-50 Date Sampled: 09/22/2009 1500

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01211.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1329 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1329
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.24
 0.047

 Lube Oil
 0.13
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1C-W-70-0909

Lab Sample ID: 580-15702-51 Date Sampled: 09/22/2009 1520

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01212.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1348 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1348
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.25
 0.047

 Lube Oil
 0.11
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 3-W-42-0909

Lab Sample ID: 580-15702-52 Date Sampled: 09/23/2009 1600

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01213.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1407 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 1407 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0911 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.74
 0.047

 Lube Oil
 0.19
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 96 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 3-W-43-0909

Lab Sample ID: 580-15702-53 Date Sampled: 09/23/2009 1645

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01214.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1426 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1426
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: MW-16-0909

Lab Sample ID: 580-15702-54 Date Sampled: 09/23/2009 1745

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01215.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 1445 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1445
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 104 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

MW-160-0909 Client Sample ID:

Lab Sample ID: 580-15702-55 Date Sampled: 09/23/2009 1755

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51379 Lab File ID: AA01216.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/20/2009 1504 Final Weight/Volume:

10/05/2009 0911 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) ND 0.047 Lube Oil ND 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

5-W-50-0909 Client Sample ID:

Lab Sample ID: 580-15702-56 Date Sampled: 09/23/2009 0850 Client Matrix: Water

Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51379 Lab File ID: AA01217.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/20/2009 1523 Final Weight/Volume: 10/05/2009 0911 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 1.8 0.047 Lube Oil 0.84 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 103 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-17-0909

Lab Sample ID: 580-15702-57 Date Sampled: 09/23/2009 0925

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01143.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

 Date Analyzed:
 10/19/2009 1609
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-17-0909

 Lab Sample ID:
 580-15702-57
 Date Sampled: 09/23/2009 0925

 Client Matrix:
 Water
 Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01159.D Initial Weight/Volume: Dilution: 1.0 1060 mL Date Analyzed: 10/19/2009 2113 Final Weight/Volume: 2 mL

Date Prepared: 10/19/2009 1430 Final Weight/Volume: 2 mL Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 80 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-170-0909

Lab Sample ID: 580-15702-58 Date Sampled: 09/23/2009 0825

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01147.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/19/2009 1725 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009
 1725
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009
 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 88 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-170-0909

Lab Sample ID: 580-15702-58 Date Sampled: 09/23/2009 0825

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01160.DDilution:1.0Initial Weight/Volume:1060 mLDate Analyzed:10/19/2009 2131Final Weight/Volume:2 ml

 Date Analyzed:
 10/19/2009 2131
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 0.078
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-16-0909

Lab Sample ID: 580-15702-59 Date Sampled: 09/23/2009 1025

Client Matrix: Water Date Received: 09/25/2009 1215

### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01148.DDilution:1.0Initial Weight/Volume:100mL

 Date Analyzed:
 10/19/2009
 1744
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009
 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 92 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-16-0909

 Lab Sample ID:
 580-15702-59
 Date Sampled: 09/23/2009 1025

 Client Matrix:
 Water
 Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01161.DDilution:1.0Initial Weight/Volume:1060 mLDate Analyzed:10/19/2009 2150Final Weight/Volume:2 mL

 Date Analyzed:
 10/19/2009 2150
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-14-0909

Lab Sample ID: 580-15702-60 Date Sampled: 09/23/2009 1120

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01149.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/19/2009 1803 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1803
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 89 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-14-0909

Lab Sample ID: 580-15702-60 Date Sampled: 09/23/2009 1120

Client Matrix: Water Date Received: 09/25/2009 1215

## NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01162.D Initial Weight/Volume: Dilution: 1.0 1060 mL 10/19/2009 2209 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009
 2209
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009
 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 80 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-15-0909

Lab Sample ID: 580-15702-61 Date Sampled: 09/23/2009 1355

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01152.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1900 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1900
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.22
 0.047

 Lube Oil
 0.11
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 89 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-15-0909

 Lab Sample ID:
 580-15702-61
 Date Sampled: 09/23/2009 1355

 Client Matrix:
 Water
 Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01165.D Initial Weight/Volume: Dilution: 1.0 1060 mL 10/19/2009 2306 2 mL

 Date Analyzed:
 10/19/2009 2306
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-42-0909

Lab Sample ID: 580-15702-62 Date Sampled: 09/23/2009 1435

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01153.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1919 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1919
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.44
 0.047

 Lube Oil
 0.56
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

5-W-42-0909 Client Sample ID:

Lab Sample ID: 580-15702-62 Date Sampled: 09/23/2009 1435 Client Matrix:

Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01170.D Initial Weight/Volume: Dilution: 1.0 1060 mL 10/20/2009 0039 Final Weight/Volume: 2 mL

Date Analyzed: 10/02/2009 1430 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Lube Oil 0.43 0.094 Diesel Range Organics (C12-C24) 0.21 0.047

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

5-W-19-0909 Client Sample ID:

Lab Sample ID: 580-15702-63 Date Sampled: 09/23/2009 1520

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51336 Lab File ID: AA01154.D

Dilution: Initial Weight/Volume: 1060 mL 2 mL Date Analyzed: 10/19/2009 1938 Final Weight/Volume:

10/02/2009 1430 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) ND 0.047

Surrogate %Rec Qualifier Acceptance Limits

Lube Oil ND 0.094 o-Terphenyl 89 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-19-0909

Lab Sample ID: 580-15702-63 Date Sampled: 09/23/2009 1520

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01171.DDilution:1.0Initial Weight/Volume:1060 mL

 Date Analyzed:
 10/20/2009 0058
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 ND
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-20-0909

Lab Sample ID: 580-15702-64 Date Sampled: 09/23/2009 1610

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01156.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 2016 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 2016
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.34
 0.047

 Lube Oil
 0.19
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 91 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-20-0909

Lab Sample ID: 580-15702-64 Date Sampled: 09/23/2009 1610

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51336Lab File ID:AA01172.DDilution:1.0Initial Weight/Volume:1060mL

 Date Analyzed:
 10/20/2009 0117
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Lube Oil
 ND
 0.094

 Diesel Range Organics (C12-C24)
 0.053
 0.047

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 90 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-43-0909

Lab Sample ID: 580-15702-65 Date Sampled: 09/23/2009 1730

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01218.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/20/2009 1542 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1542
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 5-W-4-0909

Lab Sample ID: 580-15702-66 Date Sampled: 09/23/2009 1805

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51379Lab File ID:AA01219.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/20/2009 1601 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1601
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 1.3
 0.047

 Lube Oil
 0.49
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2A-W-42-0909

Lab Sample ID: 580-15702-67 Date Sampled: 09/23/2009 0900

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01224.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1736 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1736
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.28
 0.047

 Lube Oil
 0.14
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1B-W-23-0909

Lab Sample ID: 580-15702-68 Date Sampled: 09/23/2009 1040

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01225.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 1756 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 1756 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 1516 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.49
 0.047

 Lube Oil
 0.31
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1B-W-3-0909

Lab Sample ID: 580-15702-69 Date Sampled: 09/23/2009 1440

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01226.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1815 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1815
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.090
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 97 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: GW-3-0909

Lab Sample ID: 580-15702-70 Date Sampled: 09/23/2009 1255

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01227.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1834 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1834
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.11
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1B-W-2-0909

Lab Sample ID: 580-15702-71 Date Sampled: 09/23/2009 1555

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01228.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1853 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1853
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.17
 0.047

 Lube Oil
 0.12
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 105 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1A-W-4-0909

Lab Sample ID: 580-15702-72 Date Sampled: 09/23/2009 1740

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01229.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060 mL

 Date Analyzed:
 10/20/2009 1912
 Final Weight/Volume:
 2 mL

 Date Analyzed:
 10/20/2009 1912
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: EW-1-0909

Lab Sample ID: 580-15702-73 Date Sampled: 09/23/2009 0000

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01230.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 1931 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 1931
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2A-W-40-0909

Lab Sample ID: 580-15702-74 Date Sampled: 09/24/2009 0915

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01232.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 2009 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 2009
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 98 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 2A-W-41-0909

Lab Sample ID: 580-15702-75 Date Sampled: 09/24/2009 1025

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01233.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 2028 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 2028
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.28
 0.047

 Lube Oil
 0.12
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 100 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: 1A-W-5-0909

Lab Sample ID: 580-15702-76 Date Sampled: 09/24/2009 1120

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01234.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 2047 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 2047 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 1516 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: GW-2-0909

Lab Sample ID: 580-15702-77 Date Sampled: 09/24/2009 0920

Client Matrix: Water Date Received: 09/25/2009 1215

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

 Method:
 NWTPH-Dx
 Analysis Batch: 580-52260
 Instrument ID:
 SEA011

 Preparation:
 3510C
 Prep Batch: 580-51452
 Lab File ID:
 AA01235.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060
 mL

 Date Analyzed:
 10/20/2009 2105
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.16
 0.047

 Lube Oil
 0.10
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

GW-20-0909 Client Sample ID:

Lab Sample ID: 580-15702-78 Date Sampled: 09/24/2009 0930 Client Matrix: Water

Date Received: 09/25/2009 1215

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-52260 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51452 Lab File ID: AA01236.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/20/2009 2124 Final Weight/Volume: 10/05/2009 1516 Date Prepared: Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.15 0.047 Lube Oil 0.10 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 96 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Client Sample ID: GW-1-0909

Lab Sample ID: 580-15702-79 Date Sampled: 09/24/2009 1025

Client Matrix: Water Date Received: 09/25/2009 1215

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51452Lab File ID:AA01237.DDilution:1.0Initial Weight/Volume:1060 mL

 Date Analyzed:
 10/20/2009 2143
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 1516
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.054
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 94 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Method Blank - Batch: 580-51336 Method: NWTPH-Dx

Preparation: 3510C

AA01134.D

Lab File ID:

Lab Sample ID: MB 580-51336/1-A Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51336

Dilution: 1.0 Units: mg/L

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

Date Analyzed: 10/19/2009 1318

Final Weight/Volume: 2 mL

Date Prepared: 10/02/2009 1430 Injection Volume: 1 uL

Analyte Result Qual RL

 Lube Oil
 ND
 0.10

 Diesel Range Organics (C12-C24)
 ND
 0.050

Surrogate % Rec Acceptance Limits

o-Terphenyl 88 50 - 150

Method Blank - Batch: 580-51336 Method: NWTPH-Dx Preparation: 3510C

Lab Sample ID: MB 580-51336/1-B Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51336 Lab File ID: AA01145

Client Matrix: Water Prep Batch: 580-51336 Lab File ID: AA01145.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 10/19/2009 1646
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

Analyte Result Qual RL

 Lube Oil
 ND
 0.10

 Diesel Range Organics (C12-C24)
 ND
 0.050

Surrogate % Rec Acceptance Limits

o-Terphenyl 84 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-1

Lab Control Sample - Batch: 580-51336 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: LCS 580-51336/2-A

Client Matrix: Water
Dilution: 1.0

Date Analyzed: 10/19/2009 1337 Date Prepared: 10/02/2009 1430 Analysis Batch: 580-52260 Prep Batch: 580-51336

Units: mg/L

Instrument ID: SEA011 Lab File ID: AA01135.D

Initial Weight/Volume: 1000 mL

Final Weight/Volume: 2 mL Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Lube Oil	2.00	1.94	97	66 - 125	
Diesel Range Organics (C12-C24)	2.00	1.80	90	70 - 140	
Surrogate	% F	lec	Acc	ceptance Limits	
o-Terphenyl	95	j		50 - 150	

Lab Control Sample - Batch: 580-51336 Method: NWTPH-Dx Preparation: 3510C

Lab Sample ID: LCS 580-51336/2-B

Client Matrix: Water Dilution: 1.0

Date Analyzed: 10/19/2009 1705 Date Prepared: 10/02/2009 1430 Analysis Batch: 580-52260 Prep Batch: 580-51336

Units: mg/L

Instrument ID: SEA011 Lab File ID: AA01146.D

Initial Weight/Volume: 1000 mL Final Weight/Volume: 2 mL Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Lube Oil	2.00	1.93	97	66 - 125	
Diesel Range Organics (C12-C24)	2.00	1.74	87	70 - 140	
Surrogate	% F	Rec	A	Acceptance Limits	
o-Terphenyl	92	2		50 - 150	

Client: AECOM, Inc. Job Number: 580-15702-1

Matrix Spike - Batch: 580-51336 Method: NWTPH-Dx Preparation: 3510C

Lab Sample ID: 580-15702-60 Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51336 Lab File ID: AA01150.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1060 mL

 Date Analyzed:
 10/19/2009 1822
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

Limit Analyte Sample Result/Qual Spike Amount Result % Rec. Qual Diesel Range Organics (C12-C24) ND 1.89 1.55 70 - 140 82 ND Lube Oil 1.89 1.68 88 66 - 125 % Rec Surrogate Acceptance Limits o-Terphenyl 90 50 - 150

Matrix Spike/ Method: NWTPH-Dx Matrix Spike Duplicate Recovery Report - Batch: 580-51336 Preparation: 3510C

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MS Lab Sample ID: 580-15702-60 Analysis Batch: 580-52260 Instrument ID: SEA011
Client Matrix: Water Prep Batch: 580-51336 Lab File ID: AA01163.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060 mL

 Date Analyzed:
 10/19/2009 2228
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

 MSD Lab Sample ID:
 580-15702-60
 Analysis Batch:
 580-52260
 Instrument ID:
 SEA011

 Client Matrix:
 Water
 Prep Batch:
 580-51336
 Lab File ID:
 AA01151.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1841 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1841
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1430
 Injection Volume:
 1 uL

% Rec. Analyte MS MSD Limit **RPD RPD Limit** MS Qual MSD Qual Lube Oil 92 70 - 130 0 27 93 Lube Oil 93 94 70 - 130 2 30 70 - 130 2 27 Diesel Range Organics (C12-C24) 87 85 70 - 130 Diesel Range Organics (C12-C24) 1 30 87 86 Surrogate MS % Rec MSD % Rec Acceptance Limits 92 94 50 - 150 o-Terphenyl 92 93 o-Terphenyl 50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: AECOM. Inc. Job Number: 580-15702-1

Method Blank - Batch: 580-51378 Method: NWTPH-Dx

Preparation: 3510C

50 - 150

Lab Sample ID: MB 580-51378/1-A Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51378 Lab File ID: AA01167.D Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

10/19/2009 2343 Date Analyzed: Final Weight/Volume: 2 mL Date Prepared: 10/05/2009 0906 Injection Volume: 1 uL

Analyte Result Qual RL Lube Oil ND 0.10 Diesel Range Organics (C12-C24) ND 0.050 Surrogate % Rec Acceptance Limits 100

Lab Control Sample/ Method: NWTPH-Dx Lab Control Sample Duplicate Recovery Report - Batch: 580-51378 Preparation: 3510C

o-Terphenyl

LCS Lab Sample ID: LCS 580-51378/2-A Analysis Batch: 580-52260 Instrument ID: **SEA011** AA01168.D Client Matrix: Water Prep Batch: 580-51378 Lab File ID:

Dilution: 1000 mL 1.0 Units: mg/L Initial Weight/Volume: 10/20/2009 0002 Date Analyzed: Final Weight/Volume: 2 mL 10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-51378/23-A Analysis Batch: 580-52260 Instrument ID: SEA011 Client Matrix:

Water Prep Batch: 580-51378 Lab File ID: AA01169.D Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

10/20/2009 0021 Date Analyzed: Final Weight/Volume: 2 mL 10/05/2009 0906 Date Prepared: Injection Volume: 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual 66 - 125 Lube Oil 101 105 3 27 Diesel Range Organics (C12-C24) 97 70 - 140 4 27 101 Surrogate LCS % Rec LCSD % Rec Acceptance Limits o-Terphenyl 104 106 50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: AECOM. Inc. Job Number: 580-15702-1

Method Blank - Batch: 580-51379 Method: NWTPH-Dx

Preparation: 3510C

50 - 150

Lab Sample ID: MB 580-51379/1-A Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51379 Lab File ID: AA01189.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 10/20/2009 0635
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

Analyte Result Qual RL

Lube Oil ND 0.10
Diesel Range Organics (C12-C24) ND 0.050

Surrogate % Rec Acceptance Limits

106

Lab Control Sample/ Method: NWTPH-Dx

o-Terphenyl

Lab Control Sample Duplicate Recovery Report - Batch: 580-51379 Preparation: 3510C

LCS Lab Sample ID: LCS 580-51379/2-A Analysis Batch: 580-52260 Instrument ID: SEA011
Client Matrix: Water Prep Batch: 580-51379 Lab File ID: AA01190.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL Date Analyzed: 10/20/2009 0653 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0911 Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-51379/3-A Analysis Batch: 580-52260 Instrument ID: SEA011 Client Matrix: Water Prep Batch: 580-51379 Lab File ID: AA01191.D

Client Matrix: Water Prep Batch: 580-51379 Lab File ID: AA01191.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 10/20/2009 0712
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0911
 Injection Volume:
 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual 66 - 125 Lube Oil 101 98 2 27 Diesel Range Organics (C12-C24) 98 70 - 140 4 27 95 Surrogate LCS % Rec LCSD % Rec Acceptance Limits o-Terphenyl 107 104 50 - 150

Client: AECOM. Inc. Job Number: 580-15702-1

Method Blank - Batch: 580-51452 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: MB 580-51452/1-A Analysis Batch: 580-52260 Instrument ID: SEA011 Client Matrix: Water Prep Batch: 580-51452 Lab File ID: AA01221.D Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

10/20/2009 1639 Date Analyzed: Final Weight/Volume: 2 mL Date Prepared: 10/05/2009 1516 Injection Volume: 1 uL

Analyte Result Qual RL Lube Oil ND 0.10 Diesel Range Organics (C12-C24) ND 0.050 Surrogate % Rec Acceptance Limits

98 o-Terphenyl 50 - 150

Lab Control Sample/ Method: NWTPH-Dx Lab Control Sample Duplicate Recovery Report - Batch: 580-51452 Preparation: 3510C

LCS Lab Sample ID: LCS 580-51452/2-A Analysis Batch: 580-52260 Instrument ID: **SEA011** 

Client Matrix: Water Prep Batch: 580-51452 Lab File ID: AA01222.D Dilution: 1000 mL 1.0 Units: mg/L Initial Weight/Volume:

10/20/2009 1658 Date Analyzed: Final Weight/Volume: 2 mL 10/05/2009 1516 Date Prepared: Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-51452/3-A Analysis Batch: 580-52260 Instrument ID: SEA011 Client Matrix: Water Prep Batch: 580-51452 Lab File ID: AA01223.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

10/20/2009 1717 Date Analyzed: Final Weight/Volume: 2 mL 10/05/2009 1516 Date Prepared: Injection Volume: 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual 66 - 125 Lube Oil 98 104 6 27 Diesel Range Organics (C12-C24) 97 100 70 - 140 3 27 Surrogate LCS % Rec LCSD % Rec Acceptance Limits 108 109 50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

o-Terphenyl

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		LABO	LABORATORY INFORMATION		LAB WORK ORDER:	
	aboratory Test	Amorica	Project Manager:	oto Honer	SHIPMENT INFORMATION	
RAILWAY		_ [	Phone: (2553)	922-2310	Shipment Method:	
CHAIN OF CUSTODY	City/State/ZIP:		Fax:		Tracking Number:	
BNSF PROJECT INFORMATION	Project State of Origin:		CONSULTANT INFORMATION	VFORMATION	Project Number: 011410 - 784 - 04540	0
BNSF Project Number.	Project City	CO	Company. AECOM.		Manager: Sarah Alban	
BNSF Project Name: SLy KOM SC		Add	Advess: 710 2nd AUE	Sto 1000	=	CON
BNSF Contact: BCM. Co. Shappar	BNSF Wark Order No.:	City	Clivistate in MA	98104	7200) 624 -9349 Fax	
15	DELIVERABLES	Other Deliverables?		METHODS FOR ANALYSIS		
1-day Rush 5- to 8-day Rush	BNSF Standard (Level II)					,
2-day Rush	Level III	X EDD Req, Format?				
	. Level IV	AEOM		· · · · · · · · · · · · · · · · · · ·		·
SAI	SAMPLE INFORMATION		11d			<del></del>
		Sample Collection	Type	\$7		
Sample identification	Containers	Time Sampler Y	YN Grab) Matrix 53/8	/M	COMMENTS	
2-W-42 -0909	2 9/23/10	1600 DWK	X		12	
3-W-43-1	2 2	16451	<u> </u>		53	
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° 5-W-16 -	7	102.01	XXX	. /	60	
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5 S-W-15 -	1	1355	X		111	
" S-W-42 1	1	1435-	<b>X</b>	2	42	
2 N-W 19 1	4	1520	X		103	
2-W-20 -	7	1610	X		101	
= X1×1+X	2	02E	X		165	
15 S-M-44 -	>	バッグト	X 		, /	
Set Inb	(72h) 60/	Received By:	*		Comments and Special Analytical Requirements:	
Relinguished By Least	9/24/09 1500	Received By:		Dale/Time:	M ( C)	_
		Received By	anto	72:15	CXC	
Received by Laboratory:	Date/Time:	Lab Remarks	<b>.</b>	Lab: Custody Inlact? Custod	Custody Sžál No	
O ORIGINAL - RETURN TO LABORATORY WITH SAMPLES  O		חשחם	DUPLICATE - CONSULTANT		TAL-1	TAL-1001 (06/08)

		1	LABORATORY INFORMATION	NON	LAB WORK ORDER:
	Laboratory:	+ Amorto	Ů	Project Manager:	SHIPMENT INFORMATION
RAILWAY	Address:			0157-528 (532)	Shipment Method:
CHAIN OF CUSTODY	City/State/ZIP:			Fax:	Tracking Number:
BNSF PROJECT INFORMATION	Project State of Origin:		0	CONSULTANT INFORMATION	Project Number: 01/40 - 284-0540
BNSF Project Number:	Project City: Sh	Kensh	ARC	DN	Manager: A
BNSF Project Name S C / CD S	>		0/2	24 AUG , Ste 1000	Email: Co Co Co Co Co Co Co Co Co Co Co Co Co
BINST CONTACT Shopping	BNSF Work Order No.:		City/State/ZIP:	H6 11/4 98104	1906 (24~924.0)
TURNAROUND TIME	DELIVERABLES		Other Deliverables?	MET	
1-day Rush 5- to 8-day Rush	M BNSF Standard (Level II)	, (II lev		2	
	Level III	EDD Reg, Format?	eq, Format?	Y <sub>Q</sub>	
•	Level IV	,	AECON	150	
SAS	SAMPLE INFORMATION			75 101	
		Sample Collection	-		
Sample identification	Containers		Filtered (Comp/ Matrix er Y/N Grab)	ndi NN	COMMENTS
2A-W-42 - 0909	2 9	23/69 0900 GS	N		111
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Relinguished By.	, (OG	720 Received By:			Comments and Special Analytical Requirements:
mehil stall	7/24/06 1500		1 /	Dale/Time:	
Relinquished By:	/ Date/Time:	Received By:	> Jan K	1215	No.
Received by Laboratory:	Date/Time:		, )	Lab: Custody Intact? Cu	Custody Seal No. BNSF COC No.
O ORIGINAL - RETURN TO LABORATORY WITH SAMPLES  O			DUPLICATE - CONSULTANT		TAL-1001 (06/08)

# **Login Sample Receipt Check List**

Client: AECOM, Inc. Job Number: 580-15702-1

Login Number: 15702 List Source: TestAmerica Tacoma

Creator: Blankinship, Tom

List Number: 1

Question	T / F/ NA Comment	
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	



# **ANALYTICAL REPORT**

Job Number: 580-15702-2

Job Description: BNSF Skykomish Groundwater Monitoring

For: AECOM, Inc. 710 Second Avenue Suite 1000 Seattle, WA 98104

Attention: Sarah Albano

Approved for release Kate Haney Project Manager II 10/22/2009 5:24 PM

Kate Haney
Project Manager II
kate.haney@testamericainc.com
10/22/2009

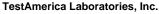
cc: Denell Warren

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.





#### Job Narrative 580-15702-2

### Comments

No additional comments.

#### Receipt

All samples were received in good condition within temperature requirements.

#### GC Semi VOA

No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

#### **METHOD SUMMARY**

Client: AECOM, Inc. Job Number: 580-15702-2

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH	-Dx
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

#### Lab References:

TAL TAC = TestAmerica Tacoma

### **Method References:**

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

# **SAMPLE SUMMARY**

Client: AECOM, Inc. Job Number: 580-15702-2

			Date/Time	Date/Time
Lab Sample ID	Client Sample ID	Client Matrix	Sampled	Received
580-15702-1	S1-AD-0909	Water	09/22/2009 0855	09/25/2009 1215
580-15702-2	S1-AU-0909	Water	09/22/2009 0910	09/25/2009 1215
580-15702-3	S1-BD-0909	Water	09/22/2009 0925	09/25/2009 1215
580-15702-4	S1-BU-0909	Water	09/22/2009 0935	09/25/2009 1215
580-15702-5	S2-BD-0909	Water	09/22/2009 1035	09/25/2009 1215
580-15702-6	S2-BU-0909	Water	09/22/2009 1045	09/25/2009 1215
580-15702-7	S2-AD-0909	Water	09/22/2009 1005	09/25/2009 1215
580-15702-8	S2-AU-0909	Water	09/22/2009 1015	09/25/2009 1215
580-15702-9	S20-BU-0909	Water	09/22/2009 1055	09/25/2009 1215
580-15702-10	S3-AD-0909	Water	09/22/2009 1225	09/25/2009 1215
580-15702-11	S3-AU-0909	Water	09/22/2009 1235	09/25/2009 1215
580-15702-12	S3-BD-0909	Water	09/22/2009 1250	09/25/2009 1215
580-15702-13	S3-BU-0909	Water	09/22/2009 1330	09/25/2009 1215
580-15702-13MS	S3-BU-0909	Water	09/22/2009 1330	09/25/2009 1215
580-15702-13MSD	S3-BU-0909	Water	09/22/2009 1330	09/25/2009 1215
580-15702-14	S3-CD-0909	Water	09/22/2009 1355	09/25/2009 1215
580-15702-15	S3-CU-0909	Water	09/22/2009 1405	09/25/2009 1215
580-15702-16	S4-AD-0909	Water	09/22/2009 1430	09/25/2009 1215
580-15702-17	S4-AU-0909	Water	09/22/2009 1455	09/25/2009 1215
580-15702-18	S4-BD-0909	Water	09/22/2009 1515	09/25/2009 1215
580-15702-19	S4-BU-0909	Water	09/22/2009 1525	09/25/2009 1215
580-15702-20	S4-CD-0909	Water	09/22/2009 1540	09/25/2009 1215
580-15702-21	S4-CU-0909	Water	09/22/2009 1555	09/25/2009 1215
580-15702-22	S40-AD-0909	Water	09/22/2009 1440	09/25/2009 1215

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S1-AD-0909

Lab Sample ID: 580-15702-1 Date Sampled: 09/22/2009 0855

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01123.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 0948 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 0948
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S1-AU-0909

Lab Sample ID: 580-15702-2 Date Sampled: 09/22/2009 0910

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01124.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

 Date Analyzed:
 10/19/2009 1007
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 91 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S1-BD-0909

Lab Sample ID: 580-15702-3 Date Sampled: 09/22/2009 0925

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01125.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1026 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1026
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 0.19
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S1-BU-0909

Lab Sample ID: 580-15702-4 Date Sampled: 09/22/2009 0935

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01126.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060 mL

 Date Analyzed:
 10/19/2009 1045
 Final Weight/Volume:
 2 mL

 Date Analyzed:
 10/19/2009 1045
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S2-BD-0909

Lab Sample ID: 580-15702-5 Date Sampled: 09/22/2009 1035

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01127.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1104 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1104
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 88 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S2-BU-0909

Lab Sample ID: 580-15702-6 Date Sampled: 09/22/2009 1045

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01128.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1123 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1123
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 83 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S2-AD-0909

Lab Sample ID: 580-15702-7 Date Sampled: 09/22/2009 1005

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01129.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/19/2009 1142 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1142
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.050
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S2-AU-0909

Lab Sample ID: 580-15702-8 Date Sampled: 09/22/2009 1015

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01130.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1201 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1201
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.047
 0.047

 Lube Oil
 0.095
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 84 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S20-BU-0909

Lab Sample ID: 580-15702-9 Date Sampled: 09/22/2009 1055

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01131.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1220 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1220
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 87 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-AD-0909

Lab Sample ID: 580-15702-10 Date Sampled: 09/22/2009 1225

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01132.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/19/2009 1240 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1240
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 84 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-AU-0909

Lab Sample ID: 580-15702-11 Date Sampled: 09/22/2009 1235

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01136.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1356 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1356
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 82 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-BD-0909

Lab Sample ID: 580-15702-12 Date Sampled: 09/22/2009 1250

Client Matrix: Water Date Received: 09/25/2009 1215

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

 Method:
 NWTPH-Dx
 Analysis Batch: 580-52260
 Instrument ID:
 SEA011

 Preparation:
 3510C
 Prep Batch: 580-51335
 Lab File ID:
 AA01137.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060
 mL

 Date Analyzed:
 10/19/2009 1415
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 88 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-BU-0909

Lab Sample ID: 580-15702-13 Date Sampled: 09/22/2009 1330

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method: NWTPH-Dx Analysis Batch: 580-51423 Instrument ID: SEA011 Preparation: 3510C Prep Batch: 580-51335 Lab File ID: AA00799.D Dilution: Initial Weight/Volume: 1060 mL

2 mL Date Analyzed: 10/05/2009 1202 Final Weight/Volume:

Date Prepared: 10/02/2009 1413 Injection Volume: 1 uL

Analyte Result (mg/L) Qualifier RL Diesel Range Organics (C12-C24) 0.094 0.047 Lube Oil ND 0.094

Surrogate %Rec Qualifier Acceptance Limits o-Terphenyl 104 50 - 150

Page 17 of 36 10/22/2009 **TestAmerica Tacoma** 

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-CD-0909

Lab Sample ID: 580-15702-14 Date Sampled: 09/22/2009 1355

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01138.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/19/2009 1434 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1434
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 86 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S3-CU-0909

Lab Sample ID: 580-15702-15 Date Sampled: 09/22/2009 1405

Client Matrix: Water Date Received: 09/25/2009 1215

#### NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

 Method:
 NWTPH-Dx
 Analysis Batch: 580-52260
 Instrument ID:
 SEA011

 Preparation:
 3510C
 Prep Batch: 580-51335
 Lab File ID:
 AA01139.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060
 mL

 Date Analyzed:
 10/19/2009 1453
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits
o-Terphenyl 85 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-AD-0909

Lab Sample ID: 580-15702-16 Date Sampled: 09/22/2009 1430

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51335Lab File ID:AA01140.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/19/2009 1512 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/19/2009 1512
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 87 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-AU-0909

Lab Sample ID: 580-15702-17 Date Sampled: 09/22/2009 1455

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01173.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 0136 Final Weight/Volume: 2 mL

Date Analyzed: 10/20/2009 0136 Final Weight/Volume: 2 mL

Date Prepared: 10/05/2009 0906 Injection Volume: 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 99 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-BD-0909

Lab Sample ID: 580-15702-18 Date Sampled: 09/22/2009 1515

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01174.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0154 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0154
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 0.054
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 102 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-BU-0909

Lab Sample ID: 580-15702-19 Date Sampled: 09/22/2009 1525

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01175.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0213 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0213
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 71 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-CD-0909

Lab Sample ID: 580-15702-20 Date Sampled: 09/22/2009 1540

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01176.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL
Date Analyzed: 10/20/2009 0232 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0232
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 97 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S4-CU-0909

Lab Sample ID: 580-15702-21 Date Sampled: 09/22/2009 1555

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01178.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL

Date Analyzed: 10/20/2009 0309 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0309
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 101 50 - 150

Client: AECOM, Inc. Job Number: 580-15702-2

Client Sample ID: S40-AD-0909

Lab Sample ID: 580-15702-22 Date Sampled: 09/22/2009 1440

Client Matrix: Water Date Received: 09/25/2009 1215

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:NWTPH-DxAnalysis Batch: 580-52260Instrument ID:SEA011Preparation:3510CPrep Batch: 580-51378Lab File ID:AA01179.D

Dilution: 1.0 Initial Weight/Volume: 1060 mL Date Analyzed: 10/20/2009 0328 Final Weight/Volume: 2 mL

 Date Analyzed:
 10/20/2009 0328
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

 Analyte
 Result (mg/L)
 Qualifier
 RL

 Diesel Range Organics (C12-C24)
 ND
 0.047

 Lube Oil
 ND
 0.094

Surrogate %Rec Qualifier Acceptance Limits

o-Terphenyl 103 50 - 150

#### **Quality Control Results**

Client: AECOM, Inc. Job Number: 580-15702-2

Method Blank - Batch: 580-51335 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: MB 580-51335/1-A

Client Matrix: Water
Dilution: 1.0

Date Analyzed: 10/05/2009 1025 Date Prepared: 10/02/2009 1413 Analysis Batch: 580-51423 Prep Batch: 580-51335

Units: mg/L

Instrument ID: SEA011 Lab File ID: AA00795.D

Initial Weight/Volume: 1000 mL

Final Weight/Volume: 2 mL Injection Volume: 1 uL

Analyte Result Qual RL

 Diesel Range Organics (C12-C24)
 ND
 0.050

 Lube Oil
 ND
 0.10

Surrogate % Rec Acceptance Limits

o-Terphenyl 105 50 - 150

Lab Control Sample - Batch: 580-51335 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: LCS 580-51335/2-A

Client Matrix: Water Dilution: 1.0

Date Analyzed: 10/05/2009 1049 Date Prepared: 10/02/2009 1413 Analysis Batch: 580-51423 Prep Batch: 580-51335

Units: mg/L

Instrument ID: SEA011 Lab File ID: AA00796.D

Injection Volume:

Initial Weight/Volume: 1000 mL Final Weight/Volume: 2 mL

1 uL

Analyte Spike Amount Result % Rec. Limit Qual Diesel Range Organics (C12-C24) 2.00 2.28 114 70 - 140 Lube Oil 2.00 125 66 - 125 2.50 Surrogate % Rec Acceptance Limits

o-Terphenyl 108 50 - 150

#### **Quality Control Results**

Client: AECOM, Inc. Job Number: 580-15702-2

Matrix Spike/ Method: NWTPH-Dx Matrix Spike Duplicate Recovery Report - Batch: 580-51335 Preparation: 3510C

MS Lab Sample ID: 580-15702-13 SEA011 Analysis Batch: 580-51423 Instrument ID: Client Matrix: Water Prep Batch: 580-51335 Lab File ID: AA00800.D Dilution: 1.0 Initial Weight/Volume: 1060 mL 10/05/2009 1226 Date Analyzed: Final Weight/Volume:

 Date Analyzed:
 10/05/2009
 1226
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009
 1413
 Injection Volume:
 1 uL

 MSD Lab Sample ID:
 580-15702-13
 Analysis Batch:
 580-51423
 Instrument ID:
 SEA011

 Client Matrix:
 Water
 Prep Batch:
 580-51335
 Lab File ID:
 AA00801.D

 Dilution:
 1.0
 Initial Weight/Volume:
 1060 mL

 Date Analyzed:
 10/05/2009 1251
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/02/2009 1413
 Injection Volume:
 1 uL

% Rec. RPD Analyte MS MSD Limit **RPD Limit** MS Qual MSD Qual Diesel Range Organics (C12-C24) 70 - 140 106 6 27 113 Lube Oil 121 123 66 - 125 1 27 Surrogate MS % Rec MSD % Rec Acceptance Limits o-Terphenyl 106 107 50 - 150

#### **Quality Control Results**

1000 mL

Client: AECOM. Inc. Job Number: 580-15702-2

Method Blank - Batch: 580-51378 Method: NWTPH-Dx

Preparation: 3510C

Lab Sample ID: MB 580-51378/1-A Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51378 Lab File ID: AA01167.D Dilution: 1.0 Units: mg/L Initial Weight/Volume: 100

 Date Analyzed:
 10/19/2009 2343
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

Analyte Result Qual RL

Diesel Range Organics (C12-C24) ND 0.050
Lube Oil ND 0.10

Surrogate % Rec Acceptance Limits

o-Terphenyl 100 50 - 150

Lab Control Sample/ Method: NWTPH-Dx
Lab Control Sample Duplicate Recovery Report - Batch: 580-51378 Preparation: 3510C

LCS Lab Sample ID: LCS 580-51378/2-A Analysis Batch: 580-52260 Instrument ID: SEA011

Client Matrix: Water Prep Batch: 580-51378 Lab File ID: AA01168.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 10/20/2009 0002
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

LCSD Lab Sample ID: LCSD 580-51378/23-A Analysis Batch: 580-52260 Instrument ID: SEA011
Client Matrix: Water Prep Batch: 580-51378 Lab File ID: AA01169.D

Client Matrix: Water Prep Batch: 580-51378 Lab File ID: AA01169.D

Dilution: 1.0 Units: mg/L Initial Weight/Volume: 1000 mL

 Date Analyzed:
 10/20/2009 0021
 Final Weight/Volume:
 2 mL

 Date Prepared:
 10/05/2009 0906
 Injection Volume:
 1 uL

% Rec. Analyte LCS **LCSD** Limit **RPD RPD Limit** LCS Qual LCSD Qual Diesel Range Organics (C12-C24) 70 - 140 97 101 4 27 101 105 66 - 125 3 27 Lube Oil Surrogate LCS % Rec LCSD % Rec Acceptance Limits o-Terphenyl 104 106 50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

17) AREASIMATERIAL TRANSPORT AREAS PARIMETERS		LABORATORY INFORMATION		LAB WORK ORDER:
	Laboratory: Tost America		Project Manager, Late Hand	SHIPMENT INFORMATION
RAILWAY		٠	Phoge: (253) 97.7 - 7.3 (0)	Shipment Method:
	City/State/ZIP:	Fax:		Tracking Number:
Z	Project State of Ongin:	CONSULTANT INFORMATION	NFORMATION	Project Number: 01/40 - 284 - 1022 F
٠	Project City.	Company: AECOM		Project Manager.
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	BNSF Work Order No.:	+10	98104	
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9	Level III	X EDD Req, Format?		
	Level IV	AECOM		
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	Sample Collection	Type		
. Sample identification	1	Sempler YIN Grab) Matrix Sempler YIN Grab)		COMMENTS
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1	2 1235	X		11
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ORIGINAL - RETURN TO LABORATORY WITH SAMPLES	12	3.5 SUPLICATE, CONSULTANT L.	Ly Respont	La Green to lue La Green 1 This work groups
જ	wet, bubble (	15.3.3	Ly great blue 188	
	<i>/</i>	TA	_	/ <b>**</b>

LABORATORY INFORMATION LAB WORK ORDER	Laurent Test Amarica	Address: 5755	Fax:	Project State of Origin:    An   A.   A.	Local Company AEZDAN Project Manager: S	Address: 710 204 AVE, Ste 1000 Email:	1900Ch BINST WORK Order No.: CHASTAGE THE SOUTH 9810X 1706) 624-9349 Fax.	Olher Deliverables? METHODS FOR ANALYSIS	BNSF Standard (Level II)	Level III X EDD Req. Format?	Level IV	SAMPLE INFORMATION	Sample Collection Type Titlered Connot Matrix	Date Time Sampler Y/N (Grab)		2 / 1.			\(\text{X}\)	X + 1 + 0 + 0 + 1 / 1				Trans. Descript Dr. Date (Trans.)	Programme: ABD Received By:	7/24/09 1500	DalerTime: Received But Funt Funt Og/25/09 12/15	Date/I me:
n Jacon George George And Harmon	Tost Tost	755	CHAIN OF CUSTODY	BNSF PROJECT INFORMATION Project State of Origin:		Ľ	0000	TIME	5- to 8-day Rush	Slandard 10-Day	Other	SAMPLE INFORMATION	Containare		2 9/23/10	- AV - 1 2 7 1 1	2 - 0	7/1		7					9/24 /09 MZ	7/24/09 1500		Date/I me:

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Sample beninser   Other   Sample beninser   Sa		Level III	EDD Reg, P	-ormat?		
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	ORIGINAL - RETURN TO LABORATORY WITH SAMPLES	-	ana	LICATE - CONSULTANT		TAL-1001 (06)

### **Login Sample Receipt Check List**

Client: AECOM, Inc. Job Number: 580-15702-2

Login Number: 15702 List Source: TestAmerica Tacoma

Creator: Blankinship, Tom

List Number: 1

Question	T / F/ NA Comment	
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

Prepared for: BNSF Skykomish

## Organic Data Verification Report BNSF Skykomish Groundwater Sampling, December 2008

Prepared for: Sarah Albano Project Manager

Prepared by: Robert Davis Environmental Scientist

Reviewed by: Greg Malzone Project Chemist

March 13, 2009

Document No.: 01140-204-0340

#### Overview

A limited data assessment was performed on two data reports for the groundwater samples collected on December 17, 2008 at the BNSF Skykomish site. The samples submittals are listed in the Table of Samples Analyzed (page 2). Data verification was performed on sixteen groundwater samples.

The samples were analyzed by TestAmerica of Bothell, Washington. The verified analyses were: Diesel Range Hydrocarbons and Lube Oil Range Hydrocarbons by Method NWTPH-Dx and NWTPH-Dx with Acid/Silica Gel Clean-up.

The Analytical Data Verification Checklist is presented as pages 4-8. Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008 with additional reference to *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008 of July 2007*, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the *USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, February 1988, upheld in DRAFT 1993.

The following data components were reviewed during the data validation procedure:

#### Submitted Deliverables

Case Narratives

Chain-of-Custody form(s) and sample integrity

Sample results, reporting detection limits, method detection limits, dilution factors

Holding times

Method blank results

LCS/LCSD (blank spike) results

MS/MSD (matrix spike) results

Laboratory duplicate results

Organic surrogate recoveries

Blind field duplicate results

Electronic data deliverables (EDDs)

#### **Data Validation Qualifiers Assigned During this Review**

JN Analyte must be considered presumptively present at an estimated concentration.

Assigned qualifiers are detailed in the Analytical Data Verification Checklist and are summarized in the Table of Qualified Analytical Results (page 3).

#### **Overall Data Assessment**

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data submitted. The data are suitable for their intended use with some qualification. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).

# Table of Samples Analyzed BNSF Skykomish Groundwater Samples ices. Inc. Laboratory SDGs BRL0202 a

#### Pace Analytical Services, Inc. Laboratory SDGs BRL0202 and BRL0207 December 17, 2008 Sampling Event

Matrix	Sample ID	Parent Sample ID	Sample Date a	and Time	Lab SDG	Lab Sample ID
Groundwater	5-W-45-1208		12/17/2008	08:10	BRL0202	BRL0202-01
Groundwater	5-W-46-1208		12/17/2008	08:55	BRL0202	BRL0202-02
Groundwater	5-W-42-1208		12/17/2008	08:55	BRL0207	BRL0207-01
Groundwater	5-W-420-1208	5-W-42-1208	12/17/2008	08:50	BRL0207	BRL0207-02
Groundwater	5-W-20-1208		12/17/2008	10:25	BRL0207	BRL0207-03
Groundwater	5-W-19-1208		12/17/2008	11:25	BRL0207	BRL0207-04
Groundwater	5-W-14-1208		12/17/2008	12:50	BRL0207	BRL0207-05
Groundwater	5-W-16-1208		12/17/2008	14:10	BRL0207	BRL0207-06
Groundwater	5-W-18-1208		12/17/2008	15:45	BRL0207	BRL0207-07
Groundwater	5-W-180-1208	5-W-18-1208	12/17/2008	15:50	BRL0207	BRL0207-08
Groundwater	5-W-17-1208		12/17/2008	13:25	BRL0207	BRL0207-09
Groundwater	5-W-15-1208		12/17/2008	14:40	BRL0207	BRL0207-10
Groundwater	MW-500-1208		12/17/2008	13:45	BRL0207	BRL0207-11
Groundwater	S1-1208		12/17/2008	10:00	BRL0207	BRL0207-12
Groundwater	S2-1208		12/17/2008	11:00	BRL0207	BRL0207-13
Groundwater	S3-1208		12/17/2008	11:45	BRL0207	BRL0207-14

#### **Table of Qualified Analytical Results BNSF Skykomish Groundwater Samples**

#### Pace Analytical Services, Inc. Laboratory SDGs BRL0202 and BRL0207 December 17, 2008 Sampling Event

Lab SDG	Sample ID	Method	Analyte	Concenti	ration	Qualifier	Reason Code
BRL0207	5-W-20-1208	NWTPH-Dx	Diesel Range Hydrocarbons	1.58	mg/L	JN	ID
BRL0207	5-W-18-1208	NWTPH-Dx	Diesel Range Hydrocarbons	1.94	mg/L	JN	ID
BRL0207	5-W-180-1208	NWTPH-Dx	Diesel Range Hydrocarbons	1.58	mg/L	JN	ID
BRL0207	S1-1208	NWTPH-Dx	Diesel Range Hydrocarbons	0.310	mg/L	JN	ID
BRL0207	S2-1208	NWTPH-Dx	Diesel Range Hydrocarbons	1.02	mg/L	JN	ID
BRL0207	S3-1208	NWTPH-Dx	Diesel Range Hydrocarbons	0.913	mg/L	JN	ID

#### **Qualifier Definitions**

JN – Analyte must be considered presumptively present at an estimated concentration.

#### **Reason Code Definitions**

ID – Detected hydrocarbons in the diesel range do not have a distinct diesel pattern.

ANALTHOALDATA	V ⊏ Г		V C	JECKLIST		
Project Name: BNSF Skykomish		boratory: TestAthell, WA	Ameri	ca Analytical Tes	ting Corpo	oration,
Project Reference: Site wide Groundwater Monitoring	Sa	mple Matrix: G	Groun	dwater		
Project No.: 01140-204-0340	Sa	mple Start Date	e: 12	/17/2008		
Verified By/Date Verified: Robert Davis 03/12/2009	Sa	mple End Date	e: 12/	17/2008		
Samples Analyzed: Refer to the Table of Samples Analyzed	zed (p	age 2).				
Parameters Verified: Diesel Range Hydrocarbons and Long NWTPH-Dx with Acid/Silica Gel Clean-up.	ube O	il Range Hydro	carbo	ons by Method N	NTPH-Dx	and
Laboratory Sample Delivery Group (SDG) IDs: BRL0202	2 and	BRL0207				
PRECISION, ACCURACY, METHOD COME	PLIAN	CE, AND COM	1PLE	TENESS ASSES	SMENT	
Precision:	Х	Acceptable		Unacceptable	RD	Initials
Comments: Precision is the measure of variability of individual by comparison of field duplicate sample results. Laborate duplicate results. Evaluation of both field and laboratory Difference (RPD). The RPD is defined as the difference expressed as a percent. Field duplicate RPD QC limits were ferenced EPA published QC limits. No data require quimeasurements, and overall field and laboratory precision 17, 20, and 21.	ory preduplications between the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of th	ecision was det ates for precision en two duplicat et at 0-30% for tion based on fi	ermir on wa e sar wate eld o	ned by examination as done using the supples divided by a r samples. Labour laboratory duplications	on of labor Relative the mean ratory RP cate preci	ratory Percent and D limits sion
Accuracy:	X	Acceptable		Unacceptable	RD	Initials
Comments: Field accuracy, a measure of the sampling by blank, or equipment rinse blank samples included in this and was measured by evaluating laboratory control samp spike/matrix spike duplicate (MS/MSD), and organic system (%Rs). LCS/LCSD %Rs, which demonstrated the overal published QC limits. MS/MSD %Rs, which provided inform published QC limits or laboratory control charted limits. Some assured system performance and efficiency during organicatory control charted limits. No data require qualification accuracy is acceptable. Accuracy measurements	data sole/labem modernation Systemation bettion between the bettion between the bettion between the bettion between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between the between th	et. Laboratory a oratory control onitoring compo ormance of the a n on sample m n monitoring co nalysis, were co pased on labora	accur samp ounds analy atrix i mpou ompa atory	acy is a measure ble duplicate (LCS s (surrogate) perc sis, were compar nterferences, we and or surrogate if red to EPA public accuracy measur	e of the sy S/LCSD), cent recovered to EP/ are compa recoveries shed QC I rements, a	stem bias, matrix reries A red to EPA s, which limits or
Method Compliance:	Y	Accentable		Unaccentable	RD.	Initials

Comments: Method compliance was determined by evaluating sample integrity, holding time, and laboratory blanks while applying EPA data validation guidelines. Although some data require qualification based on analytes detected with concentrations less than the reporting limit (RL) but greater than the method detection limit (MDL) (see item 6), laboratory blank contamination (see item 12), or chromatographic match agreement (see item 22), overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20 and 22.

Completeness:	X	Acceptable		Unacceptable	RD	Initials
Comments: Completeness is the overall ratio of the numl verified analyses. Completeness goals are set at 90-100 of custody records, laboratory analytical methods and de requirements. Completeness also included 100% review and electronic data deliverables (EDDs). All of the data requalification. Completeness of the data is 100% and is a	%. Detection of the eceive	termination of limits, laborato laboratory sar d from the labo	compory can	oleteness include ase narratives, ar data results, QC	ed a reviev nd project summary	v of chain
VERIFICATION	N CRIT	TERIA CHECK	(			
Data validation flags used in this review:						
JN – Analyte must be considered presumptively present						
The following comments requiring qualification are in bold the samples was not necessary.	d type.	The other cor	nmer	nts are of interest	, but quali	fication of
Refer to the Table of Qualified Analytical Results for a list (page 3).	ting of	the samples, a	ınalyt	es, and concentr	ations qua	alified
Did the laboratory identify any non-conformances related to the analytical results?	X	Yes		No	RD	Initials
Explanation by Laboratory:						
Laboratory footnotes were considered as part of this data observations are discussed in the following sections.	reviev	v. Data qualifi	cation	n, if any, related t	o the labo	ratory
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	RD	Initials
Comments: COC records from field to laboratory were collaboratory personnel signatures, dates, and times of rece		e, and custody	was	maintained as ev	videnced b	y field and
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	Х	Yes		No	RD	Initials
Comments: All requested analyses as documented on o	riginal	COC records v	were	completed by the	e laborato	ry.
4. Were samples received in good condition and at the appropriate temperature?	Х	Yes		No	RD	Initials
Comments: Samples were received on ice, intact, and in acceptance temperature for log numbers BRL0202 and E forms.						
5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	Х	Yes		No	RD	Initials
Comments: Reported methods and target analyte lists we	ere in c	compliance wit	h CO	C records.		
6. Were detection limits in accordance with WP/QAPP, permit, or method?	Х	Yes		No	RD	Initials
Comments: Reported detection limits are achievable by t Refer to the Table of Qualified Analytical Results for a li (page 3).	•		anal	ytes, and conce	ntrations o	qualified

7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	Х	Yes		No	RD	Initials
Comments: Reported target analytes were consistent wi	th COC req	uests.				
8. Were sample holding times met?	Х	Yes		No	RD	Initials
Comments: Extraction and analytical holding times were	met for all	samples a	ınd analyse	S.		
9. Were correct concentration units reported?	Х	Yes		No	RD	Initials
Comments: Correct concentration units were reported.	All parame	ters are re	ported in u	nits of mg	/L (ppm).	
10. Were the reporting requirements for flagged data met?	х	Yes		No	RD	Initials
Comments: Data validation qualifiers override assigned	laboratory f	lags.				
11. Were laboratory blank samples free of target analyte contamination?	Х	Yes		No	RD	Initials
Comments: All laboratory blanks were free of target and	alyte contan	nination.				
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	NA	Yes	NA	No	RD	Initials
Comments: There were no trip, field or equipment rinse not be evaluated in this data review.	blank samp	les include	ed in this da	ata set. F	ield accura	acy could
13. Were instrument calibrations within method control limits?	NA	Yes	NA	No	RD	Initials
Comments: Not applicable for this level of data verification laboratory reports and were therefore not included in this			ation data	were not s	supplied in	analytical
14. Were surrogate recoveries within control limits?	Х	Yes		No	RD	Initials
Comments: Surrogate percent recoveries (%Rs) for orgal all samples.	anic analyse	es were wi	thin the lab	oratory q	uality contr	ol limits for
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	RD	Initials
Comments: LCS and LCSD (blank spike) recoveries we analytes.	ere within la	boratory c	ontrol-char	ted QC lin	nits for all t	arget
16. Were matrix spike recoveries within control limits?	Х	Yes		No	RD	Initials
Comments: Project specific MS and MSD recoveries for not applicable due to required sample dilution, or to sam spiked (applicable to inorganic analytical methods only), project samples were not considered since matrix similar	ple concentexcept as r	trations whoted belo	nich exceed w. MS and	ded four ti I MSD spi	mes the ar ke recover	nount
17. Were RPDs within control limits?	Х	Yes		No	RD	Initials
Comments: Laboratory RPDs for target analytes in LCS validation control limits. All laboratory duplicate samples pon-project samples were not considered since matrix si	s met data v	alidation F	RPD criteria	a. Labora	tory duplica	

18. Were organic system performance criteria met?			NA		Ye	s	s NA		No	No RD		Initials	
Comments: Not applicable for this level of data verification – Organic system performance data were not supplied in the analytical laboratory reports and were therefore not included in this data review.													
19. Were internal standards within method criteria for GC/MS sample analyses?			NA		Ye	es NA		4	No	RD	I	nitials	
Comments: Not applicable for this data set –Internal standard addition is not required for the analyses reported.													
20. Were inorganic system performance criteria met?				4	Ye	es.	NA		No	RD	I	nitials	
Comments: Not applicable for this data set – There were no inorganic parameters requested for the samples in this data set.													
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.			X		Ye	Yes			No	RD	I	nitials	
Duplicate Sample No.	5-W-420-1208			Pri	mary Sample No.			Э.	5-W-42-1208				
Duplicate Sample No.	5-W-180-1208			Primary Sample No.				Э.	5-W-18-1208				
Comments: The RPDs for the duplicates were within the 0-30% data validation QC limits for water samples, or RPDs were not applicable due to results that were $\pm$ the reporting limit or were undetected in both samples as indicated in the table below. Primary and field duplicate concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.  The following RPDs were calculated:													
	Analyte 5-W-18-			/-180-1		RPD		Qualifier		Samp RL	Dup RL	Units	
NWTPH-Dx Diesel Range Hydrocarbons 1.94 JN				1.58 JN 20			20		0.236 0.236			mg/l	
No data require qualification based on the field duplicate RPDs.													
22. Were qualitative criteria for organic target analyte identification met?			<b>X</b>		Ye	es			No	RD		Initials	
Comments: Not applicable for this level of data verification – GC quantitation reports and chromatograms were not supplied in analytical laboratory reports and were therefore not included in this data review. However, retention times and chromatography were reviewed by trained laboratory personnel in accordance with the laboratory's internal QA/QC program. The laboratory notations regarding chromatography were reviewed and considered in the qualification of associated data as detailed below.													
Method NWTPH-Dx: SDG BRL0207: For the diesel range hydrocarbon results in samples 5-W-20-1208, 5-W-18-1208, 5-W-180-1208, S1-1208, S2-1208, and S3-1208; the laboratory noted that the detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference. These positive results have been qualified as JN to indicate the parameter is presumptively present at an estimated concentration.													
Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).													
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?				(	Ye	es			No	RD	lı	nitials	
Comments: The EDD entries were resolved with the hardcopy data results and corrected as necessary. According to validation protocol, the hardcopy data report was accepted as the correct reference. The data validator provided corrected EDDs as part of this verification report. The EDD file, with data validation qualifiers and reason codes added was returned to the database manager in Seattle on 03/13/09.													

#### ANALYTICAL DATA VERIFICATION CHECKLIST

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008 with additional reference to *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, document number EPA 540/R-99-008 of October 1999, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).

8 March13, 2009

June 4, 2009

# Organic Limited Data Validation Report

BNSF Skykomish Site-wide Groundwater Monitoring TestAmerica, Bothell, WA Laboratory Data March and April 2009 Sampling

Prepared By Ann Biegelsen Environmental Quality Assurance Chemist

AECOM Inc.

Document No.: 01140-222-0340

#### Overview

The samples analyzed for the BNSF Skykomish Site-wide Groundwater Monitoring Sampling event from March and April 2009 are listed in the Table of Samples Analyzed (pages 2-3). Limited data validation was performed on eighty groundwater samples and one equipment rinse blank sample.

The samples were analyzed by TestAmerica of Bothell, Washington. Limited data validation was performed for the following analyses: Extractable Total Petroleum Hydrocarbons (TPH), Diesel Range Hydrocarbons, and Lube Oil Range Hydrocarbons by Method NWTPH-Dx and by Method NWTPH-Dx with Silica Gel Clean-up.

The Analytical Limited Data Validation Checklist is presented as pages 6-12. Data were evaluated based on validation criteria set forth in the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-08-01, June 2008 with additional reference to USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008 of October 1999, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

The following data components were reviewed during the data validation procedure:

#### Submitted Deliverables

Case Narratives

Chain-of-Custody form(s) and sample integrity

Sample results, reporting detection limits, method detection limits, dilution factors

Holding times

Method blank results

Equipment rinse blank results

LCS/LCSD (blank spike) results

MS/MSD (matrix spike) results

Laboratory duplicate results

Organic surrogate recoveries

Electronic data deliverables (EDDs)

#### **Data Validation Qualifiers Assigned During this Review**

- J detected result, estimated concentration
- UJ undetected result, reporting limit is estimated

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (pages 4-5).

#### **Overall Data Assessment**

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data submitted. The data are suitable for their intended use with the qualifiers noted.

# Table of Samples Analyzed BNSF Skykomish

# Site-wide Groundwater Monitoring Groundwater with Water QC Samples TestAmerica SDGs: BSC0054, BSC0252, BSC0255, BSC0267, BSD0044, and BSD0082 March and April 2009 Sampling

Matrix	Sample ID	Parent Sample ID	Sample Date	Lab SDG	Lab Sample ID
Groundwater	1C-W-1-0309	T drefit Gample 15	3/5/2009 13:1		BSC0054-01
Groundwater	1B-W-3-030509		3/5/2009 14:1		BSC0054-02
Groundwater	2B-W-4-0309		3/23/2009 16:2		BSC0252-01
Groundwater	1A-W-3-0309		3/23/2009 17:4		BSC0252-02
Groundwater	MW-38R-0309		3/24/2009 9:00		BSC0252-03
Groundwater	1A-W-5-0309		3/24/2009 10:0		BSC0252-04
Groundwater	1A-W-4-0309		3/24/2009 10:5		BSC0252-05
Groundwater	1A-W-1-0309		3/24/2009 11:5		BSC0252-06
Groundwater	1B-W-3-0309		3/24/2009 13:0		BSC0252-07
Groundwater	1B-W-2-0309		3/24/2009 14:0		BSC0252-08
Groundwater	5-W-55-0309		3/24/2009 9:15		BSC0252-09
Groundwater	1C-W-3-0309		3/24/2009 11:0		BSC0252-10
Groundwater	1C-W-4-0309		3/24/2009 11:4		BSC0252-11
Groundwater	2A-W-10-0309		3/24/2009 12:5		BSC0252-12
Groundwater	2B-W-46-0309		3/24/2009 14:3		BSC0252-13
Groundwater	2B-W-45-0309		3/24/2009 15:1		BSC0252-14
Groundwater	5-W-53-0309		3/24/2009 9:50		BSC0252-15
Water QC	MW-500-0309	Equipment Rinse Blank	3/24/2009 14:1		BSC0252-16
Groundwater	2A-W-11-0309	2.0	3/24/2009 14:4	BSC0252	BSC0252-17
Groundwater	MW-39-0309		3/24/2009 15:0		BSC0252-18
Groundwater	5-W-51-0309		3/24/2009 15:2		BSC0252-19
Groundwater	S1-AU-0309		3/24/2009 8:40	BSC0255	BSC0255-01
Groundwater	S1-AD-0309		3/24/2009 8:50	BSC0255	BSC0255-02
Groundwater	S1-BU-0309		3/24/2009 9:00	BSC0255	BSC0255-03
Groundwater	S1-BD-0309		3/24/2009 9:05	BSC0255	BSC0255-04
Groundwater	S2-AU-0309		3/24/2009 9:30	BSC0255	BSC0255-05
Groundwater	S2-AD-0309		3/24/2009 9:40	BSC0255	BSC0255-06
Groundwater	S2-BU-0309		3/24/2009 10:0	5 BSC0255	BSC0255-07
Groundwater	S2-BD-0309		3/24/2009 10:1	5 BSC0255	BSC0255-08
Groundwater	S3-AU-0309		3/24/2009 11:0	5 BSC0255	BSC0255-09
Groundwater	S10-BD-0309	S1-BD-0309	3/24/2009 9:10	BSC0255	BSC0255-10
Groundwater	S30-AU-0309	S3-AU-0309	3/24/2009 11:1	5 BSC0255	BSC0255-11
Groundwater	S3-AD-0309		3/24/2009 11:2	5 BSC0255	BSC0255-12
Groundwater	S3-BU-0309		3/24/2009 11:4	BSC0255	BSC0255-13
Groundwater	S3-BD-0309		3/24/2009 11:5	BSC0255	BSC0255-14
Groundwater	S3-CU-0309		3/24/2009 12:0	BSC0255	BSC0255-15
Groundwater	S3-CD-0309		3/24/2009 12:1	BSC0255	BSC0255-16
Groundwater	S4-AU-0309		3/24/2009 12:5	5 BSC0255	BSC0255-17
Groundwater	S4-AD-0309		3/24/2009 13:0		BSC0255-18
Groundwater	S4-BU-0309		3/24/2009 13:1		BSC0255-19
Groundwater	S4-BD-0309		3/24/2009 13:3	BSC0255	BSC0255-20

# Table of Samples Analyzed (continued) BNSF Skykomish

# Site-wide Groundwater Monitoring Groundwater with Water QC Samples TestAmerica SDGs: BSC0054, BSC0252, BSC0255, BSC0267, BSD0044, and BSD0082 March and April 2009 Sampling

Matrix	Comple ID	Doront Comple ID	Comple Date	Lab CDC	Lab Cample ID
	Sample ID	Parent Sample ID	Sample Date	Lab SDG	Lab Sample ID
Groundwater	S4-CU-0309		3/24/2009 13:45	BSC0255	BSC0255-21
Groundwater	S4-CD-0309		3/24/2009 13:55	BSC0255	BSC0255-22
Groundwater	2A-W-9-0309		3/25/2009 9:10	BSC0267	BSC0267-01
Groundwater	2A-W-90-0309	2A-W-9-0309	3/25/2009 9:20	BSC0267	BSC0267-02
Groundwater	1C-W-2-0309		3/25/2009 11:40	BSC0267	BSC0267-03
Groundwater	1C-W-1-032509		3/25/2009 12:45	BSC0267	BSC0267-04
Groundwater	MW-16-0309		3/25/2009 10:45	BSC0267	BSC0267-05
Groundwater	MW-4-0309		3/24/2009 17:05	BSC0267	BSC0267-06
Groundwater	MW-3-0309		3/24/2009 16:00	BSC0267	BSC0267-07
Groundwater	MW-400-0309	MW-4-0309	3/24/2009 17:10	BSC0267	BSC0267-08
Groundwater	5-W-4-0309		3/25/2009 13:45	BSC0267	BSC0267-09
Groundwater	5-W-20-0309		3/25/2009 15:20	BSC0267	BSC0267-10
Groundwater	5-W-42-0309		3/25/2009 16:30	BSC0267	BSC0267-11
Groundwater	5-W-16-0309		3/25/2009 16:05	BSC0267	BSC0267-12
Groundwater	5-W-17-0309		3/25/2009 16:20	BSC0267	BSC0267-13
Groundwater	5-W-50-0309		3/25/2009 15:40	BSC0267	BSC0267-14
Groundwater	5-W-54-0309		3/25/2009 14:50	BSC0267	BSC0267-15
Groundwater	5-W-56-0309		3/24/2009 17:00	BSC0267	BSC0267-16
Groundwater	5-W-500-0309	5-W-56-0309	3/24/2009 16:00	BSC0267	BSC0267-17
Groundwater	5-W-18-0309		3/25/2009 13:05	BSC0267	BSC0267-18
Groundwater	5-W-180-0309	5-W-18-0309	3/25/2009 12:05	BSC0267	BSC0267-19
Groundwater	5-W-15-0309		3/25/2009 12:10	BSC0267	BSC0267-20
Groundwater	5-W-14-0309		3/24/2009 9:20	BSC0267	BSC0267-21
Groundwater	5-W-19-0309		3/25/2009 14:05	BSC0267	BSC0267-22
Groundwater	5-W-52-0309		3/24/2009 16:05	BSC0267	BSC0267-23
Groundwater	2A-W-41-0409		4/1/2009 9:50	BSD0044	BSD0044-01
Groundwater	1B-W-23-0409		4/1/2009 10:45	BSD0044	BSD0044-02
Groundwater	1B-W-123-0409	1B-W-23-0409	4/1/2009 11:05	BSD0044	BSD0044-03
Groundwater	GW-3-0409		4/1/2009 11:55	BSD0044	BSD0044-04
Groundwater	2A-W-42-0409		4/1/2009 13:00	BSD0044	BSD0044-05
Groundwater	GW-4-0409		4/1/2009 14:20	BSD0044	BSD0044-06
Groundwater	GW-2-0409		4/1/2009 16:10	BSD0044	BSD0044-07
Groundwater	2A-W-40-0409		4/1/2009 17:30	BSD0044	BSD0044-08
Groundwater	2A-W-400-0409	2A-W-40-0409	4/1/2009 18:00	BSD0044	BSD0044-09
Groundwater	GW-1-0409		4/2/2009 8:45	BSD0044	BSD0044-10
Groundwater	5-W-43-0409		4/2/2009 9:40	BSD0044	BSD0044-11
Groundwater	EW-1		4/2/2009 10:30	BSD0044	BSD0044-12
Groundwater	IC-W-1-040709		4/7/2009 9:50	BSD0082	BSD0082-01
Groundwater	IC-W-8-040709		4/7/2009 12:23	BSD0082	BSD0082-02
Groundwater	IC-W-7-040709		4/7/2009 13:21	BSD0082	BSD0082-03

# Table of Qualified Analytical Results BNSF Skykomish Site-wide Groundwater Monitoring with Water QC Samples TestAmerica, Bothell, WA SDGs (as listed) March and April 2009 Sampling

Lab SDG	Sample ID	Method	Analyte	Concentra	ation	Qualifier	Reason Code
BSC0054	1C-W-1-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.159	mg/l	J	BRL, CHRO
BSC0054	1C-W-1-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.120	mg/l	J	BRL, CHRO
BSC0252	1A-W-1-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.137	mg/l	J	BRL, CHRO
BSC0252	1A-W-3-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	1.54	mg/l	J	CHRO
BSC0252	1A-W-3-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.818	mg/l	J	CHRO
BSC0252	1C-W-4-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.143	mg/l	J	BRL, CHRO
BSC0252	1C-W-4-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.359	mg/l	J	CHRO
BSC0252	2A-W-10-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.192	mg/l	J	BRL
BSC0252	2A-W-11-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.727	mg/l	J	CHRO
BSC0252	2A-W-11-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.686	mg/l	J	CHRO
BSC0252	5-W-51-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	3.43	mg/l	J	CHRO
BSC0252	5-W-51-0309	NWTPH-Dx	Diesel Range Hydrocarbons	4.31	mg/l	J	CHRO
BSC0252	5-W-53-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.144	mg/l	J	BRL, CHRO
BSC0252	5-W-53-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.119	mg/l	J	BRL, CHRO
BSC0252	MW-39-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	1.13	mg/l	J	CHRO
BSC0252	MW-39-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.894	mg/l	J	CHRO
BSC0255	S10-BD-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.162	mg/l	J	BRL
BSC0255	S2-BU-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	< 0.472	mg/l	UJ	SUR
BSC0255	S4-CU-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.173	mg/l	J	BRL
BSC0267	1C-W-1-032509	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.162	mg/l	J	BRL, CHRO
BSC0267	1C-W-1-032509	NWTPH-Dx	Diesel Range Hydrocarbons	0.273	mg/l	J	CHRO
BSC0267	2A-W-90-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.772	mg/l	J	CHRO
BSC0267	2A-W-90-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.902	mg/l	J	CHRO
BSC0267	2A-W-9-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.799	mg/l	J	CHRO
BSC0267	2A-W-9-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.927	mg/l	J	CHRO
BSC0267	5-W-15-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.183	mg/l	J	BRL, CHRO
BSC0267	5-W-180-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.487	mg/l	J	CHRO
BSC0267	5-W-180-0309	NWTPH-Dx	Diesel Range Hydrocarbons	1.57	mg/l	J	CHRO
BSC0267	5-W-18-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.452	mg/l	J	BRL
BSC0267	5-W-18-0309	NWTPH-Dx	Diesel Range Hydrocarbons	1.54	mg/l	J	CHRO
BSC0267	5-W-20-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.229	mg/l	J	BRL
BSC0267	5-W-20-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.811	mg/l	J	CHRO
BSC0267	5-W-4-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.596	mg/l	J	CHRO
BSC0267	5-W-4-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.485	mg/l	J	CHRO
BSC0267	5-W-50-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	1.51	mg/l	J	CHRO
BSC0267	5-W-50-0309	NWTPH-Dx	Diesel Range Hydrocarbons	3.57	mg/l	J	CHRO
BSC0267	5-W-52-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.455	mg/l	J	BRL, CHRO
BSC0267	5-W-52-0309	NWTPH-Dx	Diesel Range Hydrocarbons	0.982	mg/l	J	CHRO
BSC0267	MW-400-0309	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.186	mg/l	J	BRL, CHRO
BSD0044	2A-W-400-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.191	mg/l	J	BRL, CHRO

# Table of Qualified Analytical Results (continued) BNSF Skykomish

# Site-wide Groundwater Monitoring with Water QC Samples TestAmerica, Bothell, WA SDGs (as listed) March and April 2009 Sampling

Lab SDG	Sample ID	Method	Analyte	Concentration	Qualifier	Reason Code
BSD0044	2A-W-40-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.220 mg/l	J	BRL, CHRO
BSD0044	2A-W-41-0409	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.183 mg/l	J	BRL, CHRO
BSD0044	2A-W-41-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.438 mg/l	J	CHRO
BSD0044	5-W-43-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.151 mg/l	J	BRL, CHRO
BSD0044	GW-1-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.102 mg/l	J	BRL, CHRO
BSD0044	GW-2-0409	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.363 mg/l	J	BRL, CHRO
BSD0044	GW-2-0409	NWTPH-Dx	Diesel Range Hydrocarbons	0.499 mg/l	J	CHRO
BSD0082	IC-W-1-040709	NWTPH-Dx	Diesel Range Hydrocarbons	0.141 mg/l	J	BRL, CHRO
BSD0082	IC-W-7-040709	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.227 mg/l	J	BRL, CHRO
BSD0082	IC-W-7-040709	NWTPH-Dx	Diesel Range Hydrocarbons	1.45 mg/l	J	CHRO
BSD0082	IC-W-8-040709	NWTPH-Dx	Lube Oil Range Hydrocarbons	0.424 mg/l	J	BRL, CHRO
BSD0082	IC-W-8-040709	NWTPH-Dx	Diesel Range Hydrocarbons	3.50 mg/l	J	CHRO

#### **Qualifier Definitions**

J - Estimated concentration

UJ - Undetected result, reporting limit is estimated

#### **Reason Code Definitions**

BRL - Reported concentration is greater than the method detection limit (MDL) but less than the reporting limit (RL).

CHRO – Detected response in the fuel range, but the chromatographic pattern does not match the fuel calibration standard utilized.

SUR - Surrogate recovery outside quality control limits.

Project Name: BNSF Skykomish		Laboratory: TestAmerica of Bothell, Washington (TA)									
Project Reference: Site-wide Groundwater Monitoring		Sample Matrix:	Gro	undwater with Wa	ater QC						
AECOM Project No.: 01140-222-0340		Sample Start D	ate:	03/05/2009							
Validated By/Date Validated: Ann Biegelsen / 06/04/200	9	Sample End Da	ate: (	04/07/2009							
Samples Analyzed: Refer to the Table of Samples Analyzed	zed (p	ages 2-3).									
Parameters Validated: Extractable Total Petroleum Hydrocarbons (TPH), Diesel Range Hydrocarbons, and Lube Oil Range Hydrocarbons by Method NWTPH-Dx and by Method NWTPH-Dx with Silica Gel Clean-up.  Not all samples were analyzed for every parameter. Refer to individual Chain of Custody reports for the exact analyses requested.											
•	. BSC	0252. BSC025	55. B	SC0267. BSD004	 44. and B	SD0082					
Laboratory Sample Delivery Group (SDG) IDs: BSC0054, BSC0252, BSC0255, BSC0267, BSD0044, and BSD0082  PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT											
Precision:	X	Acceptable		Unacceptable	AB	Initials					
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of both field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD QC limits were set at 0-30% for water samples. Laboratory RPD limits referenced EPA published QC limits. No data require qualification based on field or laboratory duplicate precision measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17, 20, and 21.											
Accuracy:	X	Acceptable		Unacceptable	AB	Initials					
Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing equipment rinse blank results for evidence of sample contamination stemming from field activities. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample/laboratory control sample duplicate (LCS/LCSD), matrix spike/matrix spike duplicate (MS/MSD), and organic system monitoring compounds (surrogate) percent recoveries (%Rs). LCS/LCSD %Rs, which demonstrated the overall performance of the analysis, were compared to EPA published QC limits. MS/MSD %Rs, which provided information on sample matrix interferences, were compared to EPA published QC limits or laboratory control charted limits. System monitoring compound or surrogate recoveries, which measured system performance and efficiency during organic analysis, were compared to EPA published QC limits or laboratory control charted limits. Although some data require qualification based on surrogate %R outliers (see item 14), overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15 and 16.											
Method Compliance:	X	Acceptable		Unacceptable	AB	Initials					
Comments: Method compliance was determined by evaluating sample integrity, holding time, and laboratory blanks against method specified requirements, while applying EPA data validation guidelines. Although some data require qualification based on analytes detected with concentrations outside the instrument calibration range (see item 6), or chromatographic pattern match (see item 22), overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20 and 22.											

Completeness:	X	Accept	able		Unac	ceptable	AB	Initials			
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with validated analyses. Completeness goals are set at 90-100%. Determination of completeness included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results, QC summary reports, and electronic data deliverables (EDDs). All of the data received from the laboratory are useable with qualification. Completeness of the data is calculated to be 100% and is acceptable.											
VALIDATION	CRIT	ERIA CH	IECK								
Data validation qualifiers used in this review:											
J – detected result, estimated concentration											
UJ – undetected result, reporting limit is estimated											
The following comments requiring qualification are in bold type. The other comments are of interest, but qualification of the samples was not necessary.											
Refer to the Table of Qualified Analytical Results for a list (pages 4-5).	ting of	the samp	oles, a	nalyte	es, and	l concent	rations qua	alified			
Did the laboratory identify any non-conformances related to the analytical results?	Х	Υ	es/es			No	AB	Initials			
receipt only. No specific information regarding the analystample Receipt: SDG BSC0267: For samples 5-W-16-0303/25/2009, however the containers list the sampled date date on the COC.  Assigned laboratory flags were considered as part of this observations are discussed in the following sections.	309 an e of 03	d 5-W-15 /24/2009	5-0309 . The	), the samp	COC li bles we	ists the sare logged	ampled da d in with th	e sampled			
2. Were sample Chain-of-Custody forms complete?		Y	'es	)	<b>(</b>	No	AB	Initials			
Comments: COC records from field to laboratory were collaboratory personnel signatures, dates, and times of recerequired based on the reported discrepancy.											
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	Х	Y	'es			No	AB	Initials			
Comments: All requested analyses as documented on o	riginal	COC rec	cords v	vere (	comple	ted by th	e laborato	ry.			
4. Were samples received in good condition and at the appropriate temperature?	Х	Y	'es			No	AB	Initials			
Comments: Samples were received on ice, intact, and in outside the 4°C ± 2°C acceptance range at 1.5°C to 12.2 acceptable as samples were not frozen and the sample than 6°C are judged acceptable as sample temperatures within 48 hours of sampling and the sample containers w	°C. Contain	ooler tem ers were still well b	perate intact	ures t	hat we oler ten	re less th	an 2°C are	e judged e greater			
5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	Х	Y	'es			No	AB	Initials			
Comments: Reported methods and target analyte lists we	ere in d	complian	ce witl	h CO	C recoi	rds.					

6. Were detection limits in accordance with WP/QAPP, permit, or method?	Х	Yes		No	AB	Initials
Comments: Reported detection limits are achievable by	the quoted r	nethods.				
Analytes reported with concentrations below the lab method detection limits (MDLs), were qualified as J quantitation of analytes with concentrations outside reliable.	to indicate	that the c	oncentration	ons are e	stimated.	The
Refer to the Table of Qualified Analytical Results for a (pages 4-5).	listing of the	samples,	analytes, a	and conce	entrations (	qualified
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	Х	Yes		No	АВ	Initials
Comments: Only the requested target analytes were rep	orted.					
8. Were sample holding times met?	Х	Yes		No	AB	Initials
Comments: Extraction and analytical holding times were	met for all s	samples a	nd analyses	S.		
9. Were correct concentration units reported?	Х	Yes		No	AB	Initials
Comments: Correct concentration units were reported.	All results a	re reporte	d in units of	mg/L (pp	om).	
10. Were the reporting requirements for flagged data met?	X	Yes		No	AB	Initials
Comments: Data validation qualifiers override assigned	laboratory fl	ags.				
11. Were laboratory blank samples free of target analyte contamination?	х	Yes		No	AB	Initials
Comments: All laboratory blanks were free of target and	alyte contam	ination.				
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	х	Yes		No	АВ	Initials
Comments: There were no target analytes detected in e	quipment rin	se blank	sample MW	-500-030	9.	
13. Were instrument calibrations within method control limits?	NA	Yes	NA	No	AB	Initials
Comments: Not applicable for this level of data validation laboratory reports and were therefore not included in this some calibration standards were outside the laboratory outliers, it is unknown if data validation based on the laboratory calibration footnotes.	s <i>data revie</i> v QC limits.  A	v. The lab s there is	ooratory doe no specific	es provide information	e footnotes on supplied	indicating regarding

14. Were surrogate recoveries within control limits?		Yes	Х	No	AB	Initials				
Comments: Surrogate percent recoveries (%Rs) for organic analyses were within data validation QC criteria for all samples with the following exception.										
Method NWTPH-Dx: In the analysis of sample S2-BU-0309, the %R of surrogate 2-FBP was outside the laboratory QC limits of 53-120% at 41.1%. Results associated with this analysis of this sample require J or UJ qualification to indicate estimated concentrations or undetected results with estimated reporting limits.										
Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 4-5).										
15. Were laboratory control sample recoveries within control limits?	Х	Yes		No	AB	Initials				
Comments: LCS and LCSD (blank spike) recoveries we for all target analytes.	re within da	ta validati	on or labora	atory cont	rol-charted	QC limits				
16. Were matrix spike recoveries within control limits?	X	Yes		No	AB	Initials				
Comments: Project specific MS and MSD recoveries for target analytes were within data validation QC limits. MS and MSD spike recoveries for non-project samples were not considered since matrix similarity to project samples could not be guaranteed.										
17. Were RPDs within control limits?	X	Yes		No	AB	Initials				
Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within data validation control limits. All laboratory duplicate samples met data validation RPD criteria. Laboratory duplicates for non-project samples were not considered since matrix similarity to project samples could not be guaranteed.  Serial Dilution %D data is not applicable for the reported methods – there were no metals parameters requested for the samples in this data set.										
18. Were organic system performance criteria met?	NA	Yes	NA	No	AB	Initials				
Comments: Not applicable for this level of data validation analytical laboratory reports and were therefore not inclu	•			data wer	e not suppi	lied in the				
19. Were internal standards within method criteria for GC/MS sample analyses?	NA	Yes	NA	No	AB	Initials				
Comments: Not applicable for this data set – Internal sta	ndard addit	ion is not	required for	the repo	rted metho	ds.				
20. Were inorganic system performance criteria met?	NA	Yes	NA	No	AB	Initials				
Comments: Not applicable for this data set – there were	no inorgani	c parame	ters request	ed						

21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Х		Yes		No	AB	Initials			
Duplicate Sample No.	1B-W-123-0409		Primary Sample No.			1B-W-23-0409					
Duplicate Sample No.	2A-W-400-0409		Primary Sample No.			2A-W-40-0409					
Duplicate Sample No.	2A-W-90-0309		Primary Sample No.			2A-W-9-0309					
Duplicate Sample No.	5-W-180-0309		Primary Sample No.			5-W-18-0309					
Duplicate Sample No.	5-W-180-0309		Primary Sample No. 5-W-18-03			5-W-18-03	09				
Duplicate Sample No.	5-W-500-0309		Prim	ary Sar	nple No.	5	5-W-56-03	09			
Duplicate Sample No.	MW-400-0309		Primary Sample No.			Primary Sa		nple No.		MW-4-030	09
Duplicate Sample No.	S10-BD-0309		Primary Sample No.			,	S1-BD-03	09			
Duplicate Sample No.	S30-AU-0309		Primary Sample No.			S3-AU-0309					

Comments (continued): The RPDs for the duplicates were within the 0-30% data validation QC limits for water samples, or RPDs were not applicable due to results that were  $\pm$  the detection limit or were undetected in both samples as indicated in the tables below.

#### The following RPDs were calculated:

The following i	ti D3 were calculated.							
Method	Analyte	1B-W-23-0409	1B-W-123-0409	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	ND	NA		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l
Method	Analyte	2A-W-40-0409	2A-W-400-0409	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	ND	NA		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	0.220	0.191	14.11		0.236	0.236	mg/l
Method	Analyte	2A-W-9-0309	2A-W-90-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	0.799	0.772	3.44		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	0.927	0.902	2.73		0.236	0.236	mg/l
Method	Analyte	5-W-18-0309	5-W-180-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	0.452	0.487	7.45		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	1.54	1.57	1.93		0.236	0.236	mg/l
NWTPH-Dx SG	Lube Oil Range Hydrocarbons	ND	ND	NA		0.472	0.472	mg/l
NWTPH-Dx SG	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l
Method	Analyte	5-W-56-0309	5-W-500-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	ND	NA		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l
Method	Analyte	MW-4-0309	MW-400-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	0.186	200.00	<2XRL	0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l
Method	Analyte	S1-BD-0309	S10-BD-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	0.162	200.00		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l
Method	Analyte	S3-AU-0309	S30-AU-0309	RPD	Qualifier	Samp RL	Dup RL	Units
NWTPH-Dx	Lube Oil Range Hydrocarbons	ND	ND	NA		0.472	0.472	mg/l
NWTPH-Dx	Diesel Range Hydrocarbons	ND	ND	NA		0.236	0.236	mg/l

No data require qualification based on the field duplicate RPDs.

22. Were qualitative criteria for organic target analyte	Yes	X	No	AB	Initials	l
identification met?						

Comments: Not applicable for this level of data verification – GC quantitation reports and chromatograms were not supplied in analytical laboratory reports and were therefore not included in this data review. However, retention times and chromatography were reviewed by trained laboratory personnel in accordance with the laboratory's internal QA/QC program. The laboratory notations regarding chromatography were reviewed and considered in the qualification of associated data as detailed below.

<u>Method NWTPH-Dx</u>: SDG BSC0054: For the Diesel Range Hydrocarbons result in sample 1C-W-1-0309, the laboratory footnote states, "Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference."

For the Lube Oil Range Hydrocarbons result in sample 1C-W-1-0309, the laboratory footnote states, "Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference."

SDG BSC0252: For the Diesel Range Hydrocarbons and the Lube Oil Range Hydrocarbons results in samples 2A-W-11-0309, 2B-W-4-0309, 5-W-51-0309, and MW-39-0309, the laboratory footnote states, "The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics."

For the Diesel Range Hydrocarbons result in samples 1A-W-1-0309, 1C-W-1-0309, and 5-W-53-0309, the laboratory footnote states, "The chromatographic pattern is not consistent with diesel fuel."

For the Lube Oil Range Hydrocarbons results in samples 1C-W-4-0309 and 5-W-53-0309, the laboratory footnote states, "Does not match typical pattern."

SDG BSC0267: For the Lube Oil Range Hydrocarbons results in samples 1C-W-1-032509, 2A-W-90-0309, 2A-W-9-0309, 5-W-50-0309, 5-W-52-0309, and MW-400-0309, and for the Diesel Range Hydrocarbons in sample 5-W-20-0309, the laboratory footnote states, "Does not match typical pattern."

For the Diesel Range Hydrocarbons result in samples 1C-W-1-032509, 2A-W-90-0309, 2A-W-9-0309, 5-W-4-0309, 5-W-50-0309, and 5-W-52-0309, the laboratory footnote states, "The chromatographic pattern is not consistent with diesel fuel."

For the Diesel Range Hydrocarbons result in sample 5-W-20-0309, the laboratory footnote states, "Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference."

SDG BSD0044: For the Lube Oil Range Hydrocarbons result in sample 2A-W-41-0409, the laboratory footnote states, "The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range."

For the Diesel Range Hydrocarbons result in samples 2A-W-400-0409, 2A-W-40-0409, 2A-W-41-0409, 5-W-43-0409, GW-1-0409, GW-2-0409, the laboratory footnote states, "Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference."

SDG BSD0082: For the Lube Oil Range Hydrocarbons result in samples IC-W-7-040709 and IC-W-8-040709, the laboratory footnote states, "The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range."

For the Diesel Range Hydrocarbons result in samples IC-W-1-040709, IC-W-7-040709, and IC-W-8-040709, the laboratory footnote states, "Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference."

The results listed above have been qualified as J in the affected sample to indicate the concentrations are estimated.

Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 4-5).

23. Were 100% of the EDD concentrations and	X	Yes	No	AB	Initials
reporting limits compared to the hardcopy data					
reports?					

Comments: The EDD entries were resolved with the hardcopy data results and corrected as necessary. According to validation protocol, the hardcopy data report was accepted as the correct reference. The EDD query, with data validation qualifiers and reason codes added was returned with this data validation report to the database manager in Seattle on 06/04/2009.

24. General Comments: Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008 with additional reference to *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, document number EPA 540/R-99-008 of October 1999, as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 4-5).

July 10, 2009

Organic Limited Data Validation Report

BNSF Skykomish Sitewide Groundwater Monitoring Groundwater with Water QC Samples Test America, Inc. data June 2009

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

AECOM, Inc. July 2009

Document No.: 01140-204-0340

#### **Overview**

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from June 2009 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of twenty six groundwater samples and one equipment rinse blank water QC sample.

Samples were analyzed by TestAmerica, Inc. of Bothell, WA. The verified analysis was Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (with and without Acid/Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 3-8. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

#### **Submitted Deliverables**

Case Narratives (including laboratory flags)

Chain-of-Custody form(s) and sample integrity (TestAmerica data only)

Sample results, reporting detection limits, dilution factors

Holding times

Method blank results

Equipment Rinse Blank results

Organic surrogate recoveries

LCS, LCSD (blank spike, blank spike duplicate) results

MS (matrix spike) results

Laboratory duplicate (or spiked duplicate) results

Field duplicate results (calculated RPDs)

Electronic data deliverables (EDDs)

#### **Data Validation Qualifiers Assigned During this Review**

#### J estimated concentration

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 9).

#### **Overall Data Assessment**

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data provided. There were no rejected or missing data points associated with this data set. The data are suitable for their intended use with the qualifications and clarifications noted.

# Table of Samples Analyzed BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater and Water QC Samples TestAmerica (Bothell, WA) Laboratory Report BSF0131 June 2009

Matrix	Sample ID		Sample Date	and Time	Lab SDG	Lab Sample ID
Groundwater	IC-W-1-0609		6/9/2009	16:40	BSF0131	BSF0131-01
Groundwater	IC-W-8-0609		6/9/2009	17:00	BSF0131	BSF0131-02
Groundwater	5-W-14-0609		6/10/2009	09:25	BSF0131	BSF0131-03
Groundwater	5-W-16-0609		6/10/2009	10:15	BSF0131	BSF0131-04
Groundwater	5-W-15-0609		6/10/2009	11:10	BSF0131	BSF0131-05
Groundwater	5-W-150-0609	5-W-15-0609 Dup	6/10/2009	11:20	BSF0131	BSF0131-06
Water QC	MW-500-0609	Equipment Rinse Blank	6/10/2009	11:50	BSF0131	BSF0131-07
Groundwater	5-W-17-0609		6/10/2009	13:20	BSF0131	BSF0131-08
Groundwater	5-W-18-0609		6/10/2009	14:50	BSF0131	BSF0131-09
Groundwater	IC-W-7-0609		6/9/2009	15:40	BSF0131	BSF0131-10
Groundwater	5-W-19-0609		6/10/2009	16:30	BSF0131	BSF0131-11
Groundwater	5-W-20-0609		6/10/2009	17:50	BSF0131	BSF0131-12
Groundwater	5-W-42-0609		6/10/2009	18:00	BSF0131	BSF0131-13
Groundwater	EW-1-0609		6/10/2009	10:00	BSF0131	BSF0131-14
Groundwater	5-W-43-0609		6/10/2009	10:45	BSF0131	BSF0131-15
Groundwater	GW-4-0609		6/10/2009	12:05	BSF0131	BSF0131-16
Groundwater	2A-W-42-0609		6/10/2009	12:55	BSF0131	BSF0131-17
Groundwater	GW-2-0609		6/10/2009	13:45	BSF0131	BSF0131-18
Groundwater	2A-W-40-0609		6/10/2009	14:30	BSF0131	BSF0131-19
Groundwater	2A-W-400-0609	2A-W-40-0609 Dup	6/10/2009	14:40	BSF0131	BSF0131-20
Groundwater	GW-1-0609		6/10/2009	15:55	BSF0131	BSF0131-21
Groundwater	2A-W-41-0609		6/10/2009	17:00	BSF0131	BSF0131-22
Groundwater	GW-3-0609		6/11/2009	09:30	BSF0131	BSF0131-23
Groundwater	GW-30-0609	GW-3-0609 Dup	6/11/2009	09:40	BSF0131	BSF0131-24
Groundwater	2B-W-45-0609		6/11/2009	09:30	BSF0131	BSF0131-25
Groundwater	2B-W-46-0609		6/11/2009	10:10	BSF0131	BSF0131-26
Groundwater	1B-W-23-0609		6/11/2009	10:30	BSF0131	BSF0131-27

Project Name: BNSF Skykomish	Laboratory: TestAmerica, Inc., Bothell, WA							
Project Reference: Sitewide Groundwater Monitoring	Sample Matrix: Groundwater and Water QC samples							
AECOM Project: 01140-204-0340	Sample Start Date: 06/09/2009							
Validator/Date Validated: Sue Milcan 07/10/2009 (completed)	Sample End Date: 06/11/2009							
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater and Water QC Samples, June 2009 (page 2).								
Parameters Reviewed:								
Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (with and without Acid/Silica Gel cleanup).								
Laboratory Project ID (SDG): BSF0131								
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT								
Precision:	X Acceptable Unacceptable SM Initials							
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.								
Accuracy:	X Acceptable Unacceptable SM Initials							
Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing equipment rinse blank results for evidence of contamination stemming from field activities. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample and laboratory control sample duplicate (LCS, LCSD), matrix spike (MS), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.								
Method Compliance:	X Acceptable Unacceptable SM Initials							
reporting limits, and laboratory blanks against method observations were also reviewed although sufficient d was not provided in this level of data deliverable. Alth stated pattern match discrepancies (see item 22), ove submitted, since a majority of the data are unqualified	ocumentation to fully evaluate laboratory assessments ough some data require qualification based on laboratory rall method compliance is acceptable, based on the data							

3

	ı	ı								
Completeness:	X	Acc	eptable		Unac	ceptable	SM	Initials		
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.										
All of the data received were useable, some with qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.										
VALIDATION CRITERIA CHECK										
Data validation qualifiers assigned during this review	:									
J estimated concentration										
The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.										
Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).										
Did the laboratory identify any non- conformances related to the analytical results?	Х	(	Yes			No	SM	Initials		
Comments: There were no problems noted in the provided case narrative. Any assigned laboratory flags were reviewed during the limited data validation procedure.										
Data qualification, if any, related to the assigned laboratory data flags are discussed in the following sections.										
2. Were sample Chain-of-Custody forms complete?	Х	K .	Yes			No	SM	Initials		
Comments: The COC record from field to laboratory by field and laboratory personnel signatures, and lab							ed as evid	lenced		
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	Х		Yes			No	SM	Initials		
Comments: All requested analyses as documented	on the	origir	nal COCs	were	comp	leted.				
4. Were samples received in good condition and at the appropriate temperature?	Х		Yes			No	SM	Initials		
Comments: All samples were received intact and in good condition with cooler temperatures of 8.0°C to 9.9°C as noted in the case narrative comments and Sample Receipt Checklist form. Samples received at greater than 6°C were determined to be in acceptable condition since no other preservation issues were noted, samples were delivered directly from the field, and temperatures were well below 24°C (room temperature). No action is required other than to note this observation.										
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	Х		Yes			No	SM	Initials		
Comments: The reported methods met the COC requand the sample matrix.	uest a	nd is i	n compli	ance	with th	e parame	ters reque	ested		

6. Were detection limits in accordance with WP/QAPP, permit, or method?	Х	Yes		No	SM	Initials
Comments: The reporting limits (RLs) are achievablundiluted levels.	e by the quo	ted meth	od. All sam	nples wer	e reported	l at
Note that the laboratory did not report any trace and practical quantitation limit/method reporting limit (PC				tection lir	nit (MDL) l	but <
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	Х	Yes		No	SM	Initials
Comments: Only analytes applicable to the requeste	ed method w	ere repo	rted.			
8. Were sample holding times met?	Х	Yes		No	SM	Initials
Comments: The method-required extraction and an	alytical holdi	ng time w	as met for	all submi	tted sampl	e data.
9. Were correct concentration units reported?	Х	Yes		No	SM	Initials
Comments: All results were reported as mg/L (ppm	).		•		•	1
10. Were the reporting requirements for flagged data met?	Х	Yes		No	SM	Initials
Comments: Data validation qualifiers override any a	ssigned lab	oratory da	ata flags.			
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	SM	Initials
Comments: Supplied laboratory method blanks were	e free of targ	et analyt	e contamina	ation.		
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	Х	Yes		No	SM	Initials
Comments: The submitted equipment rinse blank sa contamination. Field blank and trip blank samples w						
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials
Comments: Not applicable for this level of limited da in analytical laboratory reports and were therefore n				ation data	were not	supplied
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported surrogate %Rs for organic ar all project samples and associated QC samples.	nalyses were	within la	boratory co	ntrol-cha	rted QC lir	nits for
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials
Comments: Reported LCS, LCSD recoveries were varget analytes, or were within laboratory control-chastw-846 organic methods.						
16. Were matrix spike recoveries within control limits?	Х	Yes		No	SM	Initials
Comments: Project specific MS recoveries for targe	t analytes w	ere within	laboratory	control-c	harted QC	limits.

17. Were duplicate RPDs %Ds within control limits?		1	Х	Yes		No	SM	Initials
Comments: Laboratory R within data validation QC		es in LCS/l	_CSD a	and projec	ct-specific d	uplicate s	samples w	ere
Serial Dilution %D data for analytical method reported		ot applica	ble for i	this level	of limited da	ata valida	ation or for	the
18. Were organic system met?	performance criteria			Yes		No	SM	Initials
Comments: Not applicable supplied in analytical laboration							ice data w	ere not
19. Were internal standa for GC/MS sample analys		eria		Yes		No	SM	Initials
Comments: Not applicable	e for this level of limit	ed data va	lidation	or for the	e analytical	method i	reported.	
20. Were inorganic system performance criteria met?				Yes		No	SM	Initials
Comments: Not applicable for this level of limited data validation or for the analytical method reported.								
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.			X Yes		No	SM	Initials	
Duplicate Sample No.	2A-W-400-06	400-0609 Primary Sample No. 2A-W-40-0609						
Duplicate Sample No.	5-W-150-060	9	Primary Sample No. 5-W-15-0		Primary Sample No. 5-W-15-0609			9
Duplicate Sample No.	GW-30-0609	9	Prir	nary Sam	ple No.	C	SW-3-0609	)
Comments: Field duplica were not applicable due t concentrations that were The following RPDs were	o results that were un both undetected are r	detected in	n both s	samples.	Field duplic	cate and	native sar	nple
Method Unit	Analyte 5-W-	15-0609		5-W-1	50-0609	RP	D Qua	alifiers
NWTPH-Dx mg/L		.213		0.:	203	4.8	3	
NWTPH-Dx mg/L	LORH 0	.139		0.	135	2.9	9	
22. Were qualitative crite	ria for organic target		Yes	v	 – lab	No	SM	Initials
analyte identification met			163		ation only	INO	Sivi	IIIIIais
Comments: Not applicable quantitation reports were review. However, GC/MS personnel in accordance	not supplied in analy S quantitation reports	tical labora and chron	ntory re <sub>l</sub> natogra	ports and ms were	were there	fore not i	included in	this data
No identification/quantitat	ion flags were assign	ed by the I	aborato	ory, excep	ot as noted.			
Continued on next page								

#### Method NWTPH-Dx without cleanup -

The laboratory assigned flags to DRH results for samples IC-W-1-0609, EW-1-0609, GW-4-0609, 2A-W-40-0609, 2A-W-40-0609, 2A-W-41-0609, GW-3-0609, GW-3-0609, and 1B-W-23-0609, stating that the hydrocarbon results were partly due to individual peaks in the quantitation range. However, no hydrocarbon results were reported for these samples (both DRH and LORH results for these samples were reported as non-detects). There were no chromatograms or other supporting documentation reported for this data set, and the data validator could not determine the source of this flag. Since laboratory flags are not utilized to qualify validated data, and since the reported results are non-detects, no action is required other than to note this observation.

The laboratory assigned flags to LORH results for samples IC-W-1-0609, IC-W-8-0609, 5-W-14-0609, 5-W-16-0609, MW-500-0609, 5-W-17-0609, IC-W-7-0609, 5-W-19-0609, EW-1-0609, GW-4-0609, 2A-W-42-0609, 2A-W-40-0609, 2A-W-40-0609, 2A-W-41-0609, GW-3-0609, GW-30-0609, 2B-W-45-0609, 2B-W-46-0609, 1B-W-23-0609 and the DRH result for sample 5-W-14-0609 stating that hydrocarbon pattern match was not achieved. The flagged analyte was reported as a non-detect by the laboratory. There were no chromatograms or other supporting documentation reported for this data set, and the data validator could not determine the source of this flag. Since laboratory flags are not utilized to qualify validated data, and since the reported results are non-detects, no action is required other than to note this observation.

The laboratory noted that the chromatographic patterns for LORH results reported for samples 5-W-15-0609, 5-W-150-0609, 5-W-18-0609, 5-W-20-0609, 5-W-42-0609, 5-W-43-0609, GW-2-0609, and GW-1-0609 were not consistent with lube oil. Since the laboratory report and the EDD/database identifies the reported analyte as lube oil range hydrocarbons, and not a single analyte, no action is required.

The laboratory noted that the chromatographic patterns for DRH results reported for samples IC-W-8-0609, 5-W-15-0609, 5-W-150-0609, 5-W-18-0609, IC-W-7-0609, 5-W-20-0609, 5-W-42-0609, 5-W-43-0609, 2A-W-42-0609, GW-2-0609, and GW-1-0609 were not consistent with diesel fuel. The laboratory report identifies the reported analyte as DRH, however, the EDD/database identifies the reported analyte as diesel fuel. Although supporting documentation to fully evaluate the laboratory comments can not be made with this level of report deliverable, professional judgment determines that the reported values require J qualifiers to indicate estimated concentrations since the concentration of diesel fuel is affected by other analytes or interferences within the specified carbon range.

#### Method NWTPH-Dx with cleanup -

The laboratory assigned flags to LORH results for samples 5-W-14-0609, 5-W-15-0609, 5-W-150-0609, 5-W-17-0609, 5-W-18-0609, 5-W-19-0609, 5-W-20-0609, and 5-W-42-0609 and DRH results for samples 5-W-15-0609, 5-W-18-0609, and 5-W-42-0609 stating that hydrocarbon pattern match was not achieved. The flagged analyte was reported as a non-detect by the laboratory. There were no chromatograms or other supporting documentation reported for this data set, and the data validator could not determine the source of this flag. Since laboratory flags are not utilized to qualify validated data, and since the reported results are non-detects, no action is required other than to note this observation.

# Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).

23. Were 100% of the EDD concentrations and	X	Yes	No	SM	Initials
reporting limits compared to the hardcopy data					
reports?					

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 sample\_matrix\_code was changed from WG (groundwater) to WQ (water QC) for the equipment rinse blank sample, MW-500-0609, to more accurately reflect the sample matrix.

The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file, with corrections and data validation qualifiers and reason codes added, was returned to the database manager in Seattle, WA on 07/10/2009.

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-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 9).

# Table of Qualified Analytical Results BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater and Water QC Samples TestAmerica (Bothell, WA) Laboratory Report BSF0131 June 2009

Sample ID	Lab ID	Method	Dilu Fac	ition tor	QC Batch	Analyte	Concentration	Qualifi	er	Reason Code
Qualified, Repo	rtable Ground	water data	<b>1</b> :							
IC-W-8-0609	BSF0131-02	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.434	mg/L	J	pattern
5-W-15-0609	BSF0131-05	NWTPH	-Dx	1	9F16008	Diesel Range Hydrocarbons	0.213	mg/L	J	pattern
5-W-150-0609	BSF0131-06	NWTPH	-Dx	1	9F16008	Diesel Range Hydrocarbons	0.203	mg/L	J	pattern
5-W-18-0609	BSF0131-09	NWTPH	-Dx	1	9F16008	Diesel Range Hydrocarbons	0.669	mg/L	J	pattern
IC-W-7-0609	BSF0131-10	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.287	mg/L	J	pattern
5-W-20-0609	BSF0131-12	NWTPH	-Dx	1	9F16008	Diesel Range Hydrocarbons	0.637	mg/L	J	pattern
5-W-42-0609	BSF0131-13	NWTPH	-Dx	1	9F16008	Diesel Range Hydrocarbons	0.599	mg/L	J	pattern
5-W-43-0609	BSF0131-15	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.293	mg/L	J	pattern
2A-W-42-0609	BSF0131-17	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.202	mg/L	J	pattern
GW-2-0609	BSF0131-18	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.688	mg/L	J	pattern
GW-1-0609	BSF0131-21	NWTPH	-Dx	1	9F16009	Diesel Range Hydrocarbons	0.254	mg/L	J	pattern

#### **Reason Codes:**

pattern – chromatographic pattern does not match typical diesel pattern; qualifier assigned since result is identified as "Diesel Fuel rather than Diesel Range Hydrocarbons in the project database.

October 15, 2009

Organic Limited Data Validation Report

BNSF Skykomish Sitewide Groundwater Monitoring Groundwater with Water QC Samples Test America, Inc. data May 2009; July – August 2009

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

AECOM, Inc. October 2009

Document No.: 01140-284-0545

#### **Overview**

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from May 2009 and July – August 2009 are listed in the Table of Samples Analyzed (page 2). Limited data validation was performed on a total of twenty six groundwater samples and one equipment rinse blank water QC sample.

Samples were analyzed by TestAmerica, Inc. of Bothell, WA. The verified analysis was Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (without Acid/Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 3-7. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

#### Submitted Deliverables

Case Narratives (including laboratory flags)

Chain-of-Custody form(s) and sample integrity (TestAmerica data only)

Sample results, reporting detection limits, dilution factors

Holding times

Method blank results

Organic surrogate recoveries

LCS, LCSD (blank spike, blank spike duplicate) results

Laboratory duplicate (or spiked duplicate) results

Field duplicate results (calculated RPDs)

Electronic data deliverable (EDD) query

#### **Data Validation Qualifiers Assigned During this Review**

J estimated concentration

Assigned qualifiers are detailed in the Analytical Limited Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 8).

#### **Overall Data Assessment**

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data provided. There were no rejected or missing data points associated with this data set. The data are suitable for their intended use with the qualifications and clarifications noted.

# Table of Samples Analyzed BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater Samples TestAmerica (Bothell, WA) Laboratory Reports (as listed) May 2009, July – August 2009

Matrix	Sample ID		Sample Date	and Time	Lab SDG	Lab Sample ID
Groundwater	1C-W-7-051209		5/12/2009	15:20	BSE0122	BSE0122-01
Groundwater	1C-W-1-051209		5/12/2009	16:20	BSE0122	BSE0122-02
Groundwater	1C-W-8-051209		5/12/2009	17:05	BSE0122	BSE0122-03
Groundwater	GW-2-0709		7/7/2009	11:15	580143651	580-14365-1
Groundwater	5-W-43-0709		7/7/2009	12:20	580143651	580-14365-2
Groundwater	1C-W-1-0709		7/28/2009	10:50	580146511	580-14651-1
Groundwater	1C-W-8-0709		7/28/2009	11:45	580146511	580-14651-2
Groundwater	1C-W-7-0709		7/28/2009	12:30	580146511	580-14651-3
Groundwater	GW-2-072809		7/28/2009	14:30	580146511	580-14651-4
Groundwater	GW-20-0709	GW-2-0709	7/28/2009	13:30	580146511	580-14651-5
Groundwater	1C-W-1-0809		8/25/2009	10:00	580151261	580-15126-1
Groundwater	1C-W-7-0809		8/25/2009	11:57	580151261	580-15126-2
Groundwater	1C-W-8-0809		8/25/2009	10:56	580151261	580-15126-3
Groundwater	3-W-43-0809		8/25/2009	15:21	580151261	580-15126-4
Groundwater	3-W-42-0809		8/25/2009	14:33	580151261	580-15126-5
Groundwater	3-W-41-0809		8/25/2009	13:30	580151261	580-15126-6
Groundwater	3-W-410-0809	3-W-41-0809	8/25/2009	14:00	580151261	580-15126-7
Groundwater	GW-2-0809		8/25/2009	16:40	580151261	580-15126-8

Project Name: BNSF Skykomish		Laboratory: TestAmerica, Inc., Bothell, WA							
Project Reference: Sitewide Groundwater Monitoring	g	Sample Matrix: Groundwater samples							
AECOM Project: 01140-284-0545	,	Sample Start Date: 05/12/2009							
Validator/Date Validated: Sue Milcan 10/15/2009 (completed)	ļ	Sample End Da	te: 08/25/2009						
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater Samples, May 2009; July – August 2009 (page 2).									
Parameters Reviewed:									
Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (without Acid/Silica Gel cleanup).									
Laboratory Project ID (SDG): BSE0122, 580-14365, 580-14651, 580-15126									
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT									
Precision:	Х	Acceptable	Unacceptable	SM	Initials				
determined by comparison of field duplicate sample of examination of laboratory duplicate results. Evaluation using the Relative Percent Difference (RPD). The Resamples divided by the mean and expressed as a per EPA published and/or laboratory control-charted QC field duplicate RPDs (see item 21), overall field and I data are unqualified and no data are rejected. Precision	on of f PD is ercent limits abora	ield and laborat defined as the of RPD precision Although som tory precision is	ory duplicates for predifference between to measurements were data require qualificacceptable since a	ecision wa wo duplica e compar cation ba majority c	ate ed to sed on of the				
Accuracy:	X	Acceptable	Unacceptable	SM	Initials				
Comments: Field accuracy, a measure of the sampling bias, was not determined for this data set since field-originating and/or trip blank samples were not required and/or were not submitted for analysis. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample and laboratory control sample duplicate (LCS, LCSD) and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.									
Method Compliance:									
Method Compliance:  X   Acceptable   Unacceptable   SM   Initials    Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. Laboratory notes and observations were also reviewed although sufficient documentation to fully evaluate laboratory assessments was not provided in this level of data deliverable. Although some data require qualification based on laboratory stated pattern match discrepancies (see item 22), overall method compliance is acceptable, based on the data submitted, since a majority of the data are unqualified and no data points are rejected based on these measurements. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.									

Completeness:	Х	Acceptable		Unacceptable	SM	Initials				
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.										
All of the data received were useable, some with qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.										
VALIDATION CRITERIA CHECK										
Data validation qualifiers assigned during this review:										
J estimated concentration										
The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.										
Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 8).										
Did the laboratory identify any non- conformances related to the analytical results?	X	Yes		No	SM	Initials				
Comments: There were no problems noted in the provided case narrative. Any assigned laboratory flags were reviewed during the limited data validation procedure.										
Data qualification, if any, related to the assigned laborated	oratory	data flags ar	e disc	ussed in the follo	owing sec	tions.				
2. Were sample Chain-of-Custody forms complete?	Х	Yes		No	SM	Initials				
Comments: The COC records from field to laboratory by field and laboratory personnel signatures, and lab						videnced				
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	SM	Initials				
Comments: All requested analyses as documented	on the	original COC	s wer	e completed.						
Were samples received in good condition and at the appropriate temperature?	Х	Yes		No	SM	Initials				
Comments: All samples were received intact and in gand temperature blanks of 1.7°C to 5.1°C as noted of determined to be in acceptable condition since sample noted. No action is required other than to note this conditions.	n the le	COC forms. Some not frozen a	Sampl	es received belo	w 2°C we	ere				
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	Х	Yes		No	SM	Initials				
Comments: The reported method met the COC requests and is in compliance with the parameters requested and the sample matrix.										

6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	SM	Initials			
Comments: The reporting limits (RLs) are achievablundiluted levels.	e by the quo	ted meth	od. All sam	nples wer	e reported	at			
Note that the laboratory did not report any trace and practical quantitation limit/reporting limit (PQL/RL) for			method de	tection lin	nit (MDL) I	but <			
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	Х	Yes		No	SM	Initials			
Comments: Only analytes applicable to the requeste	ed method w	vere repo	rted.						
8. Were sample holding times met?	Х	Yes		No	SM	Initials			
Comments: The method-required extraction and an	alytical holdi	ng times	were met fo	or all subr	nitted sam	ple data.			
9. Were correct concentration units reported?	Х	Yes		No	SM	Initials			
Comments: All results were reported as mg/L (ppm	nments: All results were reported as mg/L (ppm).								
10. Were the reporting requirements for flagged data met?	Х	Yes		No	SM	Initials			
Comments: Data validation qualifiers override any assigned laboratory data flags.									
11. Were laboratory blank samples free of target analyte contamination?	х	Yes		No	SM	Initials			
Comments: Supplied laboratory method blanks were free of target analyte contamination.									
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?		Yes		No	SM	Initials			
Comments: Not applicable - Field blank, equipment submitted/not required for this data set.	rinse blank,	and/or tri	ip blank sar	nples wei	re not				
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials			
Comments: Not applicable for this level of limited da in analytical laboratory reports and were therefore re				ation data	were not	supplied			
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials			
Comments: Reported surrogate %Rs for organic ar all project samples and associated QC samples.	nalyses were	within la	boratory co	ntrol-cha	rted QC lir	nits for			
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	SM	Initials			
Comments: Reported LCS, LCSD recoveries were varget analytes, or were within laboratory control-che SW-846 organic methods.									
16. Were matrix spike recoveries within control limits?		Yes		No	SM	Initials			
Comments: Not applicable – there were no MS/MSI accuracy cannot be evaluated. See item 15 (LCS/L									

<ul><li>17. Were duplicate RPDs</li><li>%Ds within control limits?</li></ul>	and/or serial dilution	X		Yes		No	SM	Initials		
Comments: Laboratory RF 0-20%.	PDs for target analytes in L	CS/LC	SD s	amples v	vere within	data valid	ation QC I	imits of		
Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the analytical method reported.										
18. Were organic system met?	ganic system performance criteria Yes No					SM	Initials			
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.										
19. Were internal standar for GC/MS sample analyse			Yes		No	SM	Initials			
Comments: Not applicable	e for this level of limited dat	ta valid	latior	or for th	e analytica	method r	eported.			
20. Were inorganic system met?	n performance criteria			Yes		No	SM	Initials		
Comments: Not applicable	e for this level of limited dat	ta valid	latior	or for th	e analytica	method r	eported.			
21. Were blind field duplic discuss the precision (RPI	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Х		Yes		No	SM	Initials		
Duplicate Sample No.	3-W-41-0809		Primary Sample No.		ple No.	3-W-410-0809				
Duplicate Sample No.	GW-2-0709		Prir	nary Sam	ple No.	G	9			
Comments: Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs										

Comments: Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs were not applicable due to results that were undetected in both samples, except as noted. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.

The following RPDs were calculated:

Method	Units	Analyte	3-W-41-0809	3-W-410-0809	RPD	Qualifiers
NWTPH-Dx	mg/L	PHC AS DIESEL FUEL	0.076	0.077	1.3	
Method	Units	Analyte	GW-2-0709	GW-20-0709	RPD	Qualifiers
NWTPH-Dx	mg/L	Lube Oil	0.41	0.29	34.3	J/J
NWTPH-Dx	mg/L	PHC AS DIESEL FUEL	0.65	0.43	40.7	J/J

The highlighted target analytes require J qualifiers in the native sample and in the field duplicate sample to indicate estimated concentrations due to variability between field duplicate results (RPD exceeded QC limit).

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 8).

22. Were qualitative criteria for organic target	Yes	X – lab	No	SM	Initials
analyte identification met?		observation only			

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. However, GC/MS quantitation reports and chromatograms were reviewed by trained laboratory personnel in accordance with the laboratory's internal QA/QC program.

No identification/quantitation flags were assigned by the laboratory, except as noted.

#### Method NWTPH-Dx without cleanup -

SDG BSE0122: The laboratory noted that the chromatographic patterns for DRH results reported for samples IC-W-7-051209, IC-W-1-051209, and IC-W-8-051209 were not consistent with diesel fuel. The laboratory noted that the chromatographic patterns for LORH results reported for samples IC-W-7-051209 and IC-W-8-051209 also did not match a typical pattern for LORH.

For DRH - The laboratory report identifies the reported analyte as DRH, however, the EDD/database identifies the reported analyte as diesel fuel. Although supporting documentation to fully evaluate the laboratory comments cannot be made with this level of report deliverable, professional judgment determines that the reported values require J qualifiers to indicate estimated concentrations since the concentration of diesel fuel is affected by other analytes or interferences within the specified carbon range.

For LORH - The laboratory report and EDD/database identify the reported analyte as LORH, and not as a single component. No action is required since a specific target analyte (like lube oil) is not being reported for this analysis, but rather a total of eluting compounds found within the target range.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 8).

23. Were 100% of the EDD concentrations and	X	Yes	No	SM	Initials
reporting limits compared to the hardcopy data					
reports?					

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 10/15/2009.

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-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 8).

# Table of Qualified Analytical Results BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater Samples TestAmerica (Bothell, WA) Laboratory Reports/Samples (as listed) May 2009; July – August 2009

Sample ID	Lab ID	Method	Analyte	Concentration	Qualifier	Reason Code
GW-2-0709	580-14365-1	NWTPH-Dx	Lube Oil	0.41 mg/L	J	FD
GW-2-0709	580-14365-1	NWTPH-Dx	PHC AS DIESEL FUEL	0.65 mg/L	J	FD
GW-20-0709	580-14651-5	NWTPH-Dx	Lube Oil	0.29 mg/L	J	FD
GW-20-0709	580-14651-5	NWTPH-Dx	PHC AS DIESEL FUEL	0.43 mg/L	J	FD
1C-W-7-051209	BSE0122-01	NWTPH-Dx	PHC AS DIESEL FUEL	0.578 mg/L	J	pattern
1C-W-1-051209	BSE0122-02	NWTPH-Dx	PHC AS DIESEL FUEL	0.0648 mg/L	J	pattern
1C-W-8-051209	BSE0122-03	NWTPH-Dx	PHC AS DIESEL FUEL	0.901 mg/L	J	pattern

#### **Reason Codes:**

FD - relative percent difference between field duplicates exceeds QC limits; field precision outlier pattern – chromatographic pattern does not match typical diesel pattern; qualifier assigned since result is identified as "Diesel Fuel rather than Diesel Range Hydrocarbons in the project database.

November 21, 2009

Organic Limited Data Validation Report

BNSF Skykomish Sitewide Groundwater Monitoring Groundwater with Water QC Samples Test America, Inc. data September - October 2009

Prepared By Sue Milcan
Environmental Scientist/Quality Assurance Manager

AECOM, Inc. November 2009

Document No.: 60136319.0545

#### **Overview**

The samples analyzed for the BNSF Skykomish Sitewide Groundwater Monitoring sampling effort from September – October 2009 are listed in the Table of Samples Analyzed (pages 2-3). Limited data validation was performed on a total of seventy nine groundwater samples and one equipment rinse blank water QC sample.

Samples were analyzed by TestAmerica, Inc. of Tacoma, WA. The verified analysis was Diesel Range Organics (DRO) and Lube Oil by WDOE method NWTPH-Dx (with and without Silica Gel cleanup).

The Analytical Limited Data Validation Checklist is presented as pages 4-8. Data were evaluated based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the limited data validation procedure:

#### **Submitted Deliverables**

Case Narratives (including laboratory flags)

Chain-of-Custody form(s) and sample integrity (TestAmerica data only)

Sample results, reporting detection limits, dilution factors

Holding times

Method blank results

Organic surrogate recoveries

LCS, LCSD (blank spike, blank spike duplicate) results

MS, MSD (matrix spike, matrix spike duplicate) results

Laboratory duplicate (or spiked duplicate) results

Field duplicate results (calculated RPDs)

Electronic data deliverable (EDD) query

#### **Data Validation Qualifiers Assigned During this Review**

None required.

#### **Overall Data Assessment**

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data provided. There were no rejected or missing data points associated with this data set. The data are suitable for their intended use without qualification.

# Table of Samples Analyzed BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater Samples TestAmerica (Tacoma, WA) Laboratory Reports (as listed) September – October 2009

Matrix	Sample ID		Sample Date	and Time	Lab SDG	Lab Sample ID
Groundwater	S1-AD-0909		9/22/2009	08:55	580157022	580-15702-01
Groundwater	S1-AU-0909		9/22/2009	09:10	580157022	580-15702-02
Groundwater	S1-BD-0909		9/22/2009	09:25	580157022	580-15702-03
Groundwater	S1-BU-0909		9/22/2009	09:35	580157022	580-15702-04
Groundwater	S2-BD-0909		9/22/2009	10:35	580157022	580-15702-05
Groundwater	S2-BU-0909		9/22/2009	10:45	580157022	580-15702-06
Groundwater	S2-AD-0909		9/22/2009	10:05	580157022	580-15702-07
Groundwater	S2-AU-0909		9/22/2009	10:15	580157022	580-15702-08
Groundwater	S20-BU-0909	S2-BU-0909 Dup	9/22/2009	10:55	580157022	580-15702-09
Groundwater	S3-AD-0909		9/22/2009	12:25	580157022	580-15702-10
Groundwater	S3-AU-0909		9/22/2009	12:35	580157022	580-15702-11
Groundwater	S3-BD-0909		9/22/2009	12:50	580157022	580-15702-12
Groundwater	S3-BU-0909		9/22/2009	13:30	580157022	580-15702-13
Groundwater	S3-CD-0909		9/22/2009	13:55	580157022	580-15702-14
Groundwater	S3-CU-0909		9/22/2009	14:05	580157022	580-15702-15
Groundwater	S4-AD-0909		9/22/2009	14:30	580157022	580-15702-16
Groundwater	S4-AU-0909		9/22/2009	14:55	580157022	580-15702-17
Groundwater	S4-BD-0909		9/22/2009	15:15	580157022	580-15702-18
Groundwater	S4-BU-0909		9/22/2009	15:25	580157022	580-15702-19
Groundwater	S4-CD-0909		9/22/2009	15:40	580157022	580-15702-20
Groundwater	S4-CU-0909		9/22/2009	15:55	580157022	580-15702-21
Groundwater	S40-AD-0909	S4-AD-0909 Dup	9/22/2009	14:40	580157022	580-15702-22
Groundwater	1C-W-4-0909		9/22/2009	13:55	580157021	580-15702-23
Groundwater	1C-W-3-0909		9/22/2009	11:45	580157021	580-15702-24
Groundwater	1C-W-2-0909		9/22/2009	16:35	580157021	580-15702-25
Groundwater	GW-4-0909		9/22/2009	17:15	580157021	580-15702-26
Groundwater	MW-39-0909		9/22/2009	16:40	580157021	580-15702-27
Groundwater	2A-W-11-0909		9/22/2009	17:15	580157021	580-15702-28
Groundwater	5-W-51-0909		9/22/2009	17:50	580157021	580-15702-29
Groundwater	2B-W-46-0909		9/23/2009	09:35	580157021	580-15702-30
Groundwater	2B-W-45-0909		9/23/2009	10:15	580157021	580-15702-31
Groundwater	2B-W-450-0909	2B-W-45-0909 Dup	9/23/2009	10:30	580157021	580-15702-32
Water QC	MW-500-0909	Equipment Rinse Blank	9/23/2009	08:25	580157021	580-15702-33
Groundwater	2A-W-9-0909		9/23/2009	11:30	580157021	580-15702-34
Groundwater	MW-3-0909		9/23/2009	13:20	580157021	580-15702-35
Groundwater	MW-41-0909		9/23/2009	14:00	580157021	580-15702-36
Groundwater	3W-41-0909		9/23/2009	15:15	580157021	580-15702-37
Groundwater	2A-W-10-0909		9/21/2009	16:30	580157021	580-15702-38
Groundwater	2B-W-4-0909		9/21/2009	16:25	580157021	580-15702-39
Groundwater	5-W-52-0909		9/22/2009	10:05	580157021	580-15702-40
Groundwater	5-W-53-0909	E W 50 0000 D	9/22/2009	10:55	580157021	580-15702-41
Groundwater	5-W-530-0909	5-W-53-0909 Dup	9/22/2009	09:55	580157021	580-15702-42
Groundwater	5-W-54-0909		9/22/2009	11:50	580157021	580-15702-43
Groundwater	MW-38R-0909		9/22/2009	13:45	580157021	580-15702-44
Groundwater	5-W-18-0909		9/22/2009	14:55	580157021	580-15702-45
Groundwater	5-W-55-0909		9/22/2009	16:40	580157021	580-15702-46

Continued on next page

# Table of Samples Analyzed BNSF Skykomish – Sitewide Groundwater Monitoring Groundwater Samples TestAmerica (Tacoma, WA) Laboratory Reports (as listed) September – October 2009

Matrix	Sample ID		Sample Date	and Time	Lab SDG	Lab Sample ID
Groundwater	5-W-56-0909		9/22/2009	15:50	580157021	580-15702-47
Groundwater	1C-W-1-0909		9/22/2009	09:15	580157021	580-15702-48
Groundwater	1C-W-8-0909		9/22/2009	09:55	580157021	580-15702-49
Groundwater	1C-W-7-0909		9/22/2009	15:00	580157021	580-15702-50
Groundwater	1C-W-70-0909	1C-W-7-0909 Dup	9/22/2009	15:20	580157021	580-15702-51
Groundwater	3-W-42-0909		9/23/2009	16:00	580157021	580-15702-52
Groundwater	3-W-43-0909		9/23/2009	16:45	580157021	580-15702-53
Groundwater	MW-16-0909		9/23/2009	17:45	580157021	580-15702-54
Groundwater	MW-160-0909	MW-16-0909 Dup	9/23/2009	17:55	580157021	580-15702-55
Groundwater	5-W-50-0909		9/23/2009	08:50	580157021	580-15702-56
Groundwater	5-W-17-0909		9/23/2009	09:25	580157021	580-15702-57
Groundwater	5-W-170-0909	5-W-17-0909 Dup	9/23/2009	08:25	580157021	580-15702-58
Groundwater	5-W-16-0909		9/23/2009	10:25	580157021	580-15702-59
Groundwater	5-W-14-0909		9/23/2009	11:20	580157021	580-15702-60
Groundwater	5-W-15-0909		9/23/2009	13:55	580157021	580-15702-61
Groundwater	5-W-42-0909		9/23/2009	14:35	580157021	580-15702-62
Groundwater	5-W-19-0909		9/23/2009	15:20	580157021	580-15702-63
Groundwater	5-W-20-0909		9/23/2009	16:10	580157021	580-15702-64
Groundwater	5-W-43-0909		9/23/2009	17:30	580157021	580-15702-65
Groundwater	5-W-4-0909		9/23/2009	18:05	580157021	580-15702-66
Groundwater	2A-W-42-0909		9/23/2009	09:00	580157021	580-15702-67
Groundwater	1B-W-23-0909		9/23/2009	10:40	580157021	580-15702-68
Groundwater	1B-W-3-0909		9/23/2009	14:40	580157021	580-15702-69
Groundwater	GW-3-0909		9/23/2009	12:55	580157021	580-15702-70
Groundwater	1B-W-2-0909		9/23/2009	15:55	580157021	580-15702-71
Groundwater	1A-W-4-0909		9/23/2009	17:40	580157021	580-15702-72
Groundwater	EW-1-0909		9/23/2009	00:00	580157021	580-15702-73
Groundwater	2A-W-40-0909		9/24/2009	09:15	580157021	580-15702-74
Groundwater	2A-W-41-0909		9/24/2009	10:25	580157021	580-15702-75
Groundwater	1A-W-5-0909		9/24/2009	11:20	580157021	580-15702-76
Groundwater	GW-2-0909		9/24/2009	09:20	580157021	580-15702-77
Groundwater	GW-20-0909	GW-2-0909 Dup	9/24/2009	09:30	580157021	580-15702-78
Groundwater	GW-1-0909	<u> </u>	9/24/2009	10:25	580157021	580-15702-79
Groundwater	PZ - 1 - 1009		10/8/2009	14:15	580159151	580-15915-1

Project Name: BNSF Skykomish	1	_aboratory: Te	estAm	erica, Inc., Bothe	ell, WA				
Project Reference: Sitewide Groundwater Monitorin	g ;	Sample Matrix:	Gro	undwater sample	es				
AECOM Project: 60136319.0545	;	Sample Start D	ate: (	09/21/2009					
Validator/Date Validated: Sue Milcan 11/21/2009 (completed)	;	Sample End Da	ate: 1	0/08/2009					
Samples Analyzed: see Table of Samples Analyzed, BNSF Skykomish - Sitewide Groundwater Monitoring, Groundwater Samples, September - October 2009 (pages 2-3).									
Parameters Reviewed:									
Diesel Range Hydrocarbons (DRH) and Lube Oil Range Hydrocarbons (LORH) by WDOE method NWTPH-Dx (without Acid/Silica Gel cleanup).									
Laboratory Project IDs (SDGs): 580157021, 5801570	022, 5	80159151							
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT									
Precision:	Х	Acceptable		Unacceptabl e	SM	Initials			
Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD precision measurements were compared to EPA published and/or laboratory control-charted QC limits. No data require qualification based on these measurements, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.									
Accuracy:	Х	Acceptable		Unacceptabl e	SM	Initials			
Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing equipment rinse blank results for evidence of sample contamination stemming from field/sampling contamination. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), matrix spike, matrix spike duplicate (MS, MSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS, MSD, and ICS %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.									
Method Compliance:	Х	Acceptable		Unacceptabl e	SM	Initials			
Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data require qualification based on these measurements, and overall method compliance is acceptable, based on the data submitted. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.									

Completeness:	Х	Acceptable	•	Una	e e	SM	Initials			
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 90-100%. Determination of completeness during this limited data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports. The electronic data deliverable file (EDD) was QA'd 100% for positive target analytes and reporting limits. EDD corrections were made by the data validator during this review procedure as outlined in item 23.  All of the data received were useable without qualification. Since no data points were missing or rejected,										
All of the data received were useable without qualification. Since no data points were missing or rejected, completeness of the data set was calculated to be 100% and is compliant.										
VALIDATION CRITERIA CHECK										
Data validation qualifiers assigned during this review	<i>I</i> :									
None required					1 1					
Did the laboratory identify any non- conformances related to the analytical results?		Yes		X	No	SM	Initials			
Comments: There were no problems noted in the provided case narratives, and no laboratory flags were assigned to any data points.										
2. Were sample Chain-of-Custody forms complete?	Х	Yes			No	SM	Initials			
Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.										
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes			No	SM	Initials			
Comments: All requested analyses as documented	on the	original CO	Cs wer	e com	pleted.					
4. Were samples received in good condition and at the appropriate temperature?	х	Yes			No	SM	Initials			
as noted on the COC forms. Samples received at le since sample containers were intact and samples the than 6°C were determined to be in acceptable condi-	Comments: All samples were received intact and in good condition with cooler temperatures of 1.0°C to 6.7°C as noted on the COC forms. Samples received at less than 2°C were determined to be in acceptable condition since sample containers were intact and samples themselves were not frozen. Samples received at greater than 6°C were determined to be in acceptable condition since no other preservation issues were noted and temperatures were well below 24°C (room temperature). No action is required other than to note these									
5. Were the reported analytical methods in compliance with WP/QAPP, permit, or COC?	Х	Yes			No	SM	Initials			
Comments: The reported method met the COC requand the sample matrix.	ests a	nd is in com	oliance	with th	ne parame	eters requ	ested			
6. Were detection limits in accordance with WP/QAPP, permit, or method?	Х	Yes			No	SM	Initials			
Comments: The reporting limits (RLs) are achievable by the quoted method. All samples were reported at undiluted levels.										
Note that the laboratory did not report any trace analyte concentrations ≥ method detection limit (MDL) but < practical quantitation limit/reporting limit (PQL/RL) for any methods.										

7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	Х	Yes		No	SM	Initials				
Comments: Only analytes applicable to the requeste	d method w	vere repoi	rted.							
8. Were sample holding times met?	X	Yes		No	SM	Initials				
Comments: The method-required extraction and ana	lytical holdi	ng times	were met fo	r all subr	nitted sam	ple data.				
9. Were correct concentration units reported?	X	Yes		No	SM	Initials				
Comments: All results were reported as mg/L (ppm)	•									
10. Were the reporting requirements for flagged data met?	Х	Yes		No	SM	Initials				
Comments: No laboratory flags were assigned.										
11. Were laboratory blank samples free of target analyte contamination?	Х	Yes		No	SM	Initials				
Comments: Supplied laboratory method blanks were free of target analyte contamination.										
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	X	Yes		No	SM	Initials				
Comments: The equipment rinse blank sample, MW-500-0909, was free of target analyte contamination. Field blank and/or trip blank samples were not submitted/not required for this data set.										
13. Were instrument calibrations within method or data validation control limits?		Yes		No	SM	Initials				
Comments: Not applicable for this level of limited dain analytical laboratory reports and were therefore no				ntion data	were not	supplied				
14. Were surrogate recoveries within control limits?	X	Yes		No	SM	Initials				
Comments: Reported surrogate %Rs for organic and all project samples and associated QC samples.	alyses were	within la	boratory co	ntrol-cha	rted QC lir	nits for				
15. Were laboratory control sample recoveries within control limits?	Х	Yes		No	SM	Initials				
Comments: Reported LCS, LCSD recoveries were watarget analytes, or were within laboratory control cha 846 organic methods.										
16. Were matrix spike recoveries within control limits?	Х	Yes		No	SM	Initials				
Comments: Project-specific MS and MSD recoveries	were withi	n laborato	ory (method	) control (	charted Q	C limits.				
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	SM	Initials				
Comments: Laboratory RPDs for target analytes in LCS/LCSD and MS/MSD samples were within data validation QC limits of 0-20%.										

Serial Dilution %D data for metals analysis is not applicable for this level of limited data validation or for the

analytical method reported.

18. Were organic system met?	performance criteria			Yes		No	SM	Initials	
	le for this level of limited da oratory reports and were the						ce data w	ere not	
19. Were internal standards within method criteria for GC/MS sample analyses?				Yes		No	SM	Initials	
Comments: Not applicable for this level of limited data validation or for the analytical method reported.									
20. Were inorganic system performance criteria met?				Yes		No	SM	Initials	
Comments: Not applicable for this level of limited data validation or for the analytical method reported.									
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.			(	Yes		No	SM	Initials	
Duplicate Sample No.	1C-W-70-0909		Prin	nary Sam	ple No.	1C-W-7-0909			
Duplicate Sample No.	2B-W-450-0909		Prin	nary Sam	ple No.	2B-W-45-0	0909		
Duplicate Sample No.	5-W-170-0909		Prin	nary Sam	ple No.	5-W-17-09	909		
Duplicate Sample No.	5-W-530-0909		Prin	nary Sam	ple No.	5-W-53-09	909		
Duplicate Sample No.	GW-20-0909		Prin	nary Sam	ple No.	GW-2-090	9		
Duplicate Sample No.	MW-160-0909		Prin	nary Sam	ple No.	MW-16-0909			
Duplicate Sample No.	S20-BU-0909		Prin	Primary Sample No.		S2-BU-0909			
Duplicate Sample No.	S40-AD-0909		Prin	nary Sam	ple No.	S4-AD-090	)9		

Comments: Field duplicate RPDs were within the 0-30% data validation QC limits for water matrices, or RPDs were not applicable due to results that were undetected in both samples, or results that were within +/- the RL. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.

The following RPDs were calculated:

Method	Units	Analyte	1C-W-70-0909	1C-W-7-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.25	0.24	4.1	
NWTPH-Dx	mg/L	Lube Oil	0.11	0.13	16.7	
Method	Units	Analyte	5-W-170-0909	5-W-17-0909	RPD	Qualifiers
NWTPH-Dx-SG	mg/L	DRO	0.078	< 0.047	+/- RL	
Method	Units	Analyte	5-W-530-0909	5-W-53-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.27	0.30	10.5	
NWTPH-Dx	mg/L	Lube Oil	0.22	0.23	4.4	
Method	Units	Analyte	GW-20-0909	GW-2-0909	RPD	Qualifiers
NWTPH-Dx	mg/L	DRO	0.15	0.16	6.5	
NWTPH-Dx	mg/L	Lube Oil	0.10	0.10	0.0	

22. Were qualitative criteria for organic target analyte identification met?		Yes		No	SM	Initials		
	e for this level of limited data validation – Chromatograms, library searches, and not supplied in analytical laboratory reports and were therefore not included in this data or quantitation outliers were noted by the laboratory.							
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	Х	Yes		No	SM	Initials		

Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this limited data validation procedure. The following changes were made to the EDD file during data validation:

The data validator corrected any significant figure discrepancies between hardcopy report and EDD entries. According to validation protocol, the hardcopy data report was accepted as the correct reference.

The AECOM Environment database manager was informed of all changes made to the EDD file via this Checklist. The EDD file was returned to the database manager in Seattle, WA on 11/21/2009.

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-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.