

Prepared for:  
**BNSF Railway Company**  
**Seattle, Washington**

# 2009 Engineering Design Report

## BNSF Former Maintenance and Fueling Facility – Skykomish, WA

AECOM, Inc.  
February 2009  
**Document No.: 01140-204-0270**

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**BNSF Railway Company**  
**Seattle, Washington**

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Prepared by Mark B. Havighorst, P.E.

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Reviewed by Halah Voges, P.E.

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# Professional Certification

**February 14, 2009**

This Engineering Design Report (EDR) was prepared for the Site by ENSR on behalf of the BNSF Railway Company (BNSF) pursuant to a Consent Decree (CD, *State of WA v. BNSF Railway Company*, King County Case No. 07-2-33672-9SEA) between BNSF and Washington State Department of Ecology. The EDR is required under the Model Toxics Control Act (MTCA; Revised Code of Washington 70.105D; Washington Administration Code 173-340) and as such was prepared under the supervision of the Professional Engineer whose seal and signature appears hereon.

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Halah Voges, P.E.  
Registered Professional Engineer  
State of Washington #30352

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## List of Acronyms and Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
AMP	Air and Noise Monitoring Plan
ANSI	American National Standards Institute
AS	Air Sparging
AST	Aboveground storage tank
BE	Biological Evaluation
BMP	Best Management Practice
CAO	Critical Area Ordinance
CD	Consent Decree
CDC	Centers for Disease Control
CDW	Construction Demolition Waste
CMP	Compliance Monitoring Plan
CPS	Construction Plans and Specifications
CSL	Cleanup Screening Level
CUL	Cleanup Level
CWA	Clean Water Act
DAHP	Department of Archaeological Historic Preservation
DCAP	Draft Cleanup Action Plan
DFW	Department of Fish and Wildlife
DHHS	United States Department of Health and Human Services
DNS	Determination of Non-significance
DS	Determination of Significance
Ecology	State of Washington Department of Ecology
EDR	Engineering Design Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
Facility	BNSF Railway Company's Former Maintenance and Fueling Facility
FEMA	Federal Emergency Management Act
FMC	Former Maloney Creek
FMCZ	Former Maloney Creek Zone
FS	Feasibility Study
GMA	Growth Management Act
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record
HASP	Health and Safety Plan
HCC	Hydraulic Control and Containment
HDPE	High-Density Polyethylene
HPA	Hydraulic Project Approval
JARPA	Joint Aquatic Resource Permit Application

LNAPL	Light Non-Aqueous Phase Liquid
MTCA	Model Toxics Cleanup Act
NEDZ	Northeast Developed Zone
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGS	National Geodetic Survey
NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
NWAA	Northwest Archaeological Associates
NWDZ	Northwest Developed Zone
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
P.E.	Professional Engineer
PCB	polychlorinated biphenyl
PHS	Public Health Services
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
R.G.	Registered Geologist
RCW	Revised Code of Washington
RI	Remedial Investigation
RL	Remediation Level
ROW	Right of Way
RYZ	Railyard Zone
SDZ	South Developed Zone
SEPA	State Environmental Policy Act
SHF	Soil Handling Facility
SQS	sediment quality standards
SWPPP	Stormwater Pollution Prevention Plan
Town	Town of Skykomish
UBC	Uniform Building Code
UIC	Underground Injection Control
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
UST	Underground Storage Tank
WAC	State of Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WSDOT	State of Washington Departments of Transportation

# 1 Introduction

This document presents the 2009 Engineering Design Report (2009 EDR) for the BNSF Railway Company's Former Maintenance and Fueling Facility (facility) and surrounding area located within the Town of Skykomish (Town), Washington (Site). The Site location is shown on Drawing T-100 and a Site Plan is included as Drawing C-100.

This 2009 EDR was prepared for the Site by ENSR on behalf of the BNSF Railway Company (BNSF). EDRs are part of the series of documents required under the Consent Decree (CD, Department of Ecology v. BNSF Railway Company, King County Superior Court Cause No. 07-2-33672-9 SEA) and the Model Toxics Control Act (MTCA; Revised Code of Washington 70.105D; Washington Administration Code (WAC)173-340) cleanup process. The major documents that define the criteria and scope of remediation activities for the Site are described below.

- **Remedial Investigation and Feasibility Studies.** The *Remedial Investigation* (RI) (RETEC, 1996) and the *Supplemental RI* (RETEC, 2002) presented the results of investigations of the nature and extent of contamination at the Site. The *Final Feasibility Study* (RETEC, 1999 and 2005) evaluated the extent of impacts and the feasibility of remedial alternatives for the Site. BNSF completed the RI, Supplemental RI and the FSs pursuant to Agreed Order No. DE 91TC-N213.
- **Cleanup Action Plan.** The Cleanup Action Plan for BNSF Former Maintenance and Fueling Facility, Skykomish, Washington (CAP), which was prepared by the Washington State Department of Ecology (Ecology), describes the cleanup action to be taken at the Site. The CAP is Exhibit B of the CD and is an integral and enforceable part of the CD. Following public comment, the CAP and CD (CAP and CD; Ecology, 2007b and c) were finalized on October 18, 2007 and entered into court on October 19, 2007. *Department of Ecology v. BNSF Railway Company*, King County Superior Court Cause No. 07-2-33672-9 SEA.
- **Environmental Impact Statement.** The Final Environmental Impact Statement from BNSF Former Maintenance and Fueling Facility, Skykomish, Washington (Ecology, 2007d) describes the existing environmental conditions, environmental impacts, and mitigation measures associated with the proposed cleanup action.
- **Master EDR.** The Master EDR (ENSR, 2008a) provides an overview of cleanup activities that will be conducted in 2008 through 2011 and beyond throughout the Town.
- **2008 EDR.** The 2008 EDR (ENSR, 2008b) describes the design, construction, and operation of the cleanup actions conducted in calendar year 2008.
- **2008 CMP.** The 2008 Compliance Monitoring Plan (ENSR, 2008c) describes the compliance monitoring activities to be completed in calendar year 2008.
- **Subsequent Annual EDRs.** Additional details of the design, construction, and operation of the cleanup actions conducted in each calendar year will be described in subsequent annual EDRs and drawings.
- **HCC SDR.** The *Hydraulic Control and Containment System Special Design Report* (HCC SDR; ENSR 2008d) describes the unique design, construction, and operation aspects of the HCC constructed at the north RYZ boundary.
- **FMC SDR.** The *Former Maloney Creek Wetlands Special Design Report* (FMC SDR; ENSR 2008e) describes the unique design, construction, and operation aspects of the Former Maloney Creek (FMC) component of the overall cleanup action to be completed in

the east wetland in 2009. A separate SDR will be prepared for the overall cleanup action to be completed in the West Wetland in 2010.

It is important to note that the 2009 EDR and future EDRs include information required by WAC 173-340-400(4)(c) and present a design basis (30 percent design) only for the cleanup activities scheduled to occur in a designated year or years. EDRs will not be revised to reflect design development as plans proceed from the 30 percent to 100 percent. Design development will be captured in draft and final construction plans and specifications (CPS), which will be submitted in accordance with the CD.

In preparing the 2009 construction plans and specifications (CPS), BNSF is considering a design-build approach to completing cleanup work scheduled to be performed from 2009 – 2011. The general concept is to bid out the 2009 work potentially before completion of plans and specifications for the complete 2009 -2011 scope of work. The plans would then be finalized with input from the selected Contractor so that any cost savings due to changes in the approach to the work etc., could be realized in the 2009 construction season. The remaining work would also be reviewed using the same design/build approach. This design-build approach would result in earlier mobilization to the site each construction season through the elimination of annual contracting. Also, the Contractor's experience/ideas could be incorporated in the design and construction phasing.

The design-build approach will result in the need to prepare an addendum to the 2009 EDR. The addendum will describe work which is not described in this 2009 EDR, but could be completed in 2009, as determined by BNSF in consultation with the Contractor. This addendum will be submitted to Ecology and the Town for review and comment. The design-build approach could also result in completing work before the date specified on the CD schedule, or other modification to the schedule. These modifications, if necessary, would be negotiated with and subject to approval by Ecology.

## **1.1 Scope**

The Master EDR, 2009 EDR, and FMC SDR are interdependent and together provide all of the information outlined in WAC 173-340-400(a) for the work to be completed in 2009. The Master EDR includes background and general site-wide information that will not be included in the annual EDRs and addresses all phases of the work required by the CD through at least 2012. The 2009 EDR includes information that is specific to 2009 remediation activities and not presented in the Master EDR or FMC SDR. The 2009 EDR is not intended to be a stand-alone document, but together with the FMC SDR includes sufficient information for the development and review of construction CPS and documents engineering concepts and design criteria used for design of the cleanup action activities scheduled for 2009. CPS will be submitted to Ecology separately, as specified in CD Exhibit C. Table 1-1 summarizes the scopes of the Master EDR, 2009 EDR, and FMC SDR (including supporting work plans and design documents) as they pertain to the requirements of WAC 173-340-400(a).

**Table 1-1 Master EDR, Annual EDRs, and FMC SDR Scopes**

Information required per WAC 173-340-400(a)	Included in		
	Master EDR	Annual EDRs	FMC SDR
<p><b>(i) Cleanup Action Goals</b></p> <p>Overall goals of the cleanup action including the all specific cleanup and performance requirements.</p> <p>Goals of the cleanup action to be implemented in the time period covered by the Annual EDR, including the cleanup and performance requirements specific to those actions.</p>	X	X  X	X  X
<p><b>(ii) Site Information</b></p> <p>General Site information and a summary of information in the remedial investigation/feasibility study.</p> <p>A summary of Site information pertinent to the cleanup action to be implemented in the time period covered by the Annual EDR, including an updated summary of investigation findings, as necessary to reflect the current condition within the target year work area.</p>	X	  X	  X
<p><b>(iii) Owner, Operator, Maintenance Responsibilities</b></p> <p>Identification of who will generally own, operate, and maintain the cleanup action during and following construction.</p>	X		
<p><b>(iv) Facility Maps</b></p> <p>Facility maps showing existing Site conditions and the proposed location of the cleanup action.</p> <p>Facility maps showing updated Site conditions (if necessary) and the proposed location of the cleanup action in the time period covered by the Annual EDR.</p>	X	  X	  X
<p><b>(v) Hazardous Substances Treatment and Management</b></p> <p>Characteristics, quantity, and locations of materials to be treated or otherwise managed, including ground water containing hazardous substances.</p> <p>Characteristics, quantity, and location of materials to be treated or otherwise managed in the time period covered by the Annual EDR, including ground water containing hazardous substances.</p>	X	  X	  X
<p><b>(vi) Schedule</b></p> <p>A general schedule for the overall cleanup action</p> <p>A schedule for final design and construction for the time period covered by the Annual EDR</p>	X	  X	  X

Information required per WAC 173-340-400(a)	Included in		
	Master EDR	Annual EDRs	FMC SDR
<p><b>(viii) Engineering justification for design and operation parameters</b></p> <p>A summary of the general design criteria for components of the cleanup action.</p> <p>Design criteria, assumptions, and calculations for the cleanup action components that will be conducted throughout the cleanup action (e.g. construction water treatment).</p> <p>Design criteria, assumptions, and detailed calculations for cleanup action components that will be completed within the time period covered by the Annual EDR.</p> <p>Expected treatment, destruction, immobilization, or containment efficiencies for cleanup action components that will be conducted throughout the duration of the cleanup action (e.g. construction water treatment), and documentation on how that degree of effectiveness is determined.</p> <p>Expected treatment, destruction, immobilization, or containment efficiencies for the cleanup action components that will be completed within the time period covered by the Annual EDR, and documentation on how that degree of effectiveness is determined.</p> <p>Demonstration that the cleanup action components that will be conducted throughout the duration of the cleanup action (e.g. construction water treatment) will achieve compliance with cleanup requirements by citing pilot or treatability test data, results from similar operations, or scientific evidence from the literature.</p> <p>Demonstration that the cleanup action components that will be completed within the time period covered by the Annual EDR will achieve compliance with cleanup requirements by citing pilot or treatability test data, results from similar operations, or scientific evidence from the literature.</p>	X		
	X		
		X	X
	X		
		X	X
	X		
		X	X
<p><b>(ix) Spill Control</b></p> <p>A general description of the spill control and response measures that will be implemented throughout the cleanup action.</p> <p>Design features for control of hazardous materials spills and accidental discharges (for example, containment structures, leak detection devices, run-on and runoff controls).</p>	X		
		X	X
<p><b>(x) Public and Worker Safety</b></p> <p>A general description of the public and worker safety measures that will be implemented throughout the cleanup action</p> <p>A description of design features to assure long-term safety of workers and local residences (for example, hazardous substances monitoring devices, pressure valves, bypass systems, safety cutoffs).</p>	X		
		X	X

Information required per WAC 173-340-400(a)	Included in		
	Master EDR	Annual EDRs	FMC SDR
<p><b>(xi) Waste Management</b></p> <p>A discussion of general methods for management or disposal of any treatment residual and other waste materials containing hazardous substances generated as a result of the cleanup action</p> <p>A discussion of waste management methods to be implemented during the cleanup action time period covered by the Annual EDR, if different from the general methods.</p>	X	X	X
<p><b>(xii) Facility-Specific Characteristics</b></p> <p>Facility-specific characteristics that may affect design, construction, or operation of the selected cleanup action, including:</p> <p>The general relationship of the proposed cleanup action to existing facility operations</p> <p>Relationship of the proposed cleanup action to be implemented during the cleanup action time period covered by the Annual EDR to existing facility operations, if different from the general relationship described in the Master EDR.</p> <p>General probability of flooding, probability of seismic activity, temperature extremes, local planning and development issues.</p> <p>Probability of flooding, probability of seismic activity, temperature extremes, local planning and development issues during the cleanup action time period covered by the Annual EDR, if different from general conditions described in the Master EDR.</p>	X	X	X
<p>General soil characteristics and ground water system characteristics.</p> <p>Soil characteristics and ground water system characteristics specific to the cleanup action to be completed within time period covered by the Annual EDR, if different from general characteristics described in the Master EDR.</p>	X	X	X
<p><b>(xiii) Quality Control</b></p> <p>A general description of the overall approach to quality control.</p> <p>A description of construction testing that will be used to demonstrate adequate quality control within time period covered by the Annual EDR</p>	X	X	X
<p><b>(xiv) Compliance Monitoring</b></p> <p>A general description of compliance monitoring that will be performed during and after construction to meet the requirements of WAC 173-340-410</p> <p>A description of compliance monitoring that will be performed during and after construction activities specified in the Annual EDR to meet the requirements of WAC 173-340-410.</p>	X	X <sup>1</sup>	X <sup>1</sup>

Information required per WAC 173-340-400(a)	Included in		
	Master EDR	Annual EDRs	FMC SDR
<p><b>(xv) Health and Safety</b></p> <p>A general description of construction procedures proposed to assure that the safety and health requirements of WAC 173-340-810 are met</p> <p>A general description of construction procedures proposed to be completed during and after construction activities specified in the Annual EDR in order to assure that the safety and health requirements of WAC 173-340-810 are met</p>	X	X <sup>2</sup>	X <sup>2</sup>
<p><b>(xvi) SEPA Requirements</b></p> <p>Any information not provided in the remedial investigation/feasibility study needed to fulfill the applicable requirements of the State Environmental Policy Act (chapter 43.21C RCW).</p>		X	X
<p><b>(xvii) Permitting</b></p> <p>Any additional information needed to address the applicable state, federal and local requirements including the substantive requirements for any exempted permits; and property access issues which need to be resolved to implement the cleanup action</p>		X	X
<p><b>(xviii) Financial Assurance</b></p> <p>For sites requiring financial assurance and where not already incorporated into the order or decree or other previously submitted document, preliminary cost calculations and financial information describing the basis for the amount and form of financial assurance and, a draft financial assurance document.</p>	X <sup>3</sup>		
<p><b>(xix) Institutional Controls</b></p> <p>For sites using institutional controls as part of the cleanup action and where not already incorporated into the order or decree or other previously submitted documents, copies of draft restrictive covenants and/or other draft documents establishing these institutional controls</p>	X <sup>3</sup>		
<p><b>(xx) Other</b></p> <p>Other information as required by the department (e.g., supplemental investigation data).</p>	X <sup>4</sup>		

**Notes:**

1. Will be described in the Compliance Monitoring Plan
2. Will be described in the Health and Safety Plan
3. Will be submitted as separate documents, as specified in CD Exhibit C
4. Will be included, as needed, in separate documents

## 1.2 Overview of 2009 Cleanup Activities

Cleanup activities for 2009 include: 1) operation of treatment systems constructed in 2008 and ancillary activities; 2) NWDZ remediation; 3) FMC east wetland remediation and groundwater barrier construction; and 4) continuation and/or completion of cleanup activities not completed in previous years. These activities will be

completed in five of the six remediation zones, including the RYZ, NWDZ, NEDZ, SDZ, and FMCZ. The actions for each zone are interdependent. Achieving cleanup in one zone depends not only upon the actions to be taken in that zone, but also upon the actions to be taken in other zones.

## 1.2.1 Treatment System Operation/Ancillary Activities

### 1.2.1.1 Railyard Zone

The following cleanup activities are planned for the RYZ:

- **HCC Water Treatment System Operation:** An HCC water treatment system was constructed in 2008 to treat groundwater recovered via the HCC. The system will be operated from the Remediation Equipment Building located on the railyard in 2009 per the system Operation and Maintenance (O&M) Plan to be submitted to Ecology by December 31, 2008.
- **HCC System Treated Groundwater Injection:** A portion of the treated groundwater from the HCC system will be re-injected on the railyard in accordance with NPDES permit WA-003212-3.
- **HCC Treated Groundwater Discharge:** Treated groundwater from the HCC system will be discharged to surface water via the Town storm water system consistent with NPDES permit WA-003212-3.
- **Construction Water Treatment:** A temporary system will be operated in the RYZ to treat water generated from construction activities.
- **Treated Construction Water Discharge:** Treated construction water will be discharged to surface water via the Town stormwater system consistent with NPDES permit WA-003212-3.
- **Air Sparging (AS) System Operation:** An AS system, including sparging wells, underground piping, and blowers was installed to treat impacted soil and groundwater in the NEDZ in 2008. The system will be operated from the Remediation Equipment Building located on the railyard in 2009 per the system O&M Plan to be submitted to Ecology by December 31, 2008.
- **Excavation.** BNSF could continue excavation of 1) soil located within two feet of the surface with concentrations of lead exceeding 250 mg/kg, arsenic exceeding 20 mg/kg, total PCBs exceeding 0.65 mg/kg and/or petroleum exceeding 1,870 mg/kg NWTPH-Dx (the concentration protective of soil biota); and/or 2) soil from property within the RYZ which is not owned by BNSF with soil petroleum concentrations exceeding 3,400 mg/kg NWTPH-DX.
- **Compliance Monitoring:** The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the 2009 CMP.
  - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.
  - Performance monitoring to assess whether or not the cleanup action has attained the designated CULs, RLs, and other performance standards.

### 1.2.1.2 NEDZ

The following cleanup activities are planned for the NEDZ:

- **Compliance Monitoring:** The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the 2009 CMP.
  - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.
  - Performance monitoring to assess whether or not the cleanup action has attained the designated CULs, RLs, and other performance standards.
  - Confirmational monitoring to evaluate the long-term effectiveness of the remediation activities.
- **Vapor Mitigation:** Protective measures will be designed and implemented for buildings, structures, and enclosed spaces that remain in place or are built over petroleum contamination exceeding 3,400 mg/kg NWTPH-Dx if the concentration of total petroleum hydrocarbons in indoor air exceeds the cleanup level of 1,346 µg/m<sup>3</sup>.

### 1.2.2 NWDZ Remediation

The following cleanup activities are planned for the NWDZ:

- **Building/Operations Relocation and Demolition:** Buildings located on King County Parcels 780780-0620 (Sarno Property), and 780780-0640 (Martin Property) will be temporarily relocated to facilitate excavation of impacted soil. At the owners' request and pursuant to the terms of their access agreement, buildings located on King County Parcels 780780-0480 and -0505 (Sky River Inn Office), 780780-0520 (Sky River Inn) and 5780780-0475 (Post Office) will be demolished to facilitate excavation of impacted soil. Post Office operations will be temporarily relocated in 2009, prior to demolition, and will likely remain at their temporary location until 2012 pursuant to the terms of the access agreement with the owners of the property. All building/operations relocation and demolition will be contingent upon obtaining access from the owners.
- **Excavation:** Free product and soil with concentrations of lead exceeding 250 mg/kg and arsenic exceeding 20 mg/kg, and all free product and/or soil with concentrations of petroleum hydrocarbons exceeding 3,400 mg/kg NWTPH-Dx will be excavated. The proposed excavation extents have been determined based on investigation results. Actual extents could vary and will be verified based on field observations and performance monitoring.
- **Containment Structures:** Excavation of impacted soil may not occur under some buildings if access is denied or if temporary relocation of the building is not feasible. Containment structures will be constructed on or near property boundaries as necessary to prevent recontamination of excavated properties. These containment structures could remain in place under the following circumstances:
  - Due to technical reasons (i.e., space constraints and adjacent building stability)
  - Until access to adjacent impacted properties is obtained and excavation is completed, or
  - Until permanent containment structures can be constructed on the adjacent impacted properties (if necessary).

Design of these containment structures will be addressed on a case-by-case basis in consultation with Ecology and affected property owners. The barriers will be designed to meet the performance standard of a permanent barrier if they must remain in place to prevent contaminant migration. Containment structure design for buildings to which BNSF is denied access by owners within the 2009 excavation area will be described in the 2010 EDR; however, at this time BNSF does not expect that any such containment structures will be required.

- **Temporary Containment Structures:** A temporary barrier will be installed at the south and west 2009 excavation limits where the work is adjacent to future excavation required under the CD. The barrier will delineate the limits of the excavation and prevent clean backfill from contacting LNAPL and impacted soils that will be remediated in subsequent years.
- **Compliance Monitoring:** The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the 2009 CMP.
  - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.
  - Performance monitoring to assess whether or not the cleanup action has attained the designated CULs, RLs, and other performance standards.
- **Municipal Wastewater Treatment System Construction:** Infrastructure to connect to the community wastewater collection system will be constructed at the properties known as King County Tax Lots 780780-0480, 780780-0475, 780780-0620, and 780780-0640 if, as anticipated, access is granted to these properties. These properties are included in the NWDZ excavation extents.
- **Right-of-Way Restoration:** ROWs that are excavated as part of remediation activities will be restored to meet current applicable King County standards as adopted by the Town, or as agreed by BNSF and the Town.
- **Utilities Construction and Restoration:** Electrical and telecommunications services will be reconfigured as necessary to maintain these services to residences and businesses that remain inhabitable/operational during remediation activities. New permanent electrical, communications, and potable water utilities that are removed as part of remediation activities will be restored in-kind, or constructed as agreed by BNSF and the Town.
- **Vapor Mitigation:** It is anticipated that vapor mitigation will not be required in the NWDZ for work performed in 2009 because no buildings or structures will remain in place or will be built over petroleum contamination exceeding 3,400 mg/kg NWTPH-Dx.

### 1.2.3 FMC East Wetland Remediation

The following cleanup activities are planned as part of the FMC east wetland remediation and described in the FMC SDR. The FMC east wetland cleanup area includes the FMCZ east of 5<sup>th</sup> Street and the SDZ, as well as part of the RYZ.

- **Building Relocation:** The shed on the BNSF property adjacent to King County parcel 506130-0126 (Robinson Property) will be permanently relocated to the building owner's property. All building relocation will be contingent upon obtaining access from the owners.
- **Excavation:** All soil located within a 25-foot lateral buffer zone extending outward from the OHWM or wetland boundary at a depth less than 4 feet below the bottom of the stream channel with petroleum concentrations exceeding 22 mg/kg NWTPH-Dx, will be excavated. All soil located within a 25-foot lateral buffer zone extending outward from the OHWM or wetland boundary at a depth greater than 4 feet below the bottom of the stream channel

with petroleum concentration exceeding 3,400 mg/kg NWTPH-Dx will also be excavated. The proposed excavation extents have been determined based on investigation results. Actual soil excavation extents could vary and will be verified based on field observations and performance monitoring.

- All sediment located within the OHWM or wetland boundary at a depth less than 4 feet below the bottom of the stream channel, with petroleum concentrations exceeding 40.9 mg/kg NWTPH-Dx will be excavated. This excavation will also remove dioxin/furan-impacted soil which is co-located with petroleum impacted soil. All sediment located within the OHWM or wetland boundary at a depth less than 4 feet from the bottom of the stream channel with petroleum concentrations exceeding 3,400 mg/kg NWTPH-Dx will also be excavated. Actual sediment excavation extents could vary and will be verified based on field observations and performance monitoring.
- **Wetlands Restoration in Accordance with Substantive Requirements:** Following excavation of impacted soil and sediment, the excavated creek areas and adjacent wetlands will be backfilled with appropriate clean material and restored as habitat by replanting appropriate vegetation. The restoration will be consistent with the substantive requirements of the Town's Shoreline Management Program and regulations, and with other applicable laws and regulations such as the Town's Critical Areas Ordinance and Section 404 of the Federal Clean Water Act. Restoration is described in the Former Maloney Creek East Wetland Restoration and Mitigation Plan, which is Appendix F of the FMC SDR.
- **Compliance Monitoring:** The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the 2009 CMP.
  - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.
  - Performance monitoring to assess whether or not the cleanup action has attained the designated cleanup CULs, RLs, and other performance standards.
  - Confirmational monitoring to evaluate the long-term effectiveness of the remediation activities.

### 1.3 Associated Plans

A number of follow-on documents are necessary to complete each phase of cleanup work and required by regulation. These include EDRs, CPS, operation and maintenance plans, permits and substantive permit requirements, compliance monitoring plans; and as-built reports. The Project Document Control Matrix (see Master EDR: Appendix E) summarizes the plans that are associated with the cleanup. Several of these plans are referenced in the Master EDR.

CAP Section 6.2 specifies that the following special design investigation report be in this 2009 EDR:

*The FMC SDR (ENSR 2008e) describes the unique design, construction, and operation aspects of the FMC component of the overall cleanup action to be completed in the east wetland in 2009 and in the West Wetland in 2010. The FMC SDR documents the design criteria, excavation extents, and details. The FMC SDR has been submitted to Ecology under separate cover.*

## 2 Regulatory Framework

The regulatory framework for 2009 cleanup activities is described in Master EDR (ENSR, 2008a), Section 2.0, and the CD, Exhibit D and E. These include 1) MTCA design requirements; 2) applicable or relevant and appropriate substantive requirements established by state, and local governments to protect public health and the environment; and 3) permitting requirements established by federal law. The regulatory framework presented in the Master EDR was established with the understanding that the referenced regulatory requirements and guidelines are subject to change over the anticipated duration of the remediation activities and that changing site conditions could warrant revision of this framework.

### 2.1 MTCA Design Requirements

No changes to applicable MTCA Design Requirements have been made since the submittal date of the Master EDR, and there have been no apparent significant changes to site conditions. The MTCA regulatory framework presented in the Master EDR is therefore applicable to the 2009 cleanup activities.

### 2.2 Applicable and Relevant and Appropriate Requirements

No changes to other applicable or relevant and appropriate requirements have been made since the submittal date of the Master EDR. The applicable and relevant and appropriate requirements presented in the Master EDR are therefore applicable to the 2009 cleanup activities.

### 2.3 Permits

No changes to permit requirements have been made since the submittal date of the Master EDR. The permit requirements presented in the Master EDR are therefore applicable to the 2009 cleanup activities.

It is important to note that in-water work for the FMC east wetland remediation cannot be initiated without approval of a Joint Aquatic Resource Permits Application (JARPA). The permit application will be submitted to Army Corps of Engineers (USACE) and Washington State Department of Fish and Wildlife (DFW) along with the revised FMC SDR.

### 3 Design Criteria

#### 3.1 Design Criteria Described in the Master EDR

This section lists references to the site-wide and zone-specific design requirements that were originally presented in the Master EDR and are pertinent to 2009 site activities. These criteria are explicit goals that the remediation activities must achieve in order to be successful. The zone-specific design criteria in the Master EDR were established with the understanding that they could be revised in future annual EDRs or SDRs as the scope of work was further clarified or re-defined. The overall design criteria presented in the Master EDR therefore requires no revision.

##### 3.1.1 Site-Wide Design Requirements

Table 3-1 provides citations to the site-wide design requirements described in Master EDR Section 3.1, which are applicable to the 2009 cleanup activities.

**Table 3-1 Master EDR Site-Wide Design Requirements Citations**

2009 Site-Wide Design Requirement	Master EDR Section
Codes	3.1.1
Standards and Guidelines	3.1.2
Shoring and Excavation Stabilization	3.1.3
Excavation Dewatering	3.1.4
Product Recovery	3.1.5
Impacted Soil Handling and Disposal	3.1.6
Clean Overburden Handling and Onsite Reuse	3.1.7
Construction Dewatering Treatment	3.1.8
Construction Treated Water Discharge	3.1.9
Compliance Monitoring	3.1.10
Spill Control and Response	3.1.11
Building Relocation	3.1.12
Access/Haul Roads	3.1.13
Public ROW Restoration	3.1.14
Utilities Restoration	3.1.15
Cleanup Standards	3.1.16
Vapor Mitigation	3.1.17
Construction Safety	3.1.18
Traffic Routing and Pedestrian Access	3.1.19
Survey Control	3.1.20

### 3.1.2 2009 Cleanup Activities Zone-Specific Design Requirements

Table 3-2 provides citations to the zone-specific design requirements described in Master EDR Section 3.2 which are applicable to the 2009 cleanup activities.

**Table 3-2 Master EDR Zone-Specific Design Requirements Citations**

2009 Zone-Specific Design Requirement	Master EDR Section
<b>Railyard Zone</b>	<b>3.2.2</b>
Cleanup Levels (CULs )	Table 3-2
HCC Water Treatment System	3.2.2.4
HCC Treated Water Disposal	3.2.2.5
<b>Northwest Developed Zone</b>	<b>3.2.4</b>
CULs	Table 3-2
Relocate Hotel/other Buildings	3.2.4.2
Excavation Extents	3.2.4.4
Compliance Monitoring	3.2.4.8
<b>Northeast Developed Zone</b>	<b>3.2.5</b>
CULs	Table 3-2
Air Sparging System	3.2.5.3
Compliance Monitoring	3.2.5.4
<b>Former Maloney Creek Zone</b>	<b>3.2.3</b>
CULs	Table 3-2
Sediment Excavation Extents	3.2.3.2
Buffer Zone Soil Excavation Extents	3.2.3.3
Surface Water Impacts	3.2.3.4
Restoration In Accordance with the Shoreline Management Program at CWA	3.2.3.5

### 3.2 Supplemental 2009 Cleanup Activities Design Criteria

This section presents supplemental design criteria information with respect to the following 2009 cleanup activities:

- Construction Dewatering Treatment
- NWDZ excavation
- FMC east wetland remediation
- Utilities construction.

### 3.2.1 Construction Dewatering Treatment

A temporary treatment system will be constructed upon a pad within a secured/isolated facility, located in the RYZ. The treatment system will remove petroleum from water generated from construction activities, except decontamination water, and treat the water to achieve required treatment levels described in the NPDES permit applicable to the system using the processes outlined in the *Operations and Maintenance Manual for Water Treatment* (ENSR 2008f) or a similar process as required by the NPDES permit. The predicted nominal capacity of the treatment system is 500 gpm, with a maximum flow of 673 gpm in the summer (June 1 through September 30) and 269 gpm in the winter (October 1 through May 30) in accordance with the NPDES permit issued for the project.

### 3.2.2 NWDZ Excavation

NWDZ excavation will occur in much the same manner as it was completed in 2008. Full excavation dewatering is not anticipated given the extents of required removal and the general high permeability of the sand and gravel soils being removed. Excavation below the water table will be completed in the wet and excavated materials will be allowed to drain to facilitate transfer and disposal. Some screening of the excavated soils may occur on the railyard if sufficient oversized material is encountered.

#### 3.2.2.1 Excavation Extents

The 2009 NWDZ excavation limits include parts of the 4<sup>th</sup>, 5<sup>th</sup>, and East River Street ROWs, as well as either a portion or all of each of the following private properties (King County Parcel numbers are in parentheses).

- Sky River Inn (SRI) Property (780780-0520)
- SRI Office Property (780780-0480 and -0505)
- Post Office (5780780-0475)
- Sarno Property (780780-0620)
- Martin Property (780780-0640)
- Skykomish Community Church (780780-0270)
- Whistling Post Property (780780-0440, -0445, and -0455)
- Town Hall Property (780780-0610)
- Skykomish Hotel Property (780780-0465).

These limits were developed based on the results of previous investigations and the following criteria:

- Remediation construction phasing and schedule requested by the Town
- Maintaining a vehicle and pedestrian traffic corridor in the 5<sup>th</sup> Street ROW
- Maintaining access to the SRI
- Coordination with Washington State Department of Transportation (WSDOT) for excavation near the 5<sup>th</sup> Street bridge
- The number of buildings that could be relocated within the construction window
- Obtaining access agreements
- RLs and CULs described in the CD and Master EDR.

The approximate excavation limits are shown on Drawing C-200. The limits shown on the drawings were determined based on observations during sampling and laboratory analytical results. Boring logs which

document observations during sampling and laboratory analytical results were submitted in the Remedial Design Investigation Report (ENSR, 2008g). Additional boring logs and laboratory analytical results for sampling completed in August and September 2008 are included in Appendix A. Additional investigation was completed in October 2008. The planned excavation extents have been refined based on this investigation. Boring logs and laboratory analytical results for these investigations are included in Appendix A. The refined excavation extents are reflected herein. The actual excavation extents within the 2009 remediation boundary will be determined in the field based on excavation confirmation sampling.

It is anticipated that parts of the north, west, and east excavation extents could be accommodated in a stable manner using slopes of 1.5H:1V above the groundwater table, and from 1.5H:1V up to 2.5H:1V below the groundwater table.

**ROWS.** The 2009 excavation extents will include parts of the 4<sup>th</sup>, 5<sup>th</sup>, and East River Street ROWs. The sloped excavation in the 4<sup>th</sup> Street ROW will be completed in order to remove soil exceeding the petroleum RL on Martin and Sarno properties. The 5<sup>th</sup> Street and East River Street excavations will be completed in order to remove soil exceeding the petroleum RL from the ROWs and to facilitate the removal of soil exceeding the petroleum RL from adjacent private properties. The west excavation extents approach the 5<sup>th</sup> Street bridge embankment. The excavation extents and sloping will be completed to maintain embankment stability.

The 4<sup>th</sup>, 5<sup>th</sup>, and East River Street ROWs will each be closed at some time during the excavation. Some level of disruption and inconvenience for local residents is inevitable. Street traffic flow may be restricted at times to allow for removal of impacted soil. Postings of traffic flow limitations will be provided early in the process so planning can occur, and individual notifications will be made prior to full lane closures. Individual resident's needs will be accommodated as much as possible. Emergency access will be provided at all times. This requirement will be placed on the Contractor at the time of the bid, but the general concept is that traffic will be routed around the active excavation area, or that excavations will be phased to facilitate access. Traffic routing and pedestrian access are discussed in more detail in Section 5.

**Private Properties.** The 2009 excavation extents will include parts or all of the SRI, SRI Office, Post Office, Sarno, Martin, Whistling Post, Town Hall, and Skykomish Hotel properties. The excavation will abut the Skykomish Community Church, but at this time it is anticipated that the excavation will not affect Church activities. The lateral excavation extents are based on property boundaries determined by the 2007 survey, the NWDZ petroleum RL of 3,400 mg/kg NWTPh-Dx, and slopes required to reach the anticipated vertical excavation extents. The anticipated vertical extent of this excavation is based on the depth to which soil analytical results indicate that TPH concentrations exceed the NWDZ petroleum RL. The anticipated maximum depth of the excavation to remove impacted soil is 21 feet bgs. The lateral extents are shown on Drawings C-200. The vertical extents are shown on Drawings C-201 through C-205. The excavation extents could change based on the results of ongoing field investigations and the results of performance monitoring.

Excavation of parts or all of the SRI, SRI Office, Post Office, Sarno, and Martin Properties will be completed to remove soil exceeding the petroleum RL. The sloped excavation on the Church property will be necessary to remove soil exceeding the petroleum RL and to complete excavation of soil exceeding the petroleum RL on the Martin and Sarno properties. Excavation on the Whistling Post property will be completed to remove soil exceeding the petroleum RL and to facilitate excavation of the adjacent Martin and Post Office properties. The Whistling Post property excavation extents include the 2008 Whistling Post temporary relocation area (which was not excavated in 2008). The sloped excavation on the Town Hall Property will be necessary to complete excavation of soil exceeding the petroleum RL on the Sarno Property. Excavation on the Skykomish Hotel property will be completed to facilitate temporary sheet pile installation only and is contingent upon securing a construction easement (see Section 4.2.1). Alternative excavation extents will be evaluated if access agreements cannot be obtained to any of the affected properties or if access agreements and/or construction easements can be obtained for additional affected properties. At this time, BNSF anticipates that no additional access agreements and/or construction easements will be obtained beyond those mentioned above.

The Sarno residence and garage, and Martin residence and garage will be temporarily relocated to facilitate the excavation. At the owners' request and pursuant to terms of their access agreement, the SRI Office buildings (2), the SRI structure, and Post Office structure will be demolished to facilitate the excavation.

**Metals Hot Spot.** A potential lead hot spot is located near the boundary of the SRI Office, Post Office, and Sarno properties. The potential hot spot was identified during the supplemental remedial investigation and is located in areas with smear-zone TPH impacts. Therefore, excavation to the TPH RL will require removal of the overlying lead-impacted soil. Overburden in this area will be segregated and appropriately characterized for disposal.

**Shoring and Excavation Stabilization.** The purpose of installing shoring is to stabilize excavation sidewalls to facilitate excavation in 2009 or to facilitate excavation in future years without impacting surface improvements that are constructed on clean backfill in 2009. There are two areas where shoring or excavation stabilization could be necessary in 2009: 1) at the 5th Street excavation boundary; and 2) on the Whistling Post and Martin properties.

The 2009 excavation boundary at 5th Street will abut future excavation areas and the bridge embankment. Shoring and/or stabilization could be necessary to 1) minimize the potential for recontamination of the newly placed clean backfill; 2) where practical and necessary, minimize the impacts of future excavation on property and in ROWs that are remediated in the current year; and 3) minimize potential impacts to the bridge embankment. Shoring will be implemented, as necessary to address these concerns. Shoring could consist of steel sheet piles and/or an MSE wall, at the discretion of the Contractor and Engineer and based on constructability.

In all cases, shoring plans will be prepared by the Contractor and will be stamped by a Contractor-selected Professional Engineer registered in the State of Washington. Where applicable, shoring will be installed as close to the property boundaries as practicable to minimize the possible quantities of impacted soil remaining between the shoring and property boundaries, which will have to be excavated in future years. Shoring could also be designed by the design team, if deemed appropriate.

### 3.2.3 FMC East Wetland Remediation

FMC SDR Section 4 describes the design criteria for FMC east wetland remediation activities. These design criteria have been established with the understanding that the scope of work could be further clarified or re-defined over the anticipated duration of remediation design and permitting activities.

**Hydraulic Control and Containment System Evaluation.** The FMC east wetland cleanup action design requirements are based on the cleanup criteria described in Section 4.1.5 of the CAP, which states that groundwater entering the FMCZ from the RYZ and/or the SDZ and flowing toward the FMCZ must be remediated to a petroleum concentration of 208 µg/L NWTPH-Dx and absence of sheen or free product, measured at least 25 feet from of the FMCZ boundary. CAP Section 4.1.6 states that BNSF will implement groundwater containment and remediation measures along a line 25 feet north of the FMCZ and RYZ boundary if it is determined by the required hydrogeologic investigation that impacted groundwater is flowing into the FMCZ and is recontaminating sediment above the sediment quality standards (SQS) as determined by bioassay.

BNSF has monitored hydrogeologic conditions and completed a hydrogeologic investigation of the FMCZ to determine if 1) groundwater is flowing from the RYZ into the FMCZ; and 2) this groundwater contains petroleum hydrocarbons at concentrations exceeding the TPH CUL of 208 µg/L NWTPH-Dx. Based on the findings of the investigation and these criteria, BNSF has concluded that during some of the year, groundwater does appear to flow into a small section (less than 200 feet) of the FMCZ from the RYZ in the vicinity of wells 2A-W-10, MW-3 and MW-4, and FMCZ piezometers 2B-W-11 and 2B-W-12. Groundwater samples collected from the RYZ wells have historically, at times, contained petroleum hydrocarbons at concentrations exceeding

the CUL (the detected TPH concentrations in these wells have varied between ND and 708 µg/L NWTPH-Dx). Data evaluated for this investigation shows that the TPH concentrations in well MW-3 marginally exceeded the CUL during one of the two monitoring events when groundwater was flowing from the RYZ towards the FMCZ. The investigation methods and findings are described in Appendix B.

Given the extent of potential groundwater flow and low gradients toward the creek, BNSF plans to incorporate an engineered fill barrier during reconstruction of the FMC wetland and buffer in this area to isolate the FMCZ from groundwater that exceeds 208 µg/L. The design criteria for this barrier are presented in the design basis memorandum included in Appendix B.

### **3.2.4 Utility Reconstruction**

The basis of design for PSE, Verizon, and Town of Skykomish utilities is unchanged from the Master EDR. PSE, Verizon, and the Town are completing separate designs for power, telephone, and sanitary sewer, respectively. The Engineer will be designing the potable water distribution system on behalf of BNSF. These designs will be incorporated into the 2009 CPS, which will be submitted to Ecology in accordance with the schedule set forth in CD Exhibit C.

## 4 Scope of Work

### 4.1 Site-Wide Scope of Work Described in the Master EDR

This section lists references to the elements of the site-wide scope of work that were originally presented in the Master EDR and are pertinent to 2009 site activities. The site-wide scope of work was established with the understanding that it could be further clarified or redefined over the anticipated duration of remediation activities. No changes to the scope of work have been identified since preparation of the Master EDR. Table 4-1 provides to the site-wide scope of work items described in Master EDR Section 4.1 which are applicable to the 2009 cleanup activities.

**Table 4-1 Master EDR Site-Wide Scope of Work**

2009 Site-Wide Scope of Work	Master EDR Section
Drawings	4.1.1
Solicitation Package and Procurement	4.1.2
Permits	4.1.3
Mobilization and Site Preparation	4.1.4
Utility Locate	4.1.4.1
Surveying	4.1.4.2
Clearing and Grubbing	4.1.4.3
Spill Response	4.1.4.4
Temporary Facilities Construction	4.1.5
Access Agreements	4.1.6
Building Relocation	4.1.7
Relocation of Landmark and Historic Buildings	4.1.7.1
Relocation of Other Buildings	4.1.7.2
Excavation	4.1.8
Product Recovery	4.1.8.1
Wildlife Exposure Mitigation	4.1.8.2
Historic Structure Monitoring	4.1.8.3
Dewatering	4.1.8.4
Transporting Excavated Soil Onsite	4.1.8.5
Stockpiling Impacted Soil	4.1.8.6
Stockpiling Clean Overburden for Potential onsite Re-Use	4.1.8.7
Excavation Performance Sampling	4.1.8.8
Stockpile Amendment	4.1.8.9
Transportation and Disposal of Impacted Soil	4.1.8.10
Backfilling	4.1.8.11

2009 Site-Wide Scope of Work	Master EDR Section
Grading and Compaction	4.1.8.12
Dust Suppression and Mitigation	4.1.8.13
Compliance Monitoring	4.1.9
Protection Monitoring	4.1.9.1
Performance Monitoring	4.1.9.2
Confirmational Monitoring	4.1.9.3
Replacement of Relocated Structures and Restoration of Remediated Properties	4.1.10
Electrical and Telecommunications Utilities Restoration	4.1.11
Stormwater Collection System Construction	4.1.13
Wastewater Collection and Treatment System Construction	4.1.14
ROW Restoration	4.1.15

## 4.2 2009 Scope of Work

The following description of the 2009 scope of work supplements the information provided in the Master EDR and the FMC SDR.

### 4.2.1 Access Agreements

BNSF is contacting property owners to negotiate access agreements for properties where excavation is required to meet CULs. As described in the CAP, property access and restoration is to be conducted according to agreements made with each property owner (Section 5.4, p. 59; Section 6.1). As described in the Master EDR, property owners may elect to not relocate and have subsurface containment put in place. Property owners may also elect to receive payment in lieu of having BNSF conduct property restoration (Section 4.1.10). Properties that require access agreements for the 2009 work are as follows.

### 4.2.2 For the NWDZ Remediation:

- **SRI Property (780780-0520).** Access to the SRI Property will be necessary to complete excavation and restoration activities. At the owners' request and pursuant to the terms of their access agreement, the structure on the SRI Property will be demolished to facilitate excavation. BNSF will restore the SRI property such that the final grade is level and even with the dike. It will be compacted and suitable for construction of normal footings. Topsoil placement and hydroseeding could be completed if necessary as a construction stormwater BMP.
- **SRI Office Property (780780-0480 and -0505).** Access to the SRI Office Property will be necessary to complete excavation and restoration activities. At the owners' request and pursuant to the terms of their access agreement, the structures on the SRI Office Property will be demolished to facilitate excavation. BNSF will restore the site to level grade, and the owner will be responsible for rebuilding after 2011.
- **Post Office Property (5780780-0475).** Access to the Post Office Property will be necessary in 2009 and 2010 to complete excavation and restoration activities. The Post Office operations will be relocated in 2009 and will remain in their temporary location until 2012. Excavation of the property will be performed in 2010 in conjunction with remediation

of the Skykomish Hotel property. Relocation of the Post Office operations is planned for 2009 because access to the current Post Office location will be difficult to maintain throughout the 2009 construction period. At the owners' request and pursuant to the terms of their access agreement, the structure currently on the property will be demolished to facilitate excavation. BNSF will restore the site to level grade, and the owner will be responsible for rebuilding after 2011.

- **Sarno Property (780780-0620).** Access to the Sarno Property will be necessary to temporarily relocate the buildings and to complete the metals investigation, excavation, and restoration activities.
- **Martin Property (780780-0640).** Access to the Martin Property will be necessary to temporarily relocate the buildings and to complete excavation and restoration activities.
- **Skykomish Community Church (780780-0270).** Access to the Skykomish Community will be necessary to complete excavation and restoration activities in the 4<sup>th</sup> Street ROW. Temporary relocation of the church building will not be required.
- **Whistling Post Property (780780-0440, -0445, and -0455).** Access to the Whistling Post Property will be necessary to complete excavation and restoration activities.
- **Town Hall Property (780780-0610).** Access to the Town Hall Property will be necessary to complete excavation and restoration activities.
- **Skykomish Hotel (780780-0465).** A construction easement for the Skykomish Hotel will be necessary to complete sheet piling installation on the Martin and Whistling Post properties.

Access to the Town ROWs within the 2009 NWDZ Remediation Boundary shown in drawing C-100 will be necessary to complete excavation and restoration activities. This access agreement has been obtained.

#### 4.2.3 For the FMC East Wetland Remediation:

- **Austin Property (506130-0150).** Access to the Austin Property will be necessary to complete excavation and restoration activities.
- **Scisco Property (506130-0135 and -0140).** Access to the Scisco Property will be necessary to complete excavation and restoration activities. Based on the evaluation of data collected immediately adjacent to the Scisco house (see Appendix A), the house will not be temporarily relocated or underpinned to facilitate excavation.
- **Robinson Property (06130-0126).** Access to the Robinson Property will be necessary to relocate a shed and to complete excavation and restoration activities. Based on the evaluation of data collected on the Robinson property (see Appendix A), the house and garage will not be temporarily relocated to facilitate excavation. Access negotiations are in progress.
- **Pownall Property (506130-0125).** Access to the Pownall Property will be necessary to complete excavation and restoration activities.

The CD requires documentation that access agreements necessary for 2009 work are provided to Ecology on or before December 31, 2008.

#### 4.2.4 Building Relocation

The following buildings will be temporarily relocated in 2009, contingent on obtaining property access agreements.

**4.2.4.1 NWDZ buildings**

- Martin Property houses (2)
- Sarno Property house and garage.

**4.2.4.2 FMC East Wetland remediation buildings**

- Robinson shed.

None of the aforementioned buildings are on the National Register of Historic Places, and will therefore be moved and restored in accordance with the procedures described in Master EDR Section 4.1.7.2.

Information from structural surveys will be incorporated into relocation scopes of work, plans, and specifications. The Sarno and Martin property buildings could be relocated to the east end of Railroad Avenue. The Robinson shed will be relocated to a location on the Robinson property, as agreed to by the owner.

Structures will be monitored in accordance with the developed guidelines during the move to the temporary storage location. Security fences will be installed around the buildings that are temporarily relocated to off-property locations for the duration of their storage and will be monitored by security personnel.

**4.2.5 Resident Relocation**

2009 remediation activities will involve temporarily relocating buildings, operating large equipment, and significant truck traffic. Residents and/or occupants of the Post Office, SRI Office, Sarno house, and Martin property buildings will be relocated in 2009. Some level of noise, vibration and traffic congestion are unavoidable such that these residents could determine that the construction impacts and their unique living circumstances are such that relocation is desirable and warranted. These are properties where BNSF does not need access for purposes of completing the work. BNSF will consider these requests on a case-by-case basis in consultation with Ecology and will attempt to accommodate affected residents if, as and when necessary.

A scope of work summary, including a status summary for access agreements is provided in Table 4-2.

**Table 4-2 Access Agreement and Scope of Work Summary**

<b>Parcel Number</b>	<b>Property Owner or Designation</b>	<b>2009 Scope of Work</b>	<b>Access Status</b>
<b><i>NDWZ Remediation Properties</i></b>			
7807800640	Martin	2 Building relocations Resident relocation Excavation	Access obtained
7807800620	Sarno	2 Building relocations Resident Relocation Excavation	Access obtained
7807800475	Post Office	Operations relocation Excavation	Agreement in Principle in place

Parcel Number	Property Owner or Designation	2009 Scope of Work	Access Status
7807800520	SRI Property	Building demolition Occupant relocation Excavation	Agreement in Principle in place
7807800480 7807800505	SRI Office Property	2 Building demolitions Occupant relocation Excavation	Agreement in Principle in place
7807800270	Skykomish Community Church	Partial excavation	Current access agreement valid through October 31, 2008 Negotiations in progress for 2009
7807800440 7807800445 7807800455	Whistling Post	Partial excavation	Current access agreement valid through October 31, 2008 Negotiations in progress for 2009
78078000	Town Hall Property	Partial excavation	Access obtained
<b><i>FMC East Wetland Remediation Properties</i></b>			
5061300150	Austin	Partial excavation	Negotiations in progress
5061300135 5061300140	Scisco	Partial excavation	Access obtained
5061300126	Robinson	Relocation of shed Partial excavation	Partial access obtained
5061300125	Pownall	Partial excavation	Negotiations in progress

#### 4.2.5.1 Post Office Operations

United States Postal Service (USPS) operations will be temporarily relocated. The temporary building will be equipped with all appurtenances, as designated necessary by the USPS and operated in a way that accommodates regular USPS functions.

#### 4.2.6 Temporary Facilities Construction

##### 4.2.6.1 Access and Haul Roads

The main access and haul roads that will be used during the 2009 work are 4<sup>th</sup> Street, 5<sup>th</sup> Street, Railroad Avenue, East River Street, and Old Cascade Highway, as shown on Drawings C-101 through C-104. It is anticipated that trucks hauling material from the NWDZ will enter the railyard from 5<sup>th</sup> Street and exit to Old Cascade Highway after transferring material to the soil handling facility. Trucks hauling material from the FMCZ and SDZ will transfer materials to the soil handling facility using temporary haul roads constructed in the FMCZ, SDZ, and RYZ when possible. Other roads and/or alternate truck routing may be used at the discretion

of the Contractor. These changes will be proposed to Town officials and emergency personnel for approval prior to implementation.

#### **4.2.6.2 Equipment Decontamination Area**

A heavy equipment and truck decontamination area will be constructed in the NWDZ and in the RYZ at appropriate locations, as recommended by the Contractor. Decontamination water will be temporarily stored on-site and taken to an off-site licensed facility for disposal or treatment.

#### **4.2.6.3 Construction Offices**

Temporary construction offices will be located on the railyard. A temporary engineering field office may be established in Maloney's General Store on Railroad Avenue.

#### **4.2.6.4 Temporary Electric and Communications Utilities**

PSE and Verizon constructed temporary bypasses for overhead electric and telecommunications wiring in 2008. Some of these bypasses remain in place, and will be used in conjunction with other existing overhead and underground utilities to supply electric and communications services for all Skykomish residences and businesses that remain occupied during the 2009 remediation activities. Structures that are outside of the active construction zones but vacant due to relocation of residents will also continue to be serviced by all appropriate utilities.

#### **4.2.6.5 Temporary Potable Water Utilities**

Temporary potable water piping will be constructed in ROWs and/or private properties as necessary to maintain services during excavation activities.

#### **4.2.6.6 Enclosures and Fencing**

Temporary chain link fencing will be installed along the perimeter of the 2009 remediation areas, as shown on Drawings C-101 through -104. Warning signs will be posted at every gated entrance and at approximate 50-foot intervals along the fence line to warn the public that the fenced area contains physical and chemical hazards and that access is forbidden to unauthorized personnel.

#### **4.2.6.7 Sediment and Erosion Controls**

Sediment and erosion control measures will be implemented as described in the Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures (SWPPP; ENSR 2008h) and as shown in Drawings C-101 through -106

#### **4.2.6.8 Construction Staging Areas**

Construction staging areas will be established in the RYZ at the locations shown on Drawing C-101 through C-104 at other RYZ locations as agreed to by BNSF and the Contractor, or at locations outside of the RYZ as agreed to by the Town, BNSF, and the Contractor. Staging will also occur on private properties that are in the excavation area.

#### **4.2.6.9 Spill/Emergency Response Equipment**

Spill response equipment will be located in the Contractor staging area shown in Drawing C-101, or at a location determined by the Contractor. Spill response equipment will include oil absorbent booms and pads, as described in the Spill Response Plan (part of the SWPPP).

#### **4.2.6.10 Construction Water Treatment System**

A treatment system similar in function and performance to the one permitted under the existing NPDES permit and implemented for the 2008 remediation will be operated during 2009 remediation activities. The water treatment system will be constructed in a lined facility located within the RYZ at the approximate location shown on Drawing C-101. Other locations on the railyard will be considered if the Contractor suggests moving the location to facilitate work activities. The treatment system will remove petroleum from water generated from construction activities, except decontamination water, and treat the water to achieve required treatment levels described in the NPDES permit. The water treatment system operation and maintenance is described in the SWPPP and in the *Operations and Maintenance Manual for Water Treatment System* (ENSR, 2008f).

#### **4.2.7 NWDZ Excavation**

##### **4.2.7.1 Clearing and Grubbing**

All surface objects, brush, roots, and other protruding obstructions, and all trees and stumps will be cleared and/or grubbed from the NWDZ excavation limits as indicated on Drawings C-101 and -102. The removed vegetation and debris will be recycled or disposed of at an appropriate municipal landfill.

##### **4.2.7.2 Demolition**

Asphalt roads, concrete building foundations, slabs, and walkways located within the NWDZ excavation area, as well as existing structures on the SRI, SRI Office and Post Office Properties will be demolished and recycled or disposed of at an appropriate construction demolition waste (CDW) landfill.

##### **4.2.7.3 Extents**

Excavation will include removing soil as necessary to reach the estimated areal and vertical extents of impacted soil shown on Drawings C-200 through C-205. Based on these extents, it is estimated that 20,000 cubic yards of soil will be removed from the site in 2009. The excavation extents as well as the clean overburden and impacted soil volumes will be refined based on the results of ongoing field investigations and the results of performance monitoring.

##### **4.2.7.4 Removing Utilities**

At grade and underground stormwater and potable water utilities will be removed during the excavation activities and will be recycled or disposed of at an appropriate CDW landfill. Aboveground electrical and communications utilities will be removed as necessary to complete the excavation.

##### **4.2.7.5 Shoring and Barriers**

Shoring is anticipated to be used to provide structural support at 5th Street and on the Whistling Post and Martin Properties. Some of the shoring design may be completed by the Contractor, and some will be completed by the design team. It is anticipated that the shoring will consist of driven steel sheet piles, and reinforced earth walls that may or may not have lock blocks (large concrete blocks). Deeper portions of the wall may be constructed of controlled density fill and a combination of reinforced earth and blocks that would remain in place as permanent backfill. The shoring will be planned and designed so that future utility installation and maintenance are not adversely affected.

Impermeable barriers will be placed to prevent contamination of clean fill at the west and south excavation boundary. Contamination of clean fill that is placed upgradient of areas slated for future excavation will be addressed through the use of a temporary liner similar to the one placed at the upgradient extent of the 2006 and 2008 removals, or a sheet pile wall. Where steel sheet piles are used for temporary shoring, the sheet piles are considered to suffice for the barrier without special sealing of sheet pile joints. The barrier will be placed at the west extent of the 2009 excavation area along areas where future excavation is

planned. Barriers will be placed as close to the property boundaries as possible, thus minimizing the potential need for excavation to remove impacted soils in the years following 2009.

#### **4.2.7.6 Backfilling**

Excavations will be backfilled with both clean overburden material and imported aggregate material. Topsoil will be placed on residential properties and on Town properties that will be restored with landscaping.

##### Clean Overburden Material

Overburden material with petroleum concentrations less than 3,400 mg/kg NWTPH-Dx may be used as backfill on-site as outlined in Section 6.4 of the CAP. Overburden material will be used for either stabilization or structural fill as long as it meets the gradation requirements outlined below. Soil within two feet of final grade must meet the petroleum cleanup level of 1,870 mg/kg NWTPH-Dx. No soil with arsenic concentrations exceeding 20 mg/kg, lead concentrations exceeding 250 mg/kg, PCB concentrations exceeding 0.65 mg/kg, or dioxin/furan concentrations exceeding 6.67 ng/kg Total Toxicity Equivalent Concentration will be used as backfill on the site.

##### Imported Aggregate Material

Excavations will also be backfilled with imported aggregate material that is suitable for placement and compaction under the site conditions. The South Fork Skykomish River will be visually monitored daily to demonstrate that backfilling activities do not result in exceedances of water quality standards in surface water. If turbidity is detected visually, turbidity measurements will be taken upstream and downstream of the release to determine if the water exceeds water quality criteria. This monitoring will be described in more detail in the 2009 CMP. The Contractor will be responsible for preventing and responding to turbidity exceedances. The Contractor's Technical Execution Plan will describe a prevention and response strategy. This strategy could include 1) controlled backfilling with low permeability fill or backfilling in smaller lifts; 2) localized excavation dewatering; 3) installation of temporary barriers, such as steel plates, to reduce mobilization of fine-grained soils; and/or 4) other measures as deemed appropriate by the Contractor and approved by the Engineer. The CPS will require the Contractor to have the equipment necessary to implement the strategy onsite during excavation.

Given that the excavations will not be fully dewatered, backfill placed below the water table will need to be relatively clean (little to no fines) granular material that goes in place relatively compact, and is relatively easy to compact in a thick layer when compaction equipment is placed on the fill once it extends above the water surface elevation. The water surface elevation is anticipated to change throughout the construction season as the water table drops into summer. Given that the material will be placed below the water table, compaction testing below standing water will not be possible. A large compaction effort will be required on the fill at the point where it protrudes above the water level. Material placed below the water table (stabilization aggregate) is to conform to the grain size specification listed in Table 4-3.

**Table 4-3 Stabilization Aggregate Grain-Size Requirements**

<b>Sieve Size</b>	<b>Percent Passing</b>
2 ½ square	100
2 square	65-100
¾ square	40-80
U.S. No. 4	5 (max.)
U.S. No. 100	0-2
% Fracture	75 (min.)

Backfill placed above the stabilization aggregate is called structural fill, and it will conform to the grain size requirements listed in Table 4-4.

**Table 4-4 Structural Fill Grain-Size Requirements**

<b>U.S Standard Sieve Size</b>	<b>Allowable Percent Passing</b>
5-inch square	100
2-inch square	75-100
No. 4	50-80
No. 40	30 max.
No. 200	15 max.
Sand Equivalent	50 min.

All percentages are by weight. Note that the quantity of fines (material passing the No. 200 sieve) may be decreased to a maximum of 5 percent if the fill is to be placed during wet weather conditions.

Prior to importing material to the Site, the Contractor will be required to provide lab analyses indicating that imported structural fill does not contain potential contaminants with concentrations greater than those shown in Table 4-5.

**Table 4-5 Chemical Criteria for Backfill**

Substance	Maximum Concentration
Arsenic	20 mg/kg
Cadmium	2 mg/kg
Chromium VI	19 mg/kg
Chromium III	2,000 mg/kg
Lead	250 mg/kg
Mercury	2 mg/kg
NWTPH-Dx	1,870 mg/kg

Topsoil

Topsoil will be placed in residential yards and public parks up to one (1) foot thick. Topsoil must meet the requirements listed in Table 4-6.

**Table 4-6 Topsoil Requirements**

Parameter	Requirements
Sieve Analysis	Screened using sieve no finer than 7/16" and no greater than 3/4"
pH	5.5-7.5
Electrical Conductivity	< 3.0 mhos/cm
Carbon to Nitrogen Ratio	< 15:1
Process to Further Reduce Pathogens Certified for Hot Composting at Compost Facility as outlined in WAC 173-350-220	Yes
Manufactured Inerts	< 1 percent
Sharps	0
Arsenic	≤ 20 mg/kg
Cadmium	≤ 10 mg/kg
Copper	≤ 750 mg/kg
Lead	≤ 150 mg/kg
Mercury	≤ 8 mg/kg
Molybdenum <sup>1</sup>	≤ 9 mg/kg
Nickel	< 210 mg/kg
Selenium <sup>1</sup>	≤ 18 mg/kg
Zinc	≤ 1400 mg/kg
NWTPH-Dx	≤ 1,870 mg/kg

<sup>1</sup>If required under WAC 173-350-220

#### **4.2.7.7 Grading**

Excavated areas will be restored to their original grade or to a suitable grade to facilitate stormwater control, as agreed to by BNSF, the Town, and property owners (where applicable). Grading plans will be presented as part of subsequent design plans. Structural fill will be placed in lifts and compacted to a minimum density of 95 percent of the maximum proctor density as determined by ASTM D-1557, Modified Proctor.

#### **4.2.8 FMC East Wetland Remediation Excavation**

The FMC east wetland remediation excavation scope of work is described in the FMC SDR Section 4 and in the *FMCZ East Wetland Restoration Plan*, which is FMC SDR Appendix A.

##### **4.2.8.1 Clearing and Grubbing**

Clearing and grubbing and other site preparation for the FMC east wetland remediation is described in FMC SDR Section 4.1.3 and in FMC SDR Appendix A Sections 3.1 through and 3.3.

##### **4.2.8.2 Demolition**

The barn on BNSF property identified as King County lot 5061300165, as well as building foundations, slabs, and walkways within the SDZ and RYZ excavation area will be demolished and recycled or disposed of at an appropriate CDW landfill.

##### **4.2.8.3 Extents**

Excavation extents are described in FMC SDR Section 4.2.3 and in *FMCZ East Wetland Restoration Plan* Section 3.3.

##### **4.2.8.4 Removing Utilities**

Utilities impacts are described in FMC SDR Section 4.1.15.

##### **4.2.8.5 Shoring and Barriers**

Shoring and excavation stabilization for the FMC east wetland remediation are described in FMC SDR Section 4.1.4 and *FMCZ East Wetland Restoration Plan* Sections 3.1 through and 3.3.

##### **4.2.8.6 Backfilling**

Backfilling of excavated areas is described in the *FMCZ East Wetland Restoration Plan* Section 3.3.

##### **4.2.8.7 Grading**

Grading of excavated areas is described in the *FMCZ East Wetland Restoration Plan* Section 3.3.

#### **4.2.9 Stormwater Collection System Construction**

Stormwater catch basins and underground conveyance piping will be constructed in the 4<sup>th</sup> Street, 5<sup>th</sup> Street, and East River Street ROWs, at the approximate locations shown in the 2009 Conceptual Restoration Plan (Appendix C). The sizes and locations of catch basins and conveyance piping will be based on the stormwater capture zone boundaries. Capture zone calculations are included in the Stormwater System Design Technical Memorandum, which were included as Appendix C to the 2008 EDR. Capture zone boundaries, catch basin locations, and conveyance piping locations and sizes will be shown in 2009 construction plans, which will be submitted to Ecology in accordance with the schedule set forth in CD Exhibit C.

Part of the stormwater conveyance piping and outfall located in the northwest corner of the FMCZ will be removed and reconstructed as part of 2009 FMC cleanup activities. This outfall discharges stormwater

collected in a catch basin located on the railyard near 5<sup>th</sup> Street. Catch basin protection and other construction stormwater BMPs will be evaluated and implemented as necessary to meet the requirements of the current BNSF industrial stormwater permit and prevent impacts to the restored FMC wetland.

#### **4.2.10 Wastewater Collection and Treatment System Construction**

Sanitary sewer infrastructure for the community collection system will be installed at the SRI, SRI Office, and post office properties, Sarno property, and Martin property, and in the excavated sections of the 4<sup>th</sup> Street, 5<sup>th</sup> Street, and East River Street ROWs. Infrastructure may include the tanks, piping, pumps, vaults, and electrical appurtenances. These systems are designed by the Town. Construction details will be included in subsequent design plans.

#### **4.2.11 ROW Restoration**

Town roads within the 2009 excavation area, as shown in the 2009 Conceptual Restoration Plan (Appendix C), will be restored to King County road standards, as adopted by the Town. Restoration will include backfilling and grading roadways, placing base material, asphalt paving, and installing curbs and gutters at select locations. The approximate locations of sidewalks, utilities, curbs and gutters have been determined based on the locations of existing curbs and gutters. As was the case with the 2008 restoration work, the actual locations of sidewalks, utilities, curbs and gutters will be determined based on Town comments and by agreement between the Town and BNSF and between the Town and affected landowners. Revised locations and construction details will be provided in 2009 construction plans, which will be submitted to Ecology in accordance with the schedule set forth in CD Exhibit C.

#### **4.2.12 Electrical and Telecommunications Utilities Restoration**

BNSF is responsible for replacing utilities to their current or equivalent configuration (i.e., above ground) in accordance with applicable codes. The Town has entered into Schedule 74 agreement with PSE for the conversion of overhead electrical utilities located within the 2009 remediation area and in additional areas. The conversion will include installing underground wiring and pad-mounted transformers in place of pole mounted equipment, installing wiring from transformers to residential meters, and providing stub-ups or junction boxes for connection to street lights and other appurtenances installed as part of the restoration. Per the agreement terms, 60 percent of design and construction costs to complete this scope of work will be paid for by PSE. Payment for the remaining 40 percent will be the responsibility of the Town. Per agreement with the Town, BNSF will also convert select aboveground telecommunications utilities within the electrical utility conversion area to underground. Design drawings for the conversion scope of work will be prepared by PSE and Verizon and incorporated into final BNSF plans.

#### **4.2.13 Replacement of Relocated Structures and Restoration of Remediated Properties**

Replacement of relocated structures and restoration of remediated properties will be completed at the conclusion of excavation activities as outlined in Master EDR Section 4.1.10 and as described above in Section 4.2.2 for specific properties.

#### **4.2.14 Wetlands Restoration**

FMC east wetland restoration is described in the *FMCZ East Wetland Restoration Plan* Sections 3.4 and 3.5.

## 5 Construction Sequencing and Phasing

Construction sequencing and phasing will generally be determined by the general Contractor subject to approval by the P.E. of record (Engineer). Certain restrictions on the work are anticipated including the following.

- Resident access must generally be maintained at all times to all occupied houses. No occupied house can be fully blocked off from all access for any significant period of time. Vehicle access may be restricted to single traffic lanes, or closed in some short-term periods of time (less than one week), and pedestrian access may be guided through active construction zones for safety reasons.
- Emergency access must be maintained at all times to occupied houses.
- Access for firefighting equipment must be maintained to all remaining structures and to houses that are temporarily stored in staging areas.
- FMC east wetland in-water (i.e., inside the wetland delineation boundary) construction activities must be completed within the fish window established under the JARPA permit, which could be July 1 through September 15.

NWDZ excavation activities and FMC east wetland remediation activities are largely independent and could be conducted concurrently, or in separate phases, as determined by the Contractor. Some sequencing is time critical or affects pedestrian and vehicle access throughout the Town. These items are described below.

### 5.1 NWDZ

#### 5.1.1 Building Relocation or Demolition

The SRI, SRI Office, Sarno house and garage, and Martin houses are within the NWDZ phase 1 or 2 excavation extents (see Figure C-101 and C-102). The Sarno house and garage, and Martin houses will be relocated and the SRI and SRI Office will be demolished prior to starting any excavation activities in those areas.

#### 5.1.2 Excavation

The following two-phase approach was developed based on the stated restrictions. This approach may or may not be utilized by the Contractor as they develop their approach to the work. However, any suggested work approach will need to follow the restrictions previously stated to be considered a viable approach to the work.

Phase 1 would include general site preparation, moving structures, excavation on all of the private properties within the NWDZ excavation boundary, and excavation of a section of the 4<sup>th</sup> Street ROW. The 4<sup>th</sup> Street ROW would be closed during the Phase 1 excavation. Access to occupied properties, including SRI, Sarno Property, Town Hall, and parcel number 7807800605 (Baggenstos property) would be via 5<sup>th</sup> Street and East River Street. Phase 2 would include completion of the remaining excavation. The 5<sup>th</sup> Street and East River Street ROWs would be closed during the Phase 2 excavation.

The following more detailed description of the phases is not intended to be all inclusive, but instead is intended to present the basic components of construction for each phase.

### 5.1.2.1 Phase 1

- Complete all preparation work within the Phase 1 excavation area and close 4<sup>th</sup> Street.
- Prepare the SRI Office, Sarno house and garage, and Martin property buildings for moving or demolition, as appropriate. This includes relocation of residents and building contents, installation of support beams, disconnection of all utilities, and securing structures so that they are ready to move.
- Move the Sarno house and garage, and Martin property buildings to a temporary storage location and demolish the SRI Office.
- Construct shoring and complete the excavation.
- Backfill and establish a new driving surface on 4<sup>th</sup> Street.
- Open up 4<sup>th</sup> Street to traffic.

### 5.1.2.2 Phase 2

- Prepare the SRI for demolition. This includes relocation of building contents and disconnection of all utilities.
- Demolish the SRI
- Establish the Phase 2 boundary and complete additional site preparation work.
- Close East River Street and 5<sup>th</sup> Street east of the bridge abutment.
- Complete the remaining excavation
- Install shoring and temporary barriers where required
- Backfill the excavation area
- Complete restoration activities
- Open up 5<sup>th</sup> Street and East River Street to traffic.

### 5.1.3 Traffic Routing and Pedestrian Access

Construction will impact 4<sup>th</sup> Street, 5<sup>th</sup> Street east of the bridge embankment. Some disruption to daily traffic patterns will therefore be unavoidable and some level of disruption and inconvenience for local residents is inevitable.

Vehicle access will be maintained at all times for all occupied residential structures through Town. Postings of road closures will be provided early in the process so planning can occur, and individual notifications will be made prior to full lane closures. Resident's needs will be accommodated as much as possible. Signage related to the project will be that typical of a road construction project with traffic routing and authorized personnel access.

Proposed traffic routing and pedestrian access during 2009 remediation activities is shown on Drawings C-101 through -103. These drawings will be submitted for review by all affected agencies and persons, including the fire department, the police department (county and state), residents, and the school. These drawings will be submitted to the Contractor during the bidding process, with the understanding that they will need to evaluate the drawings based on the restrictions presented in this EDR, and either accept the proposed traffic routing and pedestrian access as a viable method, or develop an alternative method that meets all requirements for approval by the Engineer. If the Contractor requests revisions to traffic routing to accommodate

their construction schedule and approach, the revisions will be reviewed by the Engineer and transmitted to the Town, Ecology, and local fire and emergency personnel.

## **5.2 FMC East Wetland Remediation**

### **5.2.1 Building Relocation**

Relocation of the Robinson shed will be coordinated as needed to complete excavation activities.

### **5.2.2 Excavation**

It is anticipated that the east wetland remediation will be completed in one continuous phase. The following more detailed description is not intended to be all inclusive, but instead is intended to present the basic components of construction

- Complete all preparation work
- Prepare the Robinson shed for moving. This includes relocation of residents and building contents, installation of support beams, disconnection of all utilities, and securing structures so that they are ready to move.
- Move the Robinson shed to a location on the Robinson property.
- Construct shoring (if necessary) and complete the excavation.
- Backfill the excavation area
- Complete restoration activities.

### **5.2.3 Traffic Routing and Pedestrian Access**

Traffic routing and pedestrian access are described in FMC SDR Section 5.1.14 and shown in Figure C-104.

## 6 Construction Quality Assurance

Construction quality assurance (CQA) includes practices to demonstrate that construction activities are completed in accordance with CPS and the regulatory framework described in this EDR. The goals of this section are to:

- Describe the quality program to be implemented;
- Describe guidelines for inspection and documentation of construction activities;
- Provide reasonable assurance that the completed work will meet the CPS requirements; and
- Describe how any unexpected changes or conditions that could affect the construction quality will be detected, documented, and addressed during construction.

### 6.1 Quality Assurance Structure

The quality of construction activities will be demonstrated through an integrated system of quality assurance performed by the Engineer and quality control provided by the Contractor.

### 6.2 Construction Quality Assurance Responsibilities

#### 6.2.1 BNSF

BNSF is responsible for implementing the remediation activities in accordance with the CD and for ensuring that its Contractor perform construction in accordance with the CD, Master EDR, 2009 EDR, FMC SDR and CPS. BNSF is responsible for verifying that the Engineer it has retained effectively implements and manages the scope of work detailed in this 2009 EDR.

#### 6.2.2 Engineer

The Engineer is responsible for providing design and engineering services in connection with the project. The Engineer is responsible for implementation of this CQA program. The Engineer will manage Contractors on behalf of BNSF and serve as the primary point of contact with the Contractor for all communications. The Engineer provides submittal review and resolution of design issues as they arise during construction. The Engineer will provide QA through daily monitoring and as-needed inspections to verify the effectiveness of the Contractor's QC program and assure that the quality and CPS are met. The Engineer will assure that the Contractor's QC is working effectively and that the resultant construction complies with the quality requirements. The Engineer is also responsible for formal communications with and submittals to Ecology.

#### 6.2.3 Contractors

The Contractor is retained by BNSF to provide the labor, materials and equipment required to complete the scope of work detailed in the CPS. Contractors are responsible for quality control and completing the necessary inspections and tests to demonstrate that their work complies with the CPS and the regulatory framework described in this EDR.

### 6.3 Quality Assurance Monitoring Structure

Quality assurance monitoring includes the following:

- Submittals review

- Protection monitoring
- Inspection and verification
- Construction deficiencies
- Documentation
- Ecology approvals
- QA/QC changes
- Completion reporting.

This section describes these monitoring practices in detail.

### **6.3.1 Submittals**

Contractors will submit one copy of all testing results, quality control reports, other quality control documentation, and Daily Construction Reports to the Engineer. The Engineer will administer and control the processing of Contractor submittals. After being reviewed for completeness, submittal documents will be transmitted to the relevant project staff for review and verification for compliance with contract requirements. The submittal's disposition will be noted on the submittal, which will be signed, dated and returned to the Contractor. If required, the Contractor will revise the submittal, incorporating the comments and will resubmit it for review and verification for compliance. Submittals will be logged and copies will be retained in the project files.

### **6.3.2 Protection Monitoring**

The protection monitoring requirements applicable to the 2009 EDR scope of work include air and noise monitoring, as described in the 2009 AMP, and worker and public health and safety requirements, as described in the HASP. The Engineer will perform QA oversight of Contractor compliance and related work-area protection monitoring.

### **6.3.3 Inspection and Verification Activities**

#### **6.3.3.1 QC Inspection**

The Contractor will perform QC inspections as necessary to control the Project work to the extent necessary to achieve specified quality and ensure conformance with the CPS and Contract Documents.

The Contractor will document inspections in daily reports. The reports will identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective action taken or proposed.

#### **6.3.3.2 QC Testing**

The Contractor will perform QC testing necessary to control the Project work to the extent necessary to achieve specified quality and ensure conformance with the CPS and Contract Documents. The Contractor will document QC testing in daily reports. The Contractor will review test results on a daily basis and identify any non-conforming test results for discussion and resolution with the Engineer.

#### **6.3.3.3 QA Testing**

QA testing will be completed to verify the adequacy and effectiveness of the Contractor QC testing. QA testing may be performed by the Engineer, on an as-needed basis. In lieu of performing independent tests the Engineer may choose to witness QC testing or conduct tests on split samples

from QC testing. Additional testing may be needed to validate the results when QA and QC test results do not compare or have wide variances. The Engineer will document QA testing in daily reports. The Engineer will review QA tests and maintain files for all field QA testing.

#### Construction Acceptance Criteria

Construction acceptance criteria for materials qualifications, inspection, and testing are established in the CPS. The criteria for materials and equipment have been set by the Engineer in accordance with the applicable codes and standards, and by manufacturers' recommendations. Contractor submittals will document conformance with the acceptance criteria.

#### Compliance with Handling, Storage, Packaging, Preservation, and Delivery Requirements

The Engineer will inspect the Contractor activities to demonstrate technical compliance in identification, handling, storage, packaging, preservation, and delivery of materials, parts, assemblies, and end products. Related quality records and documents will be maintained by the Contractor.

#### **6.3.3.4 Material Identification and Traceability**

The Engineer will monitor the Contractor to demonstrate that identification and traceability requirements are met. Products and materials shall be traced from receipt through all project stages to installation. Documentation such as project control checklists, material receipts, material tracking forms, procedures, sample and test documentation, and reports will be maintained by the Contractor to demonstrate that the applicable material item traceability is maintained. Product identification and traceability requirements are defined in the CPS.

#### **6.3.4 Construction Deficiencies**

A deficiency occurs when a material, performed work, or installation does not meet the plans and/or specifications for the project. When material, performed work, or installation is found deficient, the Contractor will demonstrate that the non-conforming material, work, or installation is identified and controlled to prevent unintended use or delivery.

##### **6.3.4.1 Deficiency Notification**

The Contractor will notify the Engineer of any minor deficiencies (items that do not require significant rework or repair work to correct, and will not result in significant deviations from required quality standard if corrected immediately) and major deficiencies (major deviations from the CPS and/or accepted standard of quality) immediately upon detection and note the deficiency in daily reports.

##### **6.3.5 Deficiency Correction**

Minor deficiencies can be corrected on the spot by agreement between the Contractor and the Engineer. Correction of major deficiencies could include removal and replacement of deficient work using methods approved by the Engineer. Deficiency correction will be documented in daily reports.

##### **6.3.5.1 Deficiency Prevention**

The Contractor will take preventive actions as necessary to eliminate the causes of potential deficiencies to prevent their occurrence. The Engineer will have the authority to improve the project's work processes to eliminate the causes of potential non-conformities.

## **6.3.6 Documentation**

### **6.3.6.1 Daily Construction Report**

The Contractor will prepare daily construction reports, which will include a summary of the Contractor daily construction activities.

### **6.3.6.2 Inspection and Testing Reporting Forms**

The Contractor and the Engineer will prepare inspection and testing reporting forms. These forms will vary depending on inspection or test type.

### **6.3.6.3 Record Drawings**

The Contractor will submit draft record drawings to the Engineer for review. The Engineer will prepare draft and final record drawings. The Engineer, working with the Contractor, will be responsible for assuring that red-line record drawings are maintained throughout the construction process. These red-line record drawings will be used to update the design drawings to as-built status at the completion of the work.

### **6.3.6.4 Preparation of As-Built Drawings**

The Engineer, working with the Contractor, will be responsible for red-lining construction drawings in the field as preparation for as-built drawings. The as-built drawings will record approved actual field conditions upon completion of the work. The original design drawings will be marked up by the Contractor as the project progresses to indicate as-built conditions. Where there was a change to a specified material, dimension, location, or other feature, the as-built drawing will indicate the work performed.

### **6.3.6.5 Record Maintenance**

The Engineer will maintain copies of all quality-related documentation onsite. The Contractor will provide electronic or paper copies (suitable for scanning) of QC documentation. The Contractor will maintain all original QC records onsite until the project is completed.

## **6.3.7 Field Changes**

The Engineer or Contractor may propose changes to the QC/QA procedures if it becomes apparent that the procedures or controls are inadequate to support work being produced in conformance with the CPS or are deemed to be more excessive than required to support work being produced.

## **6.3.8 Completion Reporting**

Upon completion of remedial activities, the Engineer will submit a final as-built report. The report will include as-built drawings, work accomplished, materials used, inspections and tests conducted, results of inspections and tests, nature of defects found (if any), and corrective actions taken.

## 7 References

- ENSR, 2008a. *Master Engineering Design Report. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, February 2008.
- ENSR, 2008b. *2008 Engineering Design Report. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, February 2008.
- ENSR, 2008c. *2008 Compliance Monitoring Plan. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, July 2008.
- ENSR, 2008d. *Hydraulic Control and Containment System Special Design Report. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, August 2008.
- ENSR, 2008e. *Former Maloney Creek Wetlands Special Design Report. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, September 2008.
- ENSR, 2008f. *Operations and Maintenance Manual for Water Treatment System.* Seattle, Washington: ENSR, February 2008.
- ENSR, 2008g. *Remedial Design Investigation Report. Former Maintenance and Fueling Facility- Skykomish, Washington.* Seattle, Washington: ENSR, May 2008.
- ENSR, 2008h. *Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures.* Former Maintenance and Fueling Facility- Skykomish, Washington: ENSR, July 2008.
- RETEC, 1996. *Remedial Investigation for the Former Maintenance and Fueling Facility in Skykomish, Washington.* Seattle, Washington: Remediation Technologies, Inc. January 1996.
- RETEC, 1999. *Feasibility Study – BNSF Former Maintenance and Fueling Facility, Skykomish, Washington.* Seattle, Washington: ThermoRetec Consulting Corporation, October 14, 1999.
- RETEC, 2002. *Supplemental Remedial Investigation: BSNF Former Maintenance and Fueling Facility, Skykomish, Washington.* Seattle, Washington: The RETEC Group, Inc. July 12, 2002.
- RETEC, 2005. *Final Feasibility Study- BNSF Former Maintenance and Fueling Facility, Skykomish, Washington.* Seattle, Washington: The RETEC Group, Inc., March 15, 2005.
- Washington State Department of Ecology, 2007a. *Draft Cleanup Action Plan for BNSF Railway Former Maintenance and Fueling Facility, Skykomish, Washington.* June 12, 2007.
- Washington State Department of Ecology, 2007b. *Cleanup Action Plan for BNSF Railway Former Maintenance and Fueling Facility, Skykomish, Washington.* October 18, 2007.
- Washington State Department of Ecology, 2007c. *Consent Decree for BNSF Railway Former Maintenance and Fueling Facility, Skykomish, Washington.* October 18, 2007.
- Washington State Department of Ecology, 2007d. *Final Environmental Impact Statement (EIS). Former Maintenance and Fueling Facility, Skykomish, Washington.*

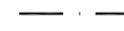
## Drawings



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## LEGEND:

### SURFACE FEATURES:

-  BUILDING FOOTPRINT
-  RAILROAD TRACK
-  EXISTING CURB/PAVEMENT/SIDEWALK
-  EXISTING GRADE CONTOUR 5' INTERVAL
-  EXISTING GRADE CONTOUR 1' INTERVAL
-  BNSF PROPERTY LINE
-  TEMPORARY CONSTRUCTION FENCE
-  SILT FENCE
-  EXISTING FENCE
-  RIGHT OF WAY LINE
-  RAILROAD AVENUE RIGHT OF WAY (ROW)
-  2009 REMEDIATION BOUNDARY
-  TEMPORARY ABOVE GROUND CONSTRUCTION WATER PIPE
-  REMEDIATION EQUIPMENT BUILDING UNDERGROUND PIPING
-  EXCAVATION ELEVATION CONTOUR 5' INTERVAL
-  EXCAVATION ELEVATION CONTOUR 1' INTERVAL
-  SHEET PILE - EXISTING
-  SHEET PILE - PROPOSED
-  SHEET PILE - TEMPORARY TO REMAIN
-  MSE WALL
-  GUARD RAIL
-  BUILDING TO BE MOVED
-  BUILDING TEMPORARY LOCATION
-  DESIGNATED VEHICLE TRAFFIC LANE
-  SOIL HANDLING AREA
-  WETLAND
-  SKYKOMISH CITY PARK
-  PILOT SCALE DEMONSTRATION AREA

### SYMBOLS:

-  MONITORING WELL TO BE PROTECTED
-  INJECTION WELL
-  SURVEY CONTROL POINT
-  MARKER LOCATION
-  SETTLEMENT POINT

### UTILITY FEATURES:

-  FIRE DEPARTMENT CONNECTION
-  FIRE HYDRANT
-  WATER METER
-  WATER VALVE
-  HOSE BIB
-  ELECTRIC METER
-  GAS VALVE
-  OIL FILLER CAP
-  STORM DRAIN MANHOLE
-  CATCH BASIN
-  SEPTIC SYSTEM MANHOLE
-  SEPTIC SYSTEM CLEANOUT
-  SEPTIC SYSTEM VENT
-  UTILITY POLE
-  UTILITY POLE GUIDE WIRE
-  UTILITY POLE W/LIGHT
-  ELECTRIC MANHOLE
-  TELEPHONE RISER BOX
-  JUNCTION BOX
-  BURIED FIBER OPTIC
-  INTEGRATED UNMANNED TRAFFIC SIGNAL
-  BELOW GROUND STRUCTURE
-  PROPANE GAS TANK
-  BOLLARD

### ABBREVIATIONS:

C.P.B - CONTROL PANEL BOX

### HORIZONTAL & VERTICAL CONTROL

1. HORIZONTAL DATUM: NAD 83/91
2. VERTICAL DATUM: NAVD 88
3. BENCHMARK: KING COUNTY MONUMENT STAMPED "1995 GPS 8823" WITH THE PUBLISHED ELEVATION OF 931.73.

### NOTES

1. SITE PLAN IS BASED ON 2007 SURVEY DATA PROVIDED BY TRUE NORTH LAND SURVEYING, INC., DATED 12/10/2007.
2. PROPERTIES AND AREAS THAT WERE NOT INCLUDED IN THE SURVEY ARE NOT SHOWN.
3. ALL DISTANCES ARE U.S. SURVEY FEET.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL WELLS OUTSIDE THE REMEDIATION BOUNDARY AS WELL AS THOSE INSIDE THE SOIL HANDLING FACILITY.

### BMPs PER STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON

- BMP C101 - PRESERVING NATURAL VEGETATION
- BMP C103 - HIGH VISIBILITY FENCE
- BMP C105 - COVER CATCH BASIN
- BMP C106 - WHEEL WASH/DECONTAMINATION PAD
- BMP C140 - DUST CONTROL
- BMP C220 - COVER CATCH BASINS
- BMP C233 - SILT FENCE
- BMP C250 - CONSTRUCTION WATER TREATMENT

**30% DRAWINGS - NOT FOR CONSTRUCTION**

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PROJ. NO.: 01140-222-210

DATE: 11/21/08

**LEGEND**

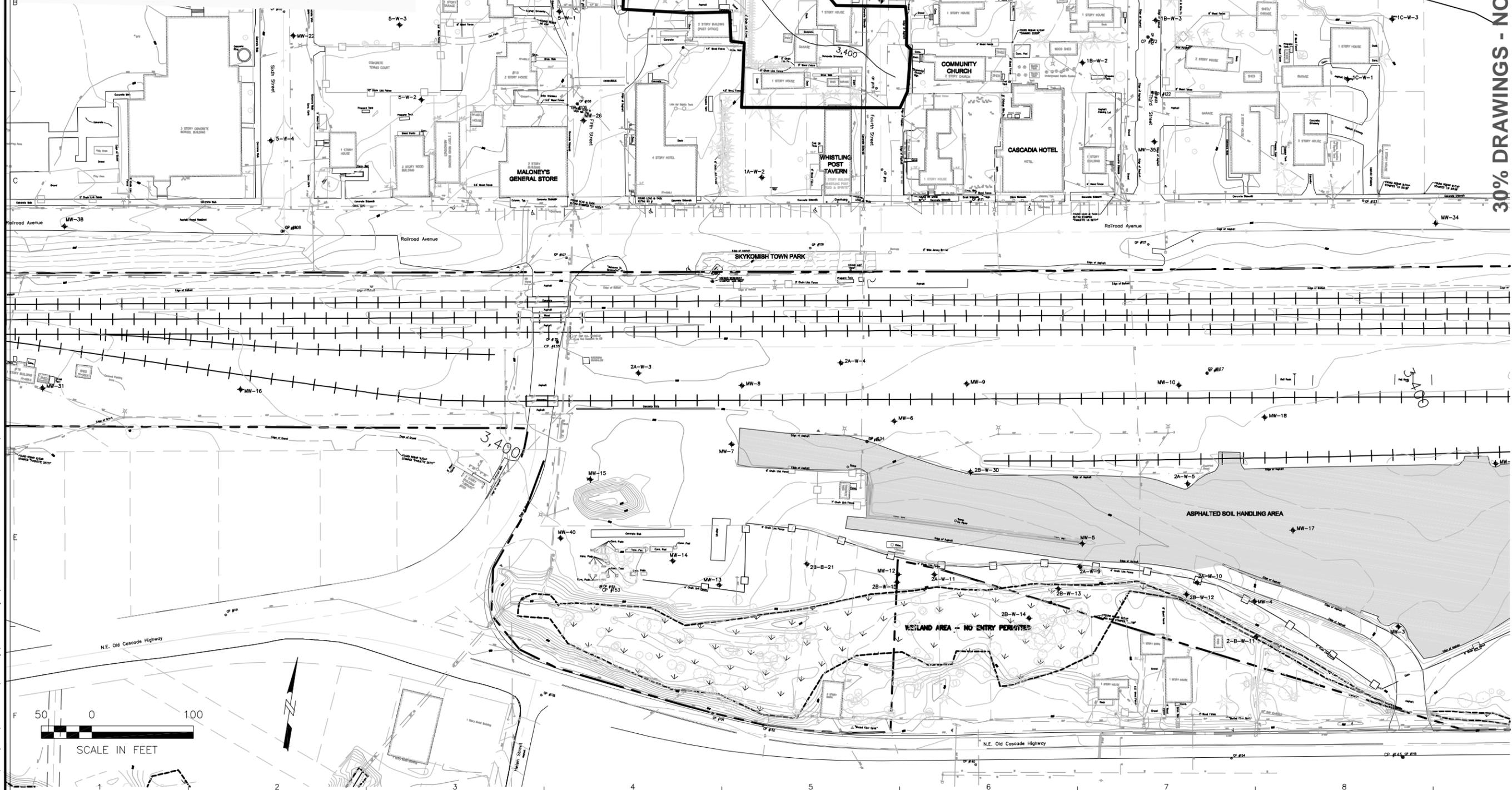
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SHEET NUMBER:	0
REVISION	0



TABLE OF PROJECT CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION
106	259272.7849	1510551.7175	930.49
108	259104.5101	1510285.5817	
117	259378.6096	1510539.7420	931.73
119	259397.3358	1510655.4859	931.13
122	259372.8530	1511108.2778	937.03
127	259108.8291	1511204.5906	
134	258990.3948	1510884.3740	
135	259039.1543	1510569.0624	935.38
145	258766.8335	1511452.9859	
153	258808.5603	1510647.577	
172	259425.4987	1511096.2824	936.95



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 PROJ. NO.: 01140-222-210 DATE: 11/21/08

**EXISTING CONDITIONS**  
 2009 REMEDIATION

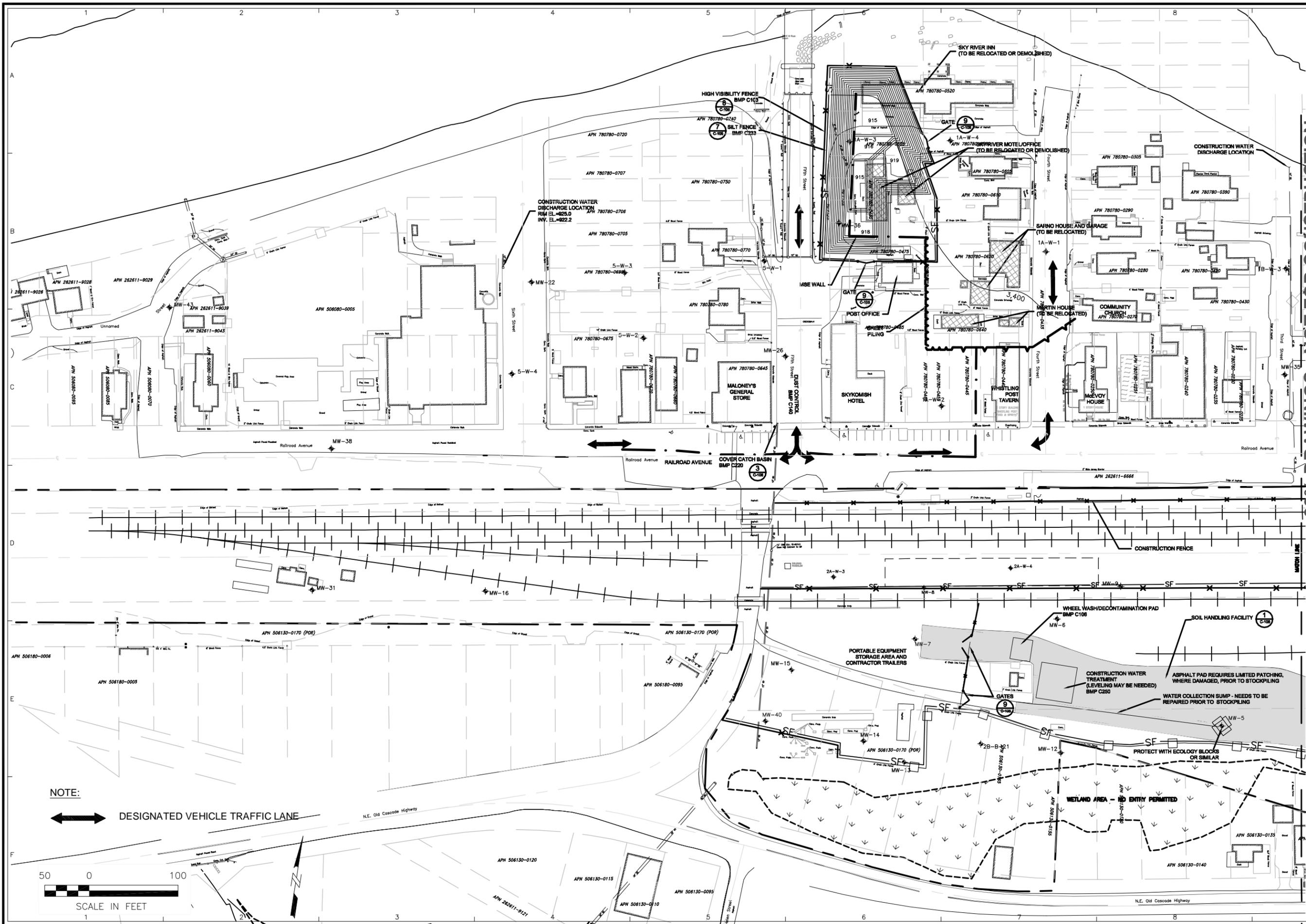
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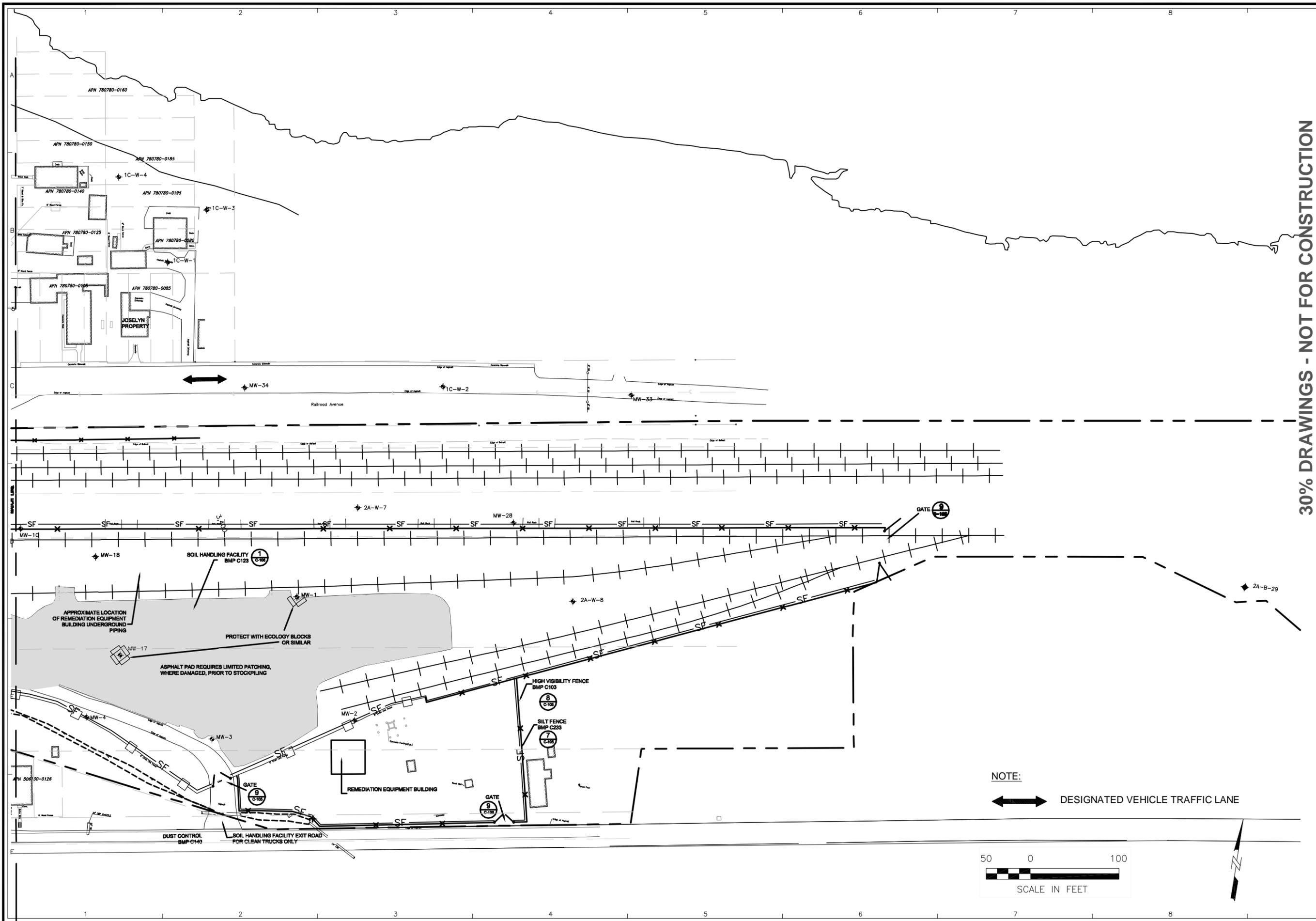
**NOTE:**  
 DESIGNATED VEHICLE TRAFFIC LANE

50 0 100  
 SCALE IN FEET

**30% DRAWINGS - NOT FOR CONSTRUCTION**

<p><b>NORTHWEST DEVELOPED ZONE - PHASE II SITE PREPARATION AND EROSION CONTROL</b></p>	<p>BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON</p>	<p>ENSR AECOM</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>	<p>0 E.M. 11/21/08 30% DRAWINGS</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>
	<p>2009 REMEDIATION</p>	<p>PROJ. NO.: 01140-222-210 DATE: 11/21/08</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>
<p>DRAWING NUMBER: <b>C-102</b></p>	<p>SHEET NUMBER: 0</p>	<p>REVISION: 0</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>	<p>NO. 01140-222-210 DATE: 11/21/08</p>

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NOTE:  
 DESIGNATED VEHICLE TRAFFIC LANE



**30% DRAWINGS - NOT FOR CONSTRUCTION**

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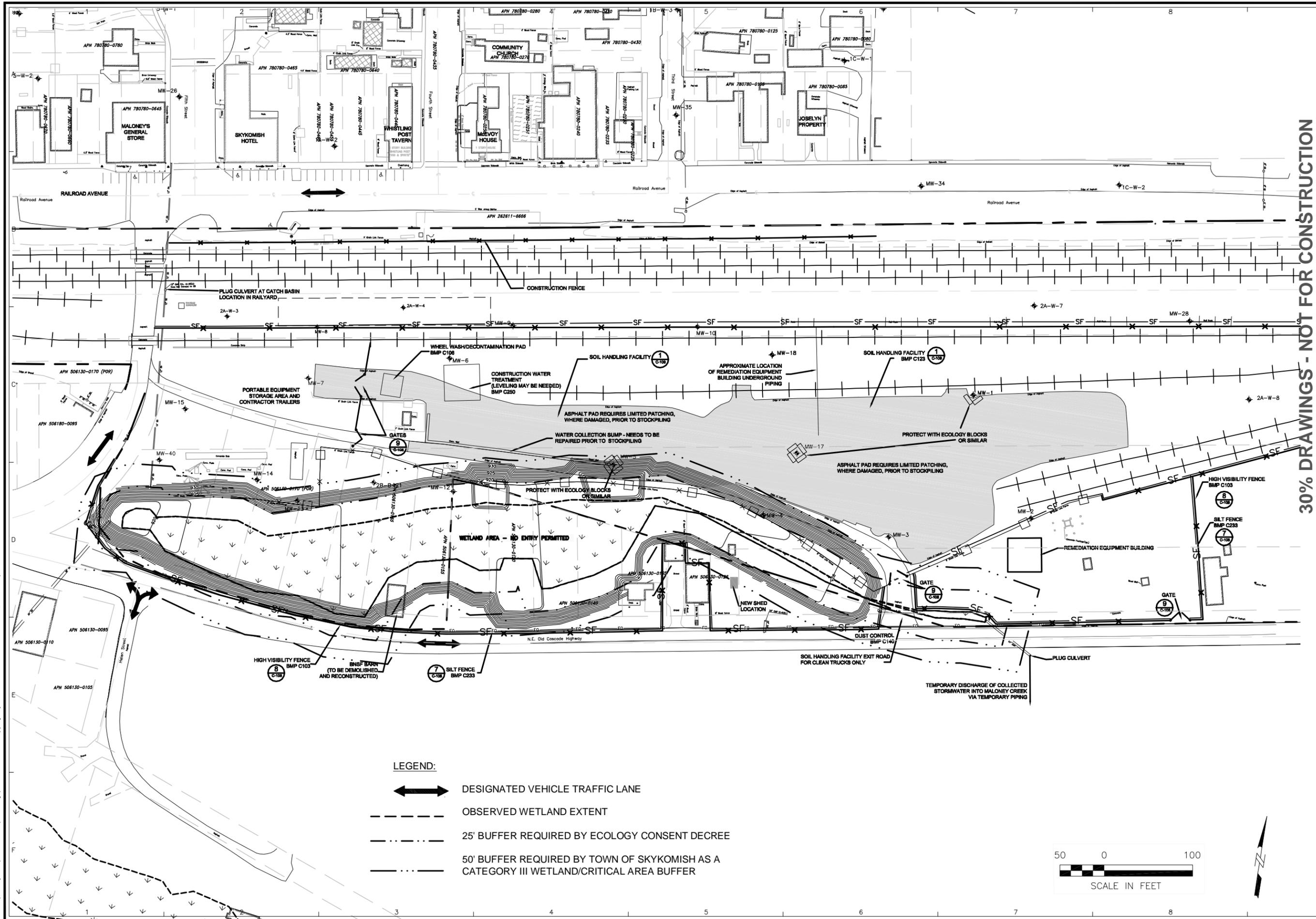
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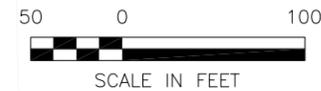
**RAILYARD ZONE -  
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 SITE PREPARATION AND  
 EROSION CONTROL**  
 2009 REMEDIATION

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**C-103**  
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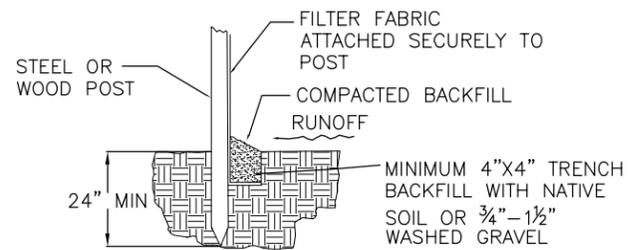
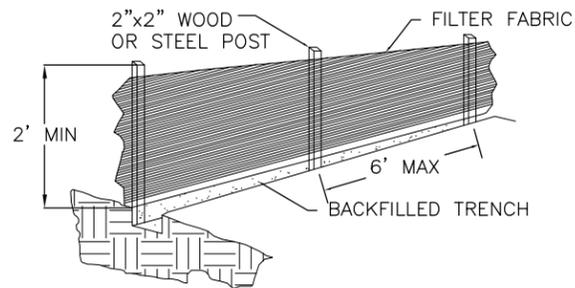
-  DESIGNATED VEHICLE TRAFFIC LANE
-  OBSERVED WETLAND EXTENT
-  25' BUFFER REQUIRED BY ECOLOGY CONSENT DECREE
-  50' BUFFER REQUIRED BY TOWN OF SKYKOMISH AS A CATEGORY III WETLAND/CRITICAL AREA BUFFER



**30% DRAWINGS - NOT FOR CONSTRUCTION**

<p><b>MALONEY CREEK EAST WETLAND SITE PREPARATION AND EROSION CONTROL</b></p>		<p>BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON</p>		<p>ENSR AECOM</p>	
		<p>PROJ. NO.: 01140-222-210 DATE: 2/11/09</p>		<p>NO. DRAWING: 0 REV. DATE: 11/21/08 30% DRAWINGS REVISION</p>	
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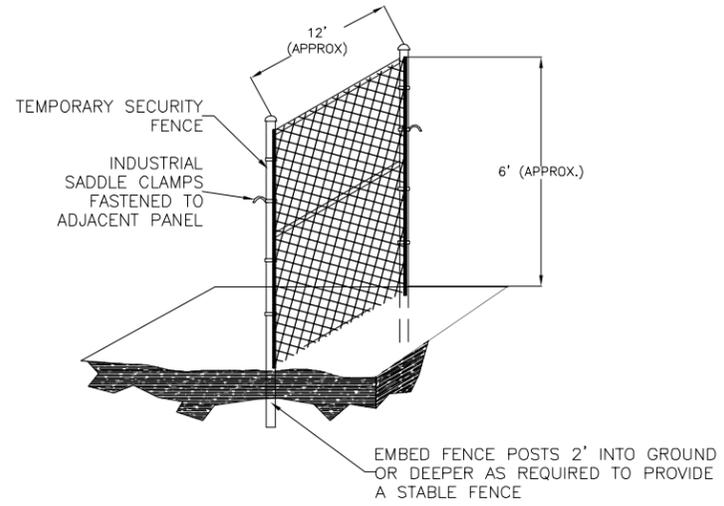
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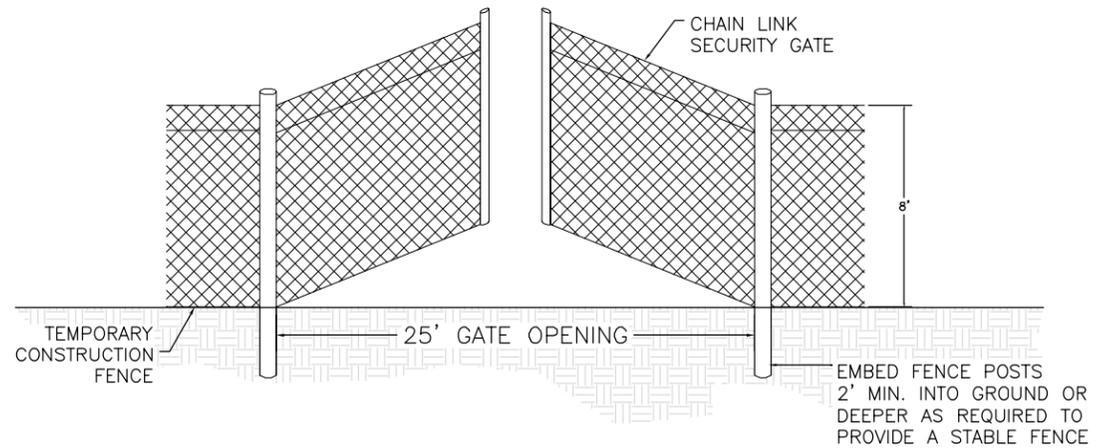
**SILT FENCE NOTES:**

1. BACK FILTER FABRIC WITH 2"x2"x14 GAUGE WIRE OR EQUIVALENT, IF STANDARD STRENGTH FABRIC IS USED. POST SPACING MAY BE INCREASED TO 8' IF WIRE BACKING IS USED.
2. JOINTS IN FILTER FABRIC SHALL BE SPLICED AT POSTS. USE STAPLES, WIRE RINGS OR EQUIVALENT TO ATTACH FABRIC TO POSTS.
3. THE MAXIMUM TRIBUTARY AREA IS LIMITED TO 0.25 ACRES PER 100 FEET OF FENCE.
4. INSPECT AND REPAIR FENCE EVERY 7 DAYS AND AFTER EACH STORM EVENT. REMOVE SEDIMENT WHEN ONE HALF THE HEIGHT OF THE FENCE HAS BEEN FILLED. REMOVED SEDIMENT SHALL BE DEPOSITED IN STOCKPILE AREA FOR DISPOSAL.

7 **SILT FENCE**  
C-101 **SCALE: NTS**



8 **HIGH VISIBILITY FENCE**  
C-101 **SCALE: NTS**



9 **GATE**  
C-101 **SCALE: NTS**

**30% DRAWINGS - NOT FOR CONSTRUCTION**

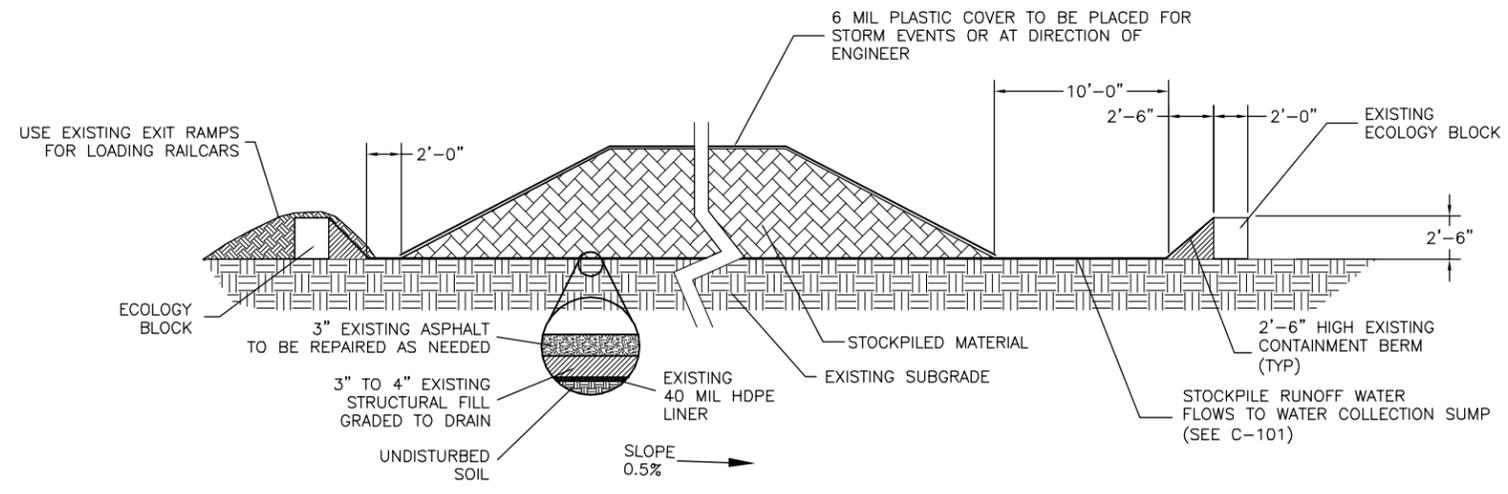
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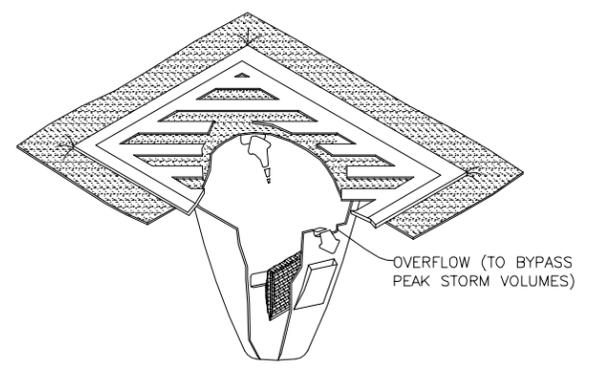
**SITE PREPARATION AND  
 EROSION CONTROL  
 DETAILS**  
 2009 REMEDIATION

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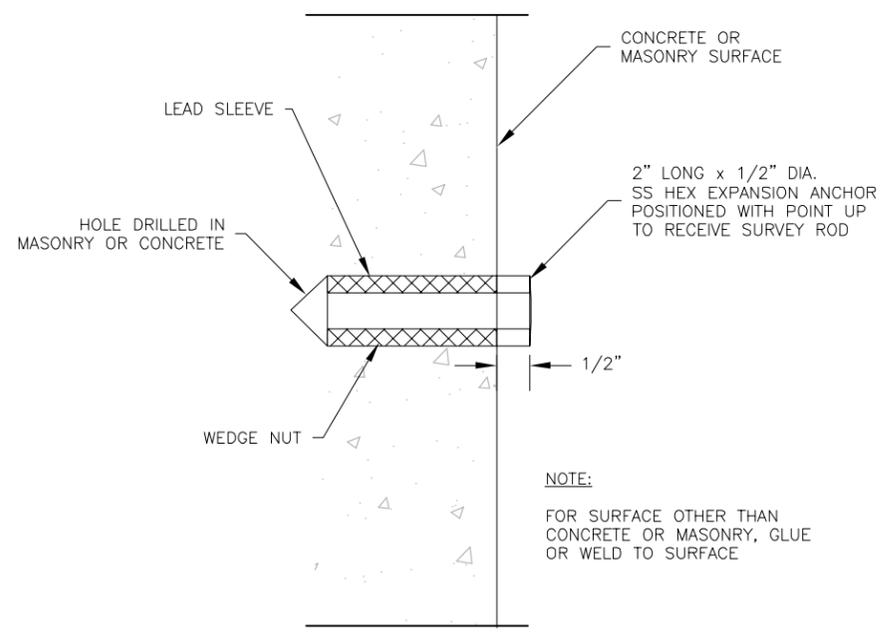


1 EXISTING SOIL HANDLING FACILITY  
C-101 SCALE: NTS



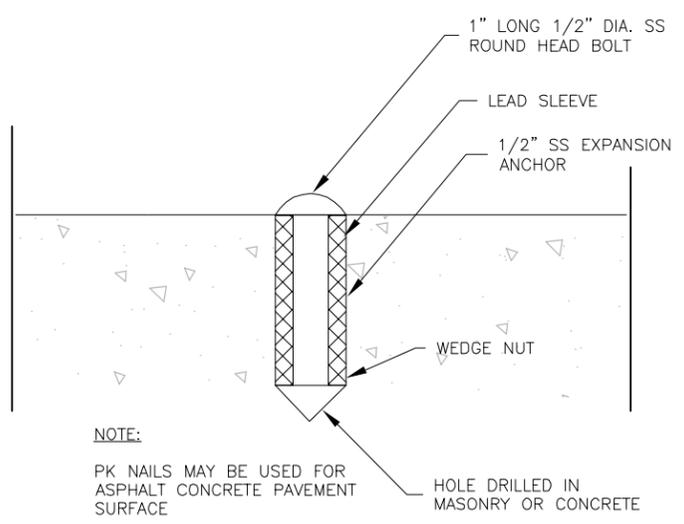
- NOTES:
1. STORM DRAIN INLETS NEED TO BE REMOVED AT THE END OF THE JOB.
  2. STORM DRAIN INLETS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS. CATCH BASIN INSERTS ARE NOT TO BE INSTALLED IN CURB INLETS.
  3. INSERTS SHALL BE INSPECTED AND MAINTAINED WHEN A 1/2 INCH RAIN ACCUMULATES WITHIN A 24 HOUR PERIOD. CLEAN AND/OR REPLACE INSERT WHEN HALF OF THE TRAP IS FILLED WITH SEDIMENTS.

3 COVER CATCH BASINS  
C-101 SCALE: NTS



STRUCTURE SETTLEMENT POINT  
IN MASONRY OR CONCRETE WALL  
DETAIL

4 SETTLEMENT POINT  
C-101 SCALE: NTS



SURFACE SETTLEMENT POINT  
IN HORIZONTAL SURFACE  
DETAIL

30% DRAWINGS - NOT FOR CONSTRUCTION

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SITE PREPARATION AND  
EROSION CONTROL  
DETAILS

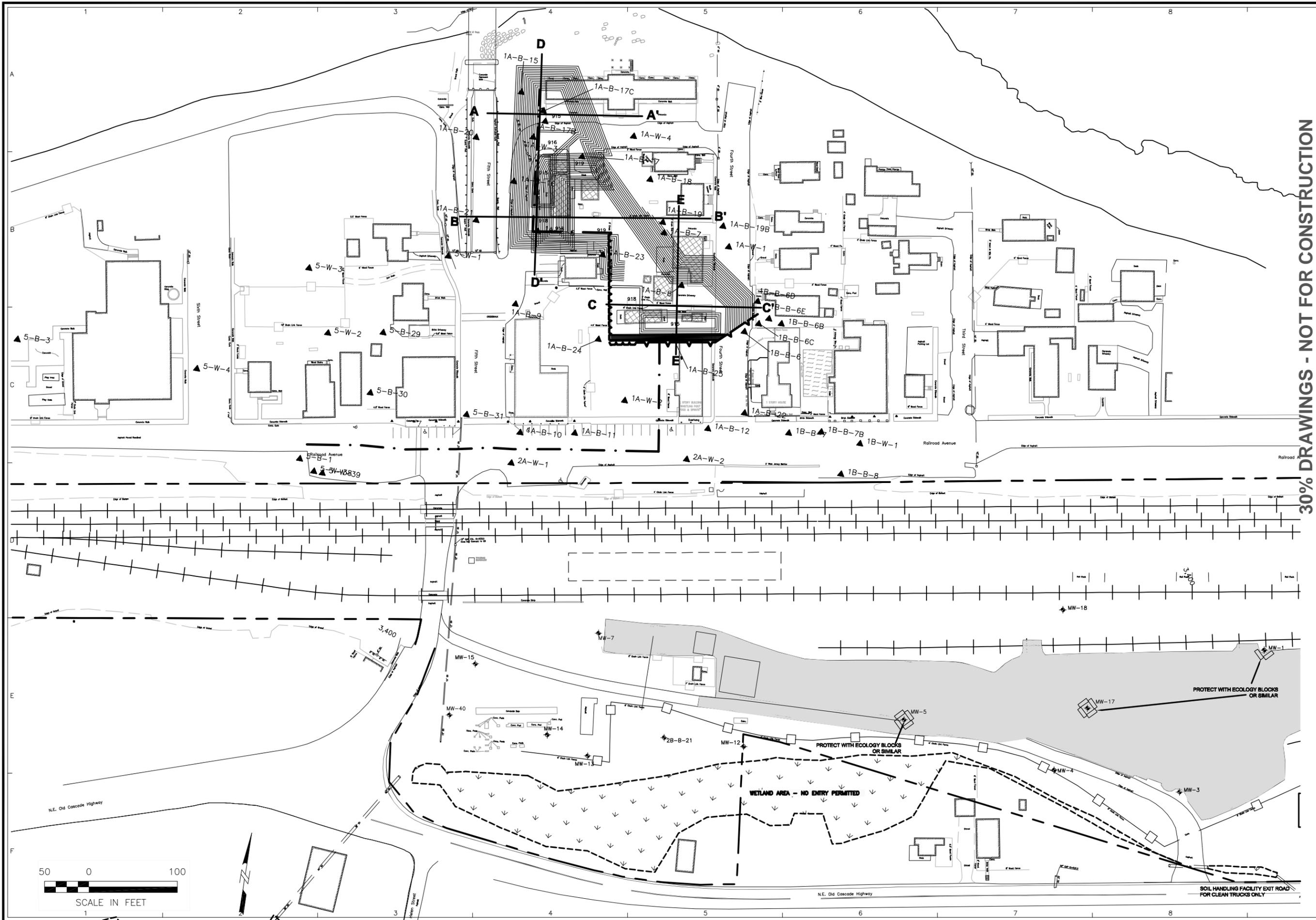
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C-106

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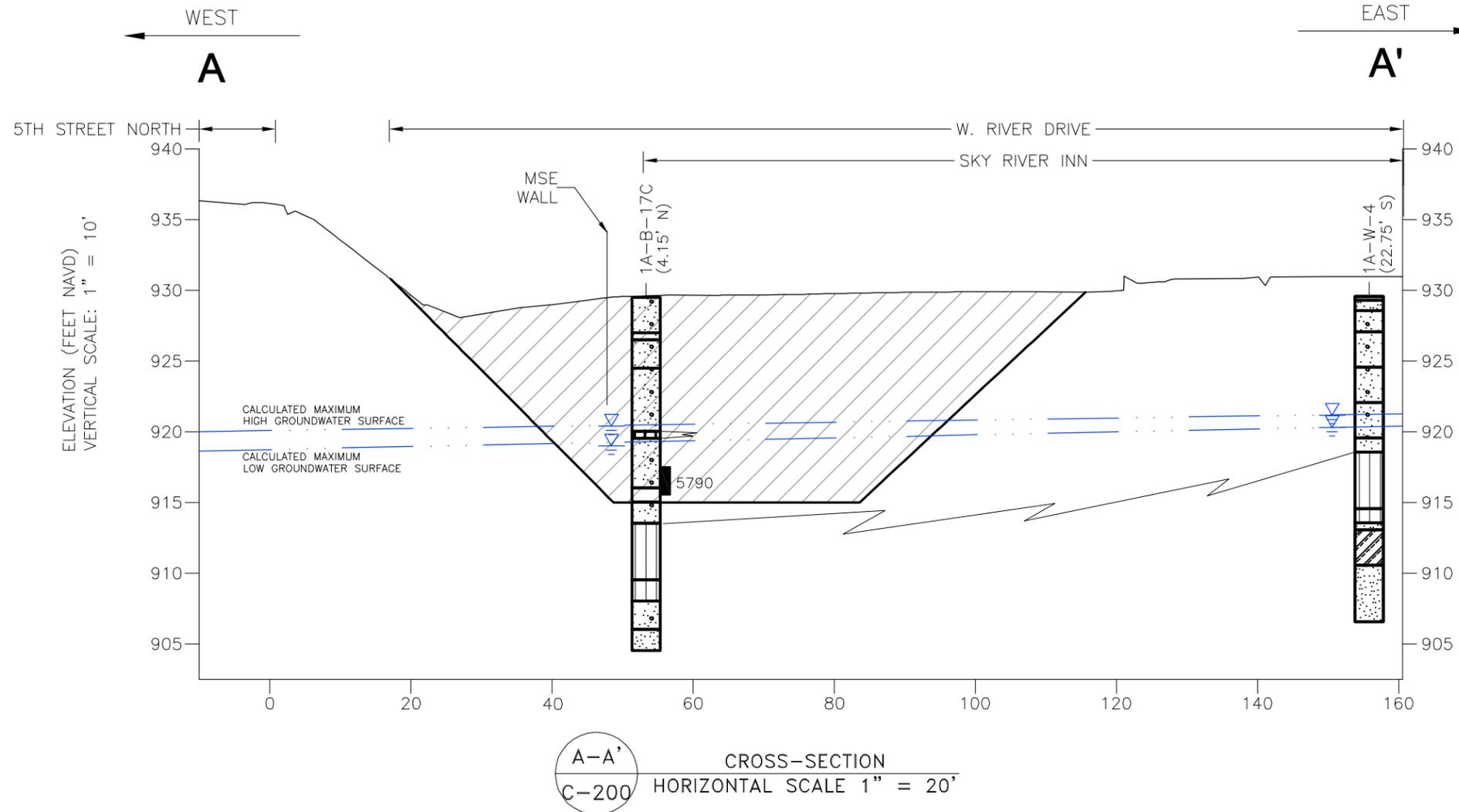
**30% DRAWINGS - NOT FOR CONSTRUCTION**

<b>NORTHWEST DEVELOPED ZONE EXCAVATION LIMITS</b>	2009 REMEDIATION		DATE: 11/21/08	
	BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON		PROJ. NO.: 01140-222-210	
	ENSR		AECOM	
	ENSR CORPORATION Seattle, Washington 98104 (206) 624-8848 www.ensr.com		NO. DRW/MDATE	
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5		REVISION		
6		APPV/D DATE		
7		REVISION		
8		APPV/D DATE		
9		REVISION		
10		APPV/D DATE		

DRAWING NUMBER:  
**C-200**  
SHEET NUMBER:

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A-A'  
C-200 CROSS-SECTION  
HORIZONTAL SCALE 1" = 20'

**LEGEND**

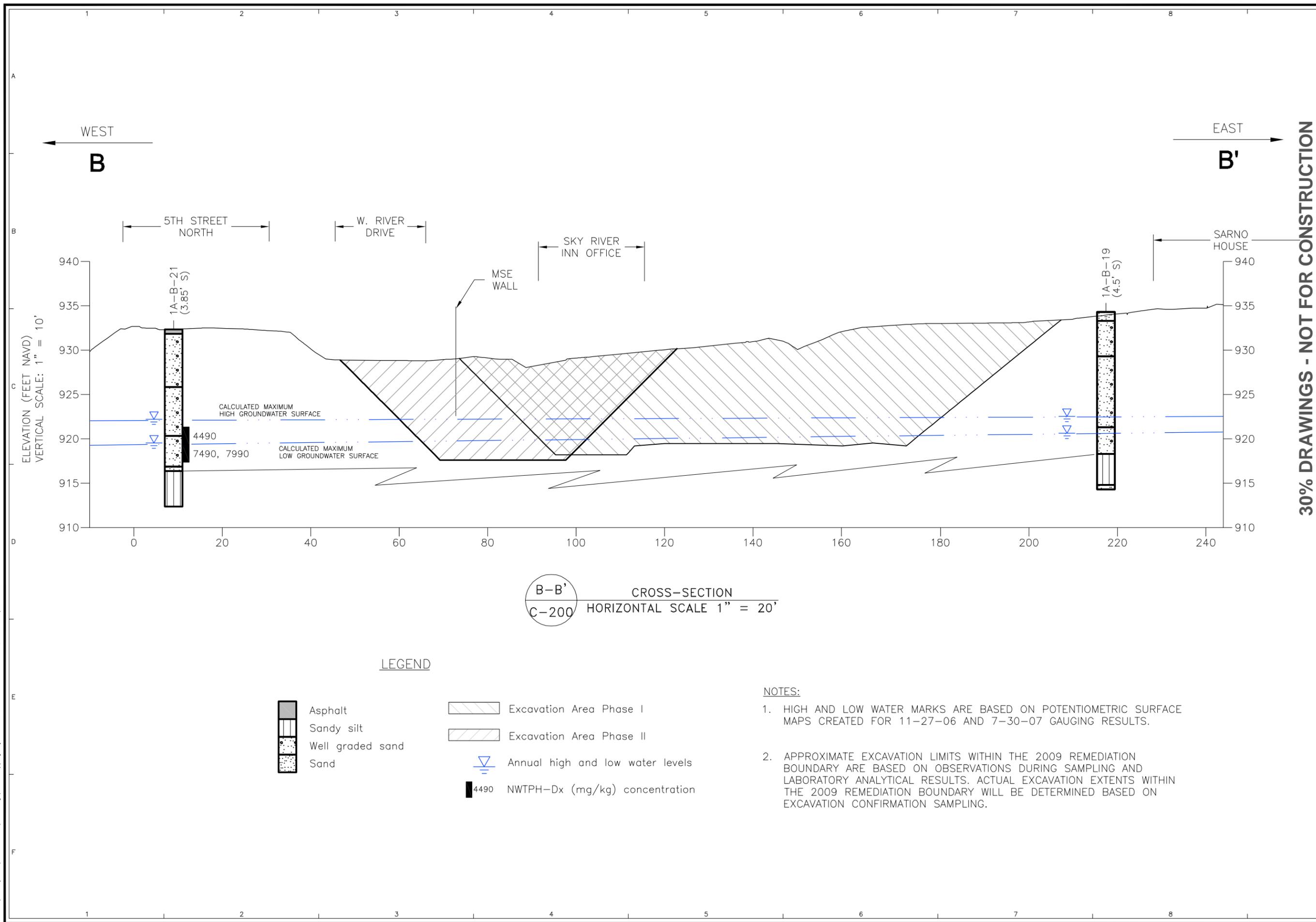
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|--|--|
| <ul style="list-style-type: none"> <li> Rock</li> <li> Silty gravel</li> <li> Clay</li> <li> Sandy silt</li> <li> Well graded sand</li> <li> Sand</li> <li> Asphalt</li> </ul> | <ul style="list-style-type: none"> <li> Excavation Area Phase II</li> <li> Annual high and low water levels</li> <li> 5790 NWTPh-Dx (mg/kg) concentration</li> </ul> |
|--|--|

- NOTES:**
- HIGH AND LOW WATER MARKS ARE BASED ON POTENTIOMETRIC SURFACE MAPS CREATED FOR 11-27-06 AND 7-30-07 GAUGING RESULTS.
  - APPROXIMATE EXCAVATION LIMITS WITHIN THE 2009 REMEDIATION BOUNDARY ARE BASED ON OBSERVATIONS DURING SAMPLING AND LABORATORY ANALYTICAL RESULTS. ACTUAL EXCAVATION EXTENTS WITHIN THE 2009 REMEDIATION BOUNDARY WILL BE DETERMINED BASED ON EXCAVATION CONFIRMATION SAMPLING.

**30% DRAWINGS - NOT FOR CONSTRUCTION**

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<b>NORTHWEST DEVELOPED ZONE CROSS-SECTION A-A'</b>		2009 REMEDIATION		
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B-B' CROSS-SECTION  
C-200 HORIZONTAL SCALE 1" = 20'

**LEGEND**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li> Asphalt</li> <li> Sandy silt</li> <li> Well graded sand</li> <li> Sand</li> </ul> | <ul style="list-style-type: none"> <li> Excavation Area Phase I</li> <li> Excavation Area Phase II</li> <li> Annual high and low water levels</li> <li> 4490 NWTPh-Dx (mg/kg) concentration</li> </ul> |
|---|--|

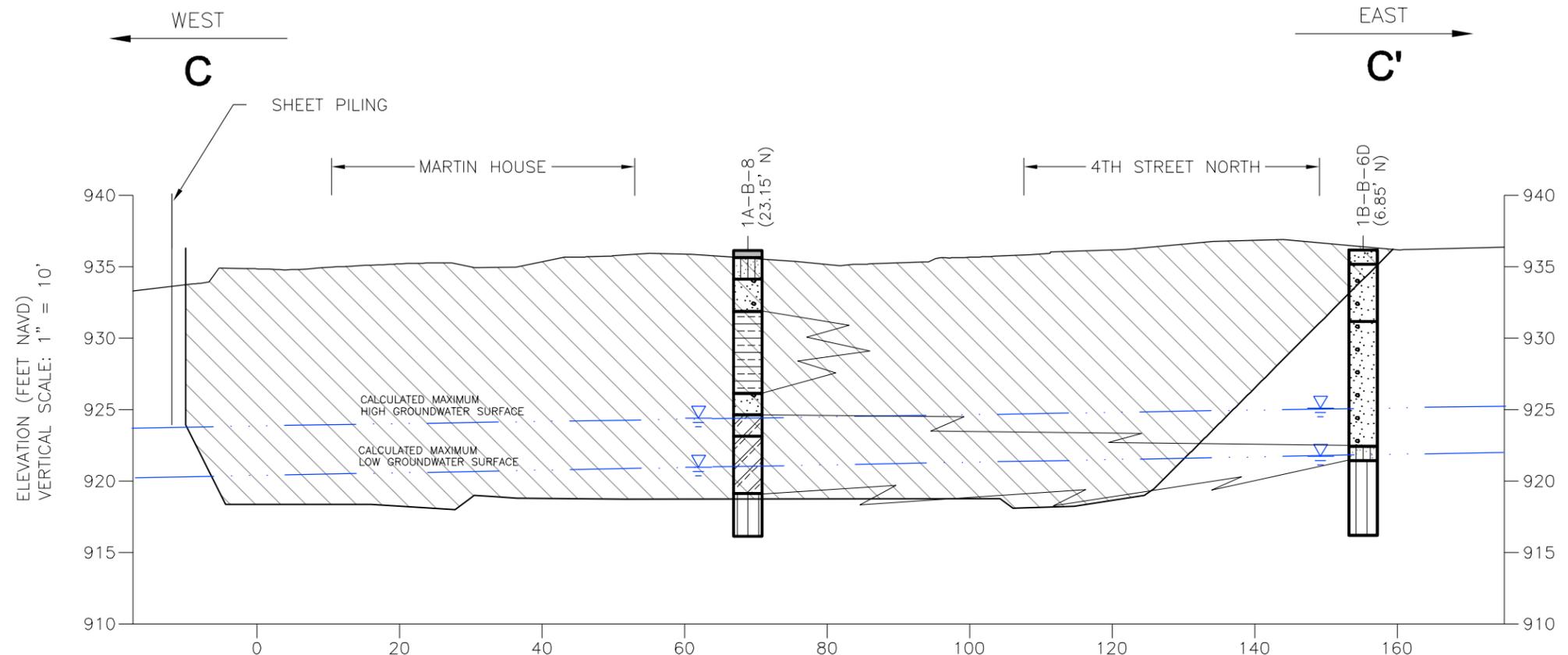
**NOTES:**

1. HIGH AND LOW WATER MARKS ARE BASED ON POTENTIOMETRIC SURFACE MAPS CREATED FOR 11-27-06 AND 7-30-07 GAUGING RESULTS.
2. APPROXIMATE EXCAVATION LIMITS WITHIN THE 2009 REMEDIATION BOUNDARY ARE BASED ON OBSERVATIONS DURING SAMPLING AND LABORATORY ANALYTICAL RESULTS. ACTUAL EXCAVATION EXTENTS WITHIN THE 2009 REMEDIATION BOUNDARY WILL BE DETERMINED BASED ON EXCAVATION CONFIRMATION SAMPLING.

**30% DRAWINGS - NOT FOR CONSTRUCTION**

<p><b>ENSR</b>   <b>AECOM</b></p> <p style="font-size: small;">ENSR CORPORATION Seattle, Washington 98104 (206) 824-8848 www.ensr.com</p>	<p>BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON</p> <p>PROJ. NO.: 01140-222-210    DATE: 11/21/08</p>	<p><b>NORTHWEST DEVELOPED ZONE CROSS-SECTION B-B'</b></p> <p>2009 REMEDIATION</p>
DRAWING NUMBER: <b>C-202</b>		
SHEET NUMBER:		
REVISION   0		

File: L:\BNSF-Skykomish\2009 remediation\30% drawings\1-C-CROSS-SECTION.dwg Layout: C-203 User: MarshaE Plot: Dec 12, 2008 - 2:03pm 1/16/08



C-C'  
C-200 CROSS-SECTION  
HORIZONTAL SCALE 1" = 20'

**LEGEND**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Well graded gravel</li> <li> Poorly graded gravel</li> <li> Concrete</li> <li> Sandy Silt</li> <li> Silty sand</li> <li> Well graded sand</li> <li> Sand</li> </ul> | <ul style="list-style-type: none"> <li> Excavation Area Phase I</li> <li> Annual high and low water levels</li> </ul> |
|---|---|

- NOTES:**
1. HIGH AND LOW WATER MARKS ARE BASED ON POTENTIOMETRIC SURFACE MAPS CREATED FOR 11-27-06 AND 7-30-07 GAUGING RESULTS.
  2. APPROXIMATE EXCAVATION LIMITS WITHIN THE 2009 REMEDIATION BOUNDARY ARE BASED ON OBSERVATIONS DURING SAMPLING AND LABORATORY ANALYTICAL RESULTS. ACTUAL EXCAVATION EXTENTS WITHIN THE 2009 REMEDIATION BOUNDARY WILL BE DETERMINED BASED ON EXCAVATION CONFIRMATION SAMPLING.

**30% DRAWINGS - NOT FOR CONSTRUCTION**

NO.	REVISED DATE	REVISION	DRAWINGS	CHECKED DATE	APPROVED DATE
0	EM	11/21/08	30%		
1					
2					
3					
4					
5					
6					
7					

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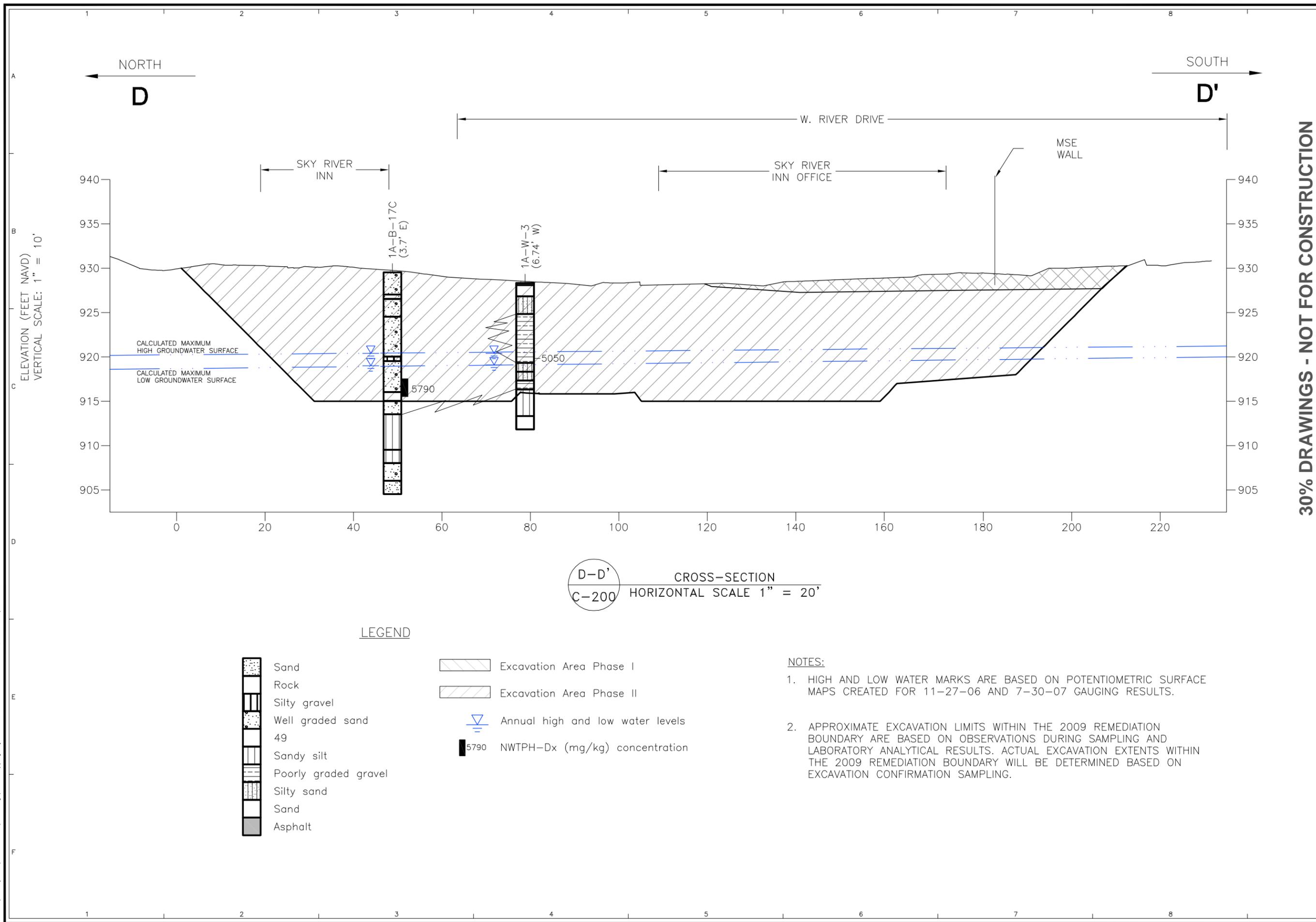
DATE: 11/21/08  
 PROJ. NO.: 01140-222-210

NORTHWEST  
 DEVELOPED ZONE  
 CROSS-SECTION C-C'

2009 REMEDIATION

DRAWING NUMBER:	C-203
SHEET NUMBER:	
REVISION:	0

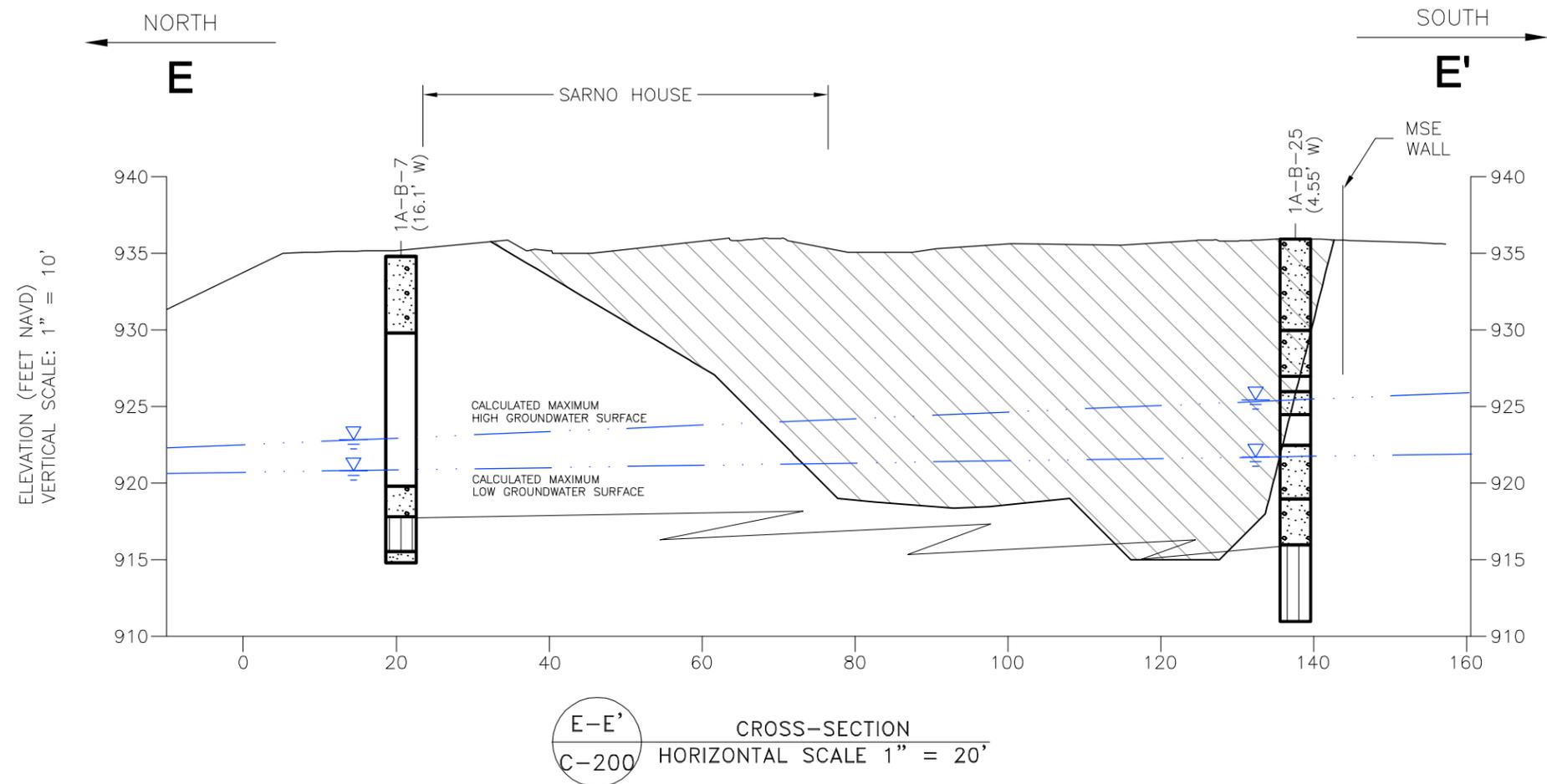
File: L:\ENR\Skykomish\2009 remediation\30% drawings\1-CROSS-SECTION\01.dwg Layout: C-204 User: MarissaE Plotted: Dec 12, 2009 - 2:03pm Xref's:



**30% DRAWINGS - NOT FOR CONSTRUCTION**

<p><b>ENSR</b>   <b>AECOM</b></p> <p><b>ENSR CORPORATION</b>          Seattle, Washington 98104          (206) 824-8849          www.ensr.com</p>		<p>NO. DRW/DATE</p> <p>REVISION</p> <p>30% DRAWINGS</p> <p>CHKD/DATE</p> <p>APPVD/DATE</p>
<p>BURLINGTON NORTHERN          FORMER MAINTENANCE AND          FUELING FACILITY          SKYKOMISH, WASHINGTON</p>	<p>PROJ. NO.: 01140-222-210</p> <p>DATE: 11/21/08</p>	<p>7</p> <p>6</p> <p>5</p> <p>4</p> <p>3</p> <p>2</p> <p>1</p> <p>0</p>
<p><b>NORTHWEST          DEVELOPED ZONE          CROSS-SECTION D-D'</b></p>	<p>2009 REMEDIATION</p>	
<p>DRAWING NUMBER: <b>C-204</b></p>		
<p>SHEET NUMBER:</p>		
<p>REVISION</p>		0

File: L:\BNSF-Skykomish\2009 remediation\30% drawings\1-CROSS-SECTION\Layout\_C-205 User: MarissaE Plotted: Dec 12, 2008 - 2:03pm Xref's:



**LEGEND**

- |  |                  |  |                                  |
|--|------------------|--|----------------------------------|
|  | Sand             |  | Excavation Area Phase I          |
|  | Sandy silt       |  | Annual high and low water levels |
|  | Rock             |  |                                  |
|  | Well graded sand |  |                                  |

**NOTES:**

- HIGH AND LOW WATER MARKS ARE BASED ON POTENTIOMETRIC SURFACE MAPS CREATED FOR 11-27-06 AND 7-30-07 GAUGING RESULTS.
- APPROXIMATE EXCAVATION LIMITS WITHIN THE 2009 REMEDIATION BOUNDARY ARE BASED ON OBSERVATIONS DURING SAMPLING AND LABORATORY ANALYTICAL RESULTS. ACTUAL EXCAVATION EXTENTS WITHIN THE 2009 REMEDIATION BOUNDARY WILL BE DETERMINED BASED ON EXCAVATION CONFIRMATION SAMPLING.

**30% DRAWINGS - NOT FOR CONSTRUCTION**

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SKYKOMISH, WASHINGTON

PROJ. NO.: 01140-222-210      DATE: 11/21/08

**NORTHWEST  
DEVELOPED ZONE  
CROSS-SECTION E-E'**

2009 REMEDIATION

DRAWING NUMBER: <b>C-205</b>
SHEET NUMBER:
REVISION   0

NO	DRWN/DATE	REVISION	CHKD/DATE	APPVD/DATE
0	EM	11/21/08	30% DRAWINGS	
1				
2				
3				
4				
5				
6				
7				

## **Appendix A**

### **2008 Supplementary Investigation Summary**

## **Appendix A - Supplementary Soil and Groundwater Investigation Summary**

### **Background, Setting, and Purpose**

This appendix describes the results of supplemental investigations completed in the Northwest Developed Zone (NWDZ), South Developed Zone (SDZ), and Former Maloney Creek (FMC) East Wetland, and presents the excavation extents derived from this investigation. Previous NWDZ investigations identified total petroleum hydrocarbon (TPH) concentrations exceeding the cleanup level (CUL) of 3,400 mg/kg NWTPH-Dx south of the Sky River Inn (SRI). The NWDZ supplemental investigation was completed to refine the excavation extents north, south, west, and beneath the SRI, and on the Sarno property, and to determine if structures on these properties would have to be temporarily relocated or supported to complete the investigations. Previous SDZ and FMC East Wetland investigations identified TPH concentrations exceeding the FMC 25 foot buffer CUL of 22 mg/kg NWTPH-Dx in surface soil 1) near the northwest corner of the Scisco house; 2) on the Robinson property; and 3) beneath Old Cascade Highway in the vicinity of the BNSF-owned barn and buried fiber optics cable. The SDZ and FMC East Wetland supplemental investigations were completed to refine the excavation extents 1) on the Scisco and Robinson properties and to evaluate whether buildings on these properties would need to be relocated or supported in order to complete the excavations; and 2) beneath Old Cascade Highway and to evaluate whether the extents would include the fiber optics cable.

### **NWDZ Supplemental Investigation**

#### **Sampling Events and Laboratory Methods**

Supplemental investigation boring locations are shown on Figure A-1. The borings near the SRI (1A-B-26, 1A-B-27, 1A-B-28, 1A-B-29, 1A-B-30, 1A-B-31, 1A-B-33, 1A-B-34, and 1A-B-35) were drilled in August, September, and October, 2008. The three borings on the Sarno property (1A-B-7B, 1A-B-8B, and 1A-B-8C) were drilled on September 19, 2008. Soil samples were collected at two foot intervals at depths ranging from 13 to 20 feet at the Sarno property and from 10 to 20 feet near the SRI. Samples were analyzed using NWTPH-Dx without acid/silica gel cleanup. All other borings shown on Figure A-1 were drilled during previous investigations.

#### **Results**

Laboratory results are summarized on Figure A-1 and in Table A-1. Laboratory reports are included in Attachment 1. It should be noted that these laboratory results are preliminary and have not been validated. Validated final data will be presented in the upcoming Addendum to the Remedial Design Investigation Report, which will be submitted to Ecology in early 2009. TPH concentrations ranged from non-detect to 5,600 mg/kg NWTPH-Dx [1A-B-28(14-16)] on the Sarno property and ND to 4,310 mg/kg NWTPH-Dx [1A-B-8(13-15)] near the SRI. These investigation results were used to develop the 3,400 mg/kg TPH-Dx isoconcentration contour shown on EDR Figures C-100, -101 and -102.

#### **Discussion**

The NWDZ excavation extents, as defined by the 3,400 mg/kg TPH-Dx RL and the anticipated excavation sloping, include the SRI, SRI office, Sarno house and garage, and Martin houses. These excavation extents are reflected on 2009 EDR Figures C-100, C-101, and C-200.

## SDZ/FMC East Wetland Supplemental Investigation

### Sampling Events and Laboratory Methods

Supplemental investigation boring and monitoring well locations are shown on Figure A-2. Scisco property borings 2B-B-38 and 2B-B-39 were drilled on September 10, 2008; 2B-B-38D and 2B-B-39D were drilled on September 30, 2008. These four borings are located within the FMC wetland buffer. Robinson property borings 2B-B-42, 2B-B-43, and 2B-B-44 were drilled on October 3, 2008 and are located outside the FMC wetland buffer. Figure A-2 also shows the locations of borings drilled during previous investigations. Borings 2B-B-1 and 2B-W-4 were drilled on December 17, 2001. Boring 2B-B-23 was drilled on August 20, 2007. Borings 2B-B-1 and 2B-B-23 are located within or near the FMC East Wetland buffer. 2B-W-4 is east of the Scisco house and outside the buffer. Monitoring wells 2B-W-45 and 2B-W-46 were installed on November 11, 2008. These wells are located west of the BNSF-owned barn and within the FMC wetland buffer.

Samples collected from 2B-B-1, 2B-B-23 and 2B-W-4 were analyzed by NWTPH-Dx without acid/silica gel cleanup. Scisco property samples collected from 2B-B-38, 2B-B-38B 2B-B-39, and 2B-B-39D during the September 2008 investigations were analyzed by NWTPH-Dx with and without acid/silica gel cleanup. At Ecology's request the two Scisco property soil samples with the highest TPH concentrations were analyzed using the Synthetic Precipitation Leaching Procedure (SPLP) extraction, both filtered and unfiltered, for NWTPH-Dx. Robinson property samples collected from 2B-B-42, 2B-B-43, and 2B-B-44 during the October 2008 investigation were analyzed by NWTPH-Dx with and without acid/silica gel cleanup, but not using SPLP. Soil and groundwater samples collected from 2B-W-45 and 2B-W-46 were analyzed by NWTPH-Dx without acid/silica gel cleanup.

The use of the SPLP extraction for hydrocarbons is not routinely performed and requires further comment. The procedure involves tumbling 100 grams of soil sample in 2,000 ml of deionized water. After tumbling, the water is decanted, extracted, and then analyzed. Alternatively, the water can be filtered before extraction and analysis using the NWTPH-Dx method. Attachment 1 includes a description of this method. The SPLP method is not standardized in the State of Washington. Alaska has a standard laboratory procedure for the SPLP extraction method, which includes the filtration step. In a previous application of the method at Skykomish, the procedure was performed without the filtration step due to dissolved TPH sorbing onto the glass filter, however problems were noted with suspended solids skewing the analytical results. For this analysis, we opted to use both the filtered standard procedure and the unfiltered (decanting) procedure.

### Results

#### Scisco Property

Scisco property laboratory results are summarized in Table A-2 and shown on Figure A-2. Laboratory reports are included in Attachment 2. It should be noted that these laboratory results are preliminary and have not been validated. Validated final data will be presented in the upcoming Addendum to the Remedial Design Investigation Report, which will be submitted to Ecology in early 2009. Scisco property NWTPH-Dx *without* acid/silica gel cleanup concentrations ranged from non-detect to 164 mg/kg NWTPH-Dx [2B-W-4 (0-2 ft bgs)]. Higher concentrations were detected in the shallowest depth interval for all borings (near-surface samples) where a large amount of plant debris was observed. All near-surface soil samples exceeded the FMC East CUL of 22 mg/kg NWTPH-Dx. Concentrations in samples collected from 2-4 feet bgs and 4-6 feet bgs intervals in 5 of 6 borings were below the CUL [the exception was 2B-B-1(6ft bgs)]. NWTPH-Dx concentrations *with* acid/silica gel cleanup were below the

CUL except 2B-B-38 (0-2 ft bgs), which was 22.7 mg/kg NWTPH-Dx<sup>1</sup>. Comparison with the 2B-B-38 (0-2 ft bgs) sample concentration without acid/silica gel cleanup (69.6 mg/kg NWTPH-Dx) suggests that higher concentrations in near-surface samples likely resulted from the presence of naturally occurring (*biogenic*) hydrocarbons.

The SPLP leaching procedure, both filtered and unfiltered, was performed on the two soil samples with the highest soil NWTPH-Dx concentrations: 2B-B-38 (0-2 ft bgs) and on 2B-B-39 (0.5-3 ft bgs). Both samples, using both procedures, were non-detect for NWTPH-Dx. The method detection limits for these analyses were all below the groundwater CUL of 208 µg/L, as shown on Table A-2.

### Robinson Property

Robinson property laboratory results are summarized in Table A-3 and shown on Figure A-2. Laboratory reports are included in Attachment 3. Robinson property NWTPH-Dx without acid/silica gel cleanup concentrations ranged from non-detect to 1,579 mg/kg NWTPH-Dx [2B-B-44 (2-4 ft bgs)]. None of the concentrations exceeded the SDZ RL of 3,400 mg/kg NWTPH-Dx. Comparison with the concentration *with* acid/silica gel cleanup (490 mg/kg) suggests that a significant percentage of NWTPH-Dx concentrations are due to biogenic organics.

### Fiber Optic Cable

Laboratory results for samples collected near the fiber optic cable are summarized in Table A-4 and shown on Figure A-2. Laboratory reports are included in Attachment 4. NWTPH-Dx was detected in only one sample [2B-W-46 (12-14 ft bgs)]. NWTPH-Dx without acid/silica gel cleanup concentrations in soil samples ranged from non-detect to 41.05 mg/kg. None of the concentrations exceeded the SDZ RL of 3,400 mg/kg NWTPH-Dx. NWTPH-Dx concentrations *with* acid/silica gel cleanup were all at or below the CUL of 22 mg/kg NWTPH-Dx. Comparison of concentrations in 2B-W-45 (12-14 ft bgs) samples with (41.05 mg/kg) and without (22 mg/kg) acid/silica gel cleanup suggests that the higher concentrations likely resulted from the presence of *biogenic* hydrocarbons. Groundwater samples collected from the wells (5-W-45-1208 and 5-W-46-1208) were both non-detect for NWTPH-Dx. The method detection limits for these analyses were all below the groundwater CUL of 208 mg/L.

## **Discussion**

### Scisco Property

The Scisco property is located in the SDZ, but the northwest corner of the Scisco house overlaps approximately 5 feet of the FMC East Wetland 25 foot buffer<sup>2</sup>. Previous investigations in this area identified TPH concentrations as high as approximately 70 mg/kg NWTPH, which exceeds the buffer CUL of 22 mg/kg NWTPH-Dx, but is well below the SDZ cleanup level of 3,400 mg/kg NWTPH-Dx. Based on this data, excavation to meet the buffer CUL would include an approximate 10 foot by wide by

---

<sup>1</sup> It is important to note that during the 2006 Levee Zone cleanup, the PQL for NWTPH-Dx analysis of soil was 25 mg/kg, and therefore this value was used as the cleanup level for purposes of defining the extent of excavation within 25 feet inland of the ordinary high water mark (OHWM). It is appropriate to use the PQL of 25 mg/kg to evaluate the extent of excavation that will be required in the 25-foot cleanup buffer zone.

<sup>2</sup> This buffer refers to the 25-foot buffer specified in Figure 8 of the Cleanup Action Plan (Exhibit B to Consent Decree No. 07-2-33672-9 SEA) that is intended to protect sediment located below the Ordinary High Water Mark against recontamination from groundwater.

2 feet deep section beneath the Scisco house. Soil samples collected during the September 2008 supplementary investigation confirm that Scisco property soils exceed the FMC wetland buffer CUL of 22 mg/kg and that these soils likely extend to beneath the Scisco house. The condition of the Scisco house foundation precludes underpinning. Completion of the excavation and restoration would therefore require the house and resident to be temporarily relocated.

During the ENSR October 14<sup>th</sup> meeting<sup>3</sup> with Ecology, it was agreed that Ecology would consider approving an excavation prism that did not include soils beneath the Scisco house if it could be demonstrated that the soils do not pose a leaching threat to groundwater. BNSF evaluated this potential threat using the results of the SPLP analysis. This extraction procedure is designed to conservatively simulate the potential for leaching of soil contaminants to groundwater. Since SPLP extraction and analysis of the two samples with the highest NWTPH-Dx soil concentrations were non-detect, BNSF has concluded that the existing soil concentrations beneath the Scisco house do not exceed the groundwater CUL and consequently do not pose a potential threat to groundwater. Per agreement with Ecology, soil beneath the Scisco house therefore does not have to be excavated.

#### Robinson Property

The Robinson property excavation extents, as defined by the 22 mg/kg TPH-Dx isoconcentration contour and the anticipated excavation sloping, include the far northeast corner of the property. These excavation extents are reflected in 2009 EDR Figure C-104. Completion of this excavation will not require temporary relocation of buildings, with the exception of the existing shed, which is currently located on BNSF property.

#### Fiber Optics Cable

During previous discussions it was determined that Ecology would consider approving a modified excavation prism that did not include soils beneath the road and near the fiber optics cable if it could be empirically demonstrated that the NWTPH-Dx soil concentrations [between the FMC and 2B-B-25 and 2B-B-26](#) do not pose a potential leaching threat to groundwater. Recall that the highest soil concentration in 2B-B-25 was 29.1 mg/kg, as reported to Ecology in the May 2008 RDI. Wells 2B-W-45 and 2B-W-46 were installed to evaluate NWTPH-Dx soil and groundwater concentrations in this area. NWTPH-Dx was detected in only one soil sample 2B-W-46 (12-14 ft bgs) at a concentration 41.05 mg/kg. Groundwater samples collected from the wells were both non-detect for NWTPH-Dx. The method detection limits for these analyses were all below the groundwater CUL of 208 mg/L. Based on these results, we have concluded that the soil concentrations in [2B-B-25 and 2B-B-26](#) do not pose a potential leaching threat to groundwater. Per agreement with Ecology, soil near the fiber optics cable does not have to be excavated.<sup>4</sup>

---

<sup>3</sup> Attended by Brian Sato and Ron Timm (Ecology) and Halah Voges and Greg Brunkhorst (ENSR) at Ecology's NWRO in Bellevue, WA.

<sup>4</sup> Monitoring well 2B-W-46 is highlighted in green on Figure A-2 based on the concentration of NWTPH-Dx in comparison with the wetland buffer CUL and for consistency, but soil in the vicinity of the well and the fiber optics cable, will not be excavated as indicated in the figure.

## Conclusions and Suggestions

Excavations extents in the NWDZ, SDZ and FMCZ East Wetland have been refined as a result of the supplemental soil investigation and are shown on 2009 EDR Figure C-104. Excavation of the Scisco property will proceed without disturbing the existing house or excavating underlying soils. This will likely consist of stepping out 5 feet from the house foundation and beginning the excavation slope toward the wetland at that location. If this cleanup action is followed, approximately 100 cubic yards of soil exceeding the CUL of 22 mg/kg could be left on the property. As noted above, the soil is: mostly below the CUL using acid/silica gel cleanup and marginally above the CUL without acid/silica gel cleanup, of unknown origin, and shown to be protective by the leaching procedure. This impacted soil is part of a developed property, is part of the upper two feet of soil, and over 25 feet from the wetland boundary. For these reasons, the soil is protective of human health and the environment.

Excavation near the BNSF-owned barn and will proceed without disturbing the fiber optics cable. This will likely consist of stepping out from the house foundation at the minimum distance prescribed by Sprint (the cable owner) and beginning the excavation slope toward the wetland at that location. This minimum distance could be 3 feet, based on previous conversations with Sprint personnel. As noted above, the soil in the vicinity of the cable is at or below the CUL using acid/silica gel cleanup and marginally above the CUL without acid/silica gel cleanup, and shown to be protective of groundwater.

The intent of the CAP is to have a CUL for the wetland buffer that is protective of surface water in the wetland from BNSF Site contamination. As evidenced by the Scisco property and fiber optics cable investigation, this CUL is not applicable in developed locations such as yards and roads.

**Tables**

**Table A-1 NWDZ Supplementary Soil Investigation Data  
Draft (Not Validated)**

Location ID	Sample ID	Sample Date	Chemical Name Unit Depth Interval (ft)	NWTPH-Dx Diesel Range			NWTPH-Dx Oil Range			NWTPH-Dx (Calculated) mg/kg
				Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	
1A-B-7B	1A-B-7B(14-16)	9/19/2008	14-16	ND	1.71	10.7	ND	3.41	26.8	2.56
1A-B-7B	1A-B-7B(12-14)	9/19/2008	12-14	ND	1.69	10.5	ND	3.36	26.3	2.525
1A-B-7B	1A-B-7B(16-18)	9/19/2008	16-18	ND	1.63	10.2	ND	3.24	25.4	2.435
1A-B-7B	1A-B-7B(10-12)	9/19/2008	10-12	ND	1.64	10.2	ND	3.26	25.6	2.45
1A-B-8B	1A-B-8B(13-15)	9/19/2008	13-15	<b>4310</b>	33.5	209	<b>4650</b>	66.7	523	<b>8960</b>
1A-B-8B	1A-B-8B(15-17)	9/19/2008	15-17	<b>3.55</b>	1.63	10.2	<b>33.4</b>	3.25	25.5	<b>36.95</b>
1A-B-8B	1A-B-8B(17-19)	9/19/2008	17-19	<b>2440</b>	16.6	104	<b>2720</b>	33.1	259	<b>5160</b>
1A-B-8B	1A-B-8B(19-21)	9/19/2008	19-21	ND	2.04	12.7	<b>9.94</b>	4.06	31.8	<b>10.96</b>
1A-B-8C	1A-B-8C(19-21)	9/19/2008	19-21	ND	2.3	14.4	<b>11.8</b>	4.58	35.9	<b>12.95</b>
1A-B-8C	1A-B-8C(13-15)	9/19/2008	13-15	<b>1440</b>	17.4	109	<b>2170</b>	34.7	272	<b>3610</b>
1A-B-8C	1A-B-8C(15-17)	9/19/2008	15-17	<b>77.7</b>	1.63	10.2	<b>94.1</b>	3.24	25.4	<b>171.8</b>
1A-B-8C	1A-B-8C(17-19)	9/19/2008	17-19	<b>1350</b>	9.48	59.2	<b>1490</b>	18.9	148	<b>2840</b>
1A-B-8D	1A-B-8D (14-16)	9/29/2008	14-16	ND	1.74	10.9	<b>5.92</b>	3.46	27.1	<b>6.79</b>
1A-B-8D	1A-B-8D (16-18)	9/29/2008	16-18	ND	1.64	10.3	<b>6.13</b>	3.28	25.7	<b>6.95</b>
1A-B-8D	1A-B-8D (18-20)	9/29/2008	18-20	ND	1.65	10.3	<b>10.8</b>	3.28	25.7	<b>11.625</b>
1A-B-8D	1A-B-8D (20-22)	9/29/2008	20-22	ND	2.02	12.6	ND	4.03	31.6	3.025
1A-B-18C	1A-B-18C (18-20)	9/29/2008	18- 20	ND	1.88	11.8	ND	3.76	29.4	2.82
1A-B-18C	1A-B-18C 20-22	9/29/2008	20- 22	ND	2.01	12.6	ND	4.01	31.4	3.01
1A-B-18C	1A-B-18C (8-10)	9/29/2008	8- 10	<b>3.07</b>	1.68	10.5	<b>13.2</b>	3.34	26.2	<b>16.27</b>
1A-B-19C	1A-B-19C (12-14)	9/30/2008	12-14	ND	1.78	11.1	ND	3.54	27.8	2.66
1A-B-19C	1A-B-19C (14-16)	9/30/2008	14-16	ND	1.7	10.6	ND	3.38	26.5	2.54
1A-B-19C	1A-B-19C (16-18)	9/30/2008	16-18	ND	2.18	13.6	<b>5.67</b>	4.34	34	6.76
1A-B-19C	1A-B-19C (18-20)	9/30/2008	18-20	ND	1.95	12.2	ND	3.88	30.4	2.915
1A-B-26	1A-B-26(18-20)	8/25/2008	18-20	<b>13</b>	2.2	10	ND	2.2	25	<b>14.1</b>
1A-B-26	1A-B-26(16-18)	8/25/2008	16-18	<b>4300</b>	24	100	<b>2900</b>	22	250	<b>7200</b>
1A-B-27	1A-B-27(13-15)	8/25/2008	13-15	<b>420</b>	2.4	10	<b>310</b>	2.2	25	<b>730</b>
1A-B-27	1A-B-27(15-17)	8/25/2008	15-17	<b>29</b>	2.4	10	<b>28</b>	2.2	25	<b>57</b>
1A-B-27	1A-B-27(17-19)	8/25/2008	17-19	ND	2.4	10	ND	2.2	25	2.3
1A-B-28	1A-B-28(14-16)	8/25/2008	14-16	<b>5600</b>	24	100	<b>4400</b>	22	250	<b>10000</b>
1A-B-28	1A-B-28(16-18)	8/25/2008	16-18	ND	2.4	10	ND	2.2	25	2.3
1A-B-28	1A-B-28(18-20)	8/25/2008	18-20	ND	2.4	10	ND	2.4	25	2.4
1A-B-29	1A-B-29(8-10)	9/30/2008	8-10	ND	1.65	10.3	<b>11.9</b>	3.29	25.8	<b>12.725</b>
1A-B-29	1A-B-29(10-12)	9/30/2008	10-12	ND	1.63	10.2	<b>4.81</b>	3.25	25.4	<b>5.625</b>
1A-B-29	1A-B-29(12-14)	9/30/2008	12-14	ND	1.85	11.6	ND	3.69	28.9	2.77

**Table A-1 NWDZ Supplementary Soil Investigation Data  
Draft (Not Validated)**

1A-B-30	1A-B-30(12-14)	9/30/2008	12-14	<b>3.77</b>	1.67	10.4	<b>15.3</b>	3.32	26	<b>19.07</b>
1A-B-30	1A-B-30(14-16)	9/30/2008	14-16	ND	1.73	10.8	ND	3.45	27	2.59
1A-B-30	1A-B-30(16-18)	9/30/2008	16-18	ND	2.1	13.1	ND	4.19	32.8	3.145
1A-B-30	1A-B-30(18-20)	9/30/2008	18-20	ND	2.15	13.5	ND	4.29	33.6	3.22
1A-B-31	1A-B-31(12-14)	9/30/2008	12-14	ND	1.69	10.6	ND	3.38	26.5	2.535
1A-B-31	1A-B-31(14-16)	9/30/2008	14-16	ND	1.75	10.9	ND	3.49	27.3	2.62
1A-B-31	1A-B-31(16-18)	9/30/2008	16-18	ND	2.11	13.2	ND	4.2	32.9	3.155
1A-B-31	1A-B-31(18-20)	9/30/2008	18-20	ND	2.12	13.2	ND	4.23	33.1	3.175
1A-B-32	1A-B-32(13-15)	10/1/2008	13-15	<b>569</b>	8.92	55.8	<b>505</b>	17.8	139	<b>1074</b>
1A-B-32	1A-B-32(15-17)	10/1/2008	15-17	ND	2.12	13.3	ND	4.23	33.1	3.175
1A-B-32	1A-B-32(17-19)	10/1/2008	17-19	ND	1.73	10.8	ND	3.46	27.1	2.595
1A-B-33	1A-B-33 (11-13)	10/1/2008	11-13	<b>2530</b>	19.6	122	<b>2250</b>	39	306	<b>4780</b>
1A-B-33	1A-B-33 (13-15)	10/1/2008	13-15	<b>4220</b>	17.5	109	<b>3560</b>	34.8	273	<b>7780</b>
1A-B-33	1A-B-33 (16)	10/1/2008	16	ND	1.81	11.3	<b>12.2</b>	3.61	28.3	<b>13.105</b>
1A-B-33	1A-B-33 (17)	10/1/2008	17	ND	2.17	13.6	ND	4.33	34	3.25
1A-B-34	1A-B-34 (15-17)	10/1/2008	15-17	<b>3.32</b>	1.75	10.9	<b>8.8</b>	3.49	27.3	<b>12.12</b>
1A-B-34	1A-B-34 (17-19)	10/1/2008	17-19	<b>2.51</b>	1.73	10.8	<b>13.8</b>	3.45	27.1	<b>16.31</b>
1A-B-34	1A-B-34 (19-20)	10/1/2008	19-20	ND	1.74	10.9	ND	3.47	27.2	2.605
1A-B-35	1A-B-35(10)	10/6/2008	10	<b>3110</b>	16.9	106	<b>4550</b>	67.5	529	<b>7660</b>
1A-B-35	1A-B-35(14)	10/6/2008	14	<b>25.5</b>	1.66	10.4	<b>62.9</b>	3.31	25.9	<b>88.4</b>
1A-B-35	1A-B-35(15)	10/6/2008	15	<b>6360</b>	36	225	<b>8180</b>	144	1120	<b>14540</b>
1A-B-35	1A-B-35(16)	10/6/2008	16	<b>2.85</b>	1.76	11	<b>31.3</b>	3.52	27.6	<b>34.15</b>
1A-B-35	1A-B-35(17)	10/6/2008	17	ND	1.75	10.9	<b>4.62</b>	3.49	27.4	<b>5.495</b>

**[Bold]** detected value  
 ND non detect  
 [blank cell] not analyzed  
**[Bold Italics]** exceeds 3400 mg/kg

Table A-2 Scisco Property Supplementary Soil Investigation Data

DRAFT (Data Not Validated)

Analytical Method				NWTPH-Dx			NWTPH-Dx			NWTPH-Dx SG Add			NWTPH-Dx SG Add			NWTPH-Dx	NWTPH-Dx
Chemical Name Unit				Oil Range mg/kg			Diesel Range mg/kg			Oil Range mg/kg			Diesel Range mg/kg			(Calculated) mg/kg	(Calculated) mg/kg
Location ID	Sample ID	Sample Date	Depth Interval	Result & Qualifier	MDL	RDL											
2B-B-1	2B-B-1	1/8/2002	0-2	<b>20</b>	0.55	5	<b>59</b>	10	10							<b>79</b>	
2B-B-1	2B-B-1	1/8/2002	6	<b>19</b>	0.53	5	<b>30</b>	10	10							<b>49</b>	
2B-B-1	2B-B-1	1/8/2002	11	ND	0.55	5	ND	10	10							5.28	
2B-B-23	2B-B-23	8/20/2007	4-6	<b>5.54</b> J	3.59	28.1	ND	1.8	11.3							<b>6.44</b>	
2B-B-23	2B-B-23	8/20/2007	6-8	<b>7.07</b> J	3.53	27.7	<b>2.39</b> J	1.77	11.1							<b>9.46</b>	
2B-B-23	2B-B-23	8/20/2007	8-10	ND	3.53	27.7	ND	1.77	11.1							<b>2.65</b>	
2B-B-23	2B-B-23	8/20/2007	10-12	ND	4.44	34.8	ND	2.23	13.9							<b>3.34</b>	
2B-B-38	2B-B-38 (0-2)	9/10/2008	0-2	<b>45.9</b>	4.45	34.8	<b>23.7</b>	2.23	13.9	<b>15.5</b>	4.45	34.8	<b>7.19</b>	2.23	13.9	<b>69.6</b>	<b>22.7</b>
2B-B-38	2B-B-38 (3-5)	9/10/2008	3-5	<b>4.1</b>	3.55	27.9	<b>3.61</b>	1.78	11.1	ND	3.55	27.9	ND	1.78	11.1	<b>7.71</b>	<b>2.67</b>
2B-B-38D	2B-B-38D	9/30/2008	0-2	<b>24.1</b>	4.45	34.9	<b>3.37</b>	2.23	13.9	<b>9.59</b>	4.45	34.9	ND	2.23	13.9	<b>27.5</b>	<b>10.7</b>
2B-B-38D	2B-B-38D	9/30/2008	2-4	<b>16.2</b>	4.6	36.1	<b>3.09</b>	2.31	14.4	ND	4.6	36.1	ND	2.31	14.4	<b>19.3</b>	<b>3.46</b>
2B-B-38D	2B-B-38D	9/30/2008	4-6	<b>6.87</b>	3.84	30.1	ND	1.92	12	ND	3.84	30.1	ND	1.92	12	<b>7.83</b>	<b>2.88</b>
2B-B-38D	2B-B-38D	9/30/2008	6-8	ND	3.57	28	ND	1.79	11.2	ND	3.57	28	ND	1.79	11.2	2.68	2.68
2B-B-39	2B-B-39 (0.5-3)	9/10/2008	0.5-3	<b>41.4</b>	3.62	28.3	<b>10.9</b>	1.81	11.3	<b>14.4</b>	3.62	28.3	<b>3.13</b>	1.81	11.3	<b>52.3</b>	<b>17.5</b>
2B-B-39B	2B-B-39B	9/30/2008	2-4	<b>6.87</b>	4.44	34.8	ND	2.23	13.9	ND	4.44	34.8	ND	2.23	13.9	<b>7.99</b>	<b>3.34</b>
2B-B-39B	2B-B-39B	9/30/2008	4-6	ND	3.79	29.7	ND	1.9	11.9	ND	3.79	29.7	ND	1.9	11.9	2.85	2.85
2B-B-39B	2B-B-39B	9/30/2008	6-8	ND	3.89	30.5	ND	1.95	12.2	ND	3.89	30.5	ND	1.95	12.2	2.92	2.92
2B-B-39B	2B-B-39B	9/30/2008	8-10	ND	4.2	32.9	ND	2.11	13.2	ND	4.2	32.9	ND	2.11	13.2	3.16	3.16
2B-W-4	2B-W-4	12/17/2001	0-2	<b>34</b>	0.51	5	<b>130</b>	10	10							<b>164</b>	
2B-W-4	2B-W-4	12/17/2001	4	ND	0.5	5	ND	10	10							5.25	
2B-W-4	2B-W-4	12/17/2001	7	<b>7.4</b>	0.54	5	<b>33</b>	10	10							<b>40.4</b>	
2B-W-4	2B-W-4	12/17/2001	7	ND	0.51	5	<b>13</b>	10	10							<b>13.3</b>	
2B-W-4	2B-W-4	12/17/2001	19	<b>23</b>	0.5	5	<b>130</b>	10	10							<b>153</b>	

[**Bold**] detected value  
 ND non detect  
 [blank cell] not analyzed  
 [**Bold Italics**] exceeds 22 mg/kg or 208 µg/l  
 NWTPH-Dx SG Add samples analyzed following acid/silica gel cleanup  
 SPLP Synthetic Precipitation Leaching Procedure

Table A-2 Scisco Property Supplementary Soil Investigation Data

DRAFT (Data Not Validated)

Analytical Method				NWTPH-Dx SPLP filtered			NWTPH-Dx SPLP Filtered			NWTPH-Dx SPLP Unfiltered			NWTPH-Dx SPLP Unfiltered			NWTPH-Dx SPLP Filtered (Calculated)	NWTPH-Dx SPLP Unfiltered (Calculated)
Chemical Name				Oil Range			Diesel Range			Oil Range			Diesel Range				
Unit				µg/l			µg/l			µg/l			µg/l			µg/l	µg/l
Location ID	Sample ID	Sample Date	Depth Interval	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL		
2B-B-1	2B-B-1	1/8/2002	0-2														
2B-B-1	2B-B-1	1/8/2002	6														
2B-B-1	2B-B-1	1/8/2002	11														
2B-B-23	2B-B-23	8/20/2007	4-6														
2B-B-23	2B-B-23	8/20/2007	6-8														
2B-B-23	2B-B-23	8/20/2007	8-10														
2B-B-23	2B-B-23	8/20/2007	10-12														
2B-B-38	2B-B-38 (0-2)	9/10/2008	0-2	ND	200	1110	ND	88.9	556	ND	200	1110	ND	88.9	556	144.45	144.45
2B-B-38	2B-B-38 (3-5)	9/10/2008	3-5														
2B-B-38D	2B-B-38D	9/30/2008	0-2														
2B-B-38D	2B-B-38D	9/30/2008	2-4														
2B-B-38D	2B-B-38D	9/30/2008	4-6														
2B-B-38D	2B-B-38D	9/30/2008	6-8														
2B-B-39	2B-B-39 (0.5-3)	9/10/2008	0.5-3	ND	94.7	526	ND	42.1	263	ND	94.7	526	ND	42.1	263	68.4	68.4
2B-B-39B	2B-B-39B	9/30/2008	2-4														
2B-B-39B	2B-B-39B	9/30/2008	4-6														
2B-B-39B	2B-B-39B	9/30/2008	6-8														
2B-B-39B	2B-B-39B	9/30/2008	8-10														
2B-W-4	2B-W-4	12/17/2001	0-2														
2B-W-4	2B-W-4	12/17/2001	4														
2B-W-4	2B-W-4	12/17/2001	7														
2B-W-4	2B-W-4	12/17/2001	7														
2B-W-4	2B-W-4	12/17/2001	19														

**[Bold]** detected value  
 ND non detect  
 [blank cell] not analyzed  
**[Bold Italics]** exceeds 22 mg/kg or 2 samples analyzed following Synthetic Precipitation  
 NWTPH-Dx SG Add  
 SPLP

**Table A-3 Robinson Property Supplementary Soil Investigation Data**

DRAFT (Data Not Validated)

Analytical Method Chemical Name Unit				NWTPH-Dx Oil Range mg/kg			NWTPH-Dx Diesel Range mg/kg			NWTPH-Dx SG Add Oil Range mg/kg			NWTPH-Dx SG Add Diesel Range mg/kg			NWTPH-Dx (Calculated) mg/kg	NWTPH-Dx SG Add (Calculated) mg/kg
Location ID	Sample ID	Sample Date	Depth Interval	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL		
2B-B-42	2B-B-42 (0-2)	10/3/2008	0-2	<b>9.08</b> J	3.54	27.8	ND	1.78	11.1	ND	3.54	27.8	ND	1.78	11.1	<b>9.97</b>	<b>2.66</b>
2B-B-42	2B-B-42 (2-4)	10/3/2008	2-4	<b>3.54</b> J	3.37	26.4	ND	1.69	10.6	ND	3.37	26.4	ND	1.69	10.6	<b>4.39</b>	<b>2.53</b>
2B-B-42	2B-B-42 (4-6)	10/3/2008	4-6	ND	3.48	27.3	ND	1.75	10.9	ND	3.48	27.3	ND	1.75	10.9	2.62	2.62
2B-B-42	2B-B-42 (6-8)	10/3/2008	6-8	ND	3.57	28	ND	1.79	11.2	ND	3.57	28	ND	1.79	11.2	2.68	2.68
2B-B-43	2B-B-43 (0-2)	10/3/2008	0-2	<b>7.17</b> J	3.42	26.8	ND	1.71	10.7	ND	3.42	26.8	ND	1.71	10.7	<b>8.03</b>	<b>2.57</b>
2B-B-43	2B-B-43 (2-4)	10/3/2008	2-4	<b>6.82</b> J	3.43	26.9	ND	1.72	10.8	ND	3.43	26.9	ND	1.72	10.8	<b>7.68</b>	<b>2.58</b>
2B-B-43	2B-B-43 (4-6)	10/3/2008	4-6	<b>5.64</b> J	3.46	27.1	ND	1.74	10.8	ND	3.46	27.1	ND	1.74	10.8	<b>6.51</b>	<b>2.6</b>
2B-B-43	2B-B-43 (6-8)	10/3/2008	6-8	ND	3.42	26.8	ND	1.72	10.7	ND	3.42	26.8	ND	1.72	10.7	2.57	2.57
2B-B-43	2B-B-43 (10-12)	10/3/2008	10-12	ND	3.39	26.6	ND	1.7	10.6	ND	3.39	26.6	ND	1.7	10.6	2.55	2.55
2B-B-44	2B-B-44 (0-2)	10/3/2008	0-2	<b>146</b>	3.49	27.4	<b>43</b>	1.75	10.9	<b>61.3</b>	3.49	27.4	<b>24.9</b>	1.75	10.9	<b>189</b>	<b>86.2</b>
2B-B-44	2B-B-44 (2-4)	10/3/2008	2-4	<b>1240</b> Q4	82.6	647	<b>339</b> Q4	41.4	259	<b>325</b> Q4	4.13	32.4	<b>165</b> Q4	2.07	12.9	<b>1579</b>	<b>490</b>
2B-B-44	2B-B-44 (4-6)	10/3/2008	4-6	<b>41.1</b>	3.71	29.1	<b>6.93</b> Q4	1.86	11.6	<b>16.2</b> J	3.71	29.1	<b>3.69</b> J	1.86	11.6	<b>48.03</b>	<b>19.89</b>
2B-B-44	2B-B-44 (6-8)	10/3/2008	6-8	<b>3.75</b> J	27.8	27.8	ND	1.78	11.1	ND	3.54	27.8	ND	1.78	11.1	<b>4.64</b>	<b>2.66</b>

[**Bold**] detected value  
 ND non detect  
 [blank cell] not analyzed  
 [**Bold Italics**] exceeds 22 mg/kg  
 NWTPH-Dx SG Add samples analyzed following acid/silica gel cleanup

**Table A-4 Fiber Optic Cable Supplementary Soil and Groundwater Investigation Data**

DRAFT (Data Not Validated)

Analytical Method				NWTPH-Dx			NWTPH-Dx			NWTPH-Dx SG Add			NWTPH-Dx SG Add			NWTPH-Dx	NWTPH-Dx
Chemical Name Unit				Oil Range mg/kg			Diesel Range mg/kg			Oil Range mg/kg			Diesel Range mg/kg			(Calculated)	(Calculated)
Location ID	Sample ID	Sample Date	Depth Interval	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	mg/kg	mg/kg
2B-W-45	2B-W-45 (10-12)	11/11/2008	10-12	ND	3.57	28	ND	1.79	11.2	ND	3.57	28	ND	1.79	11.2	2.68	2.68
2B-W-45	2B-W-45 (12-14)	11/11/2008	12-14	ND	3.5	27.5	ND	1.76	11	ND	3.5	27.5	ND	1.76	11	2.63	2.63
2B-W-45	2B-W-45 (14-16)	11/11/2008	14-16	ND	3.44	27	ND	1.73	10.8	ND	3.44	27	ND	1.73	10.8	2.59	2.59
2B-W-45	2B-W-45 (16-18)	11/11/2008	16-18	ND	3.42	26.8	ND	1.71	10.7	ND	3.42	26.8	ND	1.71	10.7	2.57	2.57
2B-W-45	5-W-45-1208	12/17/2008	---														
2B-W-46	2B-W-46 (10-12)	11/11/2008	10-12	ND	3.55	27.8	ND	1.78	11.1	ND	3.55	27.8	ND	1.78	11.1	2.67	2.67
2B-W-46	2B-W-46 (12-14)	11/11/2008	12-14	<b>35 J</b>	3.59	28.2	6.05	1.8	11.3	<b>21.1</b>	3.59	<b>28.2</b>	ND	1.8	11.3	<b>41.05</b>	<b>22.00</b>
2B-W-46	2B-W-46 (14-16)	11/11/2008	14-16	ND	3.5	27.4	ND	1.76	11	ND	3.5	27.4	ND	1.76	11	2.63	2.63
2B-W-46	2B-W-46 (16-18)	11/11/2008	16-18	ND	3.49	27.4	ND	1.75	10.9	ND	3.49	27.4	ND	1.75	10.9	2.62	2.62
2B-W-46	5-W-46-1208	12/17/2008	---														

**[Bold]** detected value  
 ND non detect  
 [blank cell] not analyzed  
**[Bold Italics]** exceeds 22 mg/kg or 208 µg/l  
 NWTPH-Dx SG Add samples analyzed following acid/silica gel cleanup

**Table A-4 Fiber Optic Cable Supplementary Soil and Groundwater Investigation Data**

DRAFT (Data Not Validated)

Location ID	Sample ID	Sample Date	Depth Interval	Analytical Method		NWTPH-Dx Oil Range $\mu\text{g/l}$			NWTPH-Dx Diesel Range $\mu\text{g/l}$			NWTPH-Dx (Calculated) $\mu\text{g/l}$
				Chemical Name	Unit	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	
2B-W-45	2B-W-45 (10-12)	11/11/2008	10-12									
2B-W-45	2B-W-45 (12-14)	11/11/2008	12-14									
2B-W-45	2B-W-45 (14-16)	11/11/2008	14-16									
2B-W-45	2B-W-45 (16-18)	11/11/2008	16-18									
2B-W-45	5-W-45-1208	12/17/2008	---			ND	84.9	472	ND	37.7	236	61.3
2B-W-46	2B-W-46 (10-12)	11/11/2008	10-12									
2B-W-46	2B-W-46 (12-14)	11/11/2008	12-14									
2B-W-46	2B-W-46 (14-16)	11/11/2008	14-16									
2B-W-46	2B-W-46 (16-18)	11/11/2008	16-18									
2B-W-46	5-W-46-1208	12/17/2008	---			ND	84.9	472	ND	37.7	236	61.3

**[Bold]** detected value  
 ND non detect  
 [blank cell] not analyzed  
**[Bold Italics]** exceeds 22 mg/kg or 20%  
 NWTPH-Dx SG Add samples analyzed followi

**Figures**

File: L:\BNSF-Skykomish\2009 EDR Appendix A\Figure A-1.dwg Layout: figure 1 User: MarshallE Plotted: Dec 17, 2008 - 12:06pm Xref's:



**LEGEND**

- PROPERTY LINE
- ▲ 2008 SUPPLEMENTARY INVESTIGATION BORING LOCATIONS
- ◆ 2007 BORING LOCATIONS
- ⊕ PRE-2007 BORING LOCATIONS
- 2006 PHASE I INVESTIGATION BOREHOLE LOCATION
- ⊙ 2006 PHASE II INVESTIGATION BOREHOLE LOCATION
- ⊗ 2006 CONFIRMATION SAMPLES
- 1250 MAXIMUM TPH CONCENTRATION (mg/kg) IN BORING SAMPLES
- BELOW SOIL CUL 22mg/kg NWTPH-Dx
- ABOVE SOIL CUL 22mg/kg NWTPH-Dx, BELOW RL
- ABOVE RL 3,400 mg/kg NWTPH-Dx

**NOTES:**

1. TPH RESULT DENOTES HIGHEST CONCENTRATION REPORTED AT RESPECTIVE LOCATIONS.

\* SAMPLE COLLECTED BELOW NAPL  
 NA NOT AVAILABLE



**ENSR | AECOM**

**BNSF RAILWAY - SKYKOMISH, WA.**  
 2009 EDR  
 01140-204

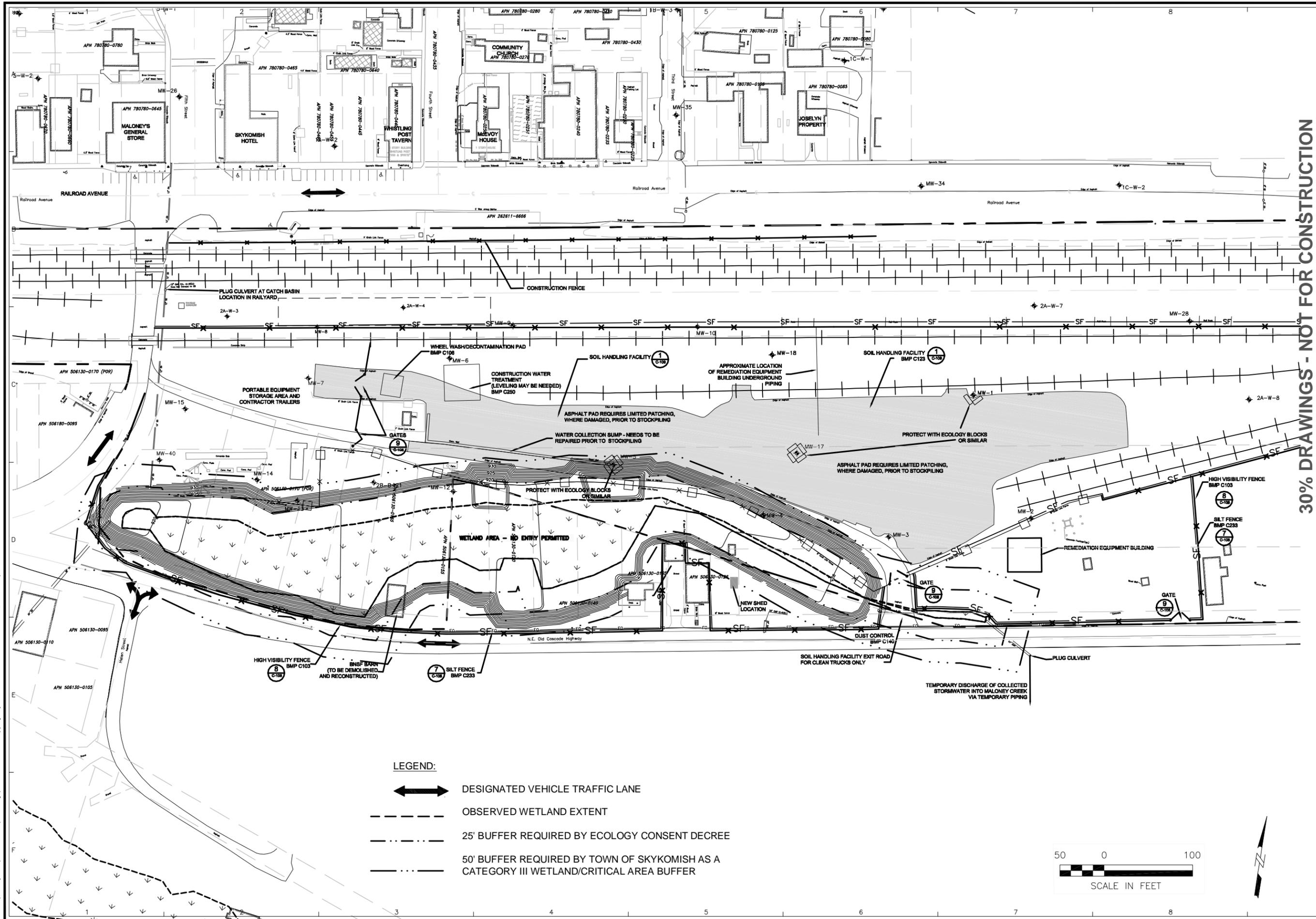
**TPH CONCENTRATIONS  
 NORTHWEST DEVELOPED ZONE**

DATE: 12/16/08 DRWN: E.M./SEA

**FIGURE A-1**



File: L:\BNSF-Skykomish\2009 remediation\30% drawings\MALONEY\_CREEK-SITE\_PREP(16).dwg Legend: C-104 User: Marnabae Plotted: File 11, 2009 - 2:27pm Title: 30% Drawings - NOT FOR CONSTRUCTION



30% DRAWINGS - NOT FOR CONSTRUCTION

<b>MALONEY CREEK EAST WETLAND SITE PREPARATION AND EROSION CONTROL</b>	<b>ENSUR AECOM</b>	<small>ENSUR CORPORATION Seattle, Washington 98104 (206) 624-8849 www.ensur-aecom.com</small>	BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON	PROJ. NO.: 01140-222-210 DATE: 2/11/09	NO. DRAWING DATE REVISION APPROV. DATE
	2009 REMEDIATION	DRAWING NUMBER: <b>C-104</b>	SHEET NUMBER: 	REVISION   0	

**Attachment 1 – NWDZ Laboratory Reports**

CASE NARRATIVE

This case narrative encompasses samples received on August 25, 2008 by Friedman & Bruya, Inc. from the Skykomish, F&BI S081825 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>ENSR</u>	<u>Date of Analysis</u>	<u>Time of Analysis</u>
S081825-01	1A-B-26(16-18)	08/25/2008	10:21
S081825-02	1A-B-26(18-20)	08/25/2008	11:48

All quality control requirements were acceptable.

Date of Report: 08/26/08  
Date Received: 08/25/08  
Project: Skykomish, F&BI S081825  
Date Extracted: 08/25/08  
Date Analyzed: 08/25/08

**MOBILE LABORATORY RESULTS FROM THE ANALYSIS OF SOIL  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND  
MOTOR OIL USING METHOD NWTPH-Dx**

Silica Gel Column Cleanup Procedure Not Performed

Results Reported on a Wet Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
1A-B-26(16-18) d S081825-01	4,300	2,900	ip
1A-B-26(18-20) S081825-02	13	<25	96
Method Blank	<10	<25	122

Date of Report: 08/26/08  
 Date Received: 08/25/08  
 Project: Skykomish, F&BI S081825

**MOBILE LABORATORY QUALITY ASSURANCE RESULTS FROM THE  
 ANALYSIS OF SOIL SAMPLES FOR DIESEL AND MOTOR OIL  
 BY METHOD NWTPH-Dx**

Laboratory Code: S081825-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Diesel	mg/kg (ppm)	13	<10	nm	0-20
Motor Oil	mg/kg (ppm)	<25	<25	nm	0-20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel	mg/kg (ppm)	100	130	70-130
Motor Oil	mg/kg (ppm)	100	100	70-130

## Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.



S080825B (S082825)

**SAMPLE CHAIN OF CUSTODY**

Send Report To Kevin Knecht  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State, ZIP \_\_\_\_\_  
 Phone # \_\_\_\_\_ Fax # \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_ PO # \_\_\_\_\_  
 PROJECT NAME/NO. \_\_\_\_\_  
Styko Wash  
 REMARKS \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Instoline	BTEX by 8021B	VOCs by 8260	SVOs by 8270	IIFS		
1A-B-27 (13-14)	01	8/25/08	104	S	1	X							
1A-B-27 (15-17)	02	8/25/08	1035	S	1	X							
1A-B-27 (17-19)	03	8/25/08	1040	S	1	X							
1A-B-28 (14-16)	04	8/25/08	1150	S	1	X							
1A-B-28 (16-18)	05	8/25/08	1155	S	1	X							
1A-B-28 (18-20)	06	8/25/08	1200	S	1	X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<i>[Signature]</i>	Kevin Knecht	ENSR	8/25/08	1050
<i>[Signature]</i>	Eric Cunniff	F9B	8/25/08	1100
Relinquished by: _____				
Received by: _____				
Relinquished by: _____				
Received by: _____				

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044  
 FORMS\COC\COCCOC.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 25, 2008 by Friedman & Bruya, Inc. from the Skykomish, F&BI S082825 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>ENSR</u>	<u>Date of Analysis</u>	<u>Time of Analysis</u>
S082825-01	1A-B-27(13-15)	08/25/2008	11:10
S082825-02	1A-B-27(15-17)	08/25/2008	13:11
S082825-03	1A-B-27(17-19)	08/25/2008	13:39
S082825-04	1A-B-28(14-16)	08/25/2008	14:07
S082825-05	1A-B-28(16-18)	08/25/2008	15:14
S082825-06	1A-B-28(18-20)	08/25/2008	15:41

All quality control requirements were acceptable.

Date of Report: 08/26/08  
Date Received: 08/25/08  
Project: Skykomish, F&BI S082825  
Date Extracted: 08/25/08  
Date Analyzed: 08/25/08

**MOBILE LABORATORY RESULTS FROM THE ANALYSIS OF SOIL  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND  
MOTOR OIL USING METHOD NWTPH-Dx**

Silica Gel Column Cleanup Procedure Not Performed

Results Reported on a Wet Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 50-150)
1A-B-27(13-15) S082825-01	420	310	120
1A-B-27(15-17) S082825-02	29	29	125
1A-B-27(17-19) S082825-03	<10	<25	132
1A-B-28(14-16) d S082825-04	5,600	4,400	ip
1A-B-28(16-18) S082825-05	<10	<25	122
1A-B-28(18-20) S082825-06	<10	<25	102
Method Blank	<10	<25	122

Date of Report: 08/26/08  
Date Received: 08/25/08  
Project: Skykomish, F&BI S082825

**MOBILE LABORATORY QUALITY ASSURANCE RESULTS FROM THE  
ANALYSIS OF SOIL SAMPLES FOR DIESEL AND MOTOR OIL  
BY METHOD NWTPH-Dx**

Laboratory Code: S081825-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Diesel	mg/kg (ppm)	13	<10	nm	0-20
Motor Oil	mg/kg (ppm)	<25	<25	nm	0-20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel	mg/kg (ppm)	100	130	70-130
Motor Oil	mg/kg (ppm)	100	100	70-130

## Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - The analyte indicated was found in the method blank. The result should be considered an estimate.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - The sample was extracted outside of holding time. Results should be considered estimates.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The pattern of peaks present is not indicative of diesel.
- y - The pattern of peaks present is not indicative of motor oil.

October 03, 2008

Renee Knecht  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/01/08 13:20.  
The following list is a summary of the Work Orders contained in this report, generated on 10/03/08  
08:59.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRJ0004	BNSF-Skykomish Remedial D	01140-204-0320

---

TestAmerica Seattle



Kate Haney, Project 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.*



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
--	--	-----------------------------------

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A-B-29(8-10)	BRJ0004-01	Soil	09/30/08 13:35	10/01/08 13:20
1A-B-29(10-12)	BRJ0004-02	Soil	09/30/08 13:36	10/01/08 13:20
1A-B-29(12-14)	BRJ0004-03	Soil	09/30/08 13:37	10/01/08 13:20
1A-B-30(12-14)	BRJ0004-04	Soil	09/30/08 14:45	10/01/08 13:20
1A-B-30(14-16)	BRJ0004-05	Soil	09/30/08 14:46	10/01/08 13:20
1A-B-30(16-18)	BRJ0004-06	Soil	09/30/08 14:47	10/01/08 13:20
1A-B-30(18-20)	BRJ0004-07	Soil	09/30/08 14:48	10/01/08 13:20
1A-B-31(12-14)	BRJ0004-08	Soil	09/30/08 15:45	10/01/08 13:20
1A-B-31(14-16)	BRJ0004-09	Soil	09/30/08 15:46	10/01/08 13:20
1A-B-31(16-18)	BRJ0004-10	Soil	09/30/08 15:47	10/01/08 13:20
1A-B-31(18-20)	BRJ0004-11	Soil	09/30/08 15:48	10/01/08 13:20
1A-B-32(13-15)	BRJ0004-12	Soil	10/01/08 09:05	10/01/08 13:20
DUP01-100108	BRJ0004-13	Soil	10/01/08 08:30	10/01/08 13:20
1A-B-32(15-17)	BRJ0004-14	Soil	10/01/08 09:20	10/01/08 13:20
1A-B-32(17-19)	BRJ0004-15	Soil	10/01/08 09:25	10/01/08 13:20

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/03/08 08:59

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRJ0004**

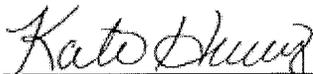
**SAMPLE RECEIPT**

The samples were received 10/01/08 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 6.0 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

*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.*



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**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	
<b>BRJ0004-01</b>	<b>(1A-B-29(8-10))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 13:35</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.65	10.3	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 12:41		
Lube Oil Range Hydrocarbons	"	<b>11.9</b>	3.29	25.8	"	"	"	"	"	J	
Surrogate(s):	2-FBP		84.5%		54 - 148 %	"			"		
	Octacosane		72.5%		62 - 142 %	"			"		
<b>BRJ0004-02</b>	<b>(1A-B-29(10-12))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 13:36</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.63	10.2	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 13:09		
Lube Oil Range Hydrocarbons	"	<b>4.81</b>	3.25	25.4	"	"	"	"	"	J	
Surrogate(s):	2-FBP		82.9%		54 - 148 %	"			"		
	Octacosane		73.8%		62 - 142 %	"			"		
<b>BRJ0004-03</b>	<b>(1A-B-29(12-14))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 13:37</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.85	11.6	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 13:37		
Lube Oil Range Hydrocarbons	"	ND	3.69	28.9	"	"	"	"	"		
Surrogate(s):	2-FBP		85.5%		54 - 148 %	"			"		
	Octacosane		78.1%		62 - 142 %	"			"		
<b>BRJ0004-04</b>	<b>(1A-B-30(12-14))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 14:45</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>3.77</b>	1.67	10.4	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 14:07	J	
Lube Oil Range Hydrocarbons	"	<b>15.3</b>	3.32	26.0	"	"	"	"	"	J	
Surrogate(s):	2-FBP		86.9%		54 - 148 %	"			"		
	Octacosane		69.8%		62 - 142 %	"			"		
<b>BRJ0004-05</b>	<b>(1A-B-30(14-16))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 14:46</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.73	10.8	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 14:36		
Lube Oil Range Hydrocarbons	"	ND	3.45	27.0	"	"	"	"	"		
Surrogate(s):	2-FBP		87.3%		54 - 148 %	"			"		
	Octacosane		87.5%		62 - 142 %	"			"		
<b>BRJ0004-06</b>	<b>(1A-B-30(16-18))</b>	<b>Soil</b>			<b>Sampled: 09/30/08 14:47</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.10	13.1	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 18:22		
Lube Oil Range Hydrocarbons	"	ND	4.19	32.8	"	"	"	"	"		
Surrogate(s):	2-FBP		92.2%		54 - 148 %	"			"		
	Octacosane		102%		62 - 142 %	"			"		

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project 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.*



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**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
<b>BRJ0004-07 (1A-B-30(18-20))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 14:48</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.15	13.5	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 13:44	
Lube Oil Range Hydrocarbons	"	ND	4.29	33.6	"	"	"	"	"	
Surrogate(s): 2-FBP			90.3%		54 - 148 %	"				
Octacosane			102%		62 - 142 %	"				
<b>BRJ0004-08 (1A-B-31(12-14))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 15:45</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.69	10.6	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 14:08	
Lube Oil Range Hydrocarbons	"	ND	3.38	26.5	"	"	"	"	"	
Surrogate(s): 2-FBP			91.4%		54 - 148 %	"				
Octacosane			99.2%		62 - 142 %	"				
<b>BRJ0004-09 (1A-B-31(14-16))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 15:46</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 14:31	
Lube Oil Range Hydrocarbons	"	ND	3.49	27.3	"	"	"	"	"	
Surrogate(s): 2-FBP			91.3%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				
<b>BRJ0004-10 (1A-B-31(16-18))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 15:47</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.11	13.2	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 16:03	
Lube Oil Range Hydrocarbons	"	ND	4.20	32.9	"	"	"	"	"	
Surrogate(s): 2-FBP			89.4%		54 - 148 %	"				
Octacosane			96.9%		62 - 142 %	"				
<b>BRJ0004-11 (1A-B-31(18-20))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 15:48</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.12	13.2	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 16:26	
Lube Oil Range Hydrocarbons	"	ND	4.23	33.1	"	"	"	"	"	
Surrogate(s): 2-FBP			88.8%		54 - 148 %	"				
Octacosane			94.4%		62 - 142 %	"				
<b>BRJ0004-12 (1A-B-32(13-15))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 09:05</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	569	8.92	55.8	mg/kg dry	5x	8J01038	10/01/08 14:39	10/02/08 16:49	Q4
Lube Oil Range Hydrocarbons	"	505	17.8	139	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			102%		54 - 148 %	"				
Octacosane			108%		62 - 142 %	"				

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**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
<b>BRJ0004-13 (DUP01-100108)</b>	<b>Soil</b>		<b>Sampled: 10/01/08 08:30</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>812</b>	8.70	54.4	mg/kg dry	5x	8J01038	10/01/08 14:39	10/02/08 17:11	Q4
Lube Oil Range Hydrocarbons	"	<b>710</b>	17.3	136	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			108%		54 - 148 %	"				
Octacosane			114%		62 - 142 %	"				
<b>BRJ0004-14 (1A-B-32(15-17))</b>	<b>Soil</b>		<b>Sampled: 10/01/08 09:20</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.12	13.3	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 17:35	
Lube Oil Range Hydrocarbons	"	ND	4.23	33.1	"	"	"	"	"	
Surrogate(s): 2-FBP			94.1%		54 - 148 %	"				
Octacosane			104%		62 - 142 %	"				
<b>BRJ0004-15 (1A-B-32(17-19))</b>	<b>Soil</b>		<b>Sampled: 10/01/08 09:25</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.73	10.8	mg/kg dry	1x	8J01038	10/01/08 14:39	10/02/08 17:59	
Lube Oil Range Hydrocarbons	"	ND	3.46	27.1	"	"	"	"	"	
Surrogate(s): 2-FBP			92.6%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				

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*Kate Haney*

Kate Haney, Project Manager

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0004-01</b> (1A-B-29(8-10))		<b>Soil</b>			<b>Sampled: 09/30/08 13:35</b>					
Dry Weight	BSOPSPLO03R0 8	96.0	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-02</b> (1A-B-29(10-12))		<b>Soil</b>			<b>Sampled: 09/30/08 13:36</b>					
Dry Weight	BSOPSPLO03R0 8	96.6	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-03</b> (1A-B-29(12-14))		<b>Soil</b>			<b>Sampled: 09/30/08 13:37</b>					
Dry Weight	BSOPSPLO03R0 8	86.6	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-04</b> (1A-B-30(12-14))		<b>Soil</b>			<b>Sampled: 09/30/08 14:45</b>					
Dry Weight	BSOPSPLO03R0 8	95.4	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-05</b> (1A-B-30(14-16))		<b>Soil</b>			<b>Sampled: 09/30/08 14:46</b>					
Dry Weight	BSOPSPLO03R0 8	92.0	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-06</b> (1A-B-30(16-18))		<b>Soil</b>			<b>Sampled: 09/30/08 14:47</b>					
Dry Weight	BSOPSPLO03R0 8	75.9	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-07</b> (1A-B-30(18-20))		<b>Soil</b>			<b>Sampled: 09/30/08 14:48</b>					
Dry Weight	BSOPSPLO03R0 8	74.1	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-08</b> (1A-B-31(12-14))		<b>Soil</b>			<b>Sampled: 09/30/08 15:45</b>					
Dry Weight	BSOPSPLO03R0 8	93.8	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-09</b> (1A-B-31(14-16))		<b>Soil</b>			<b>Sampled: 09/30/08 15:46</b>					
Dry Weight	BSOPSPLO03R0 8	90.6	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-10</b> (1A-B-31(16-18))		<b>Soil</b>			<b>Sampled: 09/30/08 15:47</b>					
Dry Weight	BSOPSPLO03R0 8	75.9	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-11</b> (1A-B-31(18-20))		<b>Soil</b>			<b>Sampled: 09/30/08 15:48</b>					

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Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0004-11 (1A-B-31(18-20))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 15:48</b>					
Dry Weight	BSOPSPLO03R0 8	75.5	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-12 (1A-B-32(13-15))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 09:05</b>					
Dry Weight	BSOPSPLO03R0 8	88.8	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-13 (DUP01-100108)</b>		<b>Soil</b>			<b>Sampled: 10/01/08 08:30</b>					
Dry Weight	BSOPSPLO03R0 8	91.7	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-14 (1A-B-32(15-17))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 09:20</b>					
Dry Weight	BSOPSPLO03R0 8	74.9	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	
<b>BRJ0004-15 (1A-B-32(17-19))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 09:25</b>					
Dry Weight	BSOPSPLO03R0 8	92.0	----	1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00	

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8J01038      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J01038-BLK1)</b> <span style="float:right">Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/02/08 10:17	
Lube Oil Range Hydrocarbons	"	18.3	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 82.9%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 10:17</i>		
<i>Octacosane</i>		<i>82.7%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Blank (8J01038-BLK2)</b> <span style="float:right">Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/02/08 11:04	
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.5%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 11:04</i>		
<i>Octacosane</i>		<i>99.6%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>LCS (8J01038-BS1)</b> <span style="float:right">Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	66.3	1.60	10.0	mg/kg wet	1x	--	66.7	99.4%	(78-129)	--	--	10/02/08 10:46	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 83.3%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 10:46</i>		
<i>Octacosane</i>		<i>75.0%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>LCS (8J01038-BS2)</b> <span style="float:right">Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	54.1	1.60	10.0	mg/kg wet	1x	--	66.7	81.2%	(78-129)	--	--	10/02/08 11:28	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 89.9%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 11:28</i>		
<i>Octacosane</i>		<i>97.0%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Duplicate (8J01038-DUP1)</b> <span style="float:right">QC Source: BRJ0004-02      Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.66	10.3	mg/kg dry	1x	ND	--	--	--	NR (40)		10/02/08 11:15	
Lube Oil Range Hydrocarbons	"	14.0	3.30	25.9	"	"	4.81	--	--	--	97.5%	"	"	R4, J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 89.2%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 11:15</i>		
<i>Octacosane</i>		<i>78.9%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Duplicate (8J01038-DUP2)</b> <span style="float:right">QC Source: BRJ0004-03      Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.85	11.6	mg/kg dry	1x	ND	--	--	--	NR (40)		10/02/08 11:43	
Lube Oil Range Hydrocarbons	"	11.5	3.69	28.9	"	"	ND	--	--	--	"	"	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 92.7%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 11:43</i>		
<i>Octacosane</i>		<i>86.0%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Duplicate (8J01038-DUP3)</b> <span style="float:right">QC Source: BRJ0004-02RE1      Extracted: 10/01/08 14:39</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.66	10.3	mg/kg dry	1x	ND	--	--	--	NR (40)		10/02/08 11:50	
Lube Oil Range Hydrocarbons	"	ND	3.30	25.9	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 91.3%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 11:50</i>		
<i>Octacosane</i>		<i>99.7%</i>		<i>62-142%</i>		"						<i>"</i>		

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J01038      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Duplicate (8J01038-DUP4)</b>			QC Source: BRJ0004-03RE1				Extracted: 10/01/08 14:39							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.85	11.6	mg/kg dry	1x	ND	--	--	--	NR (40)		10/02/08 12:13	
Lube Oil Range Hydrocarbons	"	ND	3.69	28.9	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 90.9%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 12:13</i>		
<i>Octacosane</i>		<i>101%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Matrix Spike (8J01038-MS1)</b>			QC Source: BRJ0004-02				Extracted: 10/01/08 14:39							
Diesel Range Hydrocarbons	NWTPH-Dx	68.4	1.66	10.3	mg/kg dry	1x	ND	69.0	99.1%	(46-155)	--	--	10/02/08 12:11	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 86.6%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 12:11</i>		
<i>Octacosane</i>		<i>87.7%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Matrix Spike (8J01038-MS2)</b>			QC Source: BRJ0004-02RE1				Extracted: 10/01/08 14:39							
Diesel Range Hydrocarbons	NWTPH-Dx	55.1	1.66	10.3	mg/kg dry	1x	ND	69.0	79.9%	(46-155)	--	--	10/02/08 12:37	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 97.4%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 12:37</i>		
<i>Octacosane</i>		<i>102%</i>		<i>62-142%</i>		"						<i>"</i>		

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 08:59
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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J01039      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J01039-BLK1)</b>										Extracted: 10/01/08 14:41				
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/02/08 00:00	

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*Kate Haney*

Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name:

**BNSF-Skykomish Remedial Design Investigation**

Project Number:

01140-204-0320

Report Created:

Project Manager:

Renee Knecht

10/03/08 08:59

## 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- 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
- 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 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



Kate Haney, Project Manager

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 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

425-420-9200 FAX 420-9210  
 509-924-9200 FAX 924-9290  
 503-906-9200 FAX 906-9210  
 907-565-9200 FAX 563-9210

## CHAIN OF CUSTODY REPORT

Work Order #: BA0074

CLIENT: <u>ENSR FOR BUSE</u>		INVOICE TO: <u>BRUCE SHEPARD / BUSE</u>		TURNAROUND REQUEST	
REPORT TO: <u>RENEE KNECHT</u>		ADDRESS: <u>SARA ABLANO / ENSR</u>		in Business Days *	
PHONE: <u>206-992-1095</u> FAX:		P.O. NUMBER:		<input type="checkbox"/> 10 STD. <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 Organic & Inorganic Analyses	
PROJECT NAME: <u>SKYKOMISH RDI</u>		PRESERVATIVE		<input type="checkbox"/> 5 STD. <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 Petroleum Hydrocarbon Analyses	
PROJECT NUMBER: <u>01140 - 204-6320</u>		REQUESTED ANALYSES		OTHER: <input checked="" type="checkbox"/> Specify: <u>24 HR</u> * Turnaround Requests less than standard may incur Rush Charges.	
SAMPLED BY: <u>WAKNITZ + RENE</u>		NAME		MATRIX (W, S, O)	
CLIENT SAMPLE IDENTIFICATION		DATE/TIME		# OF CONT.	
1. <u>1A-B-31(18-20)</u>		<u>9/30/08 1548</u>		<u>1</u>	
2. <u>1A-B-32(13-15)</u>		<u>10/1/08 905</u>		<u>1</u>	
3. <u>DWP01-100108</u>		<u>10/1/08 830</u>		<u>1</u>	
4. <u>1A-B-32(15-17)</u>		<u>10/1/08 920</u>		<u>1</u>	
5. <u>1A-B-32(17-19)</u>		<u>10/1/08 925</u>		<u>1</u>	
6.					
7.					
8.					
9.					
10.					
RELEASED BY: <u>Jesse W</u>		DATE: <u>10/1/08</u>		DATE: _____	
PRINT NAME: <u>JESSE WAKNITZ</u>		FIRM: <u>ENSR</u>		FIRM: _____	
RELEASED BY: _____		DATE: _____		DATE: _____	
PRINT NAME: _____		FIRM: _____		FIRM: _____	
ADDITIONAL REMARKS:		RECEIVED BY: _____		DATE: _____	
		PRINT NAME: _____		FIRM: _____	
		RECEIVED BY: _____		DATE: _____	
		PRINT NAME: _____		FIRM: _____	
		TEMP: _____		PAGE _____ OF _____	

October 03, 2008

Renee Knecht  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/01/08 16:16.  
The following list is a summary of the Work Orders contained in this report, generated on 10/03/08  
14:31.

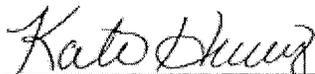
If you have any questions concerning this report, please feel free to contact me.

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<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRJ0007	BNSF-Skykomish Remedial D	01140-204-0320

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TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A-B-33 (11-13')	BRJ0007-01	Soil	10/01/08 12:49	10/01/08 16:16
1A-B-33 (13-15)	BRJ0007-02	Soil	10/01/08 12:52	10/01/08 16:16
1A-B-33 (16')	BRJ0007-03	Soil	10/01/08 13:02	10/01/08 16:16
1A-B-33 (17')	BRJ0007-04	Soil	10/01/08 13:04	10/01/08 16:16
1A-B-34 (15-17)	BRJ0007-05	Soil	10/01/08 14:40	10/01/08 16:16
1A-B-34 (17-19)	BRJ0007-06	Soil	10/01/08 14:43	10/01/08 16:16
1A-B-34 (19-20)	BRJ0007-07	Soil	10/01/08 14:46	10/01/08 16:16

TestAmerica Seattle



Kate Hancy, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**  
Project Number: 01140-204-0320  
Project Manager: Renee Knecht

Report Created:  
10/03/08 14:31

**Analytical Case Narrative**  
TestAmerica - Seattle, WA

**BRJ0007**

**SAMPLE RECEIPT**

The samples were received 10/01/08 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 19.9 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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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**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
<b>BRJ0007-01 (1A-B-33 (11-13'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:49</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>2530</b>	19.6	122	mg/kg dry	10x	8J01061	10/01/08 18:26	10/02/08 22:27	Q4
Surrogate(s): 2-FBP			81.4%		54 - 148 %	"				
Octacosane			117%		62 - 142 %	"				
<b>BRJ0007-01RE1 (1A-B-33 (11-13'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:49</b>					
<b>Lube Oil Range Hydrocarbons</b>	NWTPH-Dx	<b>2250</b>	39.0	306	mg/kg dry	10x	8J01061	10/01/08 18:26	10/03/08 10:25	Q4
Surrogate(s): 2-FBP			95.6%		54 - 148 %	"				
Octacosane			124%		62 - 142 %	"				
<b>BRJ0007-02 (1A-B-33 (13-15))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:52</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>4220</b>	17.5	109	mg/kg dry	10x	8J01061	10/01/08 18:26	10/02/08 22:50	Q4
Surrogate(s): 2-FBP			69.4%		54 - 148 %	"				
Octacosane			131%		62 - 142 %	"				
<b>BRJ0007-02RE1 (1A-B-33 (13-15))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:52</b>					
<b>Lube Oil Range Hydrocarbons</b>	NWTPH-Dx	<b>3560</b>	34.8	273	mg/kg dry	10x	8J01061	10/01/08 18:26	10/03/08 10:47	Q4
Surrogate(s): 2-FBP			81.6%		54 - 148 %	"				
Octacosane			149%		62 - 142 %	"				ZX
<b>BRJ0007-03 (1A-B-33 (16'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 13:02</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	ND	1.81	11.3	mg/kg dry	1x	8J01061	10/01/08 18:26	10/02/08 23:13	
Surrogate(s): 2-FBP			90.2%		54 - 148 %	"				
Octacosane			83.5%		62 - 142 %	"				
<b>BRJ0007-03RE1 (1A-B-33 (16'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 13:02</b>					
<b>Lube Oil Range Hydrocarbons</b>	NWTPH-Dx	<b>12.2</b>	3.61	28.3	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 11:10	J
Surrogate(s): 2-FBP			91.3%		54 - 148 %	"				
Octacosane			89.4%		62 - 142 %	"				
<b>BRJ0007-04 (1A-B-33 (17'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 13:04</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	ND	2.17	13.6	mg/kg dry	1x	8J01061	10/01/08 18:26	10/02/08 23:36	
Surrogate(s): 2-FBP			93.7%		54 - 148 %	"				
Octacosane			86.8%		62 - 142 %	"				

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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**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
<b>BRJ0007-04RE1 (1A-B-33 (17'))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 13:04</b>						
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND	4.33	34.0	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 11:33	
Surrogate(s): 2-FBP			95.3%		54 - 148 %	"				"
Octacosane			88.7%		62 - 142 %	"				"
<b>BRJ0007-05 (1A-B-34 (15-17))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:40</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	3.32	1.75	10.9	mg/kg dry	1x	8J01061	10/01/08 18:26	10/02/08 23:59	J
Surrogate(s): 2-FBP			91.5%		54 - 148 %	"				"
Octacosane			83.9%		62 - 142 %	"				"
<b>BRJ0007-05RE1 (1A-B-34 (15-17))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:40</b>						
Lube Oil Range Hydrocarbons	NWTPH-Dx	8.80	3.49	27.3	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 11:56	J
Surrogate(s): 2-FBP			93.5%		54 - 148 %	"				"
Octacosane			89.7%		62 - 142 %	"				"
<b>BRJ0007-06 (1A-B-34 (17-19))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:43</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	2.51	1.73	10.8	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 00:21	J
Surrogate(s): 2-FBP			94.1%		54 - 148 %	"				"
Octacosane			88.0%		62 - 142 %	"				"
<b>BRJ0007-06RE1 (1A-B-34 (17-19))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:43</b>						
Lube Oil Range Hydrocarbons	NWTPH-Dx	13.8	3.45	27.1	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 10:25	J
Surrogate(s): 2-FBP			97.8%		54 - 148 %	"				"
Octacosane			106%		62 - 142 %	"				"
<b>BRJ0007-07 (1A-B-34 (19-20))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:46</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.74	10.9	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 03:01	
Surrogate(s): 2-FBP			93.8%		54 - 148 %	"				"
Octacosane			87.3%		62 - 142 %	"				"
<b>BRJ0007-07RE1 (1A-B-34 (19-20))</b>		<b>Soil</b>		<b>Sampled: 10/01/08 14:46</b>						
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND	3.47	27.2	mg/kg dry	1x	8J01061	10/01/08 18:26	10/03/08 10:47	
Surrogate(s): 2-FBP			98.3%		54 - 148 %	"				"
Octacosane			102%		62 - 142 %	"				"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0007-01 (1A-B-33 (11-13'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:49</b>					
Dry Weight	BSOPSPLO03R0 8	81.4	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-02 (1A-B-33 (13-15))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 12:52</b>					
Dry Weight	BSOPSPLO03R0 8	91.7	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-03 (1A-B-33 (16'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 13:02</b>					
Dry Weight	BSOPSPLO03R0 8	87.8	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-04 (1A-B-33 (17'))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 13:04</b>					
Dry Weight	BSOPSPLO03R0 8	72.9	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-05 (1A-B-34 (15-17))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 14:40</b>					
Dry Weight	BSOPSPLO03R0 8	91.5	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-06 (1A-B-34 (17-19))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 14:43</b>					
Dry Weight	BSOPSPLO03R0 8	90.9	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
<b>BRJ0007-07 (1A-B-34 (19-20))</b>		<b>Soil</b>			<b>Sampled: 10/01/08 14:46</b>					
Dry Weight	BSOPSPLO03R0 8	90.9	----	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J01061      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J01061-BLK1)</b> <span style="float:right">Extracted: 10/01/08 18:26</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/02/08 20:57	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 92.0%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 20:57</i>		
<i>Octacosane</i>		<i>95.2%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Blank (8J01061-BLK2)</b> <span style="float:right">Extracted: 10/01/08 18:26</span>														
Lube Oil Range Hydrocarbons	NWTPH-Dx	3.81	3.19	25.0	mg/kg wet	1x	--	--	--	--	--	--	10/03/08 09:39	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 94.0%</i>		<i>Limits: 54-148%</i>		"						<i>10/03/08 09:39</i>		
<i>Octacosane</i>		<i>87.4%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Blank (8J01061-BLK3)</b> <span style="float:right">Extracted: 10/01/08 18:26</span>														
Lube Oil Range Hydrocarbons	NWTPH-Dx	3.93	3.19	25.0	mg/kg wet	1x	--	--	--	--	--	--	10/03/08 10:02	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 96.6%</i>		<i>Limits: 54-148%</i>		"						<i>10/03/08 10:02</i>		
<i>Octacosane</i>		<i>99.1%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>LCS (8J01061-BS1)</b> <span style="float:right">Extracted: 10/01/08 18:26</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	63.0	1.60	10.0	mg/kg wet	1x	--	66.7	94.6%	(78-129)	--	--	10/02/08 21:20	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 95.2%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 21:20</i>		
<i>Octacosane</i>		<i>98.6%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Duplicate (8J01061-DUP1)</b> <span style="float:right">QC Source: BRJ0007-03      Extracted: 10/01/08 18:26</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.82	11.4	mg/kg dry	1x	ND	--	--	--	NR (40)	--	10/02/08 21:42	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.4%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 21:42</i>		
<i>Octacosane</i>		<i>97.7%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Duplicate (8J01061-DUP2)</b> <span style="float:right">QC Source: BRJ0007-03RE1      Extracted: 10/01/08 18:26</span>														
Lube Oil Range Hydrocarbons	NWTPH-Dx	ND	3.63	28.5	mg/kg dry	1x	12.2	--	--	--	--	(40)	10/03/08 10:02	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.6%</i>		<i>Limits: 54-148%</i>		"						<i>10/03/08 10:02</i>		
<i>Octacosane</i>		<i>84.9%</i>		<i>62-142%</i>		"						<i>"</i>		
<b>Matrix Spike (8J01061-MS1)</b> <span style="float:right">QC Source: BRJ0007-03      Extracted: 10/01/08 18:26</span>														
Diesel Range Hydrocarbons	NWTPH-Dx	74.2	1.82	11.4	mg/kg dry	1x	ND	75.7	98.1%	(46-155)	--	--	10/02/08 22:04	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 96.1%</i>		<i>Limits: 54-148%</i>		"						<i>10/02/08 22:04</i>		
<i>Octacosane</i>		<i>85.6%</i>		<i>62-142%</i>		"						<i>"</i>		

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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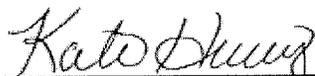
<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/03/08 14:31
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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J01067      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL <sup>a</sup>	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J01067-BLK1)</b>											Extracted: 10/01/08 20:16			
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/02/08 00:00	

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Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name:

**BNSF-Skykomish Remedial Design Investigation**

Project Number:

01140-204-0320

Report Created:

Project Manager:

Renee Knecht

10/03/08 14:31

## 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the 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.
- 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



Kate Haney, Project Manager

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TAT: \_\_\_\_\_

Paperwork to PM - Date: \_\_\_\_\_ Time: \_\_\_\_\_

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

**Received By:**  
(applies to temp at receipt)

**Logged-in By:**

**Unpacked/Labeled By:**

**Cooler ID:** \_\_\_\_\_

Date: 10-01-08

Date: 10-01

Date: 10/1/08

Work Order No. BRJ0007

Time: 1616

Time: 1628

Time: 1640

Client: ENSR International - Seattle

Initials: CW

Initials: CW

Initials: FL

Project: \_\_\_\_\_

Container Type:

COC Seals:

Packing Material:

Cooler

\_\_\_\_ Ship Container

\_\_\_\_ Sign By

Bubble Bags

\_\_\_\_ Styrofoam

\_\_\_\_ Box

\_\_\_\_ On Bottles

\_\_\_\_ Date

\_\_\_\_ Foam Packs

\_\_\_\_ None/Other \_\_\_\_\_

None

\_\_\_\_ None/Other \_\_\_\_\_

Refrigerant:

\_\_\_\_ Gel Ice Pack \_\_\_\_\_

Loose Ice \_\_\_\_\_

\_\_\_\_ None/Other \_\_\_\_\_

Received Via: Bill#

\_\_\_\_ Fed Ex  Client

\_\_\_\_ UPS \_\_\_\_\_ TA Courier

\_\_\_\_ DHL \_\_\_\_\_ Mid Valley

\_\_\_\_ Senvoy \_\_\_\_\_ TDP

\_\_\_\_ GS \_\_\_\_\_ Other \_\_\_\_\_

Cooler Temperature (IR): \_\_\_\_\_ °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)

Temperature Blank? 19.9 °C or NA

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

Sample Containers:

ID

ID

Intact?

or N \_\_\_\_\_

Metals Preserved?

Y or N or NA \_\_\_\_\_

Provided by TA?

or N \_\_\_\_\_

Client QAPP Preserved?

Y or N or NA \_\_\_\_\_

Correct Type?

or N \_\_\_\_\_

Adequate Volume?

or N \_\_\_\_\_

(for tests requested)

#Containers match COC? Y or  \_\_\_\_\_

Water VOAs: Headspace? Y or N or NA \_\_\_\_\_

IDs/time/date match COC?  or N \_\_\_\_\_

Comments: \_\_\_\_\_

Hold Times in hold?

or N \_\_\_\_\_

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Y or N

Has client been contacted regarding non-conformances?

Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# NOTIFICATION OF DISCREPANCY

DATE: 10-01-08 TIME: 1634 PM: Kate Haney SC INITIALS: CW

Rush/Short Hold?  Yes  No

- Project Not Set Up in ELM       New Client       COC Received ON HOLD
- Analysis Requested on COC – Not Listed for Project in ELM

- PM To Add Analysis: \_\_\_\_\_
- Clarification of Analysis: \_\_\_\_\_
- Hold Time Expired: (Analysis) \_\_\_\_\_
- Turnaround Time Not Checked: \_\_\_\_\_
- Did Not Receive Sample(s) Listed on COC: \_\_\_\_\_

Received Extra Sample(s) Not Listed on COC: \_\_\_\_\_

Sample Description(s) or Date/Time Sampled Do Not Match COC:  
 \_\_\_\_\_  
 \_\_\_\_\_

- Improper Preservative For method: \_\_\_\_\_
- Sample Received Broken: \_\_\_\_\_
- Insufficient Sample Volume: \_\_\_\_\_
- Sample preserved upon receipt: \_\_\_\_\_

Temperature Outside recommended range (4°C±2°C): 19.9°C  
 Received on-ice within 4 hours of collection, temperature between ambient to 2°C acceptable.

Other:  
The last 3 samples on COC do not have # of containers,  
 \_\_\_\_\_  
 \_\_\_\_\_

PROJECT MANAGER RESOLUTION:	(Date & Time when returned to SC)

Approval By:	Date:	Time:
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October 07, 2008

Grant Hainsworth  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

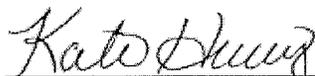
RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/06/08 14:35.  
The following list is a summary of the Work Orders contained in this report, generated on 10/07/08  
16:34.

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

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRJ0076	BNSF-Skykomish Remedial E	01140-204-0320

TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Grant Hainsworth	Report Created: 10/07/08 16:34
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A-B-35(15)	BRJ0076-01	Soil	10/06/08 11:52	10/06/08 14:35
1A-B-35(16)	BRJ0076-02	Soil	10/06/08 11:57	10/06/08 14:35
1A-B-35(17)	BRJ0076-03	Soil	10/06/08 11:59	10/06/08 14:35
1A-B-35(10)	BRJ0076-04	Soil	10/06/08 12:04	10/06/08 14:35
1A-B-35(14)	BRJ0076-05	Soil	10/06/08 12:11	10/06/08 14:35
DUP01-100608	BRJ0076-06	Soil	10/06/08 11:00	10/06/08 14:35

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name:

**BNSF-Skykomish Remedial Design Investigation**

Project Number:

01140-204-0320

Report Created:

Project Manager:

Grant Hainsworth

10/07/08 16:34

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRJ0076**

**SAMPLE RECEIPT**

The samples were received October 6th, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 15.9 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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Grant Hainsworth	Report Created: 10/07/08 16:34
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**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
<b>BRJ0076-01 (1A-B-35(15))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 11:52</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>6360</b>	36.0	225	mg/kg dry	10x	8J06043	10/06/08 16:25	10/06/08 21:58	Q4
Surrogate(s): 2-FBP			82.3%		54 - 148 %	"				"
Octacosane			99.6%		62 - 142 %	"				"
<b>BRJ0076-01RE1 (1A-B-35(15))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 11:52</b>					
<b>Lube Oil Range Hydrocarbons</b>	NWTPH-Dx	<b>8180</b>	144	1120	mg/kg dry	20x	8J06043	10/06/08 16:25	10/07/08 13:47	Q4
Surrogate(s): 2-FBP			67.6%		54 - 148 %	"				"
Octacosane			192%		62 - 142 %	"				ZX
<b>BRJ0076-02 (1A-B-35(16))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 11:57</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>2.85</b>	1.76	11.0	mg/kg dry	1x	8J06043	10/06/08 16:25	10/06/08 22:26	J
<b>Lube Oil Range Hydrocarbons</b>	"	<b>31.3</b>	3.52	27.6	"	"	"	"	"	"
Surrogate(s): 2-FBP			86.0%		54 - 148 %	"				"
Octacosane			101%		62 - 142 %	"				"
<b>BRJ0076-03 (1A-B-35(17))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 11:59</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>ND</b>	1.75	10.9	mg/kg dry	1x	8J06043	10/06/08 16:25	10/06/08 22:54	"
<b>Lube Oil Range Hydrocarbons</b>	"	<b>4.62</b>	3.49	27.4	"	"	"	"	"	J
Surrogate(s): 2-FBP			82.6%		54 - 148 %	"				"
Octacosane			99.6%		62 - 142 %	"				"
<b>BRJ0076-04 (1A-B-35(10))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 12:04</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>3110</b>	16.9	106	mg/kg dry	10x	8J06043	10/06/08 16:25	10/06/08 23:22	Q4
Surrogate(s): 2-FBP			78.2%		54 - 148 %	"				"
Octacosane			93.8%		62 - 142 %	"				"
<b>BRJ0076-04RE1 (1A-B-35(10))</b>		<b>Soil</b>			<b>Sampled: 10/06/08 12:04</b>					
<b>Lube Oil Range Hydrocarbons</b>	NWTPH-Dx	<b>4550</b>	67.5	529	mg/kg dry	20x	8J06043	10/06/08 16:25	10/07/08 14:09	Q4
Surrogate(s): 2-FBP			65.9%		54 - 148 %	"				"
Octacosane			192%		62 - 142 %	"				ZX

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Grant Hainsworth	Report Created: 10/07/08 16:34
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**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
<b>BRJ0076-05 (1A-B-35(14))</b>	<b>Soil</b>		<b>Sampled: 10/06/08 12:11</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	25.5	1.66	10.4	mg/kg dry	1x	8J06043	10/06/08 16:25	10/06/08 23:51	Q3
Lube Oil Range Hydrocarbons	"	62.9	3.31	25.9	"	"	"	"	"	Q4
Surrogate(s): 2-FBP		86.8%		54 - 148 %	"					
Octacosane		99.6%		62 - 142 %	"					
<b>BRJ0076-06 (DUP01-100608)</b>	<b>Soil</b>		<b>Sampled: 10/06/08 11:00</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	1160	3.59	22.5	mg/kg dry	1x	8J06043	10/06/08 16:25	10/07/08 00:18	Q4
Surrogate(s): 2-FBP		86.2%		54 - 148 %	"					
Octacosane		93.6%		62 - 142 %	"					
<b>BRJ0076-06RE1 (DUP01-100608)</b>	<b>Soil</b>		<b>Sampled: 10/06/08 11:00</b>							
Lube Oil Range Hydrocarbons	NWTPH-Dx	1510	35.8	281	mg/kg dry	5x	8J06043	10/06/08 16:25	10/07/08 14:32	Q4
Surrogate(s): 2-FBP		84.6%		54 - 148 %	"					
Octacosane		118%		62 - 142 %	"					

TestAmerica Seattle

*Kate Haney*  
 \_\_\_\_\_  
 Kate Haney, Project Manager

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0076-01 (1A-B-35(15))</b>		<b>Soil</b>								<b>Sampled: 10/06/08 11:52</b>
Dry Weight	BSOPSPL003R0 8	86.6	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
<b>BRJ0076-02 (1A-B-35(16))</b>		<b>Soil</b>								<b>Sampled: 10/06/08 11:57</b>
Dry Weight	BSOPSPL003R0 8	90.7	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
<b>BRJ0076-03 (1A-B-35(17))</b>		<b>Soil</b>								<b>Sampled: 10/06/08 11:59</b>
Dry Weight	BSOPSPL003R0 8	90.8	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
<b>BRJ0076-04 (1A-B-35(10))</b>		<b>Soil</b>								<b>Sampled: 10/06/08 12:04</b>
Dry Weight	BSOPSPL003R0 8	93.3	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
<b>BRJ0076-05 (1A-B-35(14))</b>		<b>Soil</b>								<b>Sampled: 10/06/08 12:11</b>
Dry Weight	BSOPSPL003R0 8	95.7	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
<b>BRJ0076-06 (DUP01-100608)</b>		<b>Soil</b>								<b>Sampled: 10/06/08 11:00</b>
Dry Weight	BSOPSPL003R0 8	86.2	----	1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	

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*Kate Haney*  
 \_\_\_\_\_  
 Kate Haney, Project Manager

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J06043      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

**Blank (8J06043-BLK1)** Extracted: 10/06/08 16:25

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/06/08 20:07	
Lube Oil Range Hydrocarbons	"	6.70	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>84.6%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/06/08 20:07</i>	
<i>Octacosane</i>		<i>96.6%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Blank (8J06043-BLK2)** Extracted: 10/06/08 16:25

Lube Oil Range Hydrocarbons	NWTPH-Dx	5.49	3.19	25.0	mg/kg wet	1x	--	--	--	--	--	--	10/07/08 13:02	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>97.1%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/07/08 13:02</i>	
<i>Octacosane</i>		<i>102%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**LCS (8J06043-BS1)** Extracted: 10/06/08 16:25

Diesel Range Hydrocarbons	NWTPH-Dx	63.4	1.60	10.0	mg/kg wet	1x	--	66.7	95.1%	(78-129)	--	--	10/06/08 20:35	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>80.6%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/06/08 20:35</i>	
<i>Octacosane</i>		<i>93.4%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Duplicate (8J06043-DUP1)** QC Source: BRJ0076-02      Extracted: 10/06/08 16:25

Diesel Range Hydrocarbons	NWTPH-Dx	14.2	1.75	10.9	mg/kg dry	1x	2.85	--	--	--	133%	(40)	10/06/08 21:03	R3
Lube Oil Range Hydrocarbons	"	23.4	3.49	27.4	"	"	31.3	--	--	--	28.7%	"	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>80.5%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/06/08 21:03</i>	
<i>Octacosane</i>		<i>93.8%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Matrix Spike (8J06043-MS1)** QC Source: BRJ0076-02      Extracted: 10/06/08 16:25

Diesel Range Hydrocarbons	NWTPH-Dx	63.5	1.76	11.0	mg/kg dry	1x	2.85	73.5	82.6%	(46-155)	--	--	10/06/08 21:31	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>73.1%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/06/08 21:31</i>	
<i>Octacosane</i>		<i>85.8%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Grant Hainsworth	Report Created: 10/07/08 16:34
--	--	-----------------------------------

**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J06040      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J06040-BLK1)</b>										Extracted: 10/06/08 16:20				
Dry Weight	BSOPSPLO0 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/07/08 00:00	

TestAmerica Seattle



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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Grant Hainsworth

Report Created:

10/07/08 16:34

## 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.
- Q3 - The chromatographic pattern is not consistent with diesel fuel.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- R3 - The RPD exceeded the acceptance limit due to sample matrix effects.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the 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.
- 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



Kate Haney, Project Manager

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6R10076

<b>BNSF RAILWAY</b>		<b>CHAIN OF CUSTODY</b>				
<b>LABORATORY INFORMATION</b> Laboratory: TEST AMERICA Project Manager: KATIE HEANEY Address: 11700 N. CREEK Pkwy SW 400 425-520-0000 City/State/Zip: BOTHELL WA 98011-8247		<b>SHIPMENT INFORMATION</b> Shipment Method: Tracking Number: Project Number: 0140-204-0330 Project Manager: RENZI KNECHT Email: Phone: 206-604-9399 Fax:				
<b>BNSF PROJECT INFORMATION</b> BNSF Project Number: 0140-204-0330 BNSF Project Name: SKYDRISE BNSF Contract: BRUCE SHEPARD		<b>CONSULTANT INFORMATION</b> Company: EMER (INVOICE TO: SARA ABLANO) Address: City/State/Zip: SEATTLE BNSF Work Order No.:				
<b>TURNAROUND TIME</b> <input checked="" type="checkbox"/> 1-day Rush <input type="checkbox"/> 5- to 8-day Rush <input type="checkbox"/> 2-day Rush <input type="checkbox"/> Standard 10-Day <input type="checkbox"/> 3-day Rush <input type="checkbox"/> Other		<b>DELIVERABLES</b> <input type="checkbox"/> BNSF Standard (Level II) <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/> Other Deliverables? <input type="checkbox"/> EDD Req. Format?				
<b>SAMPLE INFORMATION</b>						
Sample Identification	Containers	Sample Collection			Type (Comp/Grab)	Matrix
		Date	Time	Sampler		
1. IA-B-35 (15)	1	10/6/08	1152	RK	G S	X
2. IA-B-35 (16)	1	10/6/08	1157	RK	G S	X
3. IA-B-35 (17)	1	10/6/08	1159	RK	G S	X
4. IA-B-35 (18)	1	10/6/08	1204	RK	G S	X
5. IA-B-35 (14)	1	10/6/08	1211	RK	G S	X
6. DUPOL-100608	1	10/6/08	1200	RK	G S	X
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
Requisitioned By: [Signature] Requisitioned Date: 10/6/08 14:35 Received By: [Signature] Received Date: 10/6/08 14:35		Comments and Special Analytical Requirements: 15.9 wt%				
Requisitioned By: Received By Laboratory:		Lab: Custody Inact? <input type="checkbox"/> Yes <input type="checkbox"/> No BNSF COC No.: Custom Seal No.:				

ORIGINAL - RETURN TO LABORATORY WITH SAMPLES      DUPLICATE - CONSULTANT      TAL-1001 (06/08)

TAT: \_\_\_\_\_ Paperwork to PM – Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Page Time & Initials: \_\_\_\_\_

Non-Conformances?  
Circle Y or N  
(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

**Received By:**  
(applies to temp at receipt)

Date: 10/6  
Time: 14:35  
Initials: CL

**Logged-in By:**

Date: 10/6  
Time: 14:38  
Initials: CL

**Unpacked/Labeled By:**

Date: 10/6  
Time: 10:45  
Initials: CL

**Cooler ID:** \_\_\_\_\_

Work Order No. BR/0076

Client: \_\_\_\_\_

Project: \_\_\_\_\_

**Container Type:**

Cooler  
 Box  
 None/Other \_\_\_\_\_

**COC Seals:**

Ship Container  Sign By  
 On Bottles  Date  
 None

**Packing Material:**

Bubble Bags  Styrofoam  
 Foam Packs  
 None/Other \_\_\_\_\_

**Refrigerant:**

Gel Ice Pack \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  
 None/Other \_\_\_\_\_

**Received Via: Bill#**

Fed Ex  Client  
 UPS  TA Courier  
 DHL  Mid Valley  
 Senvoy  TDP  
 GS  Other \_\_\_\_\_

Cooler Temperature (IR): 15.9 °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)

Temperature Blank? \_\_\_\_\_ °C or NA

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

**Sample Containers:**

	ID	ID
Intact?	<input checked="" type="checkbox"/> or N _____	Metals Preserved? Y or N or <u>NA</u>
Provided by TA?	<input checked="" type="checkbox"/> or N _____	Client QAPP Preserved? Y or N or <u>NA</u> <u>Soil</u>
Correct Type?	<input checked="" type="checkbox"/> or N _____	Adequate Volume? <input checked="" type="checkbox"/> or N _____ (for tests requested)
#Containers match COC?	<input checked="" type="checkbox"/> or N _____	Water VOAs: Headspace? Y or N or <u>NA</u>
IDs/time/date match COC?	<input checked="" type="checkbox"/> or N _____	Comments: _____
Hold Times in hold?	<input checked="" type="checkbox"/> or N _____	_____

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Has client been contacted regarding non-conformances?

Y or N  
Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# NOTIFICATION OF DISCREPANCY

DATE: 10/6 TIME: 14:35 PM: AH SC INITIALS: CL

Rush/Short Hold?  Yes  No

- Project Not Set Up in ELM     New Client     COC Received ON HOLD  
 Analysis Requested on COC - Not Listed for Project in ELM

PM To Add Analysis: \_\_\_\_\_

Clarification of Analysis: \_\_\_\_\_

Hold Time Expired: (Analysis) \_\_\_\_\_

Turnaround Time Not Checked: \_\_\_\_\_

Did Not Receive Sample(s) Listed on COC: \_\_\_\_\_

Received Extra Sample(s) Not Listed on COC: \_\_\_\_\_

Sample Description(s) or Date/Time Sampled Do Not Match COC: \_\_\_\_\_

Improper Preservative For method: \_\_\_\_\_

Sample Received Broken: \_\_\_\_\_

Insufficient Sample Volume: \_\_\_\_\_

Sample preserved upon receipt: \_\_\_\_\_

Temperature Outside recommended range ( $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ): \_\_\_\_\_

Received on-ice within 4 hours of collection, temperature between ambient to  $2^{\circ}\text{C}$  acceptable.

Other: \_\_\_\_\_

PROJECT MANAGER RESOLUTION: \_\_\_\_\_ (Date & Time when returned to SC)

Approval By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

September 22, 2008

Sarah Albano  
ENSR International - 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 09/19/08 16:20.  
The following list is a summary of the Work Orders contained in this report, generated on 09/22/08  
17:02.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRI0310	BNSF-Skykomish	01140-222-0100

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TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager



**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish**  
Project Number: 01140-222-0100  
Project Manager: Sarah Albano

Report Created:  
09/22/08 17:02

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A-B-7B(10-12)	BRI0310-01	Soil	09/19/08 09:15	09/19/08 16:20
1A-B-7B(12-14)	BRI0310-02	Soil	09/19/08 09:20	09/19/08 16:20
1A-B-7B(14-16)	BRI0310-03	Soil	09/19/08 09:25	09/19/08 16:20
1A-B-7B(16-18)	BRI0310-04	Soil	09/19/08 09:30	09/19/08 16:20
1A-B-8B(13-15)	BRI0310-05	Soil	09/19/08 10:50	09/19/08 16:20
1A-B-8B(15-17)	BRI0310-06	Soil	09/19/08 10:51	09/19/08 16:20
1A-B-8B(17-19)	BRI0310-07	Soil	09/19/08 10:52	09/19/08 16:20
1A-B-8B(19-21)	BRI0310-08	Soil	09/19/08 10:53	09/19/08 16:20
1A-B-8C(13-15)	BRI0310-09	Soil	09/19/08 12:05	09/19/08 16:20
1A-B-8C(15-17)	BRI0310-10	Soil	09/19/08 12:10	09/19/08 16:20
1A-B-8C(17-19)	BRI0310-11	Soil	09/19/08 12:15	09/19/08 16:20
1A-B-8C(19-21)	BRI0310-12	Soil	09/19/08 12:16	09/19/08 16:20

TestAmerica Seattle



Curtis D. Armstrong For Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish**

Project Number: 01140-222-0100

Project Manager: Sarah Albano

Report Created:

09/22/08 17:02

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRI0310**

**SAMPLE RECEIPT**

The samples were received 09/19/08 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 10.5 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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0310-01 (1A-B-7B(10-12))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 09:15</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.64	10.2	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 00:04	
Lube Oil Range Hydrocarbons	"	ND	3.26	25.6	"	"	"	"	"	
Surrogate(s): 2-FBP			78.5%		54 - 148 %	"				
Octacosane			91.6%		62 - 142 %	"				
<b>BRI0310-02 (1A-B-7B(12-14))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 09:20</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.69	10.5	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 00:25	
Lube Oil Range Hydrocarbons	"	ND	3.36	26.3	"	"	"	"	"	
Surrogate(s): 2-FBP			84.7%		54 - 148 %	"				
Octacosane			94.3%		62 - 142 %	"				
<b>BRI0310-03 (1A-B-7B(14-16))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 09:25</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 00:46	
Lube Oil Range Hydrocarbons	"	ND	3.41	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP			82.8%		54 - 148 %	"				
Octacosane			92.3%		62 - 142 %	"				
<b>BRI0310-04 (1A-B-7B(16-18))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 09:30</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.63	10.2	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 01:07	
Lube Oil Range Hydrocarbons	"	ND	3.24	25.4	"	"	"	"	"	
Surrogate(s): 2-FBP			83.1%		54 - 148 %	"				
Octacosane			93.5%		62 - 142 %	"				
<b>BRI0310-05 (1A-B-8B(13-15))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 10:50</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>4310</b>	33.5	209	mg/kg dry	20x	8119052	09/19/08 17:56	09/20/08 01:29	<b>Q4</b>
Lube Oil Range Hydrocarbons	"	<b>4650</b>	66.7	523	"	"	"	"	"	<b>Q4</b>
Surrogate(s): 2-FBP			72.6%		54 - 148 %	"				
Octacosane			150%		62 - 142 %	"				<b>ZX</b>
<b>BRI0310-06 (1A-B-8B(15-17))</b>	<b>Soil</b>		<b>Sampled: 09/19/08 10:51</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>3.55</b>	1.63	10.2	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 02:55	<b>J</b>
Lube Oil Range Hydrocarbons	"	<b>33.4</b>	3.25	25.5	"	"	"	"	"	
Surrogate(s): 2-FBP			88.9%		54 - 148 %	"				
Octacosane			98.6%		62 - 142 %	"				

TestAmerica Seattle



Curtis D. Armstrong For Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
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**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
<b>BRI0310-07 (1A-B-8B(17-19))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 10:52</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>2440</b>	16.6	104	mg/kg dry	10x	8119052	09/19/08 17:56	09/20/08 03:16	Q4
Lube Oil Range Hydrocarbons	"	<b>2720</b>	33.1	259	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			81.0%		54 - 148 %	"				
Octacosane			130%		62 - 142 %	"				
<b>BRI0310-08 (1A-B-8B(19-21))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 10:53</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.04	12.7	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 03:38	
Lube Oil Range Hydrocarbons	"	<b>9.94</b>	4.06	31.8	"	"	"	"	"	J
Surrogate(s): 2-FBP			81.1%		54 - 148 %	"				
Octacosane			92.7%		62 - 142 %	"				
<b>BRI0310-09 (1A-B-8C(13-15))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 12:05</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>1440</b>	17.4	109	mg/kg dry	10x	8119052	09/19/08 17:56	09/20/08 03:59	Q4
Lube Oil Range Hydrocarbons	"	<b>2170</b>	34.7	272	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			84.2%		54 - 148 %	"				
Octacosane			115%		62 - 142 %	"				
<b>BRI0310-10 (1A-B-8C(15-17))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 12:10</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>77.7</b>	1.63	10.2	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 04:20	Q4
Lube Oil Range Hydrocarbons	"	<b>94.1</b>	3.24	25.4	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			87.8%		54 - 148 %	"				
Octacosane			99.4%		62 - 142 %	"				
<b>BRI0310-11 (1A-B-8C(17-19))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 12:15</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>1350</b>	9.48	59.2	mg/kg dry	5x	8119052	09/19/08 17:56	09/20/08 04:41	Q4
Lube Oil Range Hydrocarbons	"	<b>1490</b>	18.9	148	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			82.9%		54 - 148 %	"				
Octacosane			105%		62 - 142 %	"				
<b>BRI0310-12 (1A-B-8C(19-21))</b>		<b>Soil</b>			<b>Sampled: 09/19/08 12:16</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.30	14.4	mg/kg dry	1x	8119052	09/19/08 17:56	09/20/08 05:03	
Lube Oil Range Hydrocarbons	"	<b>11.8</b>	4.58	35.9	"	"	"	"	"	J
Surrogate(s): 2-FBP			77.0%		54 - 148 %	"				
Octacosane			94.0%		62 - 142 %	"				

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0310-01 (1A-B-7B(10-12))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 09:15</b>	
Dry Weight	BSOPSPL003R0 8	96.1	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-02 (1A-B-7B(12-14))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 09:20</b>	
Dry Weight	BSOPSPL003R0 8	95.0	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-03 (1A-B-7B(14-16))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 09:25</b>	
Dry Weight	BSOPSPL003R0 8	92.5	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-04 (1A-B-7B(16-18))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 09:30</b>	
Dry Weight	BSOPSPL003R0 8	96.8	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-05 (1A-B-8B(13-15))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 10:50</b>	
Dry Weight	BSOPSPL003R0 8	94.7	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-06 (1A-B-8B(15-17))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 10:51</b>	
Dry Weight	BSOPSPL003R0 8	96.9	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-07 (1A-B-8B(17-19))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 10:52</b>	
Dry Weight	BSOPSPL003R0 8	96.2	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-08 (1A-B-8B(19-21))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 10:53</b>	
Dry Weight	BSOPSPL003R0 8	78.1	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-09 (1A-B-8C(13-15))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 12:05</b>	
Dry Weight	BSOPSPL003R0 8	92.0	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-10 (1A-B-8C(15-17))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 12:10</b>	
Dry Weight	BSOPSPL003R0 8	97.1	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-11 (1A-B-8C(17-19))</b>		<b>Soil</b>							<b>Sampled: 09/19/08 12:15</b>	

TestAmerica Seattle

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 \_\_\_\_\_  
 Curtis D. Armstrong For Kate Haney, Project Manager



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0310-11</b>	<b>(1A-B-8C(17-19))</b>	<b>Soil</b>			<b>Sampled: 09/19/08 12:15</b>					
Dry Weight	BSOPSPLO03R0 8	83.6	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	
<b>BRI0310-12</b>	<b>(1A-B-8C(19-21))</b>	<b>Soil</b>			<b>Sampled: 09/19/08 12:16</b>					
Dry Weight	BSOPSPLO03R0 8	69.6	----	1.00	%	1x	8I19053	09/19/08 17:57	09/22/08 00:00	

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8119052      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8119052-BLK1)</b>														
Extracted: 09/19/08 17:56														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/19/08 22:18	
Lube Oil Range Hydrocarbons	"	6.61	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 80.4%</i>		<i>Limits: 54-148%</i>								<i>09/19/08 22:18</i>		
<i>Octacosane</i>		<i>92.2%</i>		<i>62-142%</i>								<i>"</i>		
<b>LCS (8119052-BS1)</b>														
Extracted: 09/19/08 17:56														
Diesel Range Hydrocarbons	NWTPH-Dx	58.7	1.60	10.0	mg/kg wet	1x	--	66.7	88.0%	(78-129)	--	--	09/19/08 22:38	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.5%</i>		<i>Limits: 54-148%</i>								<i>09/19/08 22:38</i>		
<i>Octacosane</i>		<i>96.1%</i>		<i>62-142%</i>								<i>"</i>		
<b>Duplicate (8119052-DUP1)</b>														
QC Source: BRI0310-08      Extracted: 09/19/08 17:56														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.04	12.7	mg/kg dry	1x	ND	--	--	--	NR (40)	NR (40)	09/19/08 22:59	
Lube Oil Range Hydrocarbons	"	ND	4.06	31.8	"	"	9.94	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 82.1%</i>		<i>Limits: 54-148%</i>								<i>09/19/08 22:59</i>		
<i>Octacosane</i>		<i>92.9%</i>		<i>62-142%</i>								<i>"</i>		
<b>Duplicate (8119052-DUP2)</b>														
QC Source: BRI0310-12      Extracted: 09/19/08 17:56														
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.27	14.2	mg/kg dry	1x	ND	--	--	--	NR (40)	NR (40)	09/19/08 23:21	
Lube Oil Range Hydrocarbons	"	ND	4.54	35.5	"	"	11.8	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 83.4%</i>		<i>Limits: 54-148%</i>								<i>09/19/08 23:21</i>		
<i>Octacosane</i>		<i>95.0%</i>		<i>62-142%</i>								<i>"</i>		
<b>Matrix Spike (8119052-MS1)</b>														
QC Source: BRI0310-08      Extracted: 09/19/08 17:56														
Diesel Range Hydrocarbons	NWTPH-Dx	72.2	2.02	12.6	mg/kg dry	1x	ND	84.3	85.6%	(46-155)	--	--	09/19/08 23:42	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.5%</i>		<i>Limits: 54-148%</i>								<i>09/19/08 23:42</i>		
<i>Octacosane</i>		<i>94.5%</i>		<i>62-142%</i>								<i>"</i>		

TestAmerica Seattle

*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.*

  
 \_\_\_\_\_  
 Curtis D. Armstrong For Kate Haney, Project Manager



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish</b> Project Number: 01140-222-0100 Project Manager: Sarah Albano	Report Created: 09/22/08 17:02
--	--	-----------------------------------

**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8119053      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
										Extracted: 09/19/08 17:57				
<b>Blank (8119053-BLK1)</b>														
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	09/22/08 00:00	

TestAmerica Seattle

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Curtis D. Armstrong For Kate Haney, Project Manager



**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish**

Project Number: 01140-222-0100

Project Manager: Sarah Albano

Report Created:

09/22/08 17:02

## 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the 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.
- 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



Curtis D. Armstrong For Kate Haney, Project 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.*



# Chain of Custody Record

N<sup>o</sup>: 3808

The RETEC Group, Inc.  
300 Baker Avenue • Concord, MA 01742  
(978) 371-1422 Phone • (978) 371-1448 Fax  
www.retec.com



BR10310

Project Name: Skykomish Project Number: 01116.204.0880 Page 1 of 1

Send Report To: Renee Knecht Sampler (Print Name): Renee Knecht

Address: 101 SW Klickitat Way Sampler (Print Name): \_\_\_\_\_

Ste 207 Shipment Method: Hand Delivery

Seattle, WA 98134 Airbill Number: \_\_\_\_\_

Phone: 206.424.9349 Laboratory Receiving: Test America

Fax: \_\_\_\_\_

Comments, Special Instructions, etc. \_\_\_\_\_

Purchase Order #: \_\_\_\_\_

Lab Sample ID (to be completed by lab) \_\_\_\_\_

Analysis Requested  
NMPT-DX without SG

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Lab Sample ID (to be completed by lab)
1A-B-7B (10-12)	9/19/08	0915	S	1	BR10310-01
1A-B-7B (12-14)	9/19/08	0920	S	1	-02
1A-B-7B (14-16)	9/19/08	0925	S	1	-03
1A-B-7B (16-18)	9/19/08	0930	S	1	-04
1A-B-8B (18-15)	9/19/08	1050	S	1	-05
1A-B-8B (16-17)	9/19/08	1051	S	1	-06
1A-B-8B (17-19)	9/19/08	1052	S	1	-07
1A-B-8B (14-21)	9/19/08	1053	S	1	-08
1A-B-8C (13-15)	9/19/08	1205	S	1	-09
1A-B-8C (15-17)	9/19/08	1210	S	1	-10
1A-B-8C (17-19)	9/19/08	1215	S	1	-11
1A-B-8C (19-21)	9/19/08	1216	S	1	-12

Received by: (Signature) \_\_\_\_\_ Date: 9/19/08 Time: 1620

Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level: Level I  Level II  Level III  Other

Turnaround: Routine  24 Hour  1 Week  Other \_\_\_\_\_

Sample Receipt: Total # Containers Received? \_\_\_\_\_ COC Seals Present? \_\_\_\_\_ COC Seals Intact? \_\_\_\_\_ Received Containers Intact? \_\_\_\_\_ Temperature? \_\_\_\_\_

TAT: \_\_\_\_\_ Paperwork to PM – Date: \_\_\_\_\_ Time: \_\_\_\_\_ Non-Conformances?  
 Page Time & Initials: \_\_\_\_\_ Circle Y or N  
 (If Y, see other side)

**TEST AMERICA SAMPLE RECEIPT CHECKLIST**

**Received By:** (applies to temp at receipt) **Logged-in By:** **Unpacked/Labeled By:** **Cooler ID:** \_\_\_\_\_  
 Date: 9/19 Date: 9/19 Date: 9/19 Work Order No. BR10309  
 Time: 15:00 Time: 15:58 Time: 16:00 Client: \_\_\_\_\_  
 Initials: CL Initials: CL Initials: AD Project: \_\_\_\_\_

**Container Type:** **COC Seals:** **Packing Material:**  
 Cooler \_\_\_\_\_ Ship Container \_\_\_\_\_ Sign By \_\_\_\_\_ Bubble Bags \_\_\_\_\_ Styrofoam \_\_\_\_\_  
 Box \_\_\_\_\_ On Bottles \_\_\_\_\_ Date \_\_\_\_\_ Foam Packs \_\_\_\_\_  
 None/Other \_\_\_\_\_  None \_\_\_\_\_ None/Other \_\_\_\_\_

**Refrigerant:** **Received Via: Bill#**  
 Gel Ice Pack \_\_\_\_\_  Fed Ex  Client \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  UPS \_\_\_\_\_ TA Courier \_\_\_\_\_  
 None/Other \_\_\_\_\_  DHL \_\_\_\_\_ Mid Valley \_\_\_\_\_  
 \_\_\_\_\_  Senvoy \_\_\_\_\_ TDP \_\_\_\_\_  
 \_\_\_\_\_  GS \_\_\_\_\_ Other \_\_\_\_\_

Cooler Temperature (IR): 4.1 °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
 Temperature Blank? \_\_\_\_\_ °C or NA (circle one) Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:  
 (initial/date/time): \_\_\_\_\_  
 Comments: \_\_\_\_\_

Sample Containers:	ID	ID
Intact? <input checked="" type="checkbox"/> or N _____	Metals Preserved? Y or N or NA _____	
Provided by TA? <input checked="" type="checkbox"/> or N _____	Client QAPP Preserved? Y or N or <u>NA</u> _____	
Correct Type? <input checked="" type="checkbox"/> or N _____	Adequate Volume? <input checked="" type="checkbox"/> or N _____	
#Containers match COC? <input checked="" type="checkbox"/> or N _____	Water VOAs: Headspace? <input checked="" type="checkbox"/> or N or NA _____	<i>All vials have headspace, noted in WO.</i>
IDs/time/date match COC? <input checked="" type="checkbox"/> or N _____	Comments: _____	
Hold Times in hold? <input checked="" type="checkbox"/> or N _____		

**PROJECT MANAGEMENT**

Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete  
 Comments, Problems \_\_\_\_\_

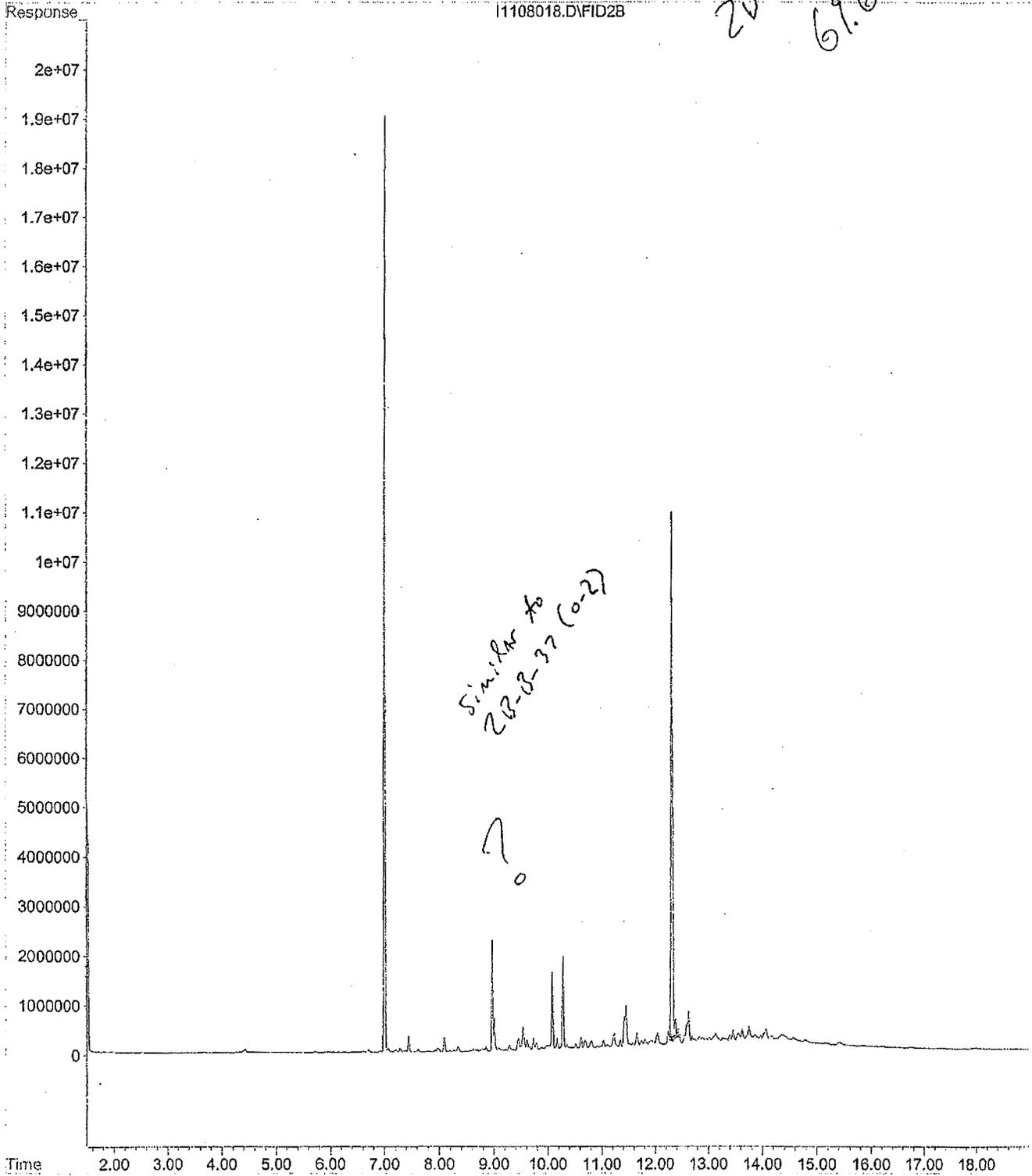
Total access set up? Y or N  
 Has client been contacted regarding non-conformances? Y or N if Y, \_\_\_\_\_ / \_\_\_\_\_  
 Date Time  
 PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Attachment 2 – Cisco Property Laboratory Reports**

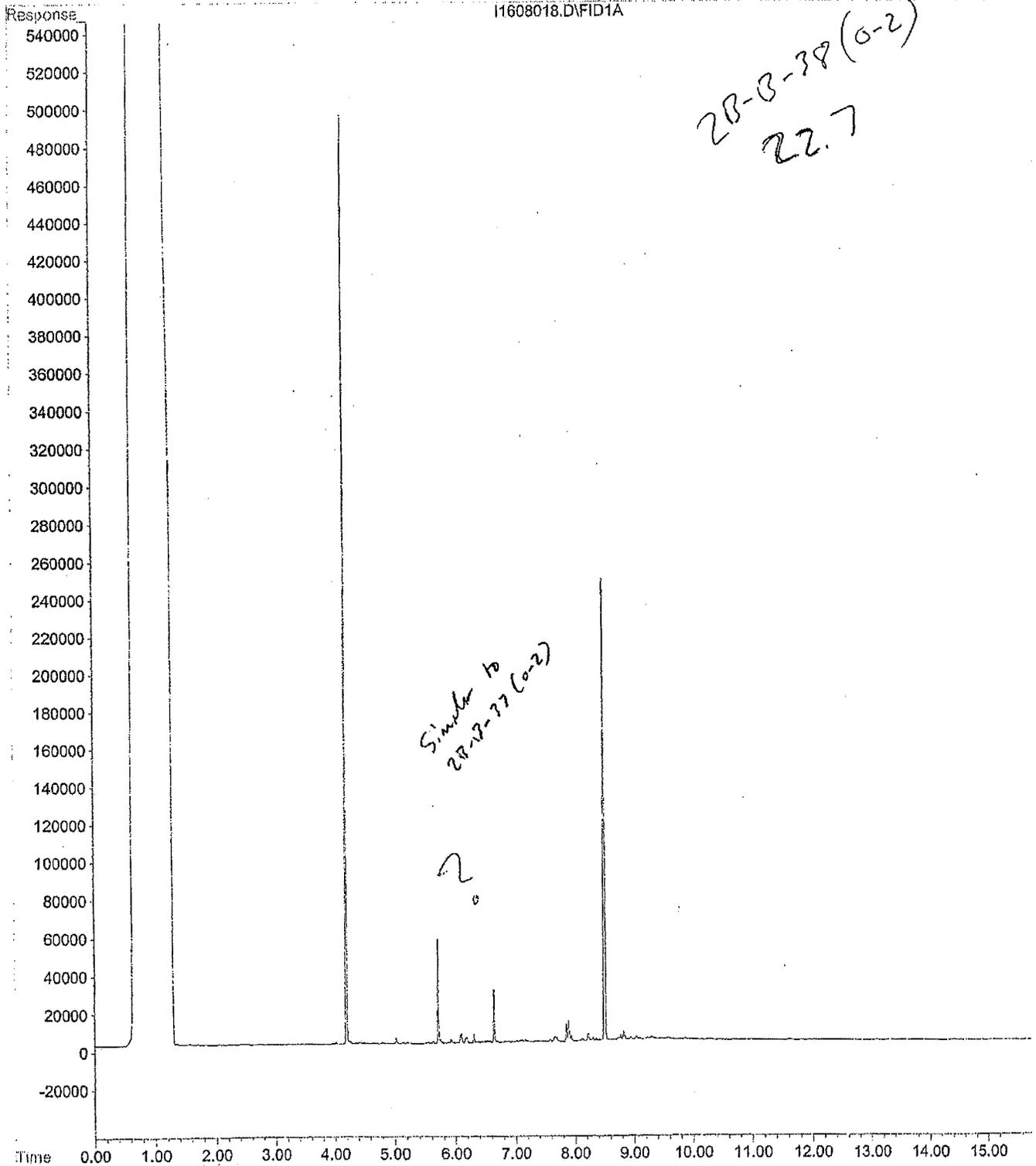
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Operator : MAT  
Acquired : 9-13-08 4:08:37 AM using AcqMethod TPHP.M  
Instrument : GC9  
Sample Name: BRI0171-07  
Misc Info : 1x NWTPH-Dx Soil  
Vial Number: 67

★

20-B-38 (0-2)  
69.6



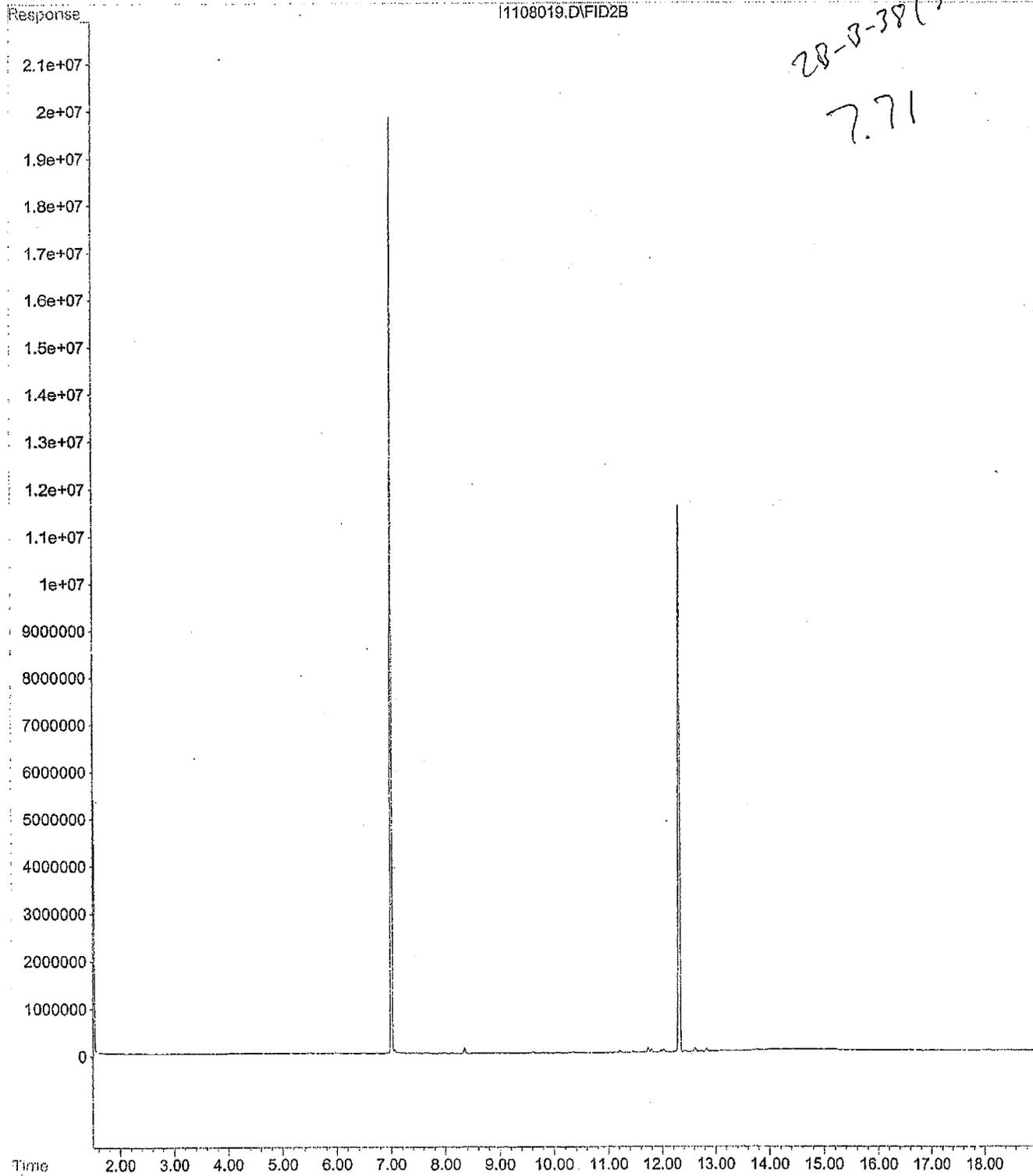
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Operator : MAT  
Acquired : 17 Sep 2008 2:17 am using AcqMethod TPhi0808.M  
Instrument : GC-7  
Sample Name: bri0171-07  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 17



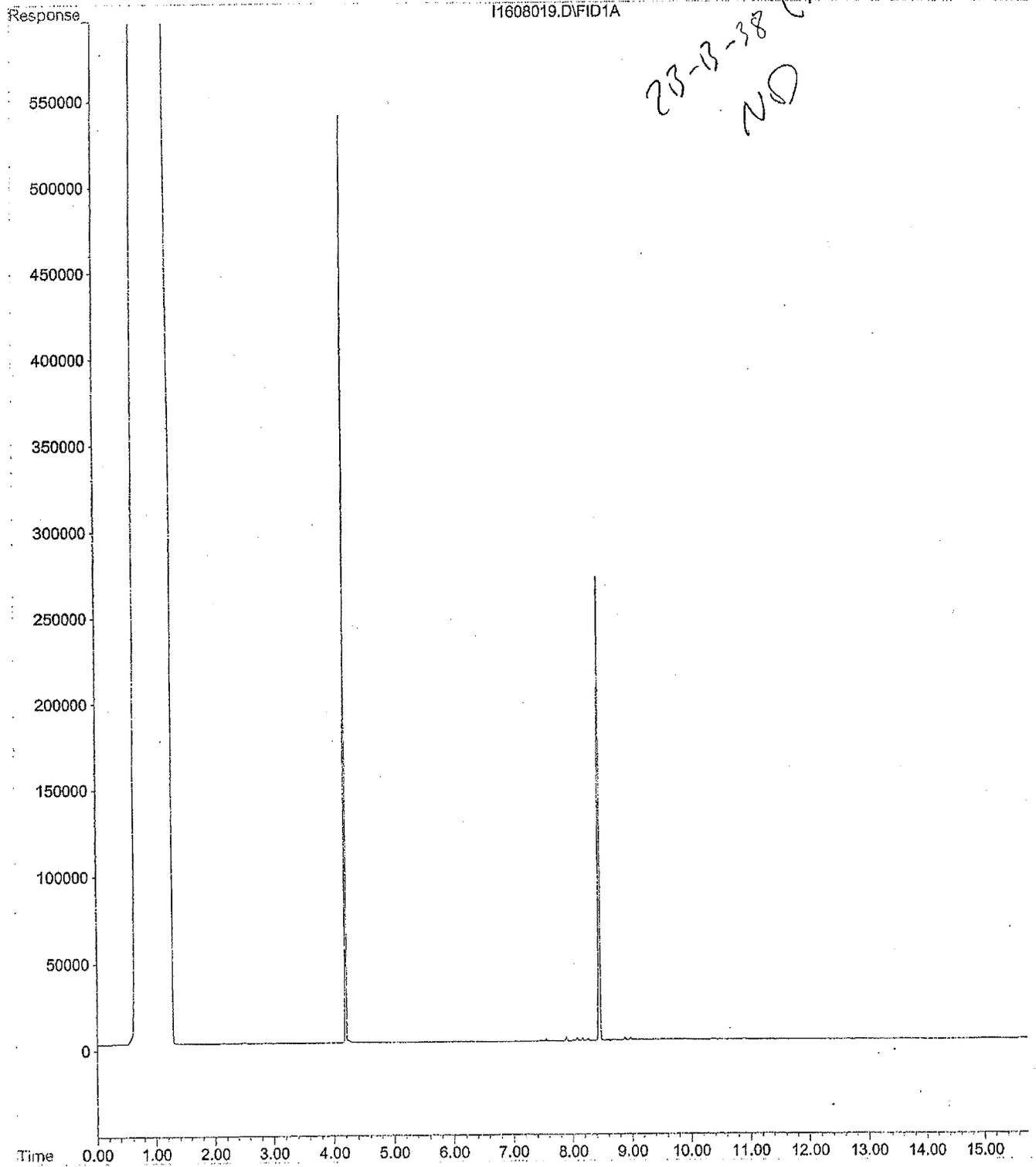
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Operator : MAT  
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Instrument : GC9  
Sample Name: BRI0171-08  
Misc Info : 1x NWTPH-Dx Soil  
Vial Number: 68



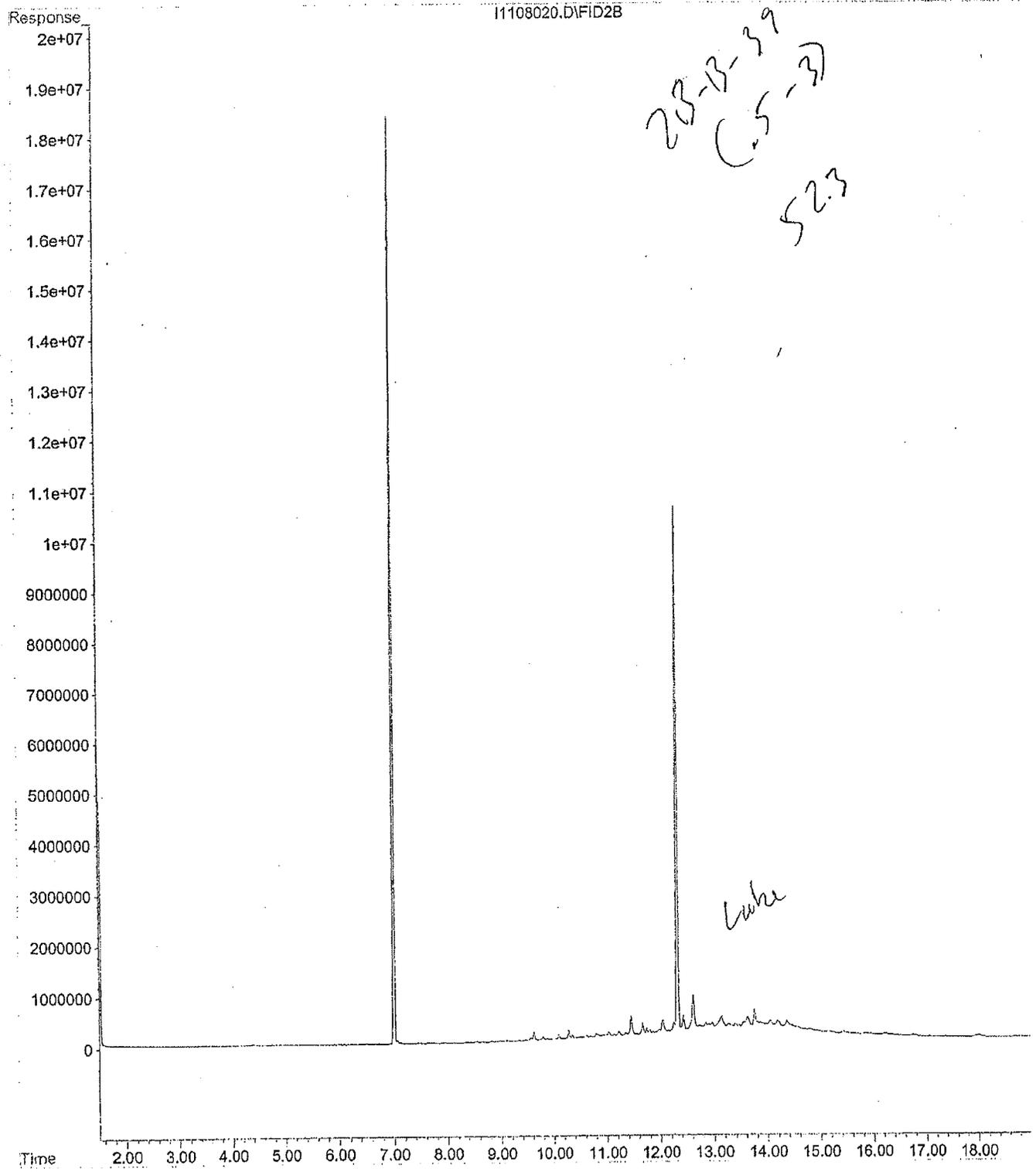
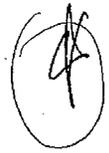
28-8-38(3-5)  
7.71



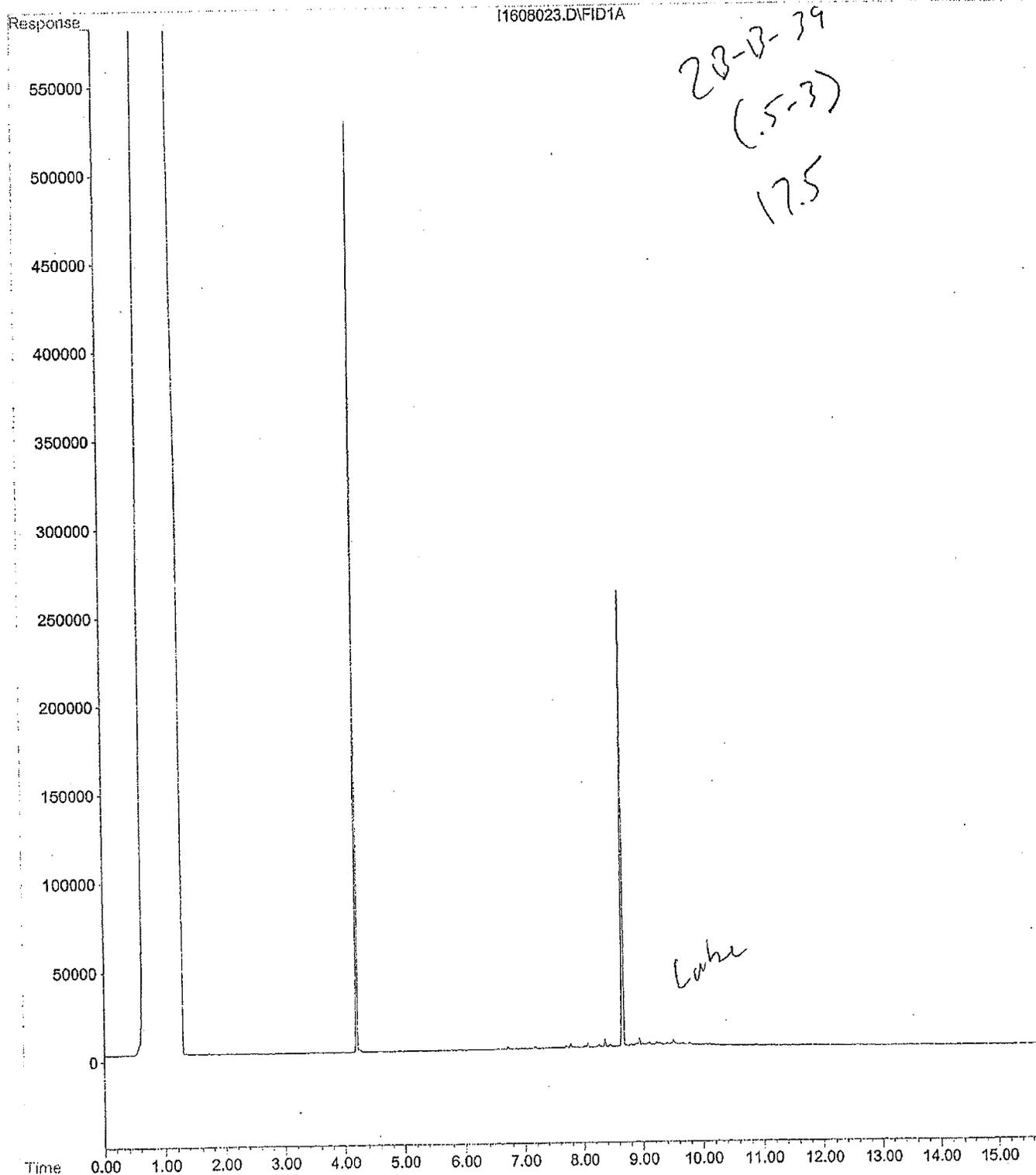
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Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 18



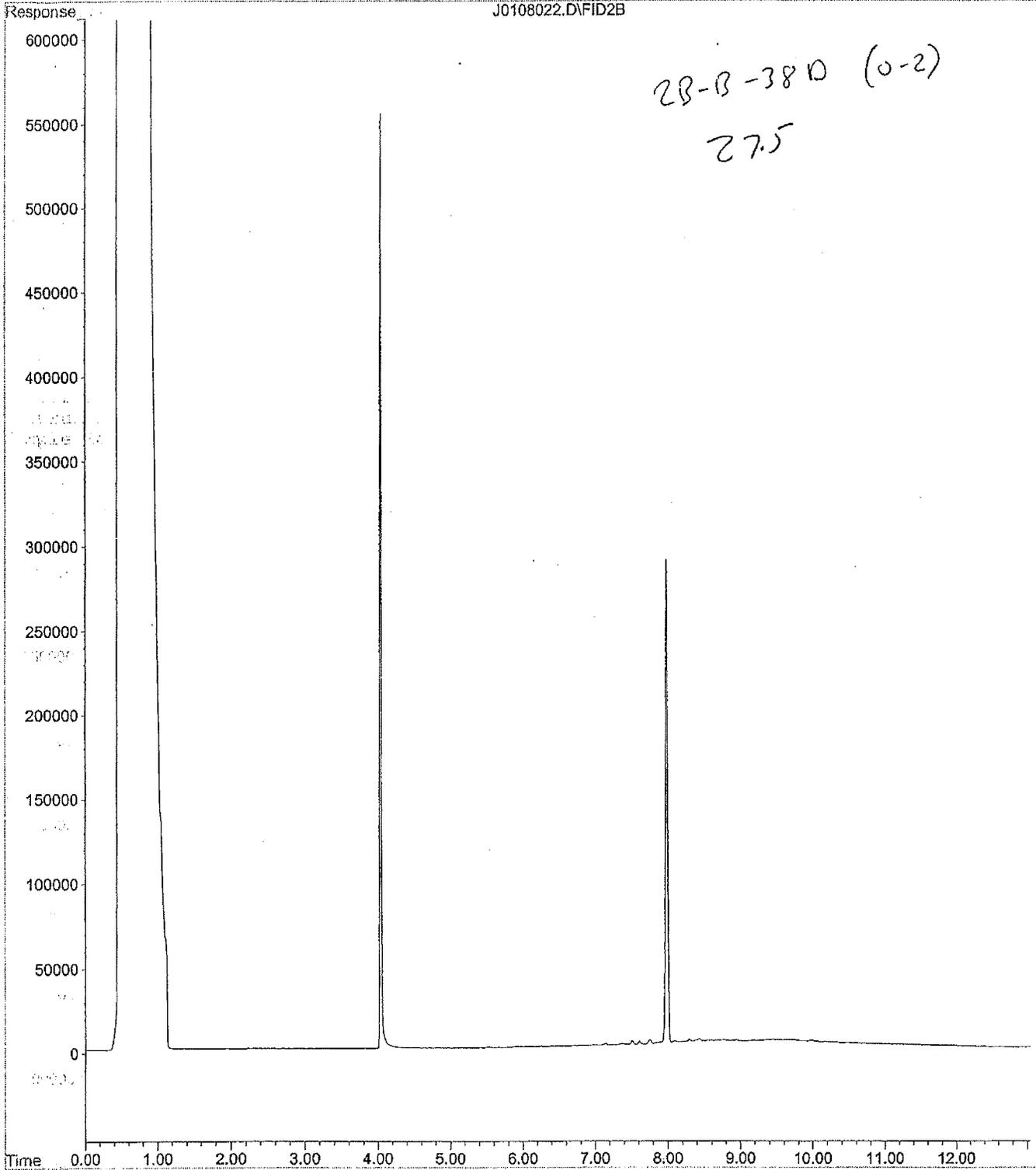
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Misc Info : 1x NWTPH-Dx Soil  
Vial Number: 69



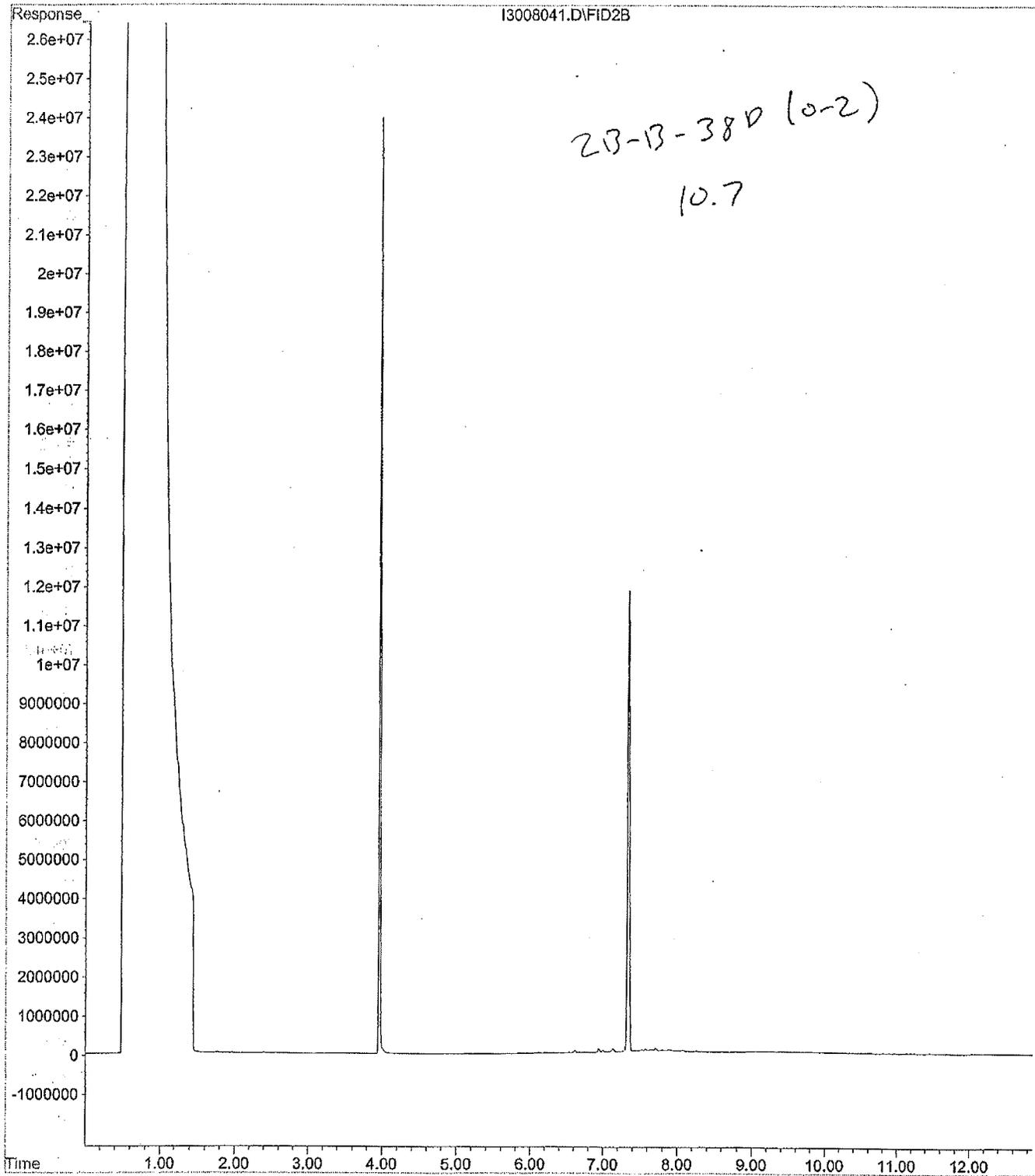
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Sample Name: bri0171-09  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 19



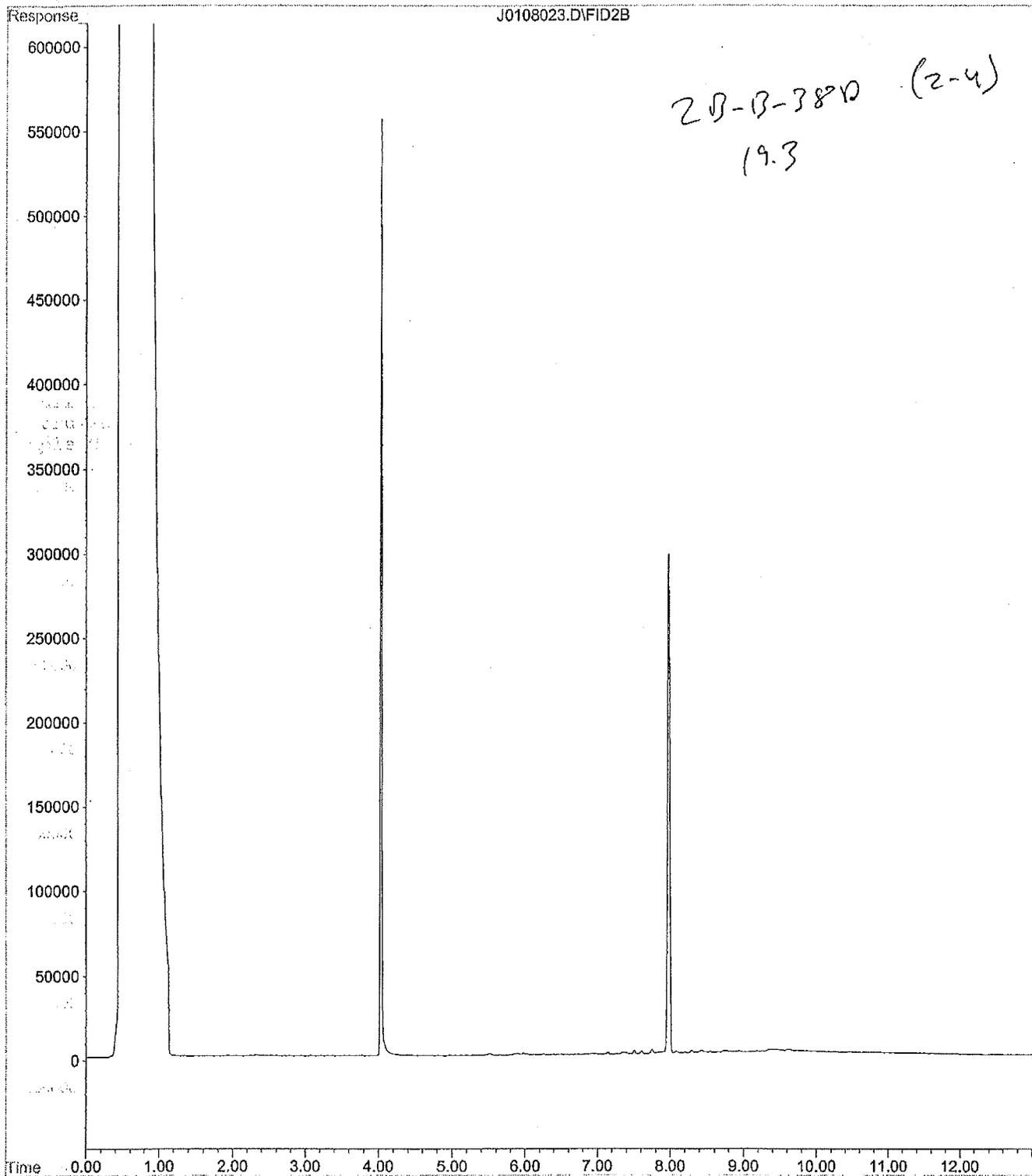
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Sample Name: BRI0460-11RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 71



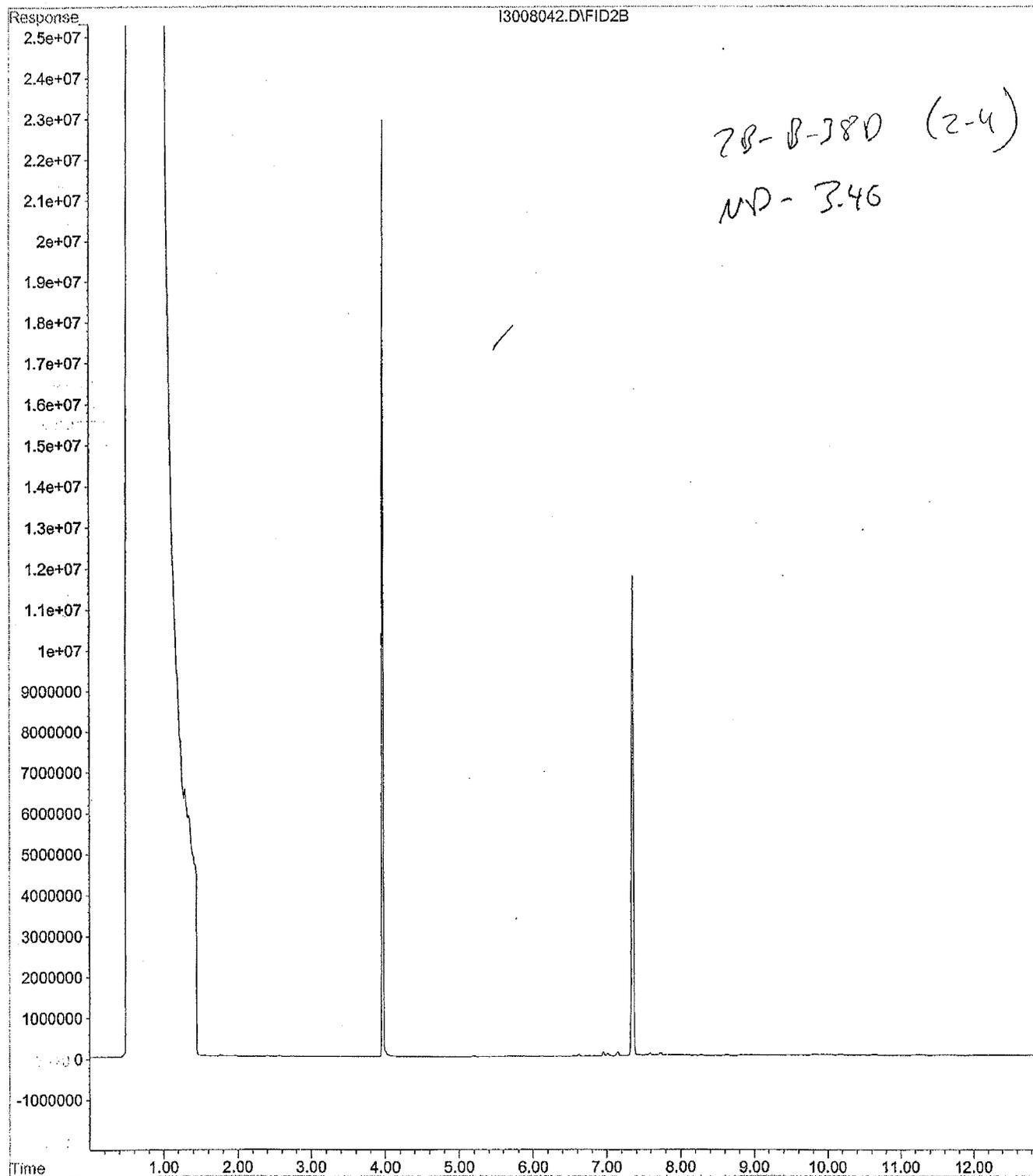
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Operator : EKK  
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Instrument : GC-9  
Sample Name: BRI0460-11  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 62



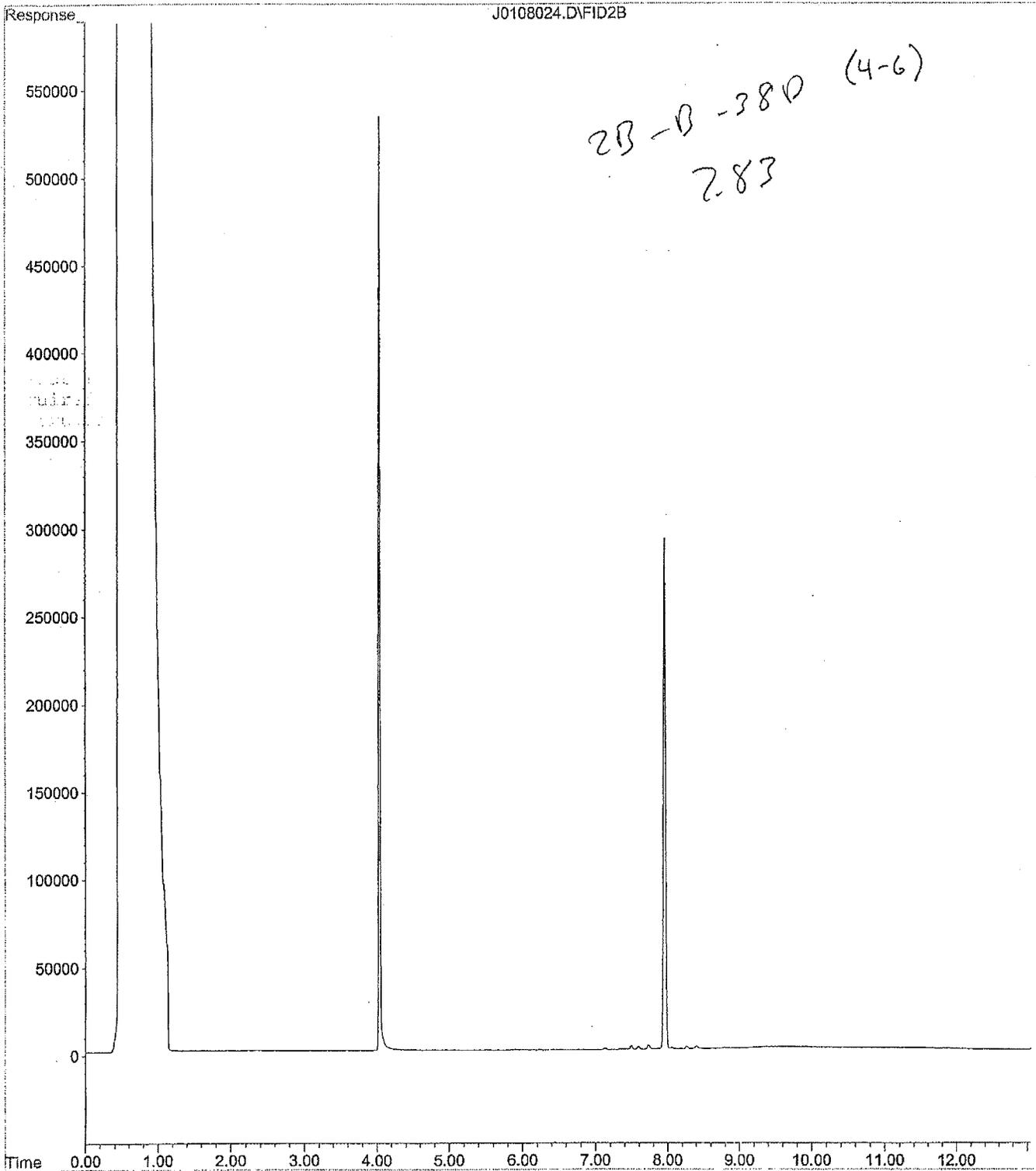
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Instrument : GC-1  
Sample Name: BRI0460-12RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 72



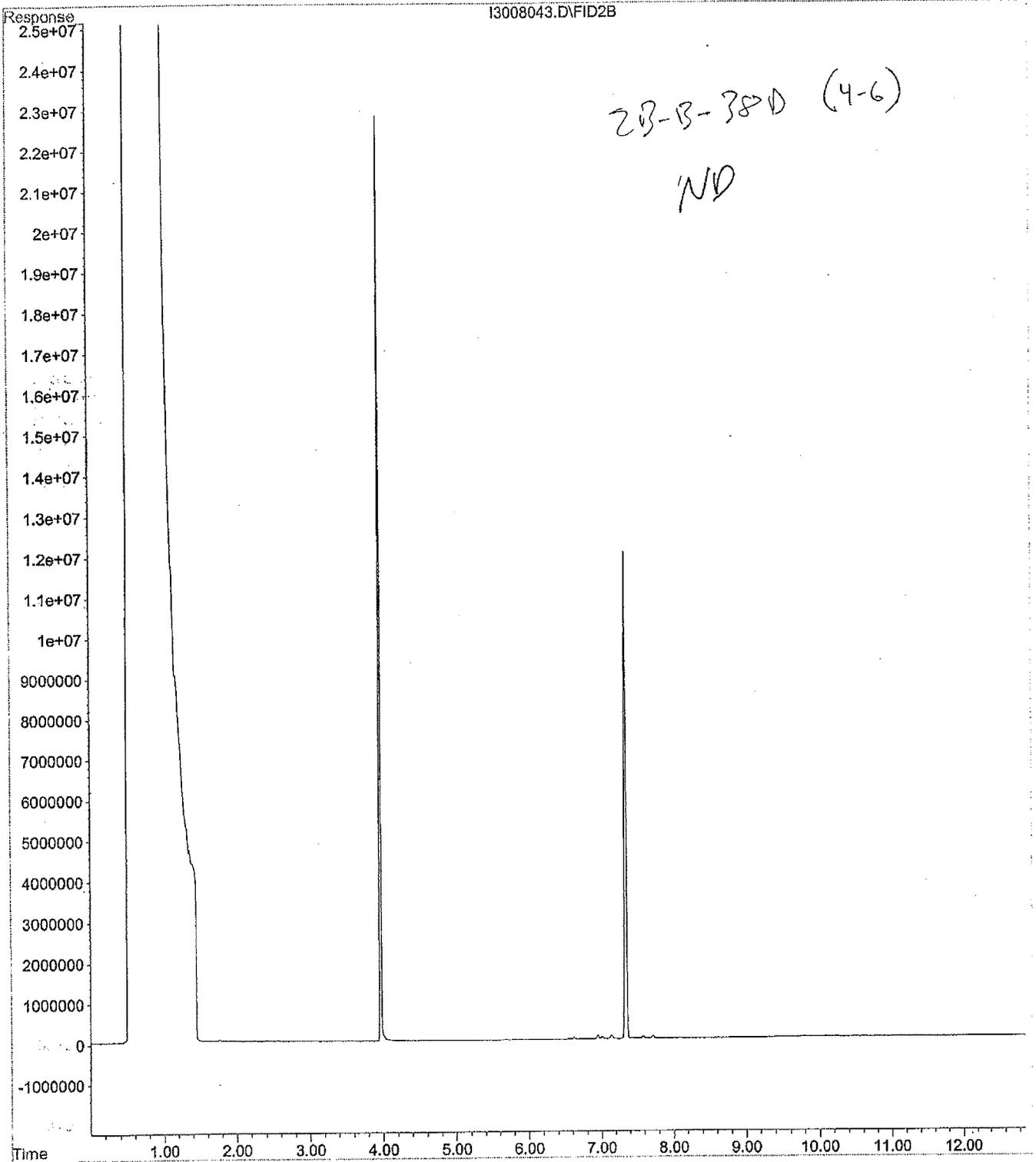
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Instrument : GC-9  
Sample Name: BRI0460-12  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 63



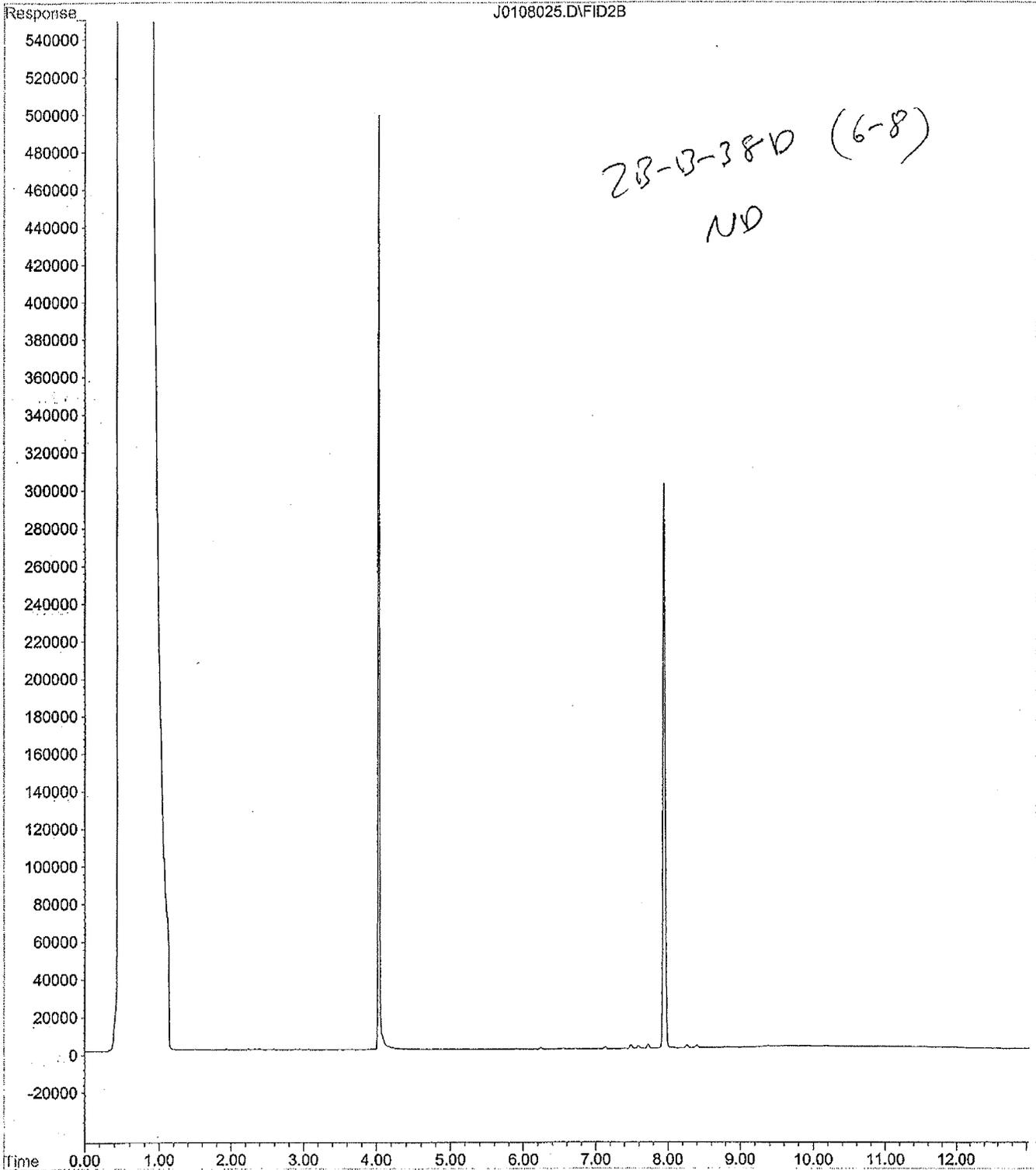
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Operator : WAS  
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Instrument : GC-1  
Sample Name: BRI0460-13RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 73



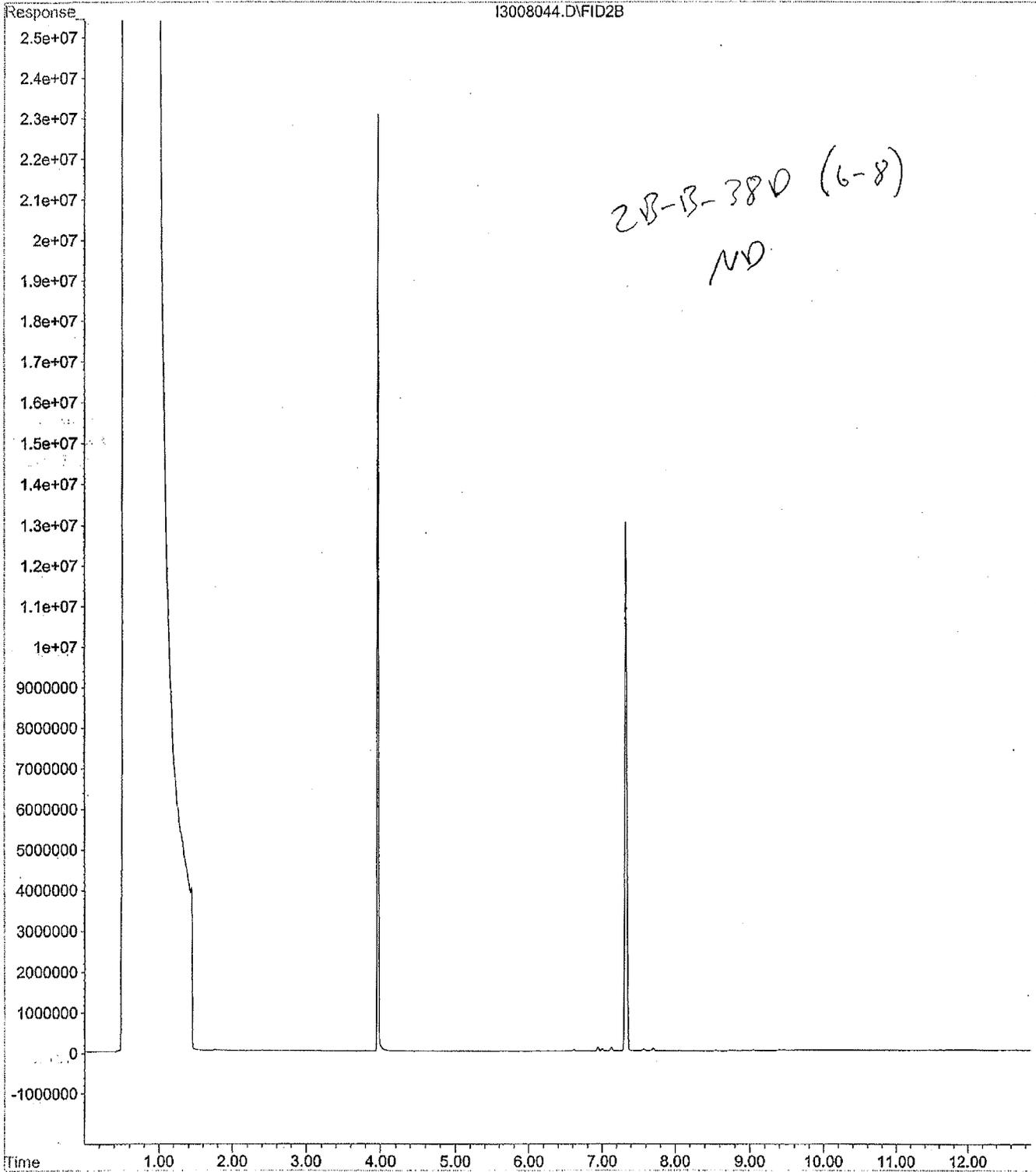
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Operator : EKK  
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Sample Name: BRI0460-13  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 64



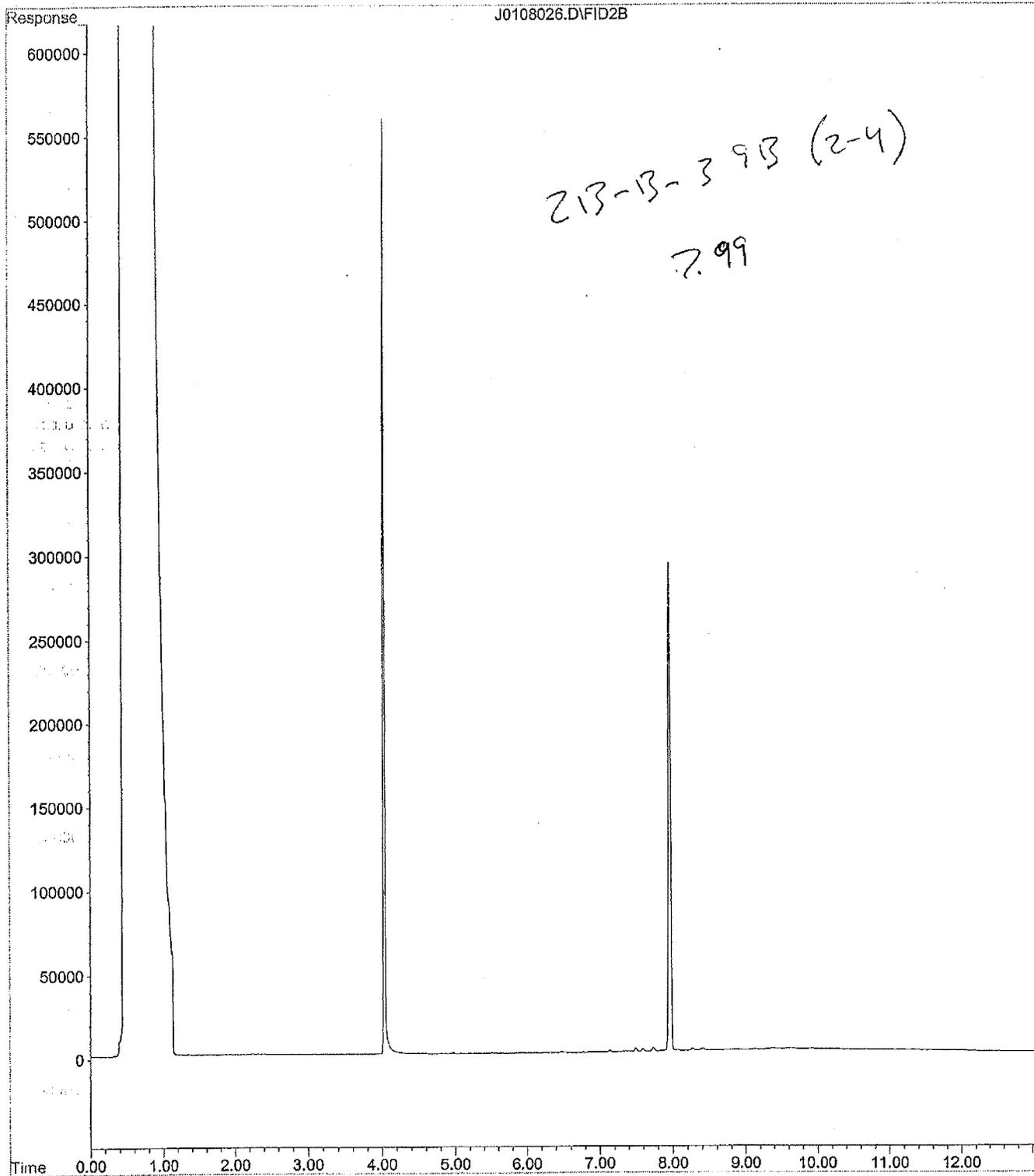
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Sample Name: BRI0460-14RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 74



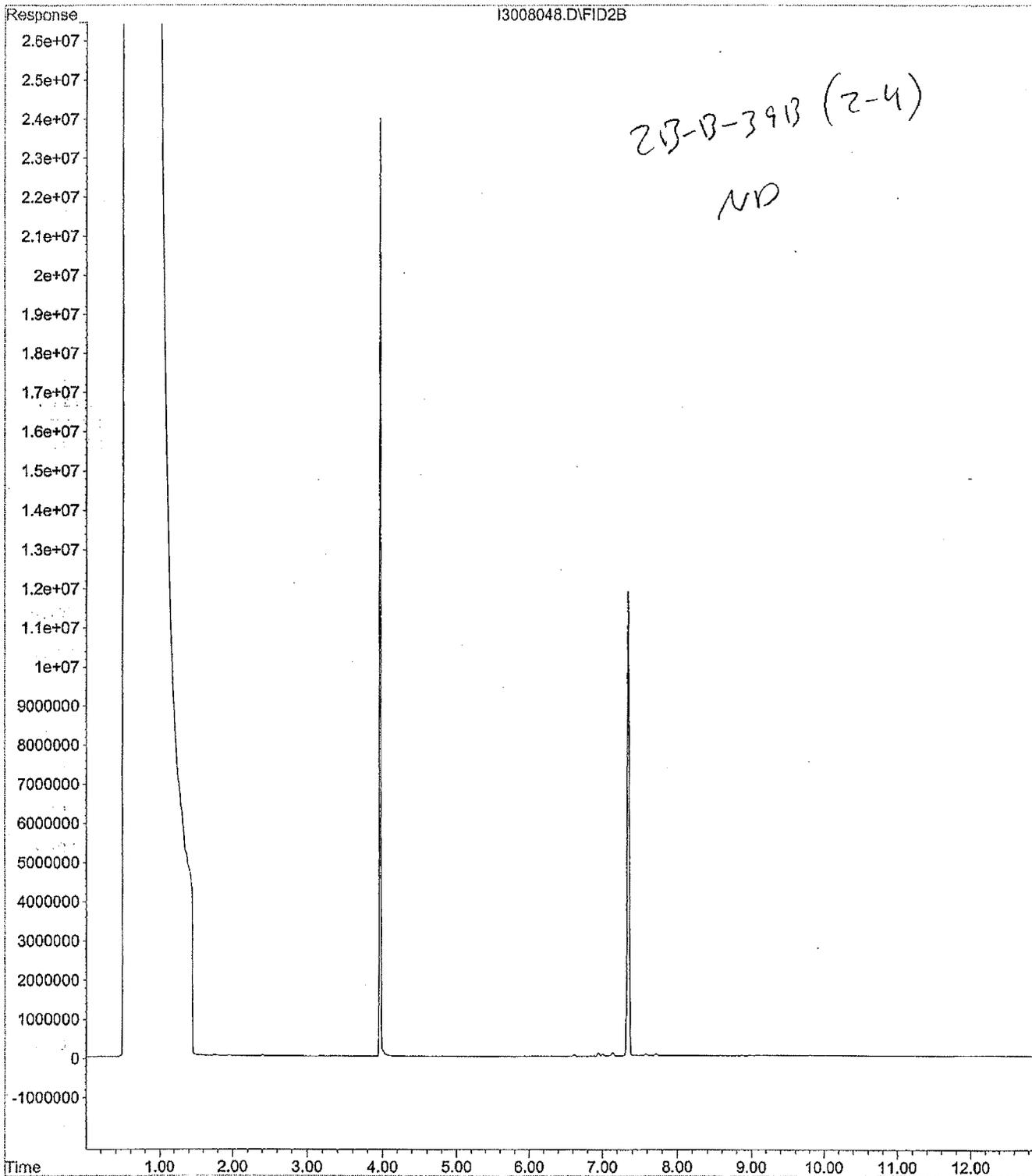
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Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 65



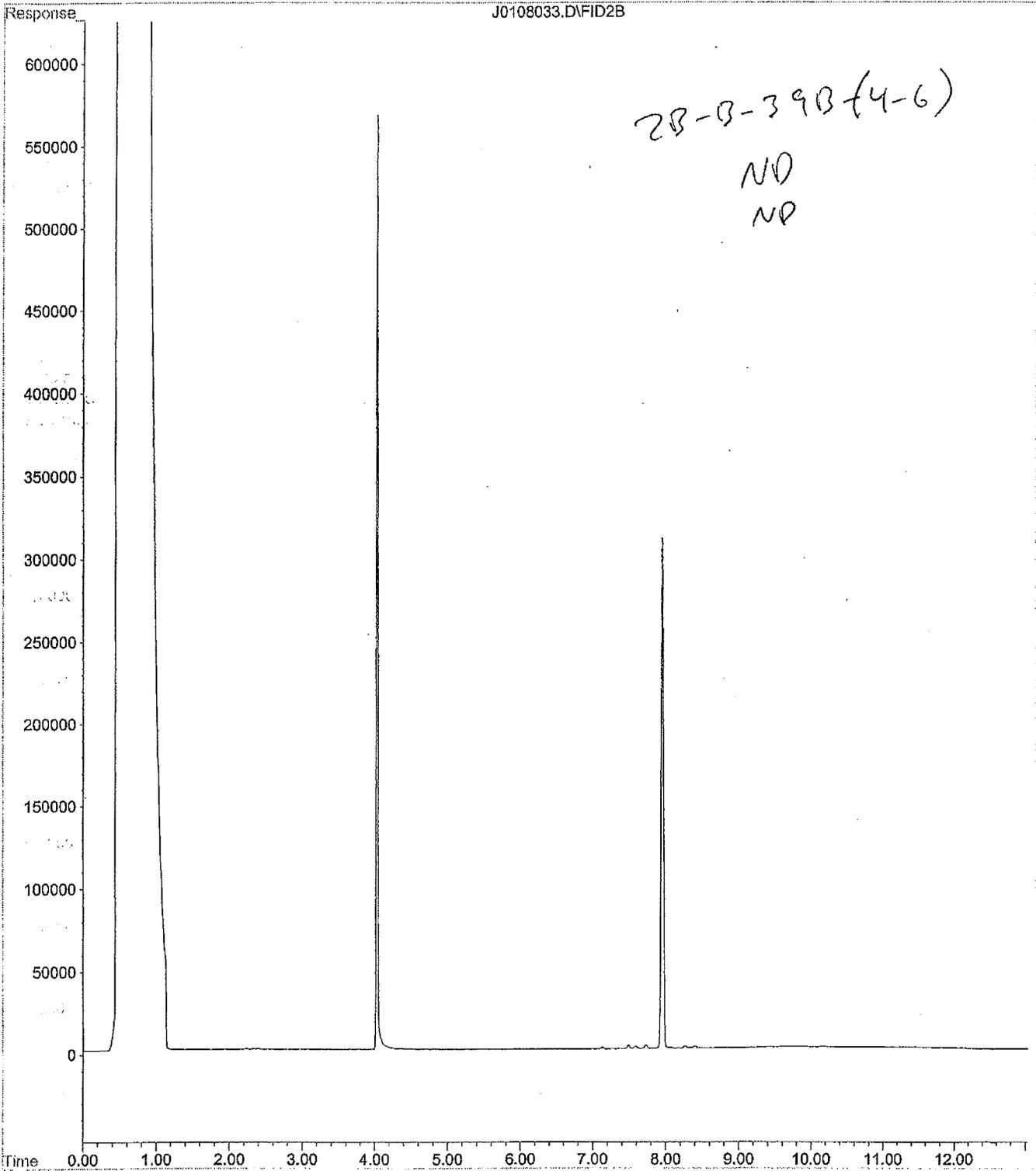
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Sample Name: BRI0460-15RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 75



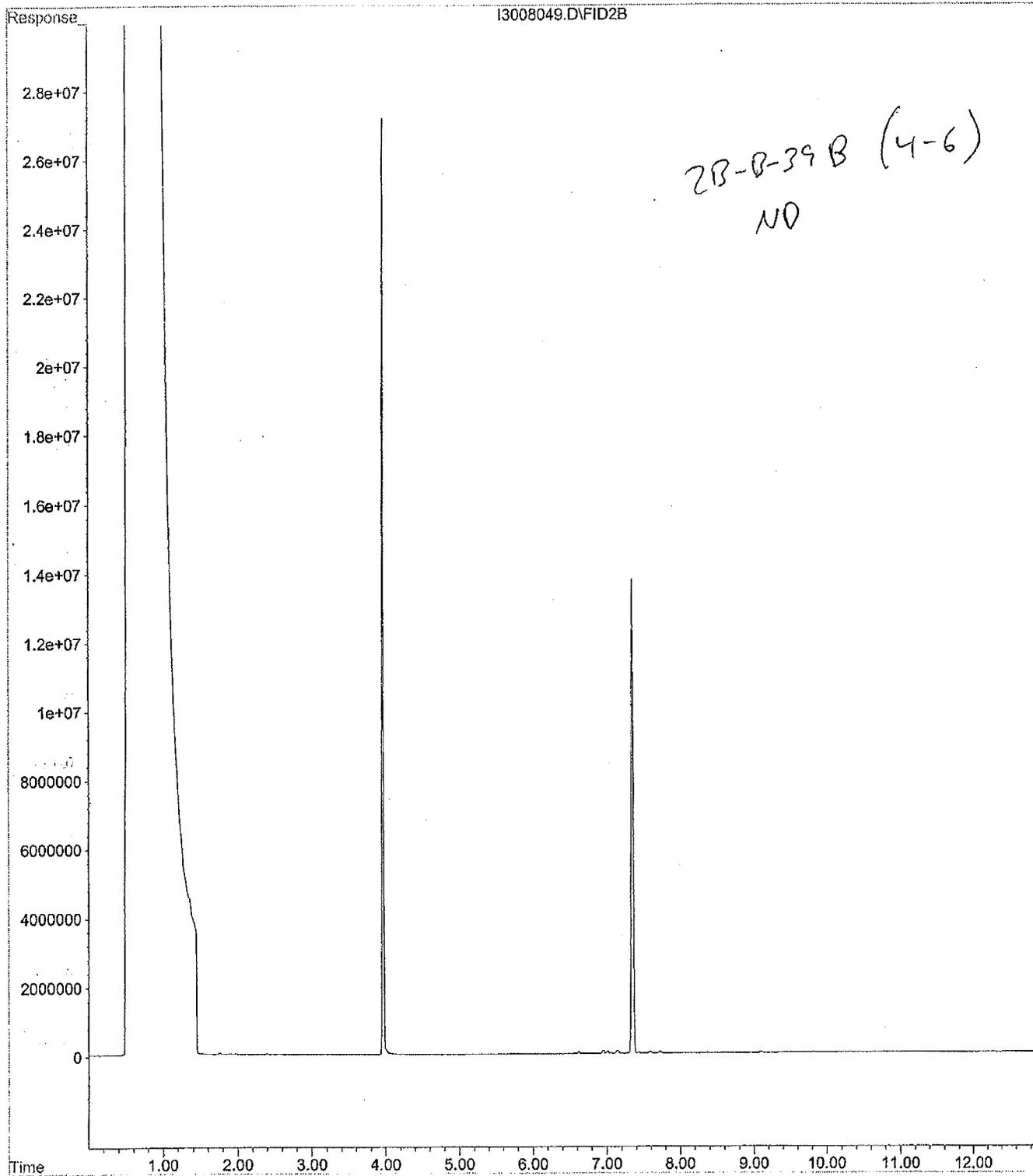
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Operator : EKK  
Acquired : 10-1-2008 2:53:09 AM using AcqMethod TPhi1808.M  
Instrument : GC-9  
Sample Name: BRI0460-15  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 66



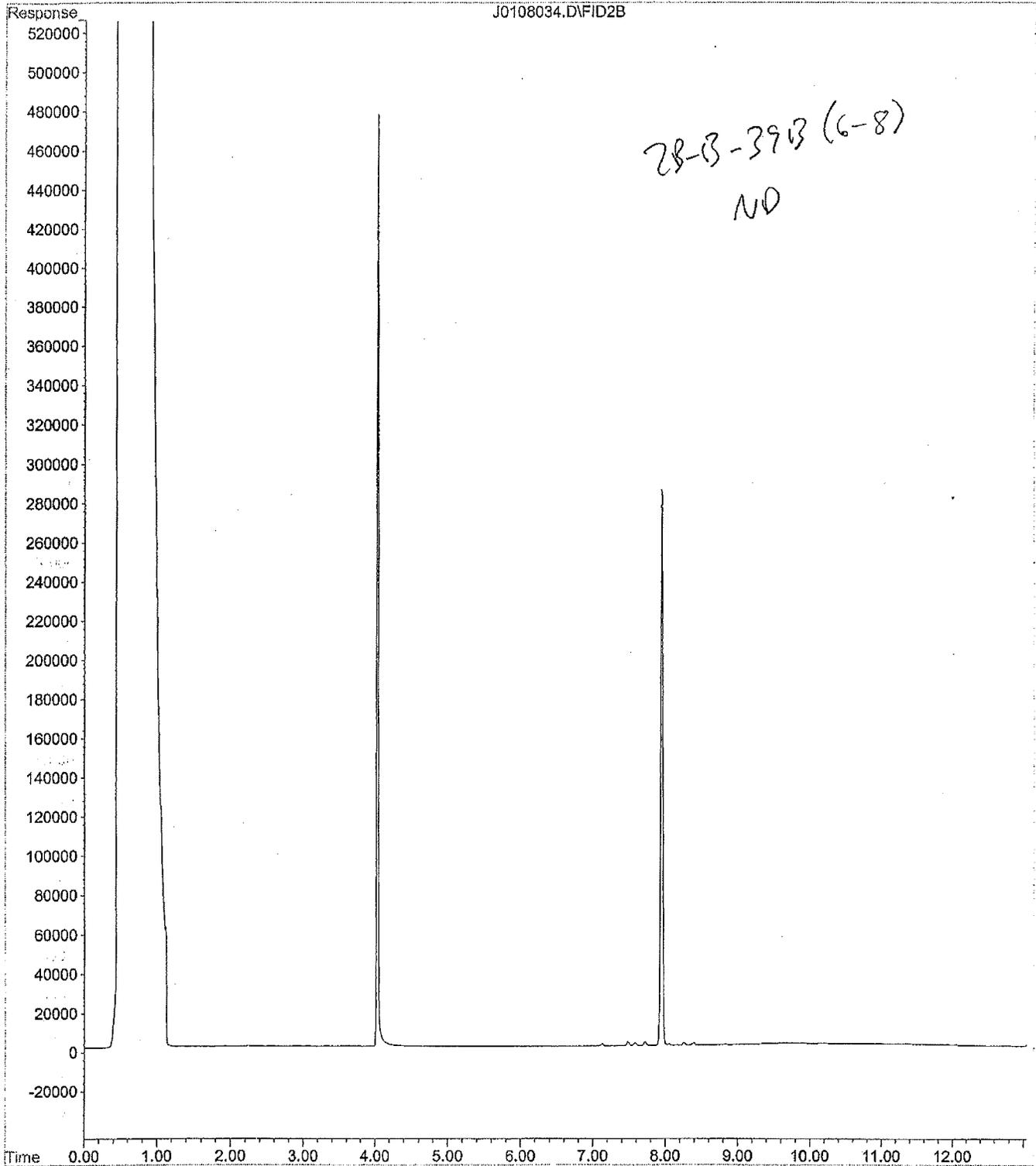
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Sample Name: BRI0460-16RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 76



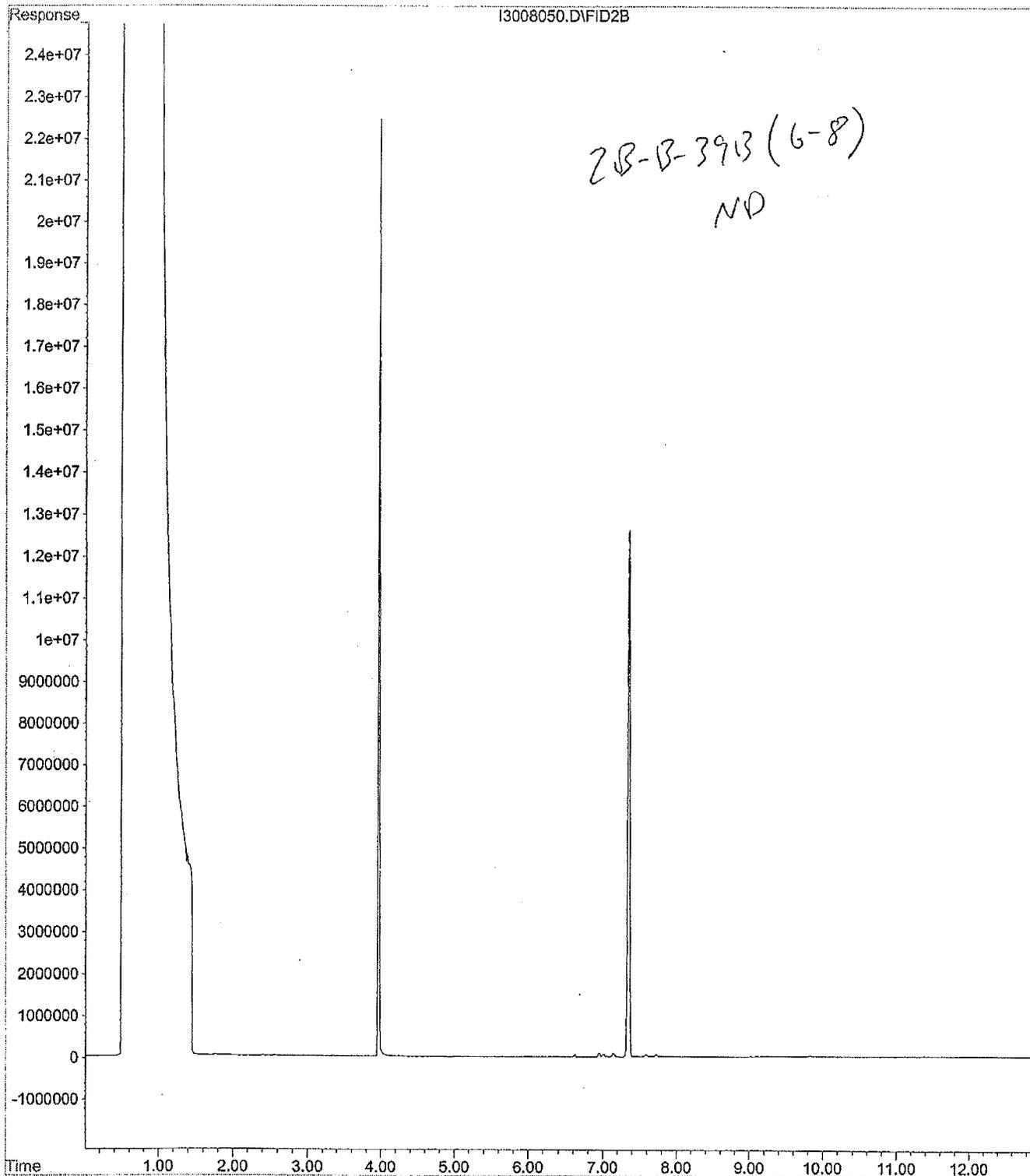
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Instrument : GC-9  
Sample Name: BRI0460-16  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 67



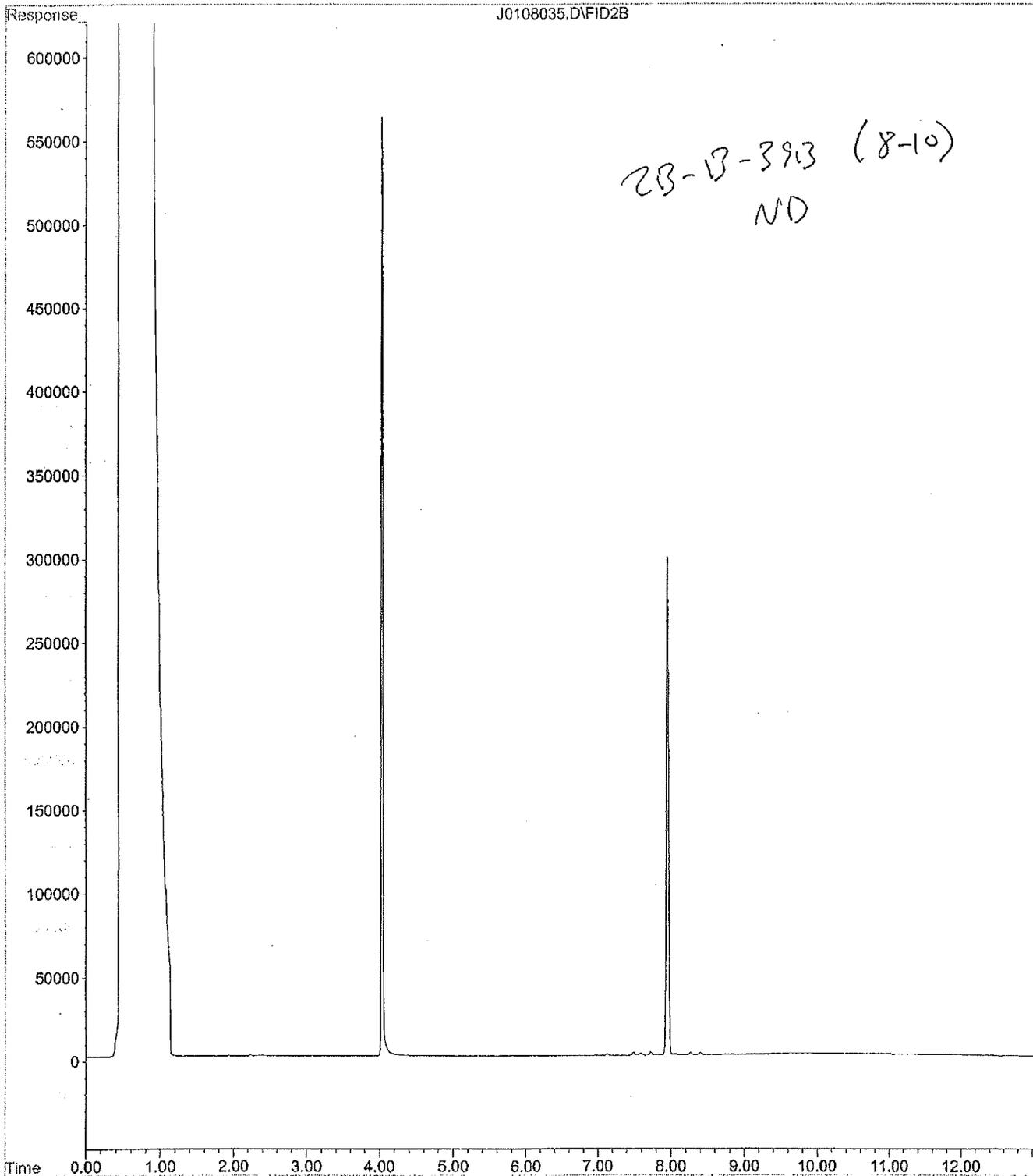
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Vial Number: 77



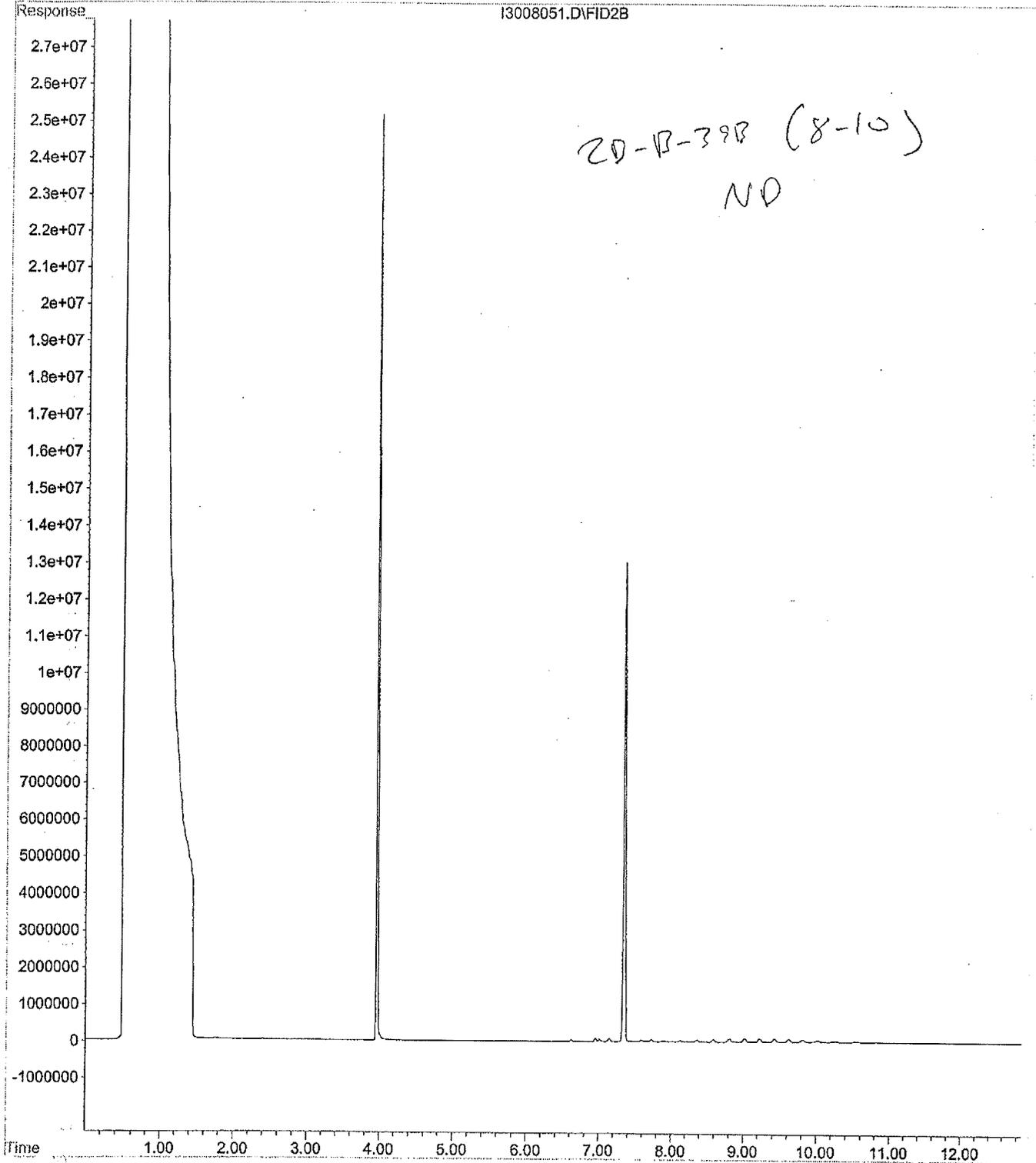
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Operator : EKK  
Acquired : 10-1-2008 3:39:26 AM using AcqMethod TPhi1808.M  
Instrument : GC-9  
Sample Name: BRI0460-17  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 68



File : H:\HPCHEM\1\DATA\J0108.SEC\J0108035.D  
Operator : WAS  
Acquired : 2 Oct 2008 12:29 am using AcqMethod TPHI1008.M  
Instrument : GC-1  
Sample Name: BRI0460-18RE1  
Misc Info : 1x NWTPH-Dx SOIL  
Vial Number: 78



File : L:\1\DATA\I3008.SEC\I3008051.D  
Operator : EKK  
Acquired : 10-1-2008 4:02:27 AM using AcqMethod TPhi1808.M  
Instrument : GC-9  
Sample Name: BRI0460-18  
Misc Info : 1x NWTPH-Dx SG Addon Soil  
Vial Number: 69





September 25, 2008

Halah Voges  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish (Former Maloney Creek West)

Enclosed are the results of analyses for samples received by the laboratory on 09/11/08 16:32.  
The following list is a summary of the Work Orders contained in this report, generated on 09/25/08  
16:13.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRI0171	BNSF-Skykomish (Former M	01140-204-0320

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TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-B-35 (4-6)	BRI0171-01	Soil	09/10/08 12:20	09/11/08 16:32
2B-B-36 (0-2)	BRI0171-02	Soil	09/10/08 13:11	09/11/08 16:32
2B-B-36 (2-4)	BRI0171-03	Soil	09/10/08 13:12	09/11/08 16:32
2B-B-37 (0-2)	BRI0171-04	Soil	09/10/08 14:39	09/11/08 16:32
2B-B-37 (2-4)	BRI0171-05	Soil	09/10/08 14:40	09/11/08 16:32
2B-B-37 (4-5)	BRI0171-06	Soil	09/10/08 14:41	09/11/08 16:32
2B-B-38 (0-2)	BRI0171-07	Soil	09/10/08 16:20	09/11/08 16:32
2B-B-38 (3-5)	BRI0171-08	Soil	09/10/08 16:35	09/11/08 16:32
2B-B-39 (0.5-3)	BRI0171-09	Soil	09/10/08 16:45	09/11/08 16:32
2B-B-40B (0.5-3)	BRI0171-10	Soil	09/10/08 17:46	09/11/08 16:32
2B-B-34 (0-2)	BRI0171-16	Soil	09/10/08 11:25	09/11/08 16:32
2B-B-34 (2-4)	BRI0171-17	Soil	09/10/08 11:30	09/11/08 16:32
2B-B-34 (4-6)	BRI0171-18	Soil	09/10/08 11:35	09/11/08 16:32
2B-B-35 (0-2)	BRI0171-19	Soil	09/10/08 12:10	09/11/08 16:32
2B-B-35 (2-4)	BRI0171-20	Soil	09/10/08 12:15	09/11/08 16:32
2B-B-40B (3-5)	BRI0171-21	Soil	09/10/08 17:49	09/11/08 16:32
2B-B-41 (0-2)	BRI0171-22	Soil	09/10/08 08:25	09/11/08 16:32
2B-B-41 (2-4)	BRI0171-23	Soil	09/10/08 08:30	09/11/08 16:32
2B-B-41 (4-6)	BRI0171-24	Soil	09/10/08 08:35	09/11/08 16:32
3-B-26 (0-2)	BRI0171-25	Soil	09/11/08 10:35	09/11/08 16:32
3-B-26 (2-4)	BRI0171-26	Soil	09/11/08 10:35	09/11/08 16:32
3-B-26 (4-6)	BRI0171-27	Soil	09/11/08 10:40	09/11/08 16:32
3-B-27 (0-2)	BRI0171-28	Soil	09/11/08 11:35	09/11/08 16:32
3-B-27 (2-4)	BRI0171-29	Soil	09/11/08 11:40	09/11/08 16:32
3-B-27 (4-6)	BRI0171-30	Soil	09/11/08 11:45	09/11/08 16:32

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Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

Project Manager: Halah Voges

Report Created:

09/25/08 16:13

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRI0171**

**SAMPLE RECEIPT**

The samples were received September 11th, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.9 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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**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
<b>BRI0171-01 (2B-B-35 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 12:20</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>8.88</b>	2.70	16.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 00:14	J
Lube Oil Range Hydrocarbons	"	<b>10.6</b>	5.38	42.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"			"	
Octacosane			95.6%		62 - 142 %	"			"	
<b>BRI0171-02 (2B-B-36 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>2010</b>	329	2050	mg/kg dry	50x	8111058	09/12/08 08:00	09/13/08 00:40	J, Q6, RL1
Lube Oil Range Hydrocarbons	"	<b>7040</b>	653	5130	"	"	"	"	"	
Surrogate(s): 2-FBP			970%		54 - 148 %	"			"	Z3
Octacosane			675%		62 - 142 %	"			"	Z3
<b>BRI0171-03 (2B-B-36 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:12</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>28.4</b>	2.05	12.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:06	Q6
Lube Oil Range Hydrocarbons	"	<b>109</b>	4.10	32.1	"	"	"	"	"	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"			"	
Octacosane			99.6%		62 - 142 %	"			"	
<b>BRI0171-04 (2B-B-37 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:39</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>112</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:32	Q3
Lube Oil Range Hydrocarbons	"	<b>474</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP			88.4%		54 - 148 %	"			"	
Octacosane			93.8%		62 - 142 %	"			"	
<b>BRI0171-05 (2B-B-37 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:40</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>263</b>	11.3	70.5	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 01:58	Q6
Lube Oil Range Hydrocarbons	"	<b>1340</b>	22.5	176	"	"	"	"	"	
Surrogate(s): 2-FBP			113%		54 - 148 %	"			"	
Octacosane			111%		62 - 142 %	"			"	
<b>BRI0171-06 (2B-B-37 (4-5))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:41</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	<b>120</b>	9.87	61.7	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 03:42	Q6
Lube Oil Range Hydrocarbons	"	<b>496</b>	19.7	154	"	"	"	"	"	
Surrogate(s): 2-FBP			112%		54 - 148 %	"			"	
Octacosane			111%		62 - 142 %	"			"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-07 (2B-B-38 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 16:20</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	23.7	2.23	13.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 04:08	Q12
Lube Oil Range Hydrocarbons	"	45.9	4.45	34.8	"	"	"	"	"	
Surrogate(s): 2-FBP			81.1%	54 - 148 %						
Octacosane			97.5%	62 - 142 %						
<b>BRI0171-08 (2B-B-38 (3-5))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 16:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	3.61	1.78	11.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 04:34	J
Lube Oil Range Hydrocarbons	"	4.10	3.55	27.9	"	"	"	"	"	J
Surrogate(s): 2-FBP			89.3%	54 - 148 %						
Octacosane			101%	62 - 142 %						
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 16:45</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	10.9	1.81	11.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 05:00	J
Lube Oil Range Hydrocarbons	"	41.4	3.62	28.3	"	"	"	"	"	
Surrogate(s): 2-FBP			81.1%	54 - 148 %						
Octacosane			98.1%	62 - 142 %						
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 17:46</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	6.43	2.38	14.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 05:26	J
Lube Oil Range Hydrocarbons	"	14.5	4.75	37.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			81.8%	54 - 148 %						
Octacosane			93.5%	62 - 142 %						
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:25</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	1290	48.5	303	mg/kg dry	20x	8111058	09/12/08 08:00	09/13/08 05:52	Q6
Lube Oil Range Hydrocarbons	"	4660	96.7	758	"	"	"	"	"	
Surrogate(s): 2-FBP			217%	54 - 148 %						
Octacosane			196%	62 - 142 %						
<b>BRI0171-17 (2B-B-34 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:30</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	7.76	2.20	13.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 06:18	J
Lube Oil Range Hydrocarbons	"	23.5	4.40	34.5	"	"	"	"	"	J
Surrogate(s): 2-FBP			78.8%	54 - 148 %						
Octacosane			96.2%	62 - 142 %						

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0171-18 (2B-B-34 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>33.5</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 06:44	Q6
Lube Oil Range Hydrocarbons	"	<b>130</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP			89.9%		54 - 148 %	"				
Octacosane			98.1%		62 - 142 %	"				
<b>BRI0171-19 (2B-B-35 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:10</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>19.3</b>	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 07:10	Q6
Lube Oil Range Hydrocarbons	"	<b>84.7</b>	5.26	41.2	"	"	"	"	"	
Surrogate(s): 2-FBP			89.4%		54 - 148 %	"				
Octacosane			99.3%		62 - 142 %	"				
<b>BRI0171-20 (2B-B-35 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:15</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>16.5</b>	2.91	18.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 07:36	J
Lube Oil Range Hydrocarbons	"	<b>46.2</b>	5.80	45.4	"	"	"	"	"	
Surrogate(s): 2-FBP			87.5%		54 - 148 %	"				
Octacosane			100%		62 - 142 %	"				
<b>BRI0171-21 (2B-B-40B (3-5))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 17:49</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>6.19</b>	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 09:20	J
Lube Oil Range Hydrocarbons	"	<b>18.2</b>	4.49	35.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			87.8%		54 - 148 %	"				
Octacosane			98.7%		62 - 142 %	"				
<b>BRI0171-22 (2B-B-41 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:25</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>192</b>	10.5	65.8	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 09:46	Q6
Lube Oil Range Hydrocarbons	"	<b>713</b>	21.0	164	"	"	"	"	"	
Surrogate(s): 2-FBP			115%		54 - 148 %	"				
Octacosane			112%		62 - 142 %	"				
<b>BRI0171-23 (2B-B-41 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:30</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>74.2</b>	2.24	14.0	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 10:12	Q6
Lube Oil Range Hydrocarbons	"	<b>224</b>	4.47	35.0	"	"	"	"	"	
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"				
Octacosane			97.6%		62 - 142 %	"				

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**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
<b>BRI0171-24 (2B-B-41 (4-6))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 08:35</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	24.1	2.19	13.7	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 10:38	Q6
Lube Oil Range Hydrocarbons	"	76.3	4.37	34.3	"	"	"	"	"	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	"			"	
Octacosane			97.8%		62 - 142 %	"			"	
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>				<b>Sampled: 09/11/08 10:35</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	4.45	2.76	17.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 02:50	J
Lube Oil Range Hydrocarbons	"	86.7	5.50	43.1	"	"	"	"	"	Q13
Surrogate(s): 2-FBP			92.5%		54 - 148 %	"			"	
Octacosane			103%		62 - 142 %	"			"	
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>				<b>Sampled: 09/11/08 10:35</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	36.3	3.07	19.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 03:11	Q6
Lube Oil Range Hydrocarbons	"	209	6.13	48.0	"	"	"	"	"	
Surrogate(s): 2-FBP			92.4%		54 - 148 %	"			"	
Octacosane			135%		62 - 142 %	"			"	
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>				<b>Sampled: 09/11/08 10:40</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	21.5	2.26	14.1	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 03:33	Q6
Lube Oil Range Hydrocarbons	"	149	4.50	35.3	"	"	"	"	"	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"			"	
Octacosane			102%		62 - 142 %	"			"	
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>				<b>Sampled: 09/11/08 11:35</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	658	15.0	93.5	mg/kg dry	5x	8111061	09/12/08 08:03	09/14/08 03:54	Q4
Lube Oil Range Hydrocarbons	"	729	29.8	234	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			91.2%		54 - 148 %	"			"	
Octacosane			94.4%		62 - 142 %	"			"	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>				<b>Sampled: 09/11/08 11:40</b>				
Diesel Range Hydrocarbons	NWTPH-Dx	53.1	2.25	14.0	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 04:15	Q6
Lube Oil Range Hydrocarbons	"	240	4.48	35.1	"	"	"	"	"	
Surrogate(s): 2-FBP			89.9%		54 - 148 %	"			"	
Octacosane			97.4%		62 - 142 %	"			"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:45</b>					
<b>Diesel Range Hydrocarbons</b>	NWTPH-Dx	<b>288</b>	12.1	75.9	mg/kg dry	5x	8111061	09/12/08 08:03	09/14/08 07:04	<b>Q6</b>
<b>Lube Oil Range Hydrocarbons</b>	"	<b>1200</b>	24.2	190	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			94.7%		54 - 148 %	"			"	
<i>Octacosane</i>			99.7%		62 - 142 %	"			"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**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
<b>BRI0171-01 (2B-B-35 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 12:20</b>						
Diesel Range (SGCU)	NWTPH-Dx	ND	2.70	16.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 22:34	
Lube Oil Range (SGCU)	"	ND	5.38	42.2	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			70.6%		54 - 148 %	"				"
Octacosane (SGCU)			80.0%		62 - 142 %	"				"
<b>BRI0171-02 (2B-B-36 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>						
Diesel Range (SGCU)	NWTPH-Dx	<b>832</b>	6.57	41.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 22:48	Q6
Surrogate(s): 2-FBP (SGCU)			72.6%		54 - 148 %	"				"
Octacosane (SGCU)			88.4%		62 - 142 %	"				"
<b>BRI0171-02RE1 (2B-B-36 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>						
Lube Oil Range (SGCU)	NWTPH-Dx	<b>1890</b>	65.5	513	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:23	Q4
Surrogate(s): 2-FBP (SGCU)			71.0%		54 - 148 %	"				"
Octacosane (SGCU)			98.0%		62 - 142 %	"				"
<b>BRI0171-03 (2B-B-36 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:12</b>						
Diesel Range (SGCU)	NWTPH-Dx	<b>15.6</b>	2.05	12.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 23:18	Q6
Lube Oil Range (SGCU)	"	<b>53.4</b>	4.10	32.1	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			70.9%		54 - 148 %	"				"
Octacosane (SGCU)			83.2%		62 - 142 %	"				"
<b>BRI0171-04 (2B-B-37 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:39</b>						
Diesel Range (SGCU)	NWTPH-Dx	<b>44.2</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 23:48	Q3
Lube Oil Range (SGCU)	"	<b>222</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			70.6%		54 - 148 %	"				"
Octacosane (SGCU)			81.0%		62 - 142 %	"				"
<b>BRI0171-05 (2B-B-37 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:40</b>						
Diesel Range (SGCU)	NWTPH-Dx	<b>120</b>	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 00:18	Q6
Lube Oil Range (SGCU)	"	<b>431</b>	4.50	35.2	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			62.2%		54 - 148 %	"				"
Octacosane (SGCU)			70.8%		62 - 142 %	"				"

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**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
<b>BRI0171-06 (2B-B-37 (4-5))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 14:41</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>53.8</b>	1.97	12.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 01:47	Q6
Lube Oil Range (SGCU)	"	<b>180</b>	3.93	30.8	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			65.5%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			78.9%		62 - 142 %	"				
<b>BRI0171-07 (2B-B-38 (0-2))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 16:20</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>7.19</b>	2.23	13.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:17	J
Lube Oil Range (SGCU)	"	<b>15.5</b>	4.45	34.8	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			68.1%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			78.2%		62 - 142 %	"				
<b>BRI0171-08 (2B-B-38 (3-5))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 16:35</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>ND</b>	1.78	11.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:47	
Lube Oil Range (SGCU)	"	<b>ND</b>	3.55	27.9	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			76.6%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			87.2%		62 - 142 %	"				
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 16:45</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>3.13</b>	1.81	11.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 10:40	J
Lube Oil Range (SGCU)	"	<b>14.4</b>	3.62	28.3	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			72.2%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			87.3%		62 - 142 %	"				
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 17:46</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>ND</b>	2.38	14.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:10	
Lube Oil Range (SGCU)	"	<b>ND</b>	4.75	37.2	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			68.8%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			80.7%		62 - 142 %	"				
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>				<b>Sampled: 09/10/08 11:25</b>				
Diesel Range (SGCU)	NWTPH-Dx	<b>562</b>	2.42	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:25	Q6
<i>Surrogate(s): 2-FBP (SGCU)</i>			61.3%		54 - 148 %	"				
<i>Octacosane (SGCU)</i>			74.8%		62 - 142 %	"				

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**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
<b>BRI0171-16RE1 (2B-B-34 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 11:25</b>							
<b>Lube Oil Range (SGCU)</b>	NWTPH-Dx	<b>1210</b>	24.2	189	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:52	Q4
Surrogate(s): 2-FBP (SGCU)			57.9%		54 - 148 %	"				"
Octacosane (SGCU)			77.6%		62 - 142 %	"				"
<b>BRI0171-17 (2B-B-34 (2-4))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 11:30</b>							
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>2.73</b>	2.20	13.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:55	J
<b>Lube Oil Range (SGCU)</b>	"	<b>25.3</b>	4.40	34.5	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			63.6%		54 - 148 %	"				"
Octacosane (SGCU)			81.7%		62 - 142 %	"				"
<b>BRI0171-18 (2B-B-34 (4-6))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 11:35</b>							
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>18.1</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:25	Q6
<b>Lube Oil Range (SGCU)</b>	"	<b>53.6</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			77.0%		54 - 148 %	"				"
Octacosane (SGCU)			87.0%		62 - 142 %	"				"
<b>BRI0171-19 (2B-B-35 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 12:10</b>							
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>6.58</b>	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:39	J
<b>Lube Oil Range (SGCU)</b>	"	<b>36.6</b>	5.26	41.2	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			76.5%		54 - 148 %	"				"
Octacosane (SGCU)			90.8%		62 - 142 %	"				"
<b>BRI0171-20 (2B-B-35 (2-4))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 12:15</b>							
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>ND</b>	2.91	18.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:09	
<b>Lube Oil Range (SGCU)</b>	"	<b>12.4</b>	5.80	45.4	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			75.5%		54 - 148 %	"				"
Octacosane (SGCU)			87.8%		62 - 142 %	"				"
<b>BRI0171-21 (2B-B-40B (3-5))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 17:49</b>							
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>ND</b>	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:39	
<b>Lube Oil Range (SGCU)</b>	"	<b>ND</b>	4.49	35.2	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			73.3%		54 - 148 %	"				"
Octacosane (SGCU)			84.5%		62 - 142 %	"				"

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*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0171-22 (2B-B-41 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:25</b>					
Diesel Range (SGCU)	NWTPH-Dx	88.7	2.10	13.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:54	Q6
Lube Oil Range (SGCU)	"	240	4.20	32.9	"	"	"	"	"	Q4
Surrogate(s): 2-FBP (SGCU)			69.4%		54 - 148 %	"				"
Octacosane (SGCU)			82.0%		62 - 142 %	"				"
<b>BRI0171-23 (2B-B-41 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:30</b>					
Diesel Range (SGCU)	NWTPH-Dx	43.9	2.24	14.0	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 14:24	Q6
Lube Oil Range (SGCU)	"	83.6	4.47	35.0	"	"	"	"	"	Q4
Surrogate(s): 2-FBP (SGCU)			67.4%		54 - 148 %	"				"
Octacosane (SGCU)			82.1%		62 - 142 %	"				"
<b>BRI0171-24 (2B-B-41 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:35</b>					
Diesel Range (SGCU)	NWTPH-Dx	8.05	2.19	13.7	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 16:08	J
Lube Oil Range (SGCU)	"	23.7	4.37	34.3	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			76.1%		54 - 148 %	"				"
Octacosane (SGCU)			86.0%		62 - 142 %	"				"
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	2.76	17.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 07:25	
Lube Oil Range (SGCU)	"	24.3	5.50	43.1	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			80.6%		54 - 148 %	"				"
Octacosane (SGCU)			92.2%		62 - 142 %	"				"
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Diesel Range (SGCU)	NWTPH-Dx	20.2	3.07	19.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 07:46	Q6
Lube Oil Range (SGCU)	"	103	6.13	48.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			82.7%		54 - 148 %	"				"
Octacosane (SGCU)			93.5%		62 - 142 %	"				"
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:40</b>					
Diesel Range (SGCU)	NWTPH-Dx	6.04	2.26	14.1	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 08:07	J
Lube Oil Range (SGCU)	"	34.5	4.50	35.3	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			73.2%		54 - 148 %	"				"
Octacosane (SGCU)			85.6%		62 - 142 %	"				"

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**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
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:35</b>					
Diesel Range (SGCU)	NWTPH-Dx	<b>538</b>	2.99	18.7	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 08:28	Q4
Lube Oil Range (SGCU)	"	<b>249</b>	5.97	46.8	"	"	"	"	"	Q4
Surrogate(s): 2-FBP (SGCU)			77.7%		54 - 148 %	"			"	
Octacosane (SGCU)			84.9%		62 - 142 %	"			"	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:40</b>					
Diesel Range (SGCU)	NWTPH-Dx	<b>31.0</b>	2.25	14.0	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 09:53	Q6
Lube Oil Range (SGCU)	"	<b>69.4</b>	4.48	35.1	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			78.5%		54 - 148 %	"			"	
Octacosane (SGCU)			90.9%		62 - 142 %	"			"	
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:45</b>					
Diesel Range (SGCU)	NWTPH-Dx	<b>179</b>	2.43	15.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 10:15	Q6
Lube Oil Range (SGCU)	"	<b>456</b>	4.84	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			80.4%		54 - 148 %	"			"	
Octacosane (SGCU)			90.5%		62 - 142 %	"			"	

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-01 (2B-B-35 (4-6))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 12:20</b>
Dry Weight	BSOPSPL003R0 8	58.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-02 (2B-B-36 (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 13:11</b>
Dry Weight	BSOPSPL003R0 8	60.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-03 (2B-B-36 (2-4))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 13:12</b>
Dry Weight	BSOPSPL003R0 8	77.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-04 (2B-B-37 (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 14:39</b>
Dry Weight	BSOPSPL003R0 8	65.3	---	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-05 (2B-B-37 (2-4))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 14:40</b>
Dry Weight	BSOPSPL003R0 8	71.0	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-06 (2B-B-37 (4-5))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 14:41</b>
Dry Weight	BSOPSPL003R0 8	80.3	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-07 (2B-B-38 (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 16:20</b>
Dry Weight	BSOPSPL003R0 8	71.5	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-08 (2B-B-38 (3-5))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 16:35</b>
Dry Weight	BSOPSPL003R0 8	88.8	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 16:45</b>
Dry Weight	BSOPSPL003R0 8	87.6	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 17:46</b>
Dry Weight	BSOPSPL003R0 8	67.0	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/10/08 11:25</b>

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:25</b>					
Dry Weight	BSOPSPL003R0 8	66.0	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-17 (2B-B-34 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:30</b>					
Dry Weight	BSOPSPL003R0 8	72.3	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-18 (2B-B-34 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:35</b>					
Dry Weight	BSOPSPL003R0 8	64.9	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-19 (2B-B-35 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:10</b>					
Dry Weight	BSOPSPL003R0 8	60.6	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-20 (2B-B-35 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:15</b>					
Dry Weight	BSOPSPL003R0 8	54.7	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-21 (2B-B-40B (3-5))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 17:49</b>					
Dry Weight	BSOPSPL003R0 8	70.6	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-22 (2B-B-41 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:25</b>					
Dry Weight	BSOPSPL003R0 8	75.5	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-23 (2B-B-41 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:30</b>					
Dry Weight	BSOPSPL003R0 8	71.2	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-24 (2B-B-41 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:35</b>					
Dry Weight	BSOPSPL003R0 8	72.2	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Dry Weight	BSOPSPL003R0 8	57.4	----	1.00	%	1x	8117036	09/17/08 13:44	09/18/08 00:00	
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Dry Weight	BSOPSPL003R0 8	51.9	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:40</b>					
Dry Weight	BSOPSPL003R0 8	69.9	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:35</b>					
Dry Weight	BSOPSPL003R0 8	52.7	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:40</b>					
Dry Weight	BSOPSPL003R0 8	71.2	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:45</b>					
Dry Weight	BSOPSPL003R0 8	65.2	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	

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Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Organic Carbon, Total (TOC)**  
TestAmerica Tacoma

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 10:35</b>						
Total Organic Carbon	9060 STD	54000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 10:35</b>						
Total Organic Carbon	9060 STD	29000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 10:40</b>						
Total Organic Carbon	9060 STD	20000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 11:35</b>						
Total Organic Carbon	9060 STD	49000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 11:40</b>						
Total Organic Carbon	9060 STD	35000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/11/08 11:45</b>						
Total Organic Carbon	9060 STD	29000	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I11058      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11058-BLK1)** Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	2.97	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/12/08 22:04	J
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 82.5%</i>		<i>Limits: 54-148%</i>		"						09/12/08 22:04		
<i>Octacosane</i>		<i>94.5%</i>		<i>62-142%</i>		"						"		

**LCS (8I11058-BS1)** Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	58.4	1.60	10.0	mg/kg wet	1x	--	66.7	87.7%	(78-129)	--	--	09/12/08 22:30	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 87.6%</i>		<i>Limits: 54-148%</i>		"						09/12/08 22:30		
<i>Octacosane</i>		<i>94.8%</i>		<i>62-142%</i>		"						"		

**Duplicate (8I11058-DUP1)** QC Source: BR10171-01      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	22.3	2.68	16.8	mg/kg dry	1x	8.88	--	--	--	86.3%	(40)	09/12/08 22:56	R3
Lube Oil Range Hydrocarbons	"	27.2	5.35	41.9	"	"	10.6	--	--	--	87.8%	"	"	R4, J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.4%</i>		<i>Limits: 54-148%</i>		"						09/12/08 22:56		
<i>Octacosane</i>		<i>101%</i>		<i>62-142%</i>		"						"		

**Duplicate (8I11058-DUP2)** QC Source: BR10171-07      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	9.35	2.22	13.8	mg/kg dry	1x	23.7	--	--	--	86.9%	(40)	09/12/08 23:22	R4, J
Lube Oil Range Hydrocarbons	"	29.1	4.42	34.6	"	"	45.9	--	--	--	44.7%	"	"	R4, J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 86.1%</i>		<i>Limits: 54-148%</i>		"						09/12/08 23:22		
<i>Octacosane</i>		<i>98.8%</i>		<i>62-142%</i>		"						"		

**Matrix Spike (8I11058-MS1)** QC Source: BR10171-09      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	65.2	1.83	11.4	mg/kg dry	1x	10.9	76.1	71.4%	(46-155)	--	--	09/12/08 23:48	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.4%</i>		<i>Limits: 54-148%</i>		"						09/12/08 23:48		
<i>Octacosane</i>		<i>94.1%</i>		<i>62-142%</i>		"						"		

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Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I11061      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11061-BLK1)** Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/14/08 01:04	
Lube Oil Range Hydrocarbons	"	3.76	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.1%</i>		<i>Limits: 54-148%</i>										09/14/08 01:04
<i>Octacosane</i>		<i>98.2%</i>		<i>62-142%</i>										"

**LCS (8I11061-BS1)** Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	58.7	1.60	10.0	mg/kg wet	1x	--	66.7	88.0%	(78-129)	--	--	09/14/08 01:25	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.3%</i>		<i>Limits: 54-148%</i>										09/14/08 01:25
<i>Octacosane</i>		<i>97.4%</i>		<i>62-142%</i>										"

**Duplicate (8I11061-DUP1)** QC Source: BRI0150-05      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	7760	18.7	117	mg/kg dry	10x	7290	--	--	--	6.27%	(40)	09/14/08 01:46	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 147%</i>		<i>Limits: 54-148%</i>										09/14/08 01:46
<i>Octacosane</i>		<i>195%</i>		<i>62-142%</i>										"

ZX

**Duplicate (8I11061-DUP2)** QC Source: BRI0171-26      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	80.9	3.04	19.0	mg/kg dry	1x	36.3	--	--	--	76.0%	(40)	09/14/08 02:08	R3
Lube Oil Range Hydrocarbons	"	477	6.07	47.6	"	"	209	--	--	--	78.3%	"	"	R3
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 90.2%</i>		<i>Limits: 54-148%</i>										09/14/08 02:08
<i>Octacosane</i>		<i>93.6%</i>		<i>62-142%</i>										"

**Duplicate (8I11061-DUP5)** QC Source: BRI0150-05      Extracted: 09/12/08 08:03

Lube Oil Range Hydrocarbons	NWTPH-Dx	6200	186	1460	mg/kg dry	50x	6620	--	--	--	6.51%	(40)	09/14/08 22:58	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: NR</i>		<i>Limits: 54-148%</i>										09/14/08 22:58
<i>Octacosane</i>		<i>NR</i>		<i>62-142%</i>										"

Z3  
Z3

**Matrix Spike (8I11061-MS1)** QC Source: BRI0150-01      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	281	18.4	115	mg/kg dry	10x	230	76.5	66.2%	(46-155)	--	--	09/14/08 02:29	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 90.2%</i>		<i>Limits: 54-148%</i>										09/14/08 02:29
<i>Octacosane</i>		<i>93.7%</i>		<i>62-142%</i>										"

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*Kate Haney*  
 \_\_\_\_\_  
 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I11058      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11058-BLK2)** Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/16/08 20:35	
Lube Oil Range (SGCU)	"	3.47	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 75.5%</i>		<i>Limits: 54-148%</i>		"						09/16/08 20:35		
<i>Octacosane (SGCU)</i>		<i>89.0%</i>		<i>62-142%</i>		"						"		

**LCS (8I11058-BS2)** Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	56.7	1.60	10.0	mg/kg wet	1x	--	66.7	85.1%	(78-129)	--	--	09/16/08 20:49	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 89.9%</i>		<i>Limits: 54-148%</i>		"						09/16/08 20:49		
<i>Octacosane (SGCU)</i>		<i>90.0%</i>		<i>62-142%</i>		"						"		

**Duplicate (8I11058-DUP3)** QC Source: BRI0171-01      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	2.68	16.8	mg/kg dry	1x	ND	--	--	--	NR (50)	09/16/08 21:19		
Lube Oil Range (SGCU)	"	ND	5.35	41.9	"	"	ND	--	--	--	NR "	"		
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 74.5%</i>		<i>Limits: 54-148%</i>		"						09/16/08 21:19		
<i>Octacosane (SGCU)</i>		<i>82.9%</i>		<i>62-142%</i>		"						"		

**Duplicate (8I11058-DUP4)** QC Source: BRI0171-07      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	2.22	13.8	mg/kg dry	1x	7.19	--	--	--	-- (50)	09/16/08 21:34		
Lube Oil Range (SGCU)	"	7.76	4.42	34.6	"	"	15.5	--	--	--	66.2%	"	R4, J	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 72.3%</i>		<i>Limits: 54-148%</i>		"						09/16/08 21:34		
<i>Octacosane (SGCU)</i>		<i>83.6%</i>		<i>62-142%</i>		"						"		

**Matrix Spike (8I11058-MS2)** QC Source: BRI0171-09      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	49.1	1.83	11.4	mg/kg dry	1x	3.13	76.1	60.4%	(46-155)	--	--	09/16/08 22:04	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 80.5%</i>		<i>Limits: 54-148%</i>		"						09/16/08 22:04		
<i>Octacosane (SGCU)</i>		<i>79.2%</i>		<i>62-142%</i>		"						"		

TestAmerica Seattle

*Kate Haney*  
 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I11061      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11061-BLK2)** Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/14/08 05:18	
Lube Oil Range (SGCU)	"	12.1	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>88.4%</i>	<i>Limits: 54-148%</i>		"							09/14/08 05:18	
<i>Octacosane (SGCU)</i>		<i>Recovery:</i>	<i>98.6%</i>	<i>Limits: 62-142%</i>		"							"	

**LCS (8I11061-BS2)** Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	57.5	1.60	10.0	mg/kg wet	1x	--	66.7	86.3%	(78-129)	--	--	09/14/08 05:39	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>84.6%</i>	<i>Limits: 54-148%</i>		"							09/14/08 05:39	
<i>Octacosane (SGCU)</i>		<i>Recovery:</i>	<i>97.7%</i>	<i>Limits: 62-142%</i>		"							"	

**Duplicate (8I11061-DUP3)** QC Source: BRI0150-05      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	3800	18.7	117	mg/kg dry	10x	3480	--	--	--	8.92%	(50)	09/14/08 06:00	
Lube Oil Range (SGCU)	"	2680	37.3	292	"	"	2650	--	--	--	1.09%	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>142%</i>	<i>Limits: 54-148%</i>		"							09/14/08 06:00	
<i>Octacosane (SGCU)</i>		<i>Recovery:</i>	<i>130%</i>	<i>Limits: 62-142%</i>		"							"	

**Duplicate (8I11061-DUP4)** QC Source: BRI0171-26      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	46.8	3.04	19.0	mg/kg dry	1x	20.2	--	--	--	79.2%	(50)	09/14/08 06:21	R3
Lube Oil Range (SGCU)	"	204	6.07	47.6	"	"	103	--	--	--	65.9%	"	"	R3
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>77.2%</i>	<i>Limits: 54-148%</i>		"							09/14/08 06:21	
<i>Octacosane (SGCU)</i>		<i>Recovery:</i>	<i>86.7%</i>	<i>Limits: 62-142%</i>		"							"	

**Matrix Spike (8I11061-MS2)** QC Source: BRI0150-01      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	179	1.84	11.5	mg/kg dry	1x	139	76.5	52.4%	(46-155)	--	--	09/14/08 06:42	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>57.8%</i>	<i>Limits: 54-148%</i>		"							09/14/08 06:42	
<i>Octacosane (SGCU)</i>		<i>Recovery:</i>	<i>87.9%</i>	<i>Limits: 62-142%</i>		"							"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
--	---	-----------------------------------

**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8112032      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8112032-BLK1)</b>													Extracted: 09/12/08 14:14	
Dry Weight	BSOPSPL00 3R08	99.8	---	1.00	%	1x	--	--	--	--	--	--	09/13/08 00:00	

**QC Batch: 8112033      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8112033-BLK1)</b>													Extracted: 09/12/08 14:18	
Dry Weight	BSOPSPL00 3R08	99.7	---	1.00	%	1x	--	--	--	--	--	--	09/13/08 00:00	

**QC Batch: 8117036      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8117036-BLK1)</b>													Extracted: 09/17/08 13:44	
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	09/18/08 00:00	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 09/25/08 16:13
--	---	-----------------------------------

**Organic Carbon, Total (TOC) - Laboratory Quality Control Results**  
 TestAmerica Tacoma

QC Batch: 36166      Soil Preparation Method: NA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Matrix Spike (112441S)</b>							QC Source: BRI0171-25		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	61600	---	2000	mg/Kg	1x	54000	9820	77%	(76-128)	--	--	09/18/08 10:09	4
<b>Duplicate (112441X)</b>							QC Source: BRI0171-25		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	53500	---	2000	mg/Kg	1x	54000	--	--	--	1%	(20)	09/18/08 10:09	
<b>Duplicate (112441X---RE1)</b>							QC Source: BRI0171-25		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	53600	---	2000	mg/Kg	1x	54000	--	--	--	1%	(20)	09/18/08 10:09	
<b>Blank (580-36166-1)</b>							QC Source:		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	ND	---	2000	mg/Kg	1x	--	--	--	--	--	--	09/18/08 10:09	
<b>LCS (580-36166-2)</b>							QC Source:		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	4700	---	2000	mg/Kg	1x	--	3400	138%	(13-187)	--	--	09/18/08 10:09	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
 Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

Project Manager: Halah Voges

Report Created:

09/25/08 16:13

**Notes and Definitions**

Report Specific Notes:

- 4 - MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
- 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.
- 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- Q6 - Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
- R3 - The RPD exceeded the acceptance limit due to sample matrix effects.
- R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- RL1 - Reporting limit raised due to sample matrix effects.
- Z3 - 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.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the 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.
- 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.

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

Project Manager: Halah Voges

Report Created:

09/25/08 16:13

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



Kate Haney, Project Manager

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**SAMPLE CHAIN OF CUSTODY**

BRI 171

Send Report To Renee Knecht  
 Company ENSR  
 Address 1011 SW Klickitat Way Ste 2077  
 City, State, ZIP Seattle WA 98134  
 Phone # 206.624.9349 Fax # \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

SAMPLERS (signature) \_\_\_\_\_ PO # \_\_\_\_\_  
 PROJECT NAME/NO. \_\_\_\_\_  
Skykomish Wetland  
 REMARKS  
Sarah Albano/ENSR  
Bruce Sheppard/ENSR

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFPS		NMTPHDX w/ky
2B-B-35 (4-6)		9/10/08	1220	S	1						X		-01 24hr
2B-B-36 (0-2)		9/10/08	1311	S	1						X		-02 24hr
2B-B-34 (2-4)		9/10/08	1312	S	1						X		-03 24hr
2B-B-37 (0-2)		9/10/08	1439	S	1						X		-04 24hr
2B-B-37 (2-4)		9/10/08	1440	S	1						X		-05 24hr
2B-B-37 (4-5)		9/10/08	1441	S	1						X		-06 24hr
2B-B-38 (0-2)		9/10/08	1620	S	1						X		-07 24hr
2B-B-38 (3-5)		9/10/08	1635	S	1						X		-08 24hr
2B-B-39 (05-3)		9/10/08	1645	S	1						X		-09 24hr
2B-B-40B(05-3)		9/10/08	1746	S	1						X		-10 24hr

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE \_\_\_\_\_  
 Relinquished by: Gregory Brunkhorst COMPANY ENSR DATE 9/11/08 TIME 1632  
 Received by: PRANU TONDY COMPANY TARS DATE 9/11/08 TIME 1632  
 Relinquished by: \_\_\_\_\_  
 Received by: \_\_\_\_\_

**SAMPLE CHAIN OF CUSTODY**

BR10171

Send Report To Renee Knecht  
 Company ENSR  
 Address 101 SW Klickitat Way Ste 207  
 City, State, ZIP Seattle, WA 98104  
 Phone # 2066249349 Fax # \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME/NO. SKYKOMISH wetland PO # \_\_\_\_\_  
 REMARKS B.I.L. SARAH Albano/ENSR  
Bruce Sheppard / BNSF

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	IIFS	NMTPHD x 9/6		TOC
3-B-25(0-2)		9/10/08	0853	S	2						X	X	X	ON HOLD
3-B-25(2-4)		9/10/08	0855	S	2						X	X	X	ON HOLD
3-B-24(0-4)		9/10/08	0940	S	2						X	X	X	ON HOLD
3-B-24(2-4)		9/10/08	0945	S	2						X	X	X	ON HOLD
3-B-24(4-6)		9/10/08	0950	S	2						X	X	X	ON HOLD
2B-B-34(0-2)		9/10/08	1125	S	1						X			24hr TAT
2B-B-34(2-4)		9/10/08	1130	S	1						X			24hr TAT
2B-B-34(4-6)		9/10/08	1135	S	1						X			24hr TAT
2B-B-35(0-2)		9/10/08	1210	S	1						X			24hr
2B-B-35(2-4)		9/10/08	1215	S	1						X			24hr

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044

Relinquished to: [Signature] SIGNATURE  
 Received by: Gregory Brunkhorst PRINT NAME  
 Relinquished to: [Signature] SIGNATURE  
 Received by: BRANDY TOMTZ PRINT NAME  
 Relinquished to: \_\_\_\_\_  
 Received by: \_\_\_\_\_  
 Relinquished to: \_\_\_\_\_  
 Received by: \_\_\_\_\_

COMPANY: ENSR DATE: 9/11/08 TIME: 1631  
 COMPANY: TA-S DATE: 9/11/08 TIME: 1631

**SAMPLE CHAIN OF CUSTODY**

BR10171

Send Report To Renee Knecht  
 Company ENSR  
 Address 10111 sw Klickitat way Ste 207  
 City, State, ZIP Seattle, WA 98134  
 Phone # 206.624.9349 Fax # \_\_\_\_\_

SAMPLERS (signature) [Signature] PO # \_\_\_\_\_  
 PROJECT NAME/NO. Skykomish weekend  
01140-204-0320  
 REMARKS \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	IIIS	NMTHC w/ 56		TOC	NMTHC w/ 56
2B-B-406(3-5)		9/10/08	1749	S	1						X				-21 24hr.
2B-B-41(0-2)		9/10/08	0825	S	1						X				-22 24hr.
2B-B-41(2-4)		9/10/08	0830	S	1						X				-23 24hr.
2B-B-41(4-6)		9/10/08	0835	S	1						X				-24 24hr.
3-B-26(0-2)		9/10/08	1035	S	2						X	X			-25
3-B-26(2-4)		9/10/08	1035	S	2						X	X			-26
3-B-26(4-6)		9/11/08	1040	S	2						X	X			-27
3-B-27(0-2)		9/11/08	1135	S	2						X	X			-28
3-B-27(2-4)		9/11/08	1140	S	2						X	X			-29
3-B-27(4-6)		9/11/08	1145	S	2						X	X			-30

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044

Relinquished by: [Signature] SIGNATURE  
 PRINT NAME: Gary Brunkert  
 COMPANY: ENSR  
 DATE: 9/11/08 TIME: 1632

Received by: [Signature]  
 Relinquished by: [Signature]  
 PRINT NAME: PRAMY TONTI  
 COMPANY: TA-S  
 DATE: 9/11/08 TIME: 1632

Received by: \_\_\_\_\_

TAT: \_\_\_\_\_

Paperwork to PM - Date: 9/11 Time: 1640

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: \_\_\_\_\_  
(applies to temp at receipt)

Logged-in By: \_\_\_\_\_

Unpacked/Labeled By: \_\_\_\_\_

Cooler ID: 390/374

Date: 9/11

Date: 9/11

Date: 9/11

Work Order No. BRT0371

Time: 1632

Time: 1454

Time: 1710

Client: \_\_\_\_\_

Initials: PTB

Initials: PTB

Initials: PTB

Project: \_\_\_\_\_

Container Type:

COC Seals:

Packing Material \_\_\_\_\_:

Cooler                       Ship Container                      \_\_\_\_\_ Sign By  
 Box                                       On Bottles                      \_\_\_\_\_ Date  
 None/Other \_\_\_\_\_                       None

Bubble Bags                       Styrofoam  
 Foam Packs  
 None/Other \_\_\_\_\_

Refrigerant:

Gel Ice Pack \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  
 None/Other \_\_\_\_\_

Received Via: Bill# \_\_\_\_\_

Fed Ex                       Client  
 UPS                       TA Courier  
 DHL                       Mid Valley  
 Senvoy                       TDP  
 GS                       Other \_\_\_\_\_

Cooler Temperature (IR): 4.9 °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)

Temperature Blank? \_\_\_\_\_ °C or NA

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

Sample Containers:

ID

ID

Intact?	<u>Y</u> or N	_____	Metals Preserved?	Y or N or <u>NA</u>
Provided by TA?	<u>Y</u> or N	_____	Client QAPP Preserved?	Y or N or <u>NA</u>
Correct Type?	<u>Y</u> or N	_____	Adequate Volume? (for tests requested)	<u>Y</u> or N
#Containers match COC?	<u>Y</u> or N	_____	Water VOAs: Headspace?	Y or N or <u>NA</u>
IDs/time/date match COC?	Y or <u>N</u>	_____	Comments:	_____
Hold Times in hold?	<u>Y</u> or N	_____		_____

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Y or N

Has client been contacted regarding non-conformances?

Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# NOTIFICATION OF DISCREPANCY

DATE: <u>9/14/08</u>	TIME: <u>1800</u>	PM: <u>Kate</u>	SC INITIALS: <u>PK</u>
Rush/Short Hold?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

- Project Not Set Up in ELM       New Client       COC Received ON HOLD
- Analysis Requested on COC – Not Listed for Project in ELM

- PM To Add Analysis: \_\_\_\_\_
- Clarification of Analysis: \_\_\_\_\_
- Hold Time Expired: (Analysis) \_\_\_\_\_
- Turnaround Time Not Checked: \_\_\_\_\_
- Did Not Receive Sample(s) Listed on COC: \_\_\_\_\_
- Received Extra Sample(s) Not Listed on COC: \_\_\_\_\_

Sample Description(s) or Date/Time Sampled Do Not Match COC:  
time on sample # 08 said 16:30; id on sample # 13 said  
"3-B-24-0-2". Log-in according to COC

- Improper Preservative For method: \_\_\_\_\_
- Sample Received Broken: \_\_\_\_\_
- Insufficient Sample Volume: \_\_\_\_\_
- Sample preserved upon receipt: \_\_\_\_\_
- Temperature Outside recommended range ( $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ): \_\_\_\_\_
  - Received on-ice within 4 hours of collection, temperature between ambient to  $2^{\circ}\text{C}$  acceptable.
- Other: \_\_\_\_\_

PROJECT MANAGER RESOLUTION:	(Date & Time when returned to SC)
Approval By:	Date:                      Time:



October 02, 2008

Renee Knecht  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 09/30/08 16:10.  
The following list is a summary of the Work Orders contained in this report, generated on 10/02/08  
16:05.

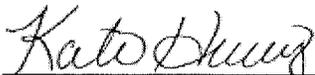
If you have any questions concerning this report, please feel free to contact me.

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRI0460	BNSF-Skykomish Remedial D	01140-204-0320

---

TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
--	--	-----------------------------------

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A-B-18C (8-10)	BRI0460-01	Soil	09/29/08 13:27	09/30/08 16:10
1A-B-18C (18-20)	BRI0460-02	Soil	09/29/08 13:30	09/30/08 16:10
1A-B-18C 20-22	BRI0460-03	Soil	09/29/08 13:31	09/30/08 16:10
1A-B-8D (14-16)	BRI0460-04	Soil	09/29/08 15:29	09/30/08 16:10
1A-B-8D (16-18)	BRI0460-05	Soil	09/29/08 15:31	09/30/08 16:10
1A-B-8D (18-20)	BRI0460-06	Soil	09/29/08 15:33	09/30/08 16:10
1A-B-8D (20-22)	BRI0460-07	Soil	09/29/08 15:35	09/30/08 16:10
1A-B-19C (12-14')	BRI0460-08	Soil	09/30/08 08:55	09/30/08 16:10
1A-B-19C (14-16)	BRI0460-09	Soil	09/30/08 08:57	09/30/08 16:10
1A-B-19C (16-18)	BRI0460-10	Soil	09/30/08 09:00	09/30/08 16:10
2B-B-38D (0-2)	BRI0460-11	Soil	09/30/08 11:34	09/30/08 16:10
2B-B-38D (2-4)	BRI0460-12	Soil	09/30/08 11:35	09/30/08 16:10
2B-B-38D (4-6)	BRI0460-13	Soil	09/30/08 11:36	09/30/08 16:10
2B-B-38D (6-8)	BRI0460-14	Soil	09/30/08 11:37	09/30/08 16:10
2B-B-39B (2-4)	BRI0460-15	Soil	09/30/08 12:00	09/30/08 16:10
2B-B-39B (4-6)	BRI0460-16	Soil	09/30/08 12:01	09/30/08 16:10
2B-B-39B (6-8)	BRI0460-17	Soil	09/30/08 12:02	09/30/08 16:10
2B-B-39B (8-10)	BRI0460-18	Soil	09/30/08 12:03	09/30/08 16:10
1A-B-19C (18-20)	BRI0460-19	Soil	09/30/08 09:02	09/30/08 16:10

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/02/08 16:05

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRI0460**

**SAMPLE RECEIPT**

The samples were received September 30th, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 8.9 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



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**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
<b>BRI0460-01RE1 (1A-B-18C (8-10))</b>		<b>Soil</b>			<b>Sampled: 09/29/08 13:27</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	3.07	1.68	10.5	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 14:45	J
Lube Oil Range Hydrocarbons	"	13.2	3.34	26.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			88.6%		54 - 148 %	"				
Octacosane			107%		62 - 142 %	"				
<b>BRI0460-02RE1 (1A-B-18C (18-20))</b>		<b>Soil</b>			<b>Sampled: 09/29/08 13:30</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.88	11.8	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 15:08	
Lube Oil Range Hydrocarbons	"	ND	3.76	29.4	"	"	"	"	"	
Surrogate(s): 2-FBP			87.8%		54 - 148 %	"				
Octacosane			96.4%		62 - 142 %	"				
<b>BRI0460-03RE1 (1A-B-18C 20-22)</b>		<b>Soil</b>			<b>Sampled: 09/29/08 13:31</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.01	12.6	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 15:30	
Lube Oil Range Hydrocarbons	"	ND	4.01	31.4	"	"	"	"	"	
Surrogate(s): 2-FBP			84.0%		54 - 148 %	"				
Octacosane			94.4%		62 - 142 %	"				
<b>BRI0460-04RE1 (1A-B-8D (14-16))</b>		<b>Soil</b>			<b>Sampled: 09/29/08 15:29</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.74	10.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 15:53	
Lube Oil Range Hydrocarbons	"	5.92	3.46	27.1	"	"	"	"	"	J
Surrogate(s): 2-FBP			91.9%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				
<b>BRI0460-05RE1 (1A-B-8D (16-18))</b>		<b>Soil</b>			<b>Sampled: 09/29/08 15:31</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.64	10.3	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 16:15	
Lube Oil Range Hydrocarbons	"	6.13	3.28	25.7	"	"	"	"	"	J
Surrogate(s): 2-FBP			89.2%		54 - 148 %	"				
Octacosane			99.4%		62 - 142 %	"				
<b>BRI0460-06RE1 (1A-B-8D (18-20))</b>		<b>Soil</b>			<b>Sampled: 09/29/08 15:33</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.65	10.3	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 17:45	
Lube Oil Range Hydrocarbons	"	10.8	3.28	25.7	"	"	"	"	"	J
Surrogate(s): 2-FBP			90.2%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
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**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
<b>BRI0460-07RE1 (1A-B-8D (20-22))</b>		<b>Soil</b>		<b>Sampled: 09/29/08 15:35</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.02	12.6	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 18:07	
Lube Oil Range Hydrocarbons	"	ND	4.03	31.6	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			87.8%		54 - 148 %	"				"
<i>Octacosane</i>			97.4%		62 - 142 %	"				"
<b>BRI0460-08RE1 (1A-B-19C (12-14'))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 08:55</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 18:29	
Lube Oil Range Hydrocarbons	"	ND	3.54	27.8	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			91.8%		54 - 148 %	"				"
<i>Octacosane</i>			101%		62 - 142 %	"				"
<b>BRI0460-09RE1 (1A-B-19C (14-16))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 08:57</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.70	10.6	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 18:51	
Lube Oil Range Hydrocarbons	"	ND	3.38	26.5	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			87.0%		54 - 148 %	"				"
<i>Octacosane</i>			97.4%		62 - 142 %	"				"
<b>BRI0460-10RE1 (1A-B-19C (16-18))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 09:00</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.18	13.6	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 19:13	
Lube Oil Range Hydrocarbons	"	5.67	4.34	34.0	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP</i>			86.9%		54 - 148 %	"				"
<i>Octacosane</i>			97.2%		62 - 142 %	"				"
<b>BRI0460-11RE1 (2B-B-38D (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 11:34</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	3.37	2.23	13.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 19:36	J
Lube Oil Range Hydrocarbons	"	24.1	4.45	34.9	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP</i>			92.0%		54 - 148 %	"				"
<i>Octacosane</i>			104%		62 - 142 %	"				"
<b>BRI0460-12RE1 (2B-B-38D (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 11:35</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	3.09	2.31	14.4	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 19:58	J
Lube Oil Range Hydrocarbons	"	16.2	4.60	36.1	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP</i>			91.7%		54 - 148 %	"				"
<i>Octacosane</i>			101%		62 - 142 %	"				"

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*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0460-13RE1 (2B-B-38D (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 11:36</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 20:21	
Lube Oil Range Hydrocarbons	"	<b>6.87</b>	3.84	30.1	"	"	"	"	"	J
Surrogate(s): 2-FBP		86.6%			54 - 148 %	"				
Octacosane		97.5%			62 - 142 %	"				
<b>BRI0460-14RE1 (2B-B-38D (6-8))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 11:37</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 20:43	
Lube Oil Range Hydrocarbons	"	ND	3.57	28.0	"	"	"	"	"	
Surrogate(s): 2-FBP		81.8%			54 - 148 %	"				
Octacosane		102%			62 - 142 %	"				
<b>BRI0460-15RE1 (2B-B-39B (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 12:00</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.23	13.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 21:05	
Lube Oil Range Hydrocarbons	"	<b>6.87</b>	4.44	34.8	"	"	"	"	"	J
Surrogate(s): 2-FBP		91.6%			54 - 148 %	"				
Octacosane		99.5%			62 - 142 %	"				
<b>BRI0460-16RE1 (2B-B-39B (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 12:01</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.90	11.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 23:44	
Lube Oil Range Hydrocarbons	"	ND	3.79	29.7	"	"	"	"	"	C
Surrogate(s): 2-FBP		94.7%			54 - 148 %	"				
Octacosane		103%			62 - 142 %	"				
<b>BRI0460-17RE1 (2B-B-39B (6-8))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 12:02</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.95	12.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/02/08 00:06	
Lube Oil Range Hydrocarbons	"	ND	3.89	30.5	"	"	"	"	"	C
Surrogate(s): 2-FBP		78.8%			54 - 148 %	"				
Octacosane		94.1%			62 - 142 %	"				
<b>BRI0460-18RE1 (2B-B-39B (8-10))</b>		<b>Soil</b>		<b>Sampled: 09/30/08 12:03</b>						
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.11	13.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/02/08 00:29	
Lube Oil Range Hydrocarbons	"	ND	4.20	32.9	"	"	"	"	"	C
Surrogate(s): 2-FBP		92.1%			54 - 148 %	"				
Octacosane		101%			62 - 142 %	"				

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*Kate Haney*

Kate Haney, Project Manager

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0460-19RE1 (1A-B-19C (18-20))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 09:02</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.95	12.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/02/08 00:52	
Lube Oil Range Hydrocarbons	"	ND	3.88	30.4	"	"	"	"	"	C
<i>Surrogate(s): 2-FBP</i>			88.1%		54 - 148 %	"			"	
<i>Octacosane</i>			98.6%		62 - 142 %	"			"	

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Kate Haney, Project Manager

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**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
<b>BRI0460-11 (2B-B-38D (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 11:34</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	2.23	13.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 00:10	
Lube Oil Range (SGCU)	"	9.59	4.45	34.9	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			80.7%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			88.8%		62 - 142 %	"			"	
<b>BRI0460-12 (2B-B-38D (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 11:35</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	2.31	14.4	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 00:33	
Lube Oil Range (SGCU)	"	ND	4.60	36.1	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			78.1%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			86.6%		62 - 142 %	"			"	
<b>BRI0460-13 (2B-B-38D (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 11:36</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 00:56	
Lube Oil Range (SGCU)	"	ND	3.84	30.1	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			77.1%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			88.9%		62 - 142 %	"			"	
<b>BRI0460-14 (2B-B-38D (6-8))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 11:37</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 01:20	
Lube Oil Range (SGCU)	"	ND	3.57	28.0	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			76.8%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			98.3%		62 - 142 %	"			"	
<b>BRI0460-15 (2B-B-39B (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 12:00</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	2.23	13.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 02:53	
Lube Oil Range (SGCU)	"	ND	4.44	34.8	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			79.5%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			87.5%		62 - 142 %	"			"	
<b>BRI0460-16 (2B-B-39B (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 12:01</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.90	11.9	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 03:16	
Lube Oil Range (SGCU)	"	ND	3.79	29.7	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			93.0%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			103%		62 - 142 %	"			"	

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*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0460-17 (2B-B-39B (6-8))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 12:02</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.95	12.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 03:39	
Lube Oil Range (SGCU)	"	ND	3.89	30.5	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			76.1%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			93.6%		62 - 142 %	"				"
<b>BRI0460-18 (2B-B-39B (8-10))</b>		<b>Soil</b>			<b>Sampled: 09/30/08 12:03</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	2.11	13.2	mg/kg dry	1x	8130047	09/30/08 16:33	10/01/08 04:02	
Lube Oil Range (SGCU)	"	ND	4.20	32.9	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			88.7%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			98.5%		62 - 142 %	"				"

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0460-01 (1A-B-18C (8-10))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 13:27</b>
Dry Weight	BSOPSPLO03R0 8	94.5	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-02 (1A-B-18C (18-20))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 13:30</b>
Dry Weight	BSOPSPLO03R0 8	83.5	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-03 (1A-B-18C 20-22)</b>		<b>Soil</b>								<b>Sampled: 09/29/08 13:31</b>
Dry Weight	BSOPSPLO03R0 8	78.3	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-04 (1A-B-8D (14-16))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 15:29</b>
Dry Weight	BSOPSPLO03R0 8	92.1	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-05 (1A-B-8D (16-18))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 15:31</b>
Dry Weight	BSOPSPLO03R0 8	96.6	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-06 (1A-B-8D (18-20))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 15:33</b>
Dry Weight	BSOPSPLO03R0 8	96.6	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-07 (1A-B-8D (20-22))</b>		<b>Soil</b>								<b>Sampled: 09/29/08 15:35</b>
Dry Weight	BSOPSPLO03R0 8	78.6	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-08 (1A-B-19C (12-14'))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 08:55</b>
Dry Weight	BSOPSPLO03R0 8	89.7	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-09 (1A-B-19C (14-16))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 08:57</b>
Dry Weight	BSOPSPLO03R0 8	94.0	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-10 (1A-B-19C (16-18))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 09:00</b>
Dry Weight	BSOPSPLO03R0 8	72.7	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-11 (2B-B-38D (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 11:34</b>

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0460-11 (2B-B-38D (0-2))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 11:34</b>
Dry Weight	BSOPSPLO03R0 8	71.0	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-12 (2B-B-38D (2-4))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 11:35</b>
Dry Weight	BSOPSPLO03R0 8	68.4	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-13 (2B-B-38D (4-6))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 11:36</b>
Dry Weight	BSOPSPLO03R0 8	82.3	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-14 (2B-B-38D (6-8))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 11:37</b>
Dry Weight	BSOPSPLO03R0 8	87.8	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-15 (2B-B-39B (2-4))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 12:00</b>
Dry Weight	BSOPSPLO03R0 8	71.3	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-16 (2B-B-39B (4-6))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 12:01</b>
Dry Weight	BSOPSPLO03R0 8	84.1	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-17 (2B-B-39B (6-8))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 12:02</b>
Dry Weight	BSOPSPLO03R0 8	80.7	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-18 (2B-B-39B (8-10))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 12:03</b>
Dry Weight	BSOPSPLO03R0 8	74.7	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	
<b>BRI0460-19 (1A-B-19C (18-20))</b>		<b>Soil</b>								<b>Sampled: 09/30/08 09:02</b>
Dry Weight	BSOPSPLO03R0 8	81.4	----	1.00	%	1x	8I30051	09/30/08 17:28	10/01/08 00:00	

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8I30047      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

**Blank (8I30047-BLK3)** Extracted: 09/30/08 16:33

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/01/08 12:54	
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>92.6%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/01/08 12:54</i>	
<i>Octacosane</i>		<i>Recovery:</i>	<i>99.6%</i>	<i>Limits: 62-142%</i>		<i>"</i>							<i>"</i>	

**LCS (8I30047-BS3)** Extracted: 09/30/08 16:33

Diesel Range Hydrocarbons	NWTPH-Dx	63.3	1.60	10.0	mg/kg wet	1x	--	66.7	95.0%	(78-129)	--	--	10/01/08 13:16	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>92.0%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/01/08 13:16</i>	
<i>Octacosane</i>		<i>Recovery:</i>	<i>98.4%</i>	<i>Limits: 62-142%</i>		<i>"</i>							<i>"</i>	

**Duplicate (8I30047-DUP5)** QC Source: BRI0460-13      Extracted: 09/30/08 16:33

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	1x	ND	--	--	--	NR (40)	NR	10/01/08 13:38	
Lube Oil Range Hydrocarbons	"	6.43	3.84	30.1	"	"	6.87	--	--	--	6.69%	"	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>87.9%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/01/08 13:38</i>	
<i>Octacosane</i>		<i>Recovery:</i>	<i>97.7%</i>	<i>Limits: 62-142%</i>		<i>"</i>							<i>"</i>	

**Duplicate (8I30047-DUP6)** QC Source: BRI0460-17      Extracted: 09/30/08 16:33

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.96	12.3	mg/kg dry	1x	ND	--	--	--	NR (40)	NR	10/01/08 14:01	
Lube Oil Range Hydrocarbons	"	ND	3.91	30.7	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>86.3%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/01/08 14:01</i>	
<i>Octacosane</i>		<i>Recovery:</i>	<i>95.5%</i>	<i>Limits: 62-142%</i>		<i>"</i>							<i>"</i>	

**Matrix Spike (8I30047-MS3)** QC Source: BRI0460-13      Extracted: 09/30/08 16:33

Diesel Range Hydrocarbons	NWTPH-Dx	75.1	1.92	12.0	mg/kg dry	1x	ND	80.2	93.7%	(46-155)	--	--	10/01/08 14:23	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>90.2%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/01/08 14:23</i>	
<i>Octacosane</i>		<i>Recovery:</i>	<i>98.2%</i>	<i>Limits: 62-142%</i>		<i>"</i>							<i>"</i>	

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I30047      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8I30047-BLK2)</b>										Extracted: 09/30/08 16:33				
Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/30/08 21:52	
Lube Oil Range (SGCU)	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 91.6%</i>		<i>Limits: 54-148%</i>		"						09/30/08 21:52		
<i>Octacosane (SGCU)</i>		<i>97.9%</i>		<i>62-142%</i>		"						"		
<b>Duplicate (8I30047-DUP3)</b>										QC Source: BRI0460-13      Extracted: 09/30/08 16:33				
Diesel Range (SGCU)	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	1x	ND	--	--	--	NR (50)	NR	09/30/08 22:39	
Lube Oil Range (SGCU)	"	ND	3.84	30.1	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 80.8%</i>		<i>Limits: 54-148%</i>		"						09/30/08 22:39		
<i>Octacosane (SGCU)</i>		<i>86.9%</i>		<i>62-142%</i>		"						"		
<b>Duplicate (8I30047-DUP4)</b>										QC Source: BRI0460-17      Extracted: 09/30/08 16:33				
Diesel Range (SGCU)	NWTPH-Dx	ND	1.96	12.3	mg/kg dry	1x	ND	--	--	--	NR (50)	NR	09/30/08 23:02	
Lube Oil Range (SGCU)	"	ND	3.91	30.7	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 79.8%</i>		<i>Limits: 54-148%</i>		"						09/30/08 23:02		
<i>Octacosane (SGCU)</i>		<i>90.7%</i>		<i>62-142%</i>		"						"		
<b>Matrix Spike (8I30047-MS2)</b>										QC Source: BRI0460-13      Extracted: 09/30/08 16:33				
Diesel Range (SGCU)	NWTPH-Dx	52.4	1.92	12.0	mg/kg dry	1x	ND	80.2	65.4%	(46-155)	--	--	09/30/08 23:25	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 78.9%</i>		<i>Limits: 54-148%</i>		"						09/30/08 23:25		
<i>Octacosane (SGCU)</i>		<i>85.1%</i>		<i>62-142%</i>		"						"		

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Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/02/08 16:05
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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8130051      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8130051-BLK1)</b>										Extracted: 09/30/08 17:28				
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/01/08 00:00	

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/02/08 16:05

## 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.
- 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.

### 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 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.

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Kate Haney, Project Manager

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THE LEADER IN ENVIRONMENTAL TESTING

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 11922 E. First Ave, Spokane, WA 99206-5302  
 9405 SW Nimbus Ave, Beaverton, OR 97008-7145  
 2000 W International Airport Rd Ste A.10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210  
 509-924-9200 FAX 924-9290  
 503-906-9200 FAX 906-9210  
 907-563-9200 FAX 563-9210

## CHAIN OF CUSTODY REPORT

Work Order #: **BRID460**

CLIENT: <b>ENSR FOR BNSF</b>		INVOICE TO: <b>BRUCE SHEPARD/BNSF</b>	
REPORT TO: <b>RENEE KNECHT</b>		ADDRESS: <b>SARA ABLANO/ENSR</b>	
PHONE: <b>206 624-9399</b> FAX:		P.O. NUMBER:	
PROJECT NAME: <b>SKYKOMISH - ROI</b>		PRESERVATIVE	
PROJECT NUMBER: <b>01140-204-6300</b>		REQUESTED ANALYSES	
SAMPLED BY: <b>J WAKWITZ + R KNECHT</b>			
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		
1. <b>1A-B-18C(8-10)</b>	<b>9/29/08 1327</b>		
2. <b>1A-B-18C(18-20)</b>	<b>9/29/08 1330</b>		
3. <b>1A-B-18C(20-22)</b>	<b>9/29/08 1331</b>		
4. <b>1A-B-8D(14-16)</b>	<b>9/29/08 1529</b>		
5. <b>1A-B-8D(16-18)</b>	<b>9/29/08 1531</b>		
6. <b>1A-B-8D(18-20)</b>	<b>9/29/08 1533</b>		
7. <b>1A-B-8D(20-22)</b>	<b>9/29/08 1535</b>		
8. <b>1A-B-19C(12-14)</b>	<b>9/30/08 855</b>		
9. <b>1A-B-19C(14-16)</b>	<b>9/30/08 857</b>		
10. <b>1A-B-19C(16-18)</b>	<b>9/30/08 900</b>		
RELEASED BY: <b>Renee Knecht</b>	DATE: <b>9/30/08</b>	RECEIVED BY: <b>Colette Weaver</b>	DATE: <b>09/30/08</b>
PRINT NAME: <b>Renee Knecht</b>	TIME: <b>1450</b>	PRINT NAME: <b>Colette Weaver</b>	TIME: <b>1610</b>
RELEASED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:
ADDITIONAL REMARKS:		FIRM: <b>ENSR</b>	FIRM: <b>TAL Seattle</b>

TURNAROUND REQUEST in Business Days\*

10	7	5	4	3	2	1	<1
STZ	Organic & Inorganic Analyses						
	5	4	3	2	1	<1	
STZ	Petroleum Hydrocarbon Analyses						

OTHER Specify:

\* Turnaround Requests less than standard may incur Rush Charges.

MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
S	1		-01
S	1		-02
S	1		-03
S	1		-04
S	1		-05
S	1		-06
S	1		-07
S	1		-08
S	1		-09
S	1		-10

RECEIVED BY: **Colette Weaver**  
 PRINT NAME: **Colette Weaver**  
 RECEIVED BY:  
 PRINT NAME:

TEMP: **8.9c** M/G  
 PAGE **1** OF **2**

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11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244  
 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

425-420-9200 FAX: 420-9210  
 509-924-9200 FAX: 924-9290  
 503-906-9200 FAX: 906-9210  
 907-563-9200 FAX: 563-9210

## CHAIN OF CUSTODY REPORT

Work Order #: **BRI0460**

TURNAROUND REQUEST  
 in Business Days \*  
 Organic & Inorganic Analyses: 10 7 5 4 3 2 1 <1  
 Petroleum Hydrocarbon Analyses: 5 4 3 2 <1

OTHER Specify:  
 \* Turnaround Requests less than standard may incur Rush Charges.

INVOICE TO: **BRUCE SHEPARD / BUSF**  
**SARA ABLANO / ENSR**

P.O. NUMBER:

PRESERVATIVE

REQUESTED ANALYSES

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-DX	3	2	1	0	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1. 2B-B-38D(0-2)	9/30/08 1134	X	X	X	X	X	S	1		-11
2. 2B-B-38D(2-4)	1135	X	X	X	X	X	S	1		-12
3. 2B-B-38D(4-6)	1136	X	X	X	X	X	S	1		-13
4. 2B-B-38D(6-8)	1137	X	X	X	X	X	S	1		-14
5. 2B-B-39B(2-4)	1200	X	X	X	X	X	S	1		-15
6. 2B-B-39B(4-6)	1201	X	X	X	X	X	S	1		-16
7. 2B-B-39B(6-8)	1202	X	X	X	X	X	S	1		-17
8. 2B-B-39B(8-10)	1203	X	X	X	X	X	S	1		-18
9. 1A-B-19C (1820)	09.30.08 0902	X					S	1		-19

RECEIVED BY: **Collette Weaner**  
 PRINT NAME: **Collette Weaner**  
 DATE: **9/30/08**  
 TIME: **1430**

RECEIVED BY: **Renee Knecht**  
 PRINT NAME: **Renee Knecht**  
 DATE: **9/30/08**  
 TIME: **0902**

FIRM: **ENSR**  
 FIRM: **TAL-Seattle**

DATE: **09-30-08**  
 TIME: **1610**

TEMP: **22**  
 PAGE: **2** OF **2**

ADDITIONAL REMARKS:

TAT: 1

Paperwork to PM - Date: \_\_\_\_\_ Time: \_\_\_\_\_

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

**Received By:**  
(applies to temp at receipt)

**Logged-in By:**

**Unpacked/Labeled By:**

**Cooler ID:** \_\_\_\_\_

Date: 09-30-08

Date: 09-30

Date: 09-30

Work Order No. BRI0460

Time: 1610

Time: 1620

Time: 1615

Client: ENSR International - Seattle

Initials: CW

Initials: CW

Initials: CW

Project: \_\_\_\_\_

**Container Type:**

Cooler

Box

None/Other \_\_\_\_\_

**COC Seals:**

Ship Container ? Sign By \_\_\_\_\_

On Bottles 09-30-08 Date \_\_\_\_\_

None

**Packing Material:**

Bubble Bags  Styrofoam

Foam Packs

None/Other plastic bags

**Refrigerant:**

Gel Ice Pack \_\_\_\_\_

Loose Ice \_\_\_\_\_

None/Other \_\_\_\_\_

**Received Via: Bill#**

Fed Ex  Client

UPS  TA Courier

DHL  Mid Valley

Senvoy  TDP

GS  Other ENA Courier

Cooler Temperature (IR): 8.9 °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)

Temperature Blank? \_\_\_\_\_ °C or NA

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

**Sample Containers:**

ID

ID

Intact?  or N \_\_\_\_\_

Metals Preserved? Y or N or NA

Provided by TA?  or N \_\_\_\_\_

Client QAPP Preserved? Y or N or NA

Correct Type?  or N \_\_\_\_\_

Adequate Volume?  or N \_\_\_\_\_  
(for tests requested)

#Containers match COC? Y or N \_\_\_\_\_

Water VOAs: Headspace? Y or N or NA

IDs/time/date match COC? Y or N \_\_\_\_\_

Comments: \_\_\_\_\_

Hold Times in hold?  or N \_\_\_\_\_

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Has client been contacted regarding non-conformances?

Y or N

Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# NOTIFICATION OF DISCREPANCY

DATE: 09.30.08 TIME: 1436 PM: Kate Haney SC INITIALS: CW

Rush/Short Hold?  Yes  No

- Project Not Set Up in ELM     New Client     COC Received ON HOLD  
 Analysis Requested on COC – Not Listed for Project in ELM

- PM To Add Analysis: \_\_\_\_\_  
 Clarification of Analysis: \_\_\_\_\_  
 Hold Time Expired: (Analysis) \_\_\_\_\_  
 Turnaround Time Not Checked: \_\_\_\_\_  
 Did Not Receive Sample(s) Listed on COC: \_\_\_\_\_

- Received Extra Sample(s) Not Listed on COC: 1A-B-19C (18-20) @ 0902  
added to COC with the DX analysis per Kate.  
 Sample Description(s) or Date/Time Sampled Do Not Match COC: \_\_\_\_\_

- Improper Preservative For method: \_\_\_\_\_  
 Sample Received Broken: \_\_\_\_\_  
 Insufficient Sample Volume: \_\_\_\_\_  
 Sample preserved upon receipt: \_\_\_\_\_

- Temperature Outside recommended range ( $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ): 8.9c  
 Received on-ice within 4 hours of collection, temperature between ambient to  $2^{\circ}\text{C}$  acceptable.  
 Other: \_\_\_\_\_

PROJECT MANAGER RESOLUTION: \_\_\_\_\_ (Date & Time when returned to SC)

Approval By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



October 22, 2008

Halah Voges  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish (Former Maloney Creek West)

Enclosed are the results of analyses for samples received by the laboratory on 09/11/08 16:32.  
The following list is a summary of the Work Orders contained in this report, generated on 10/22/08  
14:39.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRI0171	BNSF-Skykomish (Former M:	01140-204-0320

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TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b>	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b>	Report Created:
1011 SW Klickitat Way, Suite 207	Project Number: 01140-204-0320	10/22/08 14:39
Seattle, WA 98134	Project Manager: Halah Voges	

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-B-35 (4-6)	BRI0171-01	Soil	09/10/08 12:20	09/11/08 16:32
2B-B-36 (0-2)	BRI0171-02	Soil	09/10/08 13:11	09/11/08 16:32
2B-B-36 (2-4)	BRI0171-03	Soil	09/10/08 13:12	09/11/08 16:32
2B-B-37 (0-2)	BRI0171-04	Soil	09/10/08 14:39	09/11/08 16:32
2B-B-37 (2-4)	BRI0171-05	Soil	09/10/08 14:40	09/11/08 16:32
2B-B-37 (4-5)	BRI0171-06	Soil	09/10/08 14:41	09/11/08 16:32
2B-B-38 (0-2)	BRI0171-07	Soil	09/10/08 16:20	09/11/08 16:32
2B-B-38 (3-5)	BRI0171-08	Soil	09/10/08 16:35	09/11/08 16:32
2B-B-39 (0.5-3)	BRI0171-09	Soil	09/10/08 16:45	09/11/08 16:32
2B-B-40B (0.5-3)	BRI0171-10	Soil	09/10/08 17:46	09/11/08 16:32
2B-B-34 (0-2)	BRI0171-16	Soil	09/10/08 11:25	09/11/08 16:32
2B-B-34 (2-4)	BRI0171-17	Soil	09/10/08 11:30	09/11/08 16:32
2B-B-34 (4-6)	BRI0171-18	Soil	09/10/08 11:35	09/11/08 16:32
2B-B-35 (0-2)	BRI0171-19	Soil	09/10/08 12:10	09/11/08 16:32
2B-B-35 (2-4)	BRI0171-20	Soil	09/10/08 12:15	09/11/08 16:32
2B-B-40B (3-5)	BRI0171-21	Soil	09/10/08 17:49	09/11/08 16:32
2B-B-41 (0-2)	BRI0171-22	Soil	09/10/08 08:25	09/11/08 16:32
2B-B-41 (2-4)	BRI0171-23	Soil	09/10/08 08:30	09/11/08 16:32
2B-B-41 (4-6)	BRI0171-24	Soil	09/10/08 08:35	09/11/08 16:32
3-B-26 (0-2)	BRI0171-25	Soil	09/11/08 10:35	09/11/08 16:32
3-B-26 (2-4)	BRI0171-26	Soil	09/11/08 10:35	09/11/08 16:32
3-B-26 (4-6)	BRI0171-27	Soil	09/11/08 10:40	09/11/08 16:32
3-B-27 (0-2)	BRI0171-28	Soil	09/11/08 11:35	09/11/08 16:32
3-B-27 (2-4)	BRI0171-29	Soil	09/11/08 11:40	09/11/08 16:32
3-B-27 (4-6)	BRI0171-30	Soil	09/11/08 11:45	09/11/08 16:32
2B-B-36 (0-2) (SPLP Extract)	BRI0171-31	SPLP	09/10/08 13:11	09/11/08 16:32
2B-B-36 (2-4) (SPLP Extract)	BRI0171-32	SPLP	09/10/08 13:12	09/11/08 16:32
2B-B-37 (0-2) (SPLP Extract)	BRI0171-33	SPLP	09/10/08 14:39	09/11/08 16:32
2B-B-37 (2-4) (SPLP Extract)	BRI0171-34	SPLP	09/10/08 14:40	09/11/08 16:32
2B-B-37 (4-5) (SPLP Extract)	BRI0171-35	SPLP	09/10/08 14:41	09/11/08 16:32
2B-B-38 (0-2) (SPLP Extract)	BRI0171-36	SPLP	09/10/08 16:20	09/11/08 16:32
2B-B-39 (0.5-3) (SPLP Extract)	BRI0171-37	SPLP	09/10/08 16:45	09/11/08 16:32
2B-B-40B (3-5) (SPLP Extract)	BRI0171-38	SPLP	09/10/08 17:49	09/11/08 16:32
2B-B-41 (0-2) (SPLP Extract)	BRI0171-39	SPLP	09/10/08 08:25	09/11/08 16:32
2B-B-41 (2-4) (SPLP Extract)	BRI0171-40	SPLP	09/10/08 08:30	09/11/08 16:32

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b>	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b>	Report Created:
1011 SW Klickitat Way, Suite 207	Project Number: 01140-204-0320	10/22/08 14:39
Seattle, WA 98134	Project Manager: Halah Voges	

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-B-41 (4-6) (SPLP Extract)	BRI0171-41	SPLP	09/10/08 08:35	09/11/08 16:32
2B-B-34 (0-2) (SPLP Extract)	BRI0171-42	SPLP	09/10/08 11:25	09/11/08 16:32
2B-B-34 (2-4) (SPLP Extract)	BRI0171-43	SPLP	09/10/08 11:30	09/11/08 16:32
2B-B-34 (4-6) (SPLP Extract)	BRI0171-44	SPLP	09/10/08 11:35	09/11/08 16:32
2B-B-35 (0-2) (SPLP Extract)	BRI0171-45	SPLP	09/10/08 12:10	09/11/08 16:32
2B-B-35 (2-4) (SPLP Extract)	BRI0171-46	SPLP	09/10/08 12:15	09/11/08 16:32
2B-B-36 (0-2) (SPLP Extract-Filtered)	BRI0171-47	SPLP	09/10/08 13:11	09/11/08 16:32
2B-B-36 (2-4) (SPLP Extract-Filtered)	BRI0171-48	SPLP	09/10/08 13:12	09/11/08 16:32
2B-B-37 (0-2) (SPLP Extract-Filtered)	BRI0171-49	SPLP	09/10/08 14:39	09/11/08 16:32
2B-B-37 (2-4) (SPLP Extract-Filtered)	BRI0171-50	SPLP	09/10/08 14:40	09/11/08 16:32
2B-B-37 (4-5) (SPLP Extract-Filtered)	BRI0171-51	SPLP	09/10/08 14:41	09/11/08 16:32
2B-B-38 (0-2) (SPLP Extract-Filtered)	BRI0171-52	SPLP	09/10/08 16:20	09/11/08 16:32
2B-B-39 (0.5-3) (SPLP Extract-Filtered)	BRI0171-53	SPLP	09/10/08 16:45	09/11/08 16:32
2B-B-40B (3-5) (SPLP Extract-Filtered)	BRI0171-54	SPLP	09/10/08 17:49	09/11/08 16:32
2B-B-41 (0-2) (SPLP Extract-Filtered)	BRI0171-55	SPLP	09/10/08 08:25	09/11/08 16:32
2B-B-41 (2-4) (SPLP Extract-Filtered)	BRI0171-56	SPLP	09/10/08 08:30	09/11/08 16:32
2B-B-41 (4-6) (SPLP Extract-Filtered)	BRI0171-57	SPLP	09/10/08 08:35	09/11/08 16:32
2B-B-34 (0-2) (SPLP Extract-Filtered)	BRI0171-58	SPLP	09/10/08 11:25	09/11/08 16:32
2B-B-34 (2-4) (SPLP Extract-Filtered)	BRI0171-59	SPLP	09/10/08 11:30	09/11/08 16:32
2B-B-34 (4-6) (SPLP Extract-Filtered)	BRI0171-60	SPLP	09/10/08 11:35	09/11/08 16:32
2B-B-35 (0-2) (SPLP Extract-Filtered)	BRI0171-61	SPLP	09/10/08 12:10	09/11/08 16:32
2B-B-35 (2-4) (SPLP Extract-Filtered)	BRI0171-62	SPLP	09/10/08 12:15	09/11/08 16:32

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Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

Project Manager: Halah Voges

Report Created:

10/22/08 14:39

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRI0171**

**SAMPLE RECEIPT**

The samples were received September 11th, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.9 degrees Celsius. SPLP extraction and NWTPH-Dx analysis on the SPLP extracts were added to select samples per ENSR 10/16/08.

**PREPARATIONS AND ANALYSIS**

SPLP NWTPH-Dx (filtered and non-filtered): The samples were tumbled using 100 grams of sample to 2000mls of DI water. Samples BRI0171-06 (2B-B-37 (4-5)) and BRI0171-07 (2B-B-38 (0-2)) had limited volume and were tumbled using 50 grams to 1000mls. There was no matrix QC volume to extract a batch duplicate or batch matrix spike. All samples were out of hold time.

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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**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
<b>BRI0171-01 (2B-B-35 (4-6))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 12:20</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>8.88</b>	2.70	16.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 00:14	J
Lube Oil Range Hydrocarbons	"	<b>10.6</b>	5.38	42.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"			"	
Octacosane			95.6%		62 - 142 %	"			"	
<b>BRI0171-02 (2B-B-36 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>2010</b>	329	2050	mg/kg dry	50x	8111058	09/12/08 08:00	09/13/08 00:40	J, Q6, RL1
Lube Oil Range Hydrocarbons	"	<b>7040</b>	655	5130	"	"	"	"	"	
Surrogate(s): 2-FBP			970%		54 - 148 %	"			"	Z3
Octacosane			675%		62 - 142 %	"			"	Z3
<b>BRI0171-03 (2B-B-36 (2-4))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 13:12</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>28.4</b>	2.05	12.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:06	Q6
Lube Oil Range Hydrocarbons	"	<b>109</b>	4.10	32.1	"	"	"	"	"	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"			"	
Octacosane			99.6%		62 - 142 %	"			"	
<b>BRI0171-04 (2B-B-37 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 14:39</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>112</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:32	Q3
Lube Oil Range Hydrocarbons	"	<b>474</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP			88.4%		54 - 148 %	"			"	
Octacosane			93.8%		62 - 142 %	"			"	
<b>BRI0171-05 (2B-B-37 (2-4))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 14:40</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>263</b>	11.3	70.5	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 01:58	Q6
Lube Oil Range Hydrocarbons	"	<b>1340</b>	22.5	176	"	"	"	"	"	
Surrogate(s): 2-FBP			113%		54 - 148 %	"			"	
Octacosane			111%		62 - 142 %	"			"	
<b>BRI0171-06 (2B-B-37 (4-5))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 14:41</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>120</b>	9.87	61.7	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 03:42	Q6
Lube Oil Range Hydrocarbons	"	<b>496</b>	19.7	154	"	"	"	"	"	
Surrogate(s): 2-FBP			112%		54 - 148 %	"			"	
Octacosane			111%		62 - 142 %	"			"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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## 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
<b>BRI0171-07 (2B-B-38 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:20</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	23.7	2.23	13.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 04:08	Q12
Lube Oil Range Hydrocarbons	"	45.9	4.45	34.8	"	"	"	"	"	
Surrogate(s): 2-FBP			84.1%		54 - 148 %	"			"	
Octacosane			97.5%		62 - 142 %	"			"	
<b>BRI0171-08 (2B-B-38 (3-5))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:35</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	3.61	1.78	11.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 04:34	J
Lube Oil Range Hydrocarbons	"	4.10	3.55	27.9	"	"	"	"	"	J
Surrogate(s): 2-FBP			89.3%		54 - 148 %	"			"	
Octacosane			101%		62 - 142 %	"			"	
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:45</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	10.9	1.81	11.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 05:00	J
Lube Oil Range Hydrocarbons	"	41.4	3.62	28.3	"	"	"	"	"	
Surrogate(s): 2-FBP			81.1%		54 - 148 %	"			"	
Octacosane			98.1%		62 - 142 %	"			"	
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 17:46</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	6.43	2.38	14.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 05:26	J
Lube Oil Range Hydrocarbons	"	14.5	4.75	37.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			81.8%		54 - 148 %	"			"	
Octacosane			93.5%		62 - 142 %	"			"	
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:25</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	1290	48.5	303	mg/kg dry	20x	8111058	09/12/08 08:00	09/13/08 05:52	Q6
Lube Oil Range Hydrocarbons	"	4660	96.7	758	"	"	"	"	"	
Surrogate(s): 2-FBP			217%		54 - 148 %	"			"	ZX
Octacosane			196%		62 - 142 %	"			"	ZX
<b>BRI0171-17 (2B-B-34 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:30</b>	
Diesel Range Hydrocarbons	NWTPH-Dx	7.76	2.20	13.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 06:18	J
Lube Oil Range Hydrocarbons	"	23.5	4.40	34.5	"	"	"	"	"	J
Surrogate(s): 2-FBP			78.8%		54 - 148 %	"			"	
Octacosane			96.2%		62 - 142 %	"			"	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**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
<b>BRI0171-18 (2B-B-34 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 11:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>33.5</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 06:44	Q6
Lube Oil Range Hydrocarbons	"	<b>130</b>	4.85	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP			89.9%	54 - 148 %						
Octacosane			98.1%	62 - 142 %						
<b>BRI0171-19 (2B-B-35 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:10</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>19.3</b>	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 07:10	Q6
Lube Oil Range Hydrocarbons	"	<b>84.7</b>	5.26	41.2	"	"	"	"	"	
Surrogate(s): 2-FBP			89.4%	54 - 148 %						
Octacosane			99.3%	62 - 142 %						
<b>BRI0171-20 (2B-B-35 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 12:15</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>16.5</b>	2.91	18.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 07:36	J
Lube Oil Range Hydrocarbons	"	<b>46.2</b>	5.80	45.4	"	"	"	"	"	
Surrogate(s): 2-FBP			87.5%	54 - 148 %						
Octacosane			100%	62 - 142 %						
<b>BRI0171-21 (2B-B-40B (3-5))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 17:49</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>6.19</b>	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 09:20	J
Lube Oil Range Hydrocarbons	"	<b>18.2</b>	4.49	35.2	"	"	"	"	"	J
Surrogate(s): 2-FBP			87.8%	54 - 148 %						
Octacosane			98.7%	62 - 142 %						
<b>BRI0171-22 (2B-B-41 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:25</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>192</b>	10.5	65.8	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 09:46	Q6
Lube Oil Range Hydrocarbons	"	<b>713</b>	21.0	164	"	"	"	"	"	
Surrogate(s): 2-FBP			115%	54 - 148 %						
Octacosane			112%	62 - 142 %						
<b>BRI0171-23 (2B-B-41 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:30</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>74.2</b>	2.24	14.0	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 10:12	Q6
Lube Oil Range Hydrocarbons	"	<b>224</b>	4.47	35.0	"	"	"	"	"	
Surrogate(s): 2-FBP			85.8%	54 - 148 %						
Octacosane			97.6%	62 - 142 %						

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>A</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-24 (2B-B-41 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/10/08 08:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>24.1</b>	2.19	13.7	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 10:38	Q6
Lube Oil Range Hydrocarbons	"	<b>76.3</b>	4.37	34.3	"	"	"	"	"	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	"				"
Octacosane			97.8%		62 - 142 %	"				"
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>4.45</b>	2.76	17.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 02:50	J
Lube Oil Range Hydrocarbons	"	<b>86.7</b>	5.50	43.1	"	"	"	"	"	Q13
Surrogate(s): 2-FBP			92.5%		54 - 148 %	"				"
Octacosane			103%		62 - 142 %	"				"
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>36.3</b>	3.07	19.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 03:11	Q6
Lube Oil Range Hydrocarbons	"	<b>209</b>	6.13	48.0	"	"	"	"	"	
Surrogate(s): 2-FBP			92.4%		54 - 148 %	"				"
Octacosane			135%		62 - 142 %	"				"
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:40</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>21.5</b>	2.26	14.1	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 03:33	Q6
Lube Oil Range Hydrocarbons	"	<b>149</b>	4.50	35.3	"	"	"	"	"	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"				"
Octacosane			102%		62 - 142 %	"				"
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>658</b>	15.0	93.5	mg/kg dry	5x	8111061	09/12/08 08:03	09/14/08 03:54	Q4
Lube Oil Range Hydrocarbons	"	<b>729</b>	29.8	234	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			91.2%		54 - 148 %	"				"
Octacosane			94.4%		62 - 142 %	"				"
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:40</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	<b>53.1</b>	2.23	14.0	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 04:15	Q6
Lube Oil Range Hydrocarbons	"	<b>240</b>	4.48	35.1	"	"	"	"	"	
Surrogate(s): 2-FBP			89.9%		54 - 148 %	"				"
Octacosane			97.4%		62 - 142 %	"				"

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**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
<b>BRI0171-30 (3-B-27 (4-6))</b>	<b>Soil</b>		<b>Sampled: 09/11/08 11:45</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>288</b>	12.1	75.9	mg/kg dry	5x	8J11061	09/12/08 08:03	09/14/08 07:04	Q6
Lube Oil Range Hydrocarbons	"	<b>1200</b>	24.2	190	"	"	"	"	"	
Surrogate(s): 2-FBP			94.7%		54 - 148 %	"				
Octacosane			99.7%		62 - 142 %	"				
<b>BRI0171-31 (2B-B-36 (0-2) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 13:11</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.384</b>	0.0842	0.526	mg/l	2x	8J17021	10/20/08 13:19	10/21/08 13:48	RL1, Q6, J
Lube Oil Range Hydrocarbons	"	<b>1.64</b>	0.189	1.05	"	"	"	"	"	
Surrogate(s): 2-FBP			103%		53 - 125 %	"				
Octacosane			107%		68 - 125 %	"				
<b>BRI0171-32 (2B-B-36 (2-4) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 13:12</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 14:10	J
Lube Oil Range Hydrocarbons	"	<b>0.162</b>	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			99.3%		53 - 125 %	"				
Octacosane			106%		68 - 125 %	"				
<b>BRI0171-33 (2B-B-37 (0-2) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:39</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 14:32	J
Lube Oil Range Hydrocarbons	"	<b>0.140</b>	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			102%		53 - 125 %	"				
Octacosane			107%		68 - 125 %	"				
<b>BRI0171-34 (2B-B-37 (2-4) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:40</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.606</b>	0.0842	0.526	mg/l	2x	8J17021	10/20/08 13:19	10/21/08 14:54	Q6
Lube Oil Range Hydrocarbons	"	<b>2.89</b>	0.189	1.05	"	"	"	"	"	
Surrogate(s): 2-FBP			103%		53 - 125 %	"				
Octacosane			104%		68 - 125 %	"				
<b>BRI0171-35 (2B-B-37 (4-5) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:41</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.146</b>	0.0889	0.556	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 15:16	J
Lube Oil Range Hydrocarbons	"	<b>0.731</b>	0.200	1.11	"	"	"	"	"	J
Surrogate(s): 2-FBP			101%		53 - 125 %	"				
Octacosane			107%		68 - 125 %	"				

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*Kate Haney*

Kate Haney, Project Manager

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
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Analyte	Method	Result	MDL <sup>a</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
<b>BRI0171-36 (2B-B-38 (0-2) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 16:20</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0889	0.556	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 15:39		
Lube Oil Range Hydrocarbons	"	ND	0.200	1.11	"	"	"	"	"		
Surrogate(s): 2-FBP			96.6%		53 - 125 %	"					
Octacosane			97.5%		68 - 125 %	"					
<b>BRI0171-37 (2B-B-39 (0.5-3) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 16:45</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 17:08		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			86.4%		53 - 125 %	"					
Octacosane			91.0%		68 - 125 %	"					
<b>BRI0171-38 (2B-B-40B (3-5) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 17:49</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.413</b>	0.0842	0.526	mg/l	2x	8J17021	10/20/08 13:19	10/21/08 17:30	<b>RL1, Q6, J</b>	
Lube Oil Range Hydrocarbons	"	<b>1.59</b>	0.189	1.05	"	"	"	"	"		
Surrogate(s): 2-FBP			104%		53 - 125 %	"					
Octacosane			109%		68 - 125 %	"					
<b>BRI0171-39 (2B-B-41 (0-2) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 08:25</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.128</b>	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 17:52	<b>J</b>	
Lube Oil Range Hydrocarbons	"	<b>0.159</b>	0.0947	0.526	"	"	"	"	"	<b>J</b>	
Surrogate(s): 2-FBP			91.9%		53 - 125 %	"					
Octacosane			98.4%		68 - 125 %	"					
<b>BRI0171-40 (2B-B-41 (2-4) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 08:30</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.0531</b>	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 18:14	<b>J</b>	
Lube Oil Range Hydrocarbons	"	<b>0.189</b>	0.0947	0.526	"	"	"	"	"	<b>J</b>	
Surrogate(s): 2-FBP			97.3%		53 - 125 %	"					
Octacosane			104%		68 - 125 %	"					
<b>BRI0171-41 (2B-B-41 (4-6) (SPLP Extract))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 08:35</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 18:36		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			95.7%		53 - 125 %	"					
Octacosane			104%		68 - 125 %	"					

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*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0171-42 (2B-B-34 (0-2) (SPLP Extract))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 11:25</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 18:59	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			67.5%		53 - 125 %	"			"	
Octacosane			75.4%		68 - 125 %	"			"	
<b>BRI0171-43 (2B-B-34 (2-4) (SPLP Extract))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 11:30</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 19:21	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			87.1%		53 - 125 %	"			"	
Octacosane			90.9%		68 - 125 %	"			"	
<b>BRI0171-44 (2B-B-34 (4-6) (SPLP Extract))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 11:35</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.549</b>	0.0842	0.526	mg/l	2x	8J17021	10/20/08 13:19	10/21/08 19:43	<b>Q6</b>
Lube Oil Range Hydrocarbons	"	<b>2.16</b>	0.189	1.05	"	"	"	"	"	
Surrogate(s): 2-FBP			101%		53 - 125 %	"			"	
Octacosane			105%		68 - 125 %	"			"	
<b>BRI0171-45 (2B-B-35 (0-2) (SPLP Extract))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 12:10</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	<b>0.171</b>	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 20:06	<b>J</b>
Lube Oil Range Hydrocarbons	"	<b>0.565</b>	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			100%		53 - 125 %	"			"	
Octacosane			103%		68 - 125 %	"			"	
<b>BRI0171-46 (2B-B-35 (2-4) (SPLP Extract))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 12:15</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 20:28	
Lube Oil Range Hydrocarbons	"	<b>0.162</b>	0.0947	0.526	"	"	"	"	"	<b>J</b>
Surrogate(s): 2-FBP			105%		53 - 125 %	"			"	
Octacosane			110%		68 - 125 %	"			"	
<b>BRI0171-47 (2B-B-36 (0-2) (SPLP Extract-Filtered))</b>		<b>SPLP</b>			<b>Sampled: 09/10/08 13:11</b>					<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 13:48	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
Surrogate(s): 2-FBP			91.5%		53 - 125 %	"			"	
Octacosane			100%		68 - 125 %	"			"	

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*Kate Haney*

Kate Haney, Project Manager

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**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	
<b>BRI0171-48 (2B-B-36 (2-4) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 13:12</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 14:10		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			92.7%		53 - 125 %	"				"	
Octacosane			104%		68 - 125 %	"				"	
<b>BRI0171-49 (2B-B-37 (0-2) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:39</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 14:32		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			90.7%		53 - 125 %	"				"	
Octacosane			100%		68 - 125 %	"				"	
<b>BRI0171-50 (2B-B-37 (2-4) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:40</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 14:54		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			88.5%		53 - 125 %	"				"	
Octacosane			92.5%		68 - 125 %	"				"	
<b>BRI0171-51 (2B-B-37 (4-5) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 14:41</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0889	0.556	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 15:16		
Lube Oil Range Hydrocarbons	"	ND	0.200	1.11	"	"	"	"	"		
Surrogate(s): 2-FBP			91.5%		53 - 125 %	"				"	
Octacosane			97.3%		68 - 125 %	"				"	
<b>BRI0171-52 (2B-B-38 (0-2) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 16:20</b>								<b>N1, H3</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0889	0.556	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 15:39		
Lube Oil Range Hydrocarbons	"	ND	0.200	1.11	"	"	"	"	"		
Surrogate(s): 2-FBP			95.4%		53 - 125 %	"				"	
Octacosane			102%		68 - 125 %	"				"	
<b>BRI0171-53 (2B-B-39 (0.5-3) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 16:45</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 17:08		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			91.4%		53 - 125 %	"				"	
Octacosane			98.8%		68 - 125 %	"				"	

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*Kate Haney*

Kate Haney, Project Manager

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**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
<b>BRI0171-54 (2B-B-40B (3-5) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 17:49</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 17:30	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			90.5%	53 - 125 %	"		"		"	
<i>Octacosane</i>			95.5%	68 - 125 %	"		"		"	
<b>BRI0171-55 (2B-B-41 (0-2) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 08:25</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 17:52	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			95.0%	53 - 125 %	"		"		"	
<i>Octacosane</i>			99.9%	68 - 125 %	"		"		"	
<b>BRI0171-56 (2B-B-41 (2-4) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 08:30</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 18:14	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			90.3%	53 - 125 %	"		"		"	
<i>Octacosane</i>			100%	68 - 125 %	"		"		"	
<b>BRI0171-57 (2B-B-41 (4-6) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 08:35</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 18:36	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			92.4%	53 - 125 %	"		"		"	
<i>Octacosane</i>			102%	68 - 125 %	"		"		"	
<b>BRI0171-58 (2B-B-34 (0-2) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 11:25</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 18:59	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			90.5%	53 - 125 %	"		"		"	
<i>Octacosane</i>			96.5%	68 - 125 %	"		"		"	
<b>BRI0171-59 (2B-B-34 (2-4) (SPLP Extract-Filtered))</b>		<b>SPLP</b>		<b>Sampled: 09/10/08 11:30</b>				<b>H3, N1</b>		
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 19:21	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			93.6%	53 - 125 %	"		"		"	
<i>Octacosane</i>			99.3%	68 - 125 %	"		"		"	

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*Kate Haney*

Kate Haney, Project Manager

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
<b>BRI0171-60 (2B-B-34 (4-6) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 11:35</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 19:43		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			93.7%		53 - 125 %	"				"	
Octacosane			103%		68 - 125 %	"				"	
<b>BRI0171-61 (2B-B-35 (0-2) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 12:10</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 20:06		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			93.4%		53 - 125 %	"				"	
Octacosane			101%		68 - 125 %	"				"	
<b>BRI0171-62 (2B-B-35 (2-4) (SPLP Extract-Filtered))</b>	<b>SPLP</b>		<b>Sampled: 09/10/08 12:15</b>								<b>H3, N1</b>
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17022	10/20/08 13:20	10/21/08 20:28		
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	"	"	"		
Surrogate(s): 2-FBP			92.3%		53 - 125 %	"				"	
Octacosane			98.6%		68 - 125 %	"				"	

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**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
<b>BRI0171-01 (2B-B-35 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 12:20</b>						
Diesel Range (SGCU)	NWTPH-Dx	ND	2.70	16.9	mg/kg dry	1x	8I11058	09/12/08 08:00	09/16/08 22:34	
Lube Oil Range (SGCU)	"	ND	5.38	42.2	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			70.6%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			80.0%		62 - 142 %	"				"
<b>BRI0171-02 (2B-B-36 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>						
Diesel Range (SGCU)	NWTPH-Dx	832	6.57	41.1	mg/kg dry	1x	8I11058	09/12/08 08:00	09/16/08 22:48	Q6
<i>Surrogate(s): 2-FBP (SGCU)</i>			72.6%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			88.4%		62 - 142 %	"				"
<b>BRI0171-02RE1 (2B-B-36 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:11</b>						
Lube Oil Range (SGCU)	NWTPH-Dx	1890	65.5	513	mg/kg dry	5x	8I11058	09/12/08 08:00	09/17/08 16:23	Q4
<i>Surrogate(s): 2-FBP (SGCU)</i>			71.0%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			98.0%		62 - 142 %	"				"
<b>BRI0171-03 (2B-B-36 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 13:12</b>						
Diesel Range (SGCU)	NWTPH-Dx	15.6	2.05	12.8	mg/kg dry	1x	8I11058	09/12/08 08:00	09/16/08 23:18	Q6
Lube Oil Range (SGCU)	"	53.4	4.10	32.1	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			70.9%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			83.2%		62 - 142 %	"				"
<b>BRI0171-04 (2B-B-37 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:39</b>						
Diesel Range (SGCU)	NWTPH-Dx	44.2	2.43	15.2	mg/kg dry	1x	8I11058	09/12/08 08:00	09/16/08 23:48	Q3
Lube Oil Range (SGCU)	"	222	4.85	38.0	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			70.6%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			81.0%		62 - 142 %	"				"
<b>BRI0171-05 (2B-B-37 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 14:40</b>						
Diesel Range (SGCU)	NWTPH-Dx	120	2.25	14.1	mg/kg dry	1x	8I11058	09/12/08 08:00	09/17/08 00:18	Q6
Lube Oil Range (SGCU)	"	431	4.50	35.2	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			62.2%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			70.8%		62 - 142 %	"				"

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Kate Haney, Project Manager

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**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
<b>BRI0171-06 (2B-B-37 (4-5))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 14:41</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>53.8</b>	1.97	12.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 01:47	Q6
Lube Oil Range (SGCU)	"	<b>180</b>	3.93	30.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			65.5%		54 - 148 %	"				"
Octacosane (SGCU)			78.9%		62 - 142 %	"				"
<b>BRI0171-07 (2B-B-38 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 16:20</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>7.19</b>	2.23	13.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:17	J
Lube Oil Range (SGCU)	"	<b>15.5</b>	4.45	34.8	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			68.1%		54 - 148 %	"				"
Octacosane (SGCU)			78.2%		62 - 142 %	"				"
<b>BRI0171-08 (2B-B-38 (3-5))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 16:35</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>ND</b>	1.78	11.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:47	
Lube Oil Range (SGCU)	"	<b>ND</b>	3.55	27.9	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			76.6%		54 - 148 %	"				"
Octacosane (SGCU)			87.2%		62 - 142 %	"				"
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 16:45</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>3.13</b>	1.81	11.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 10:40	J
Lube Oil Range (SGCU)	"	<b>14.4</b>	3.62	28.3	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			72.2%		54 - 148 %	"				"
Octacosane (SGCU)			87.3%		62 - 142 %	"				"
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 17:46</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>ND</b>	2.38	14.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:10	
Lube Oil Range (SGCU)	"	<b>ND</b>	4.75	37.2	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			68.8%		54 - 148 %	"				"
Octacosane (SGCU)			80.7%		62 - 142 %	"				"
<b>BRI0171-16 (2B-B-34 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/10/08 11:25</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>562</b>	2.42	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:25	Q6
Surrogate(s): 2-FBP (SGCU)			61.3%		54 - 148 %	"				"
Octacosane (SGCU)			74.8%		62 - 142 %	"				"

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*Kate Haney*

Kate Haney, Project Manager

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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up**  
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-16RE1 (2B-B-34 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 11:25</b>						
<b>Lube Oil Range (SGCU)</b>	NWTPH-Dx	<b>1210</b>	2.2	189	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:52	Q4
<i>Surrogate(s): 2-FBP (SGCU)</i>			57.9%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			77.6%		62 - 142 %	"				"
<b>BRI0171-17 (2B-B-34 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 11:30</b>						
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>2.73</b>	2.20	13.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:55	J
<b>Lube Oil Range (SGCU)</b>	"	<b>25.3</b>	4.40	34.5	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			63.6%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			81.7%		62 - 142 %	"				"
<b>BRI0171-18 (2B-B-34 (4-6))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 11:35</b>						
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>18.1</b>	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:25	Q6
<b>Lube Oil Range (SGCU)</b>	"	<b>53.6</b>	4.85	38.0	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			77.0%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			87.0%		62 - 142 %	"				"
<b>BRI0171-19 (2B-B-35 (0-2))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 12:10</b>						
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>6.58</b>	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:39	J
<b>Lube Oil Range (SGCU)</b>	"	<b>36.6</b>	5.26	41.2	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			76.5%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			90.8%		62 - 142 %	"				"
<b>BRI0171-20 (2B-B-35 (2-4))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 12:15</b>						
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>ND</b>	2.91	18.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:09	
<b>Lube Oil Range (SGCU)</b>	"	<b>12.4</b>	5.80	45.4	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			75.5%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			87.8%		62 - 142 %	"				"
<b>BRI0171-21 (2B-B-40B (3-5))</b>		<b>Soil</b>		<b>Sampled: 09/10/08 17:49</b>						
<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>ND</b>	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:39	
<b>Lube Oil Range (SGCU)</b>	"	<b>ND</b>	4.49	35.2	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			73.3%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			84.5%		62 - 142 %	"				"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**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
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**BRI0171-22 (2B-B-41 (0-2))** Soil **Sampled: 09/10/08 08:25**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>88.7</b>	2.10	13.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:54	Q6
<b>Lube Oil Range (SGCU)</b>	"	<b>240</b>	4.20	32.9	"	"	"	"	"	Q4
<i>Surrogate(s): 2-FBP (SGCU)</i>			69.4%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			82.0%		62 - 142 %	"			"	

**BRI0171-23 (2B-B-41 (2-4))** Soil **Sampled: 09/10/08 08:30**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>43.9</b>	2.24	14.0	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 14:24	Q6
<b>Lube Oil Range (SGCU)</b>	"	<b>83.6</b>	4.47	35.0	"	"	"	"	"	Q4
<i>Surrogate(s): 2-FBP (SGCU)</i>			67.4%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			82.1%		62 - 142 %	"			"	

**BRI0171-24 (2B-B-41 (4-6))** Soil **Sampled: 09/10/08 08:35**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>8.05</b>	2.19	13.7	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 16:08	J
<b>Lube Oil Range (SGCU)</b>	"	<b>23.7</b>	4.37	34.3	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			76.1%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			86.0%		62 - 142 %	"			"	

**BRI0171-25 (3-B-26 (0-2))** Soil **Sampled: 09/11/08 10:35**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>ND</b>	2.76	17.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 07:25	
<b>Lube Oil Range (SGCU)</b>	"	<b>24.3</b>	5.50	43.1	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			80.6%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			92.2%		62 - 142 %	"			"	

**BRI0171-26 (3-B-26 (2-4))** Soil **Sampled: 09/11/08 10:35**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>20.2</b>	3.07	19.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 07:46	Q6
<b>Lube Oil Range (SGCU)</b>	"	<b>103</b>	6.13	48.0	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			82.7%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			93.5%		62 - 142 %	"			"	

**BRI0171-27 (3-B-26 (4-6))** Soil **Sampled: 09/11/08 10:40**

<b>Diesel Range (SGCU)</b>	NWTPH-Dx	<b>6.04</b>	2.26	14.1	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 08:07	J
<b>Lube Oil Range (SGCU)</b>	"	<b>34.5</b>	4.50	35.3	"	"	"	"	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>			73.2%		54 - 148 %	"			"	
<i>Octacosane (SGCU)</i>			85.6%		62 - 142 %	"			"	

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**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
<b>BRI0171-28 (3-B-27 (0-2))</b>	<b>Soil</b>		<b>Sampled: 09/11/08 11:35</b>							
Diesel Range (SGCU)	NWTPH-Dx	538	2.99	18.7	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 08:28	Q4
Lube Oil Range (SGCU)	"	249	5.97	46.8	"	"	"	"	"	Q4
Surrogate(s): 2-FBP (SGCU)			77.7%		54 - 148 %	"			"	
Octacosane (SGCU)			84.9%		62 - 142 %	"			"	
<b>BRI0171-29 (3-B-27 (2-4))</b>	<b>Soil</b>		<b>Sampled: 09/11/08 11:40</b>							
Diesel Range (SGCU)	NWTPH-Dx	31.0	2.25	14.0	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 09:53	Q6
Lube Oil Range (SGCU)	"	69.4	4.48	35.1	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			78.5%		54 - 148 %	"			"	
Octacosane (SGCU)			90.9%		62 - 142 %	"			"	
<b>BRI0171-30 (3-B-27 (4-6))</b>	<b>Soil</b>		<b>Sampled: 09/11/08 11:45</b>							
Diesel Range (SGCU)	NWTPH-Dx	179	2.43	15.2	mg/kg dry	1x	8111061	09/12/08 08:03	09/14/08 10:15	Q6
Lube Oil Range (SGCU)	"	456	4.84	38.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			80.4%		54 - 148 %	"			"	
Octacosane (SGCU)			90.5%		62 - 142 %	"			"	

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-01 (2B-B-35 (4-6))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 12:20</b>	
Dry Weight	BSOPSP003R0 8	58.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-02 (2B-B-36 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 13:11</b>	
Dry Weight	BSOPSP003R0 8	60.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-03 (2B-B-36 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 13:12</b>	
Dry Weight	BSOPSP003R0 8	77.9	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-04 (2B-B-37 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 14:39</b>	
Dry Weight	BSOPSP003R0 8	65.3	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-05 (2B-B-37 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 14:40</b>	
Dry Weight	BSOPSP003R0 8	71.0	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-06 (2B-B-37 (4-5))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 14:41</b>	
Dry Weight	BSOPSP003R0 8	80.3	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-07 (2B-B-38 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:20</b>	
Dry Weight	BSOPSP003R0 8	71.5	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-08 (2B-B-38 (3-5))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:35</b>	
Dry Weight	BSOPSP003R0 8	88.8	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-09 (2B-B-39 (0.5-3))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 16:45</b>	
Dry Weight	BSOPSP003R0 8	87.6	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-10 (2B-B-40B (0.5-3))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 17:46</b>	
Dry Weight	BSOPSP003R0 8	67.0	----	1.00	%	1x	8I12032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:25</b>	

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-16 (2B-B-34 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:25</b>	
Dry Weight	BSOPSPL003R0 8	66.0	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-17 (2B-B-34 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:30</b>	
Dry Weight	BSOPSPL003R0 8	72.3	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-18 (2B-B-34 (4-6))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 11:35</b>	
Dry Weight	BSOPSPL003R0 8	64.9	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-19 (2B-B-35 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 12:10</b>	
Dry Weight	BSOPSPL003R0 8	60.6	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-20 (2B-B-35 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 12:15</b>	
Dry Weight	BSOPSPL003R0 8	54.7	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-21 (2B-B-40B (3-5))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 17:49</b>	
Dry Weight	BSOPSPL003R0 8	70.6	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-22 (2B-B-41 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 08:25</b>	
Dry Weight	BSOPSPL003R0 8	75.5	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-23 (2B-B-41 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 08:30</b>	
Dry Weight	BSOPSPL003R0 8	71.2	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-24 (2B-B-41 (4-6))</b>		<b>Soil</b>							<b>Sampled: 09/10/08 08:35</b>	
Dry Weight	BSOPSPL003R0 8	72.2	----	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 10:35</b>	
Dry Weight	BSOPSPL003R0 8	57.4	----	1.00	%	1x	8117036	09/17/08 13:44	09/18/08 00:00	
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 10:35</b>	

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 10:35</b>	
Dry Weight	BSOPSPL003R0 8	51.9	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 10:40</b>	
Dry Weight	BSOPSPL003R0 8	69.9	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 11:35</b>	
Dry Weight	BSOPSPL003R0 8	52.7	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 11:40</b>	
Dry Weight	BSOPSPL003R0 8	71.2	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>							<b>Sampled: 09/11/08 11:45</b>	
Dry Weight	BSOPSPL003R0 8	65.2	----	1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00	

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**Organic Carbon, Total (TOC)**  
TestAmerica Tacoma

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRI0171-25 (3-B-26 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Total Organic Carbon	9060 STD	<b>54000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-26 (3-B-26 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:35</b>					
Total Organic Carbon	9060 STD	<b>29000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-27 (3-B-26 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 10:40</b>					
Total Organic Carbon	9060 STD	<b>20000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-28 (3-B-27 (0-2))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:35</b>					
Total Organic Carbon	9060 STD	<b>49000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-29 (3-B-27 (2-4))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:40</b>					
Total Organic Carbon	9060 STD	<b>35000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	
<b>BRI0171-30 (3-B-27 (4-6))</b>		<b>Soil</b>			<b>Sampled: 09/11/08 11:45</b>					
Total Organic Carbon	9060 STD	<b>29000</b>	----	2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09	

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8I11058      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11058-BLK1)** Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	2.97	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/12/08 22:04	J
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 82.5%</i>		<i>Limits: 54-148%</i>								<i>09/12/08 22:04</i>		
<i>Octacosane</i>		<i>94.5%</i>		<i>62-142%</i>								<i>"</i>		

**LCS (8I11058-BS1)** Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	58.4	1.60	10.0	mg/kg wet	1x	--	66.7	87.7%	(78-129)	--	--	09/12/08 22:30	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 87.6%</i>		<i>Limits: 54-148%</i>								<i>09/12/08 22:30</i>		
<i>Octacosane</i>		<i>94.8%</i>		<i>62-142%</i>								<i>"</i>		

**Duplicate (8I11058-DUP1)** QC Source: BRI0171-01      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	22.3	2.68	16.8	mg/kg dry	1x	8.88	--	--	--	86.3%	(40)	09/12/08 22:56	R3
Lube Oil Range Hydrocarbons	"	27.2	5.35	41.9	"	"	10.6	--	--	--	87.8%	"	"	R4, J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.4%</i>		<i>Limits: 54-148%</i>								<i>09/12/08 22:56</i>		
<i>Octacosane</i>		<i>101%</i>		<i>62-142%</i>								<i>"</i>		

**Duplicate (8I11058-DUP2)** QC Source: BRI0171-07      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	9.35	2.22	13.8	mg/kg dry	1x	23.7	--	--	--	86.9%	(40)	09/12/08 23:22	R4, J
Lube Oil Range Hydrocarbons	"	29.1	4.42	34.6	"	"	45.9	--	--	--	44.7%	"	"	R4, J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 86.1%</i>		<i>Limits: 54-148%</i>								<i>09/12/08 23:22</i>		
<i>Octacosane</i>		<i>98.8%</i>		<i>62-142%</i>								<i>"</i>		

**Matrix Spike (8I11058-MS1)** QC Source: BRI0171-09      Extracted: 09/12/08 08:00

Diesel Range Hydrocarbons	NWTPH-Dx	65.2	1.83	11.4	mg/kg dry	1x	10.9	76.1	71.4%	(46-155)	--	--	09/12/08 23:48	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.4%</i>		<i>Limits: 54-148%</i>								<i>09/12/08 23:48</i>		
<i>Octacosane</i>		<i>94.1%</i>		<i>62-142%</i>								<i>"</i>		

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8I11061      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11061-BLK1)** Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/14/08 01:04	
Lube Oil Range Hydrocarbons	"	3.76	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 88.1%</i>		<i>Limits: 54-148%</i>		"							09/14/08 01:04	
<i>Octacosane</i>		<i>98.2%</i>		<i>62-142%</i>		"							"	

**LCS (8I11061-BS1)** Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	58.7	1.60	10.0	mg/kg wet	1x	--	66.7	88.0%	(78-129)	--	--	09/14/08 01:25	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.3%</i>		<i>Limits: 54-148%</i>		"							09/14/08 01:25	
<i>Octacosane</i>		<i>97.4%</i>		<i>62-142%</i>		"							"	

**Duplicate (8I11061-DUP1)** QC Source: BRI0150-05      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	7760	18.7	117	mg/kg dry	10x	7290	--	--	--	6.27%	(40)	09/14/08 01:46	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 147%</i>		<i>Limits: 54-148%</i>		"							09/14/08 01:46	
<i>Octacosane</i>		<i>195%</i>		<i>62-142%</i>		"							"	ZX

**Duplicate (8I11061-DUP2)** QC Source: BRI0171-26      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	80.9	3.04	19.0	mg/kg dry	1x	36.3	--	--	--	76.0%	(40)	09/14/08 02:08	R3
Lube Oil Range Hydrocarbons	"	477	6.07	47.6	"	"	209	--	--	--	78.3%	"	"	R3
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 90.2%</i>		<i>Limits: 54-148%</i>		"							09/14/08 02:08	
<i>Octacosane</i>		<i>93.6%</i>		<i>62-142%</i>		"							"	

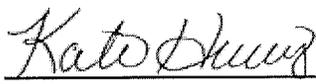
**Duplicate (8I11061-DUP5)** QC Source: BRI0150-05      Extracted: 09/12/08 08:03

Lube Oil Range Hydrocarbons	NWTPH-Dx	6200	186	1460	mg/kg dry	50x	6620	--	--	--	6.51%	(40)	09/14/08 22:58	Z3
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: NR</i>		<i>Limits: 54-148%</i>		"							09/14/08 22:58	Z3
<i>Octacosane</i>		<i>NR</i>		<i>62-142%</i>		"							"	Z3

**Matrix Spike (8I11061-MS1)** QC Source: BRI0150-01      Extracted: 09/12/08 08:03

Diesel Range Hydrocarbons	NWTPH-Dx	281	18.4	115	mg/kg dry	10x	230	76.5	66.2%	(46-155)	--	--	09/14/08 02:29	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 90.2%</i>		<i>Limits: 54-148%</i>		"							09/14/08 02:29	
<i>Octacosane</i>		<i>93.7%</i>		<i>62-142%</i>		"							"	

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: **8J17021**      Water Preparation Method: **EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8J17021-BLK1)** Extracted: 10/20/08 13:19

Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x	--	--	--	--	--	--	10/21/08 12:19	
Lube Oil Range Hydrocarbons	"	ND	0.0900	0.500	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>98.9%</i>	<i>Limits: 53-125%</i>		<i>"</i>							<i>10/21/08 12:19</i>	
<i>Octacosane</i>			<i>98.7%</i>	<i>68-125%</i>		<i>"</i>							<i>"</i>	

**Blank (8J17021-BLK2)** Extracted: 10/20/08 13:19

Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	--	--	--	--	--	--	10/21/08 12:41	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>94.5%</i>	<i>Limits: 53-125%</i>		<i>"</i>							<i>10/21/08 12:41</i>	
<i>Octacosane</i>			<i>97.5%</i>	<i>68-125%</i>		<i>"</i>							<i>"</i>	

**LCS (8J17021-BS1)** Extracted: 10/20/08 13:19

Diesel Range Hydrocarbons	NWTPH-Dx	1.88	0.0400	0.250	mg/l	1x	--	2.00	93.8%	(61-132)	--	--	10/21/08 13:03	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>102%</i>	<i>Limits: 53-125%</i>		<i>"</i>							<i>10/21/08 13:03</i>	
<i>Octacosane</i>			<i>100%</i>	<i>68-125%</i>		<i>"</i>							<i>"</i>	

**LCS Dup (8J17021-BSD1)** Extracted: 10/20/08 13:19

Diesel Range Hydrocarbons	NWTPH-Dx	1.99	0.0400	0.250	mg/l	1x	--	2.00	99.6%	(61-132)	6.04%	(40)	10/21/08 13:25	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>101%</i>	<i>Limits: 53-125%</i>		<i>"</i>							<i>10/21/08 13:25</i>	
<i>Octacosane</i>			<i>107%</i>	<i>68-125%</i>		<i>"</i>							<i>"</i>	

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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8J17022      Water Preparation Method: EPA 3520C

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J17022-BLK1)</b>													Extracted: 10/20/08 13:20	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x	--	--	--	--	--	--	10/21/08 12:19	
Lube Oil Range Hydrocarbons	"	ND	0.0900	0.500	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 89.6%</i>		<i>Limits: 53-125%</i>								<i>10/21/08 12:19</i>		
<i>Octacosane</i>		<i>95.6%</i>		<i>68-125%</i>								<i>"</i>		
<b>Blank (8J17022-BLK2)</b>													Extracted: 10/20/08 13:20	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	--	--	--	--	--	--	10/21/08 12:41	
Lube Oil Range Hydrocarbons	"	ND	0.0947	0.526	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 89.1%</i>		<i>Limits: 53-125%</i>								<i>10/21/08 12:41</i>		
<i>Octacosane</i>		<i>93.5%</i>		<i>68-125%</i>								<i>"</i>		
<b>LCS (8J17022-BS1)</b>													Extracted: 10/20/08 13:20	
Diesel Range Hydrocarbons	NWTPH-Dx	1.92	0.0400	0.250	mg/l	1x	--	2.00	96.0%	(61-132)	--	--	10/21/08 13:03	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 99.5%</i>		<i>Limits: 53-125%</i>								<i>10/21/08 13:03</i>		
<i>Octacosane</i>		<i>107%</i>		<i>68-125%</i>								<i>"</i>		
<b>LCS Dup (8J17022-BSD1)</b>													Extracted: 10/20/08 13:20	
Diesel Range Hydrocarbons	NWTPH-Dx	1.90	0.0400	0.250	mg/l	1x	--	2.00	94.8%	(61-132)	1.21% (40)		10/21/08 13:25	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 98.0%</i>		<i>Limits: 53-125%</i>								<i>10/21/08 13:25</i>		
<i>Octacosane</i>		<i>106%</i>		<i>68-125%</i>								<i>"</i>		

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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8111058      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8111058-BLK2)** Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/16/08 20:35	
Lube Oil Range (SGCU)	"	3.47	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 75.5%</i>		<i>Limits: 54-148%</i>		"						<i>09/16/08 20:35</i>		
<i>Octacosane (SGCU)</i>		<i>89.0%</i>		<i>62-142%</i>		"						<i>"</i>		

**LCS (8111058-BS2)** Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	56.7	1.60	10.0	mg/kg wet	1x	--	66.7	85.1%	(78-129)	--	--	09/16/08 20:49	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 89.9%</i>		<i>Limits: 54-148%</i>		"						<i>09/16/08 20:49</i>		
<i>Octacosane (SGCU)</i>		<i>90.0%</i>		<i>62-142%</i>		"						<i>"</i>		

**Duplicate (8111058-DUP3)** QC Source: BRI0171-01      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	2.68	16.8	mg/kg dry	1x	ND	--	--	--	NR (50)	09/16/08 21:19		
Lube Oil Range (SGCU)	"	ND	5.35	41.9	"	"	ND	--	--	--	NR "	"		
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 74.5%</i>		<i>Limits: 54-148%</i>		"						<i>09/16/08 21:19</i>		
<i>Octacosane (SGCU)</i>		<i>82.9%</i>		<i>62-142%</i>		"						<i>"</i>		

**Duplicate (8111058-DUP4)** QC Source: BRI0171-07      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	ND	2.22	13.8	mg/kg dry	1x	7.19	--	--	--	-- (50)	09/16/08 21:34		
Lube Oil Range (SGCU)	"	7.76	4.42	34.6	"	"	15.5	--	--	--	66.2%	"	R4, J	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 72.3%</i>		<i>Limits: 54-148%</i>		"						<i>09/16/08 21:34</i>		
<i>Octacosane (SGCU)</i>		<i>83.6%</i>		<i>62-142%</i>		"						<i>"</i>		

**Matrix Spike (8111058-MS2)** QC Source: BRI0171-09      Extracted: 09/12/08 08:00

Diesel Range (SGCU)	NWTPH-Dx	49.1	1.83	11.4	mg/kg dry	1x	3.13	76.1	60.4%	(46-155)	--	--	09/16/08 22:04	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 80.5%</i>		<i>Limits: 54-148%</i>		"						<i>09/16/08 22:04</i>		
<i>Octacosane (SGCU)</i>		<i>79.2%</i>		<i>62-142%</i>		"						<i>"</i>		

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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8I11061      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8I11061-BLK2)** Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	09/14/08 05:18	
Lube Oil Range (SGCU)	"	12.1	3.19	25.0	"	"	--	--	--	--	--	--	"	J
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 88.4%</i>		<i>Limits: 54-148%</i>		"							09/14/08 05:18	
<i>Octacosane (SGCU)</i>		<i>98.6%</i>		<i>62-142%</i>		"							"	

**LCS (8I11061-BS2)** Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	57.5	1.60	10.0	mg/kg wet	1x	--	66.7	86.3%	(78-129)	--	--	09/14/08 05:39	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 84.6%</i>		<i>Limits: 54-148%</i>		"							09/14/08 05:39	
<i>Octacosane (SGCU)</i>		<i>97.7%</i>		<i>62-142%</i>		"							"	

**Duplicate (8I11061-DUP3)** QC Source: BR10150-05      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	3800	18.7	117	mg/kg dry	10x	3480	--	--	--	8.92%	(50)	09/14/08 06:00	
Lube Oil Range (SGCU)	"	2680	37.3	292	"	"	2650	--	--	--	1.09%	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 142%</i>		<i>Limits: 54-148%</i>		"							09/14/08 06:00	
<i>Octacosane (SGCU)</i>		<i>130%</i>		<i>62-142%</i>		"							"	

**Duplicate (8I11061-DUP4)** QC Source: BR10171-26      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	46.8	3.04	19.0	mg/kg dry	1x	20.2	--	--	--	79.2%	(50)	09/14/08 06:21	R3
Lube Oil Range (SGCU)	"	204	6.07	47.6	"	"	103	--	--	--	65.9%	"	"	R3
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 77.2%</i>		<i>Limits: 54-148%</i>		"							09/14/08 06:21	
<i>Octacosane (SGCU)</i>		<i>86.7%</i>		<i>62-142%</i>		"							"	

**Matrix Spike (8I11061-MS2)** QC Source: BR10150-01      Extracted: 09/12/08 08:03

Diesel Range (SGCU)	NWTPH-Dx	179	1.84	11.5	mg/kg dry	1x	139	76.5	52.4%	(46-155)	--	--	09/14/08 06:42	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 57.8%</i>		<i>Limits: 54-148%</i>		"							09/14/08 06:42	
<i>Octacosane (SGCU)</i>		<i>87.9%</i>		<i>62-142%</i>		"							"	

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Kate Haney, Project Manager

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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
TestAmerica Seattle

QC Batch: 8I12032      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8I12032-BLK1)</b>											Extracted: 09/12/08 14:14			
Dry Weight	BSOPSPL00 3R08	99.8	---	1.00	%	1x	--	--	--	--	--	--	09/13/08 00:00	

QC Batch: 8I12033      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8I12033-BLK1)</b>											Extracted: 09/12/08 14:18			
Dry Weight	BSOPSPL00 3R08	99.7	---	1.00	%	1x	--	--	--	--	--	--	09/13/08 00:00	

QC Batch: 8I17036      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8I17036-BLK1)</b>											Extracted: 09/17/08 13:44			
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	09/18/08 00:00	

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
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**Organic Carbon, Total (TOC) - Laboratory Quality Control Results**

TestAmerica Tacoma

<b>QC Batch: 36166</b>	<b>Soil Preparation Method: NA</b>
------------------------	------------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Matrix Spike (112441S)</b>							QC Source: <b>BRI0171-25</b>		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	61600	---	2000	mg/Kg	1x	54000	9820	77%	(76-128)	--	--	09/18/08 10:09	4
<b>Duplicate (112441X)</b>							QC Source: <b>BRI0171-25</b>		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	53500	---	2000	mg/Kg	1x	54000	--	--	--	1%	(20)	09/18/08 10:09	
<b>Duplicate (112441X---RE1)</b>							QC Source: <b>BRI0171-25</b>		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	53600	---	2000	mg/Kg	1x	54000	--	--	--	1%	(20)	09/18/08 10:09	
<b>Blank (580-36166-1)</b>							QC Source:		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	ND	---	2000	mg/Kg	1x	--	--	--	--	--	--	09/18/08 10:09	
<b>LCS (580-36166-2)</b>							QC Source:		Extracted: 09/18/08 10:09					
Total Organic Carbon	9060 STD	4700	---	2000	mg/Kg	1x	--	3400	138%	(13-187)	--	--	09/18/08 10:09	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project 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.*



<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish (Former Maloney Creek West)</b> Project Number: 01140-204-0320 Project Manager: Halah Voges	Report Created: 10/22/08 14:39
--	---	-----------------------------------

### CERTIFICATION SUMMARY

#### TestAmerica Seattle

Method	Matrix	Nelac	Washington
BSOPSP003R08	Soil		
EPA 1312	Soil	X	N/A
NWTPH-Dx	Soil		X
NWTPH-Dx	Water		X

#### Subcontracted Laboratories

TestAmerica Tacoma NELAC Cert #WA100007, Alaska Cert #UST-022, Washington Cert #C1226

5755 8th St E - Fife, WA/USA 98424

Method Performed: 9060 STD

Samples: BRI0171-25, BRI0171-26, BRI0171-27, BRI0171-28, BRI0171-29, BRI0171-30

*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](http://www.TestAmericaInc.com)*

*Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC) .*

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

Project Manager: Halah Voges

Report Created:

10/22/08 14:39

## Notes and Definitions

### Report Specific Notes:

- 4 - MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
- H3 - Sample was received and analyzed past holding time.
- 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.
- N1 - See case narrative.
- 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- Q6 - Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
- R3 - The RPD exceeded the acceptance limit due to sample matrix effects.
- R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- RL1 - Reporting limit raised due to sample matrix effects.
- Z3 - 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.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the 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.
- 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.

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish (Former Maloney Creek West)**

Project Number: 01140-204-0320

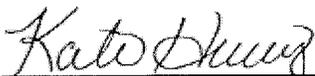
Project Manager: Halah Voges

Report Created:

10/22/08 14:39

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



Kate Haney, Project Manager

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**SAMPLE CHAIN OF CUSTODY**

BR18171

Send Report To Renee Knecht  
 Company ENSR  
 Address 1011 SW Klickitat Way Ste 207  
 City, State, ZIP Seattle, WA 98134  
 Phone # 206.624.9349 Fax # \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME/NO. Skykomish Wetland PO # \_\_\_\_\_  
 REMARKS Sarah Albano / ENSR  
Bruce Sheppard / BNSF

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	IIFS	NMTPHx w/sg		
2B-B-35 (4-6)		9/10/08	1220	S	1							X		-01 24hr
2B-B-36 (0-2)		9/10/08	1311	S	1							X		-02 24hr
2B-B-36 (2-4)		9/10/08	1312	S	1							X		-03 24hr
2B-B-37 (0-2)		9/10/08	1439	S	1							X		-04 24hr
2B-B-37 (2-4)		9/10/08	1440	S	1							X		-05 24hr
2B-B-37 (4-5)		9/10/08	1441	S	1							X		-06 24hr
2B-B-38 (0-2)		9/10/08	1620	S	1							X		-07 24hr
2B-B-38 (3-5)		9/10/08	1635	S	1							X		-08 24hr
2B-B-39 (05-3)		9/10/08	1645	S	1							X		-09 24hr
2B-B-40 (05-3)		9/10/08	1746	S	1							X		-10 24hr

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044  
 FORMS\COC\COG.DOC

Relinquished by: [Signature] SIGNATURE  
 Received by: [Signature] SIGNATURE  
 Relinquished by: [Signature] SIGNATURE  
 Received by: \_\_\_\_\_ SIGNATURE

PRINT NAME: Gregory Brunkhorst COMPANY: ENSR DATE: 9/11/08 TIME: 1632  
PRAVY TONY TAS 9/11/08 1632

**SAMPLE CHAIN OF CUSTODY**

BR10171

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME/NO. \_\_\_\_\_  
 SKYKOMISH wetland

FO # \_\_\_\_\_

REMARKS: SARAH Albano/ENSR  
 Bruce Sheppard / BNSF

Sond Report To Renee Knecht

Company ENSR

Address 1015 NW Klickitat Way Ste 207

City, State, ZIP Seattle, WA 98104

Phone # 2066249349 Fax # \_\_\_\_\_

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOs by 8270	IIFS	NMTPH 24hr		TOC	NMTPH 24hr SG
3-B-25 (0-2)		9/10/08	0853	S	2							X	X	X	-11 ON HOLD
3-B-25 (2-4)		9/10/08	0855	S	2							X	X	X	-12 ON HOLD
3-B-24 (0-4)		9/10/08	0940	S	2							X	X	X	-13 ON HOLD
3-B-24 (2-4)		9/10/08	0945	S	2							X	X	X	-14 ON HOLD
3-B-24 (4-6)		9/10/08	0950	S	2							X	X	X	-15 ON HOLD
2B-B-34 (0-2)		9/10/08	1125	S	1							X			-16 24hr TAT
2B-B-34 (2-4)		9/10/08	1130	S	1							X			-17 24hr TAT
2B-B-34 (4-6)		9/10/08	1135	S	1							X			-18 24hr TAT
2B-B-35 (0-2)		9/10/08	1210	S	1							X			-19 24hr
2B-B-35 (2-4)		9/10/08	1215	S	1							X			-20 24hr

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044

Relinquished to: Gregory Brunkhorst SIGNATURE  
 Received by: BRANDY TONTZ SIGNATURE  
 Relinquished to: \_\_\_\_\_  
 Received by: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_  
 COMPANY: ENSR  
 TA-S

DATE: 9/11/08  
 TIME: 1631

DATE: 9/11/08  
 TIME: 1631

**SAMPLE CHAIN OF CUSTODY**

BR 10171

Send Report To Renée Knecht  
 Company ENSR  
 Address 1011 SW Klickitat Way Ste 207  
 City, State, ZIP Seattle, WA 98134  
 Phone # 206.624.9349 Fax # \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard (2 Weeks)  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL  
 Dispose after 30 days  
 Return samples  
 Will call with instructions

SAMPLERS (signature) [Signature] PO # \_\_\_\_\_  
 PROJECT NAME/NO. Skykomish weekend  
oil 40-204-0320  
 REMARKS \_\_\_\_\_

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes					
						TPH-Diesel	TPH-Gasoline	BTX by 8021B	VOCs by 8260	SVOCs by 8270	IIIS	AMTPH <sub>2</sub> w/c <sub>50</sub>		TOC	AMTPH <sub>2</sub> w/c <sub>50</sub>			
2B-B-406(3-5)		9/10/08	1749	S	1							X				-21	24hr.	
2B-B-41(0-2)		9/10/08	0825	S	1							X					-22	24hr.
2B-B-41(2-4)		9/10/08	0530	S	1							X					-23	24hr
2B-B-41(4-6)		9/10/08	0835	S	1							X					-24	24hr
3-B-26(0-2)		9/10/08	1035	S	2							X	X	X			-25	
3-B-26(2-4)		9/10/08	1035	S	2							X	X	X			-26	
3-B-26(4-6)		9/10/08	1040	S	2							X	X	X			-27	
3-B-27(0-2)		9/10/08	1135	S	2							X	X	X			-28	
3-B-27(2-4)		9/10/08	1140	S	2							X	X	X			-29	
3-B-27(4-6)		9/10/08	1145	S	2							X	X	X			-30	

Friedman & Bruya, Inc.  
 3012 16th Avenue West  
 Seattle, WA 98119-2029  
 Ph. (206) 285-8282  
 Fax (206) 283-5044  
 FORMS\COC\COCD.DOC

Relinquished to: [Signature] SIGNATURE  
 PRINT NAME Gregory Banklert  
 COMPANY ENSR  
 DATE 9/11/08 TIME 1632

Received by: [Signature]  
 Relinquished to: [Signature] SIGNATURE  
 PRINT NAME PRAMY TAVITZ  
 COMPANY TA-S  
 DATE 9/11/08 TIME 1632

Received by: \_\_\_\_\_  
 Relinquished to: \_\_\_\_\_

TAT: \_\_\_\_\_

Paperwork to PM - Date: 9/11 Time: 1640

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: \_\_\_\_\_  
(applies to temp at receipt)

Logged-in By: \_\_\_\_\_

Unpacked/Labeled By: \_\_\_\_\_

Cooler ID: 390/374

Date: 9/11

Date: 9/11

Date: 9/11

Work Order No. BRI0371

Time: 1632

Time: 1454

Time: 1710

Client: \_\_\_\_\_

Initials: PTJ

Initials: PTJ

Initials: PTJ

Project: \_\_\_\_\_

Container Type:

COC Seals:

Packing Material \_\_\_\_\_

Cooler  
 Box  
 None/Other \_\_\_\_\_

Ship Container  
 On Bottles  
 None

Sign By \_\_\_\_\_  
 Date \_\_\_\_\_  
 Bubble Bags  
 Styrofoam  
 Foam Packs  
 None/Other \_\_\_\_\_

Refrigerant:

Gel Ice Pack \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  
 None/Other \_\_\_\_\_

Received Via: Bill# \_\_\_\_\_

Fed Ex  
 UPS  
 DHL  
 Senvoy  
 GS  
 Client  
 TA Courier  
 Mid Valley  
 TDP  
 Other \_\_\_\_\_

Cooler Temperature (IR): 4.9 °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)

Temperature Blank? \_\_\_\_\_ °C or NA

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

Sample Containers:

ID

ID

Intact? Y or N \_\_\_\_\_

Metals Preserved? Y or N or NA

Provided by TA? Y or N \_\_\_\_\_

Client QAPP Preserved? Y or N or NA

Correct Type? Y or N \_\_\_\_\_

Adequate Volume? Y or N \_\_\_\_\_  
(for tests requested)

#Containers match COC? Y or N \_\_\_\_\_

Water VOAs: Headspace? Y or N or NA

IDs/time/date match COC? Y or N \_\_\_\_\_

Comments: \_\_\_\_\_

Hold Times in hold? Y or N \_\_\_\_\_

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Y or N

Has client been contacted regarding non-conformances?

Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Attachment 3 – Robinson Property Laboratory Reports**

October 06, 2008

Renee Knecht  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/03/08 14:40.  
The following list is a summary of the Work Orders contained in this report, generated on 10/06/08  
15:58.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRJ0052	BNSF-Skykomish Remedial D	01140-204-0320

---

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/06/08 15:58

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2B-B-42 (0-2)	BRJ0052-01	Soil	10/03/08 10:15	10/03/08 14:40
2B-B-42 (2-4)	BRJ0052-02	Soil	10/03/08 10:28	10/03/08 14:40
2B-B-42 (4-6)	BRJ0052-03	Soil	10/03/08 10:20	10/03/08 14:40
2B-B-42 (6-8)	BRJ0052-04	Soil	10/03/08 10:30	10/03/08 14:40
2B-B-43 (0-2)	BRJ0052-05	Soil	10/03/08 10:40	10/03/08 14:40
2B-B-43 (2-4)	BRJ0052-06	Soil	10/03/08 10:45	10/03/08 14:40
2B-B-43 (4-6)	BRJ0052-07	Soil	10/03/08 10:50	10/03/08 14:40
2B-B-43 (6-8)	BRJ0052-08	Soil	10/03/08 10:55	10/03/08 14:40
2B-B-43 (10-12)	BRJ0052-09	Soil	10/03/08 11:00	10/03/08 14:40
2B-B-44 (0-2)	BRJ0052-10	Soil	10/03/08 11:30	10/03/08 14:40
2B-B-44 (2-4)	BRJ0052-11	Soil	10/03/08 11:35	10/03/08 14:40
2B-B-44 (4-6)	BRJ0052-12	Soil	10/03/08 11:40	10/03/08 14:40
2B-B-44 (6-8)	BRJ0052-13	Soil	10/03/08 11:45	10/03/08 14:40
DUP01-100308	BRJ0052-14	Soil	10/03/08 10:40	10/03/08 14:40

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/06/08 15:58

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRJ0052**

**SAMPLE RECEIPT**

The samples were received October 3rd, 2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 9.5 degrees Celsius, however the samples were received on-ice within 4 hours of the last sample collected.

**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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
--	--	-----------------------------------

**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
<b>BRJ0052-01 (2B-B-42 (0-2))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:15</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 05:29	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>9.08</b>	3.54	27.8	"	"	"	"	"	J
Surrogate(s): 2-FBP			94.8%		54 - 148 %	"				"
Octacosane			98.8%		62 - 142 %	"				"
<b>BRJ0052-02 (2B-B-42 (2-4))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:28</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.69	10.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 06:15	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>3.54</b>	3.37	26.4	"	"	"	"	"	J
Surrogate(s): 2-FBP			93.2%		54 - 148 %	"				"
Octacosane			102%		62 - 142 %	"				"
<b>BRJ0052-03 (2B-B-42 (4-6))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:20</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 07:00	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>ND</b>	3.48	27.3	"	"	"	"	"	
Surrogate(s): 2-FBP			89.5%		54 - 148 %	"				"
Octacosane			101%		62 - 142 %	"				"
<b>BRJ0052-04 (2B-B-42 (6-8))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:30</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 07:47	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>ND</b>	3.57	28.0	"	"	"	"	"	
Surrogate(s): 2-FBP			91.7%		54 - 148 %	"				"
Octacosane			101%		62 - 142 %	"				"
<b>BRJ0052-05 (2B-B-43 (0-2))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:40</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 08:32	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>7.17</b>	3.42	26.8	"	"	"	"	"	J
Surrogate(s): 2-FBP			95.5%		54 - 148 %	"				"
Octacosane			102%		62 - 142 %	"				"
<b>BRJ0052-06 (2B-B-43 (2-4))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:45</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.72	10.8	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 10:27	
<b>Lube Oil Range Hydrocarbons</b>	"	<b>6.82</b>	3.43	26.9	"	"	"	"	"	J
Surrogate(s): 2-FBP			96.3%		54 - 148 %	"				"
Octacosane			100%		62 - 142 %	"				"

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*Kate Haney*

Kate Haney, Project Manager

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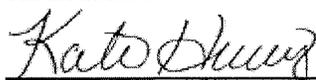


<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
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**Semivolatile 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
<b>BRJ0052-07 (2B-B-43 (4-6))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:50</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.74	10.8	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 11:12	
Lube Oil Range Hydrocarbons	"	5.64	3.46	27.1	"	"	"	"	"	J
Surrogate(s): 2-FBP			98.2%		54 - 148 %	"				
Octacosane			108%		62 - 142 %	"				
<b>BRJ0052-08 (2B-B-43 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:55</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.72	10.7	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 11:58	
Lube Oil Range Hydrocarbons	"	ND	3.42	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				
<b>BRJ0052-09 (2B-B-43 (10-12))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:00</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.70	10.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 12:44	
Lube Oil Range Hydrocarbons	"	ND	3.39	26.6	"	"	"	"	"	
Surrogate(s): 2-FBP			94.5%		54 - 148 %	"				
Octacosane			101%		62 - 142 %	"				
<b>BRJ0052-10 (2B-B-44 (0-2))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:30</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	43.0	1.75	10.9	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 13:29	Q4
Lube Oil Range Hydrocarbons	"	146	3.49	27.4	"	"	"	"	"	
Surrogate(s): 2-FBP			98.3%		54 - 148 %	"				
Octacosane			106%		62 - 142 %	"				
<b>BRJ0052-11 (2B-B-44 (2-4))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:35</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	339	41.4	259	mg/kg dry	20x	8J03038	10/03/08 15:47	10/04/08 15:24	Q4
Lube Oil Range Hydrocarbons	"	1240	82.6	647	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			92.7%		54 - 148 %	"				
Octacosane			109%		62 - 142 %	"				
<b>BRJ0052-12 (2B-B-44 (4-6))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:40</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	6.93	1.86	11.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 16:09	J
Lube Oil Range Hydrocarbons	"	41.1	3.71	29.1	"	"	"	"	"	
Surrogate(s): 2-FBP			93.3%		54 - 148 %	"				
Octacosane			102%		62 - 142 %	"				

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**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
<b>BRJ0052-13 (2B-B-44 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:45</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 16:54	
Lube Oil Range Hydrocarbons	"	3.75	3.54	27.8	"	"	"	"	"	J
Surrogate(s): 2-FBP			98.7%		54 - 148 %	"			"	
Octacosane			104%		62 - 142 %	"			"	
<b>BRJ0052-14 (DUP01-100308)</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:40</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	147	9.21	57.6	mg/kg dry	5x	8J03038	10/03/08 15:47	10/04/08 17:40	Q4
Lube Oil Range Hydrocarbons	"	537	18.4	144	"	"	"	"	"	Q4
Surrogate(s): 2-FBP			96.4%		54 - 148 %	"			"	
Octacosane			109%		62 - 142 %	"			"	

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**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
<b>BRJ0052-01 (2B-B-42 (0-2))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:15</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 05:52	
Lube Oil Range (SGCU)	"	ND	3.54	27.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			83.8%		54 - 148 %	"				"
Octacosane (SGCU)			90.7%		62 - 142 %	"				"
<b>BRJ0052-02 (2B-B-42 (2-4))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:28</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.69	10.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 06:37	
Lube Oil Range (SGCU)	"	ND	3.37	26.4	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			88.3%		54 - 148 %	"				"
Octacosane (SGCU)			98.3%		62 - 142 %	"				"
<b>BRJ0052-03 (2B-B-42 (4-6))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:20</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 07:24	
Lube Oil Range (SGCU)	"	ND	3.48	27.3	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			84.4%		54 - 148 %	"				"
Octacosane (SGCU)			98.0%		62 - 142 %	"				"
<b>BRJ0052-04 (2B-B-42 (6-8))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:30</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 08:09	
Lube Oil Range (SGCU)	"	ND	3.57	28.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			84.2%		54 - 148 %	"				"
Octacosane (SGCU)			95.1%		62 - 142 %	"				"
<b>BRJ0052-05 (2B-B-43 (0-2))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:40</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 08:56	
Lube Oil Range (SGCU)	"	ND	3.42	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			80.7%		54 - 148 %	"				"
Octacosane (SGCU)			89.4%		62 - 142 %	"				"
<b>BRJ0052-06 (2B-B-43 (2-4))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:45</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.72	10.8	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 10:50	
Lube Oil Range (SGCU)	"	ND	3.43	26.9	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			86.8%		54 - 148 %	"				"
Octacosane (SGCU)			92.8%		62 - 142 %	"				"

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Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
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**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
<b>BRJ0052-07 (2B-B-43 (4-6))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:50</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.74	10.8	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 11:35	
Lube Oil Range (SGCU)	"	ND	3.46	27.1	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			83.2%		54 - 148 %	"				
Octacosane (SGCU)			96.6%		62 - 142 %	"				
<b>BRJ0052-08 (2B-B-43 (6-8))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 10:55</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.72	10.7	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 12:22	
Lube Oil Range (SGCU)	"	ND	3.42	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			79.3%		54 - 148 %	"				
Octacosane (SGCU)			95.1%		62 - 142 %	"				
<b>BRJ0052-09 (2B-B-43 (10-12))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 11:00</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.70	10.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 13:06	
Lube Oil Range (SGCU)	"	ND	3.39	26.6	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			88.1%		54 - 148 %	"				
Octacosane (SGCU)			95.7%		62 - 142 %	"				
<b>BRJ0052-10 (2B-B-44 (0-2))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 11:30</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>24.9</b>	1.75	10.9	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 13:53	<b>Q4</b>
Lube Oil Range (SGCU)	"	<b>61.3</b>	3.49	27.4	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			79.8%		54 - 148 %	"				
Octacosane (SGCU)			91.0%		62 - 142 %	"				
<b>BRJ0052-11 (2B-B-44 (2-4))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 11:35</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>165</b>	2.07	12.9	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 15:47	<b>Q4</b>
Lube Oil Range (SGCU)	"	<b>325</b>	4.13	32.4	"	"	"	"	"	<b>Q4</b>
Surrogate(s): 2-FBP (SGCU)			40.4%		54 - 148 %	"				<b>Z</b>
Octacosane (SGCU)			70.6%		62 - 142 %	"				
<b>BRJ0052-12 (2B-B-44 (4-6))</b>	<b>Soil</b>		<b>Sampled: 10/03/08 11:40</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>3.69</b>	1.86	11.6	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 16:31	<b>J</b>
Lube Oil Range (SGCU)	"	<b>16.2</b>	3.71	29.1	"	"	"	"	"	<b>J</b>
Surrogate(s): 2-FBP (SGCU)			95.0%		54 - 148 %	"				
Octacosane (SGCU)			111%		62 - 142 %	"				

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 Kate Haney, Project Manager

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**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
<b>BRJ0052-13 (2B-B-44 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:45</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 17:17	
Lube Oil Range (SGCU)	"	ND	3.54	27.8	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			92.1%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			99.1%		62 - 142 %	"				"
<b>BRJ0052-14 (DUP01-100308)</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:40</b>					
Diesel Range (SGCU)	NWTPH-Dx	<b>68.3</b>	1.84	11.5	mg/kg dry	1x	8J03038	10/03/08 15:47	10/04/08 18:03	<b>Q4</b>
Lube Oil Range (SGCU)	"	<b>148</b>	3.67	28.8	"	"	"	"	"	<b>Q4</b>
<i>Surrogate(s): 2-FBP (SGCU)</i>			42.0%		54 - 148 %	"				<b>Z</b>
<i>Octacosane (SGCU)</i>			70.7%		62 - 142 %	"				

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0052-01 (2B-B-42 (0-2))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:15</b>					
Dry Weight	BSOPSPL003R0 8	<b>90.4</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-02 (2B-B-42 (2-4))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:28</b>					
Dry Weight	BSOPSPL003R0 8	<b>95.1</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-03 (2B-B-42 (4-6))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:20</b>					
Dry Weight	BSOPSPL003R0 8	<b>91.6</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-04 (2B-B-42 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:30</b>					
Dry Weight	BSOPSPL003R0 8	<b>89.3</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-05 (2B-B-43 (0-2))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:40</b>					
Dry Weight	BSOPSPL003R0 8	<b>93.3</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-06 (2B-B-43 (2-4))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:45</b>					
Dry Weight	BSOPSPL003R0 8	<b>92.7</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-07 (2B-B-43 (4-6))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:50</b>					
Dry Weight	BSOPSPL003R0 8	<b>91.3</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-08 (2B-B-43 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:55</b>					
Dry Weight	BSOPSPL003R0 8	<b>94.1</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-09 (2B-B-43 (10-12))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:00</b>					
Dry Weight	BSOPSPL003R0 8	<b>94.4</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-10 (2B-B-44 (0-2))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:30</b>					
Dry Weight	BSOPSPL003R0 8	<b>90.1</b>	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-11 (2B-B-44 (2-4))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:35</b>					

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Kate Haney, Project Manager

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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRJ0052-11 (2B-B-44 (2-4))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:35</b>					
Dry Weight	BSOPSPL003R0 8	76.0	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-12 (2B-B-44 (4-6))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:40</b>					
Dry Weight	BSOPSPL003R0 8	85.6	----	1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-13 (2B-B-44 (6-8))</b>		<b>Soil</b>			<b>Sampled: 10/03/08 11:45</b>					
Dry Weight	BSOPSPL003R0 8	90.3	----	1.00	%	1x	8J03047	10/03/08 18:54	10/04/08 00:00	
<b>BRJ0052-14 (DUP01-100308)</b>		<b>Soil</b>			<b>Sampled: 10/03/08 10:40</b>					
Dry Weight	BSOPSPL003R0 8	86.9	----	1.00	%	1x	8J03047	10/03/08 18:54	10/04/08 00:00	

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*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8J03038      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
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**Blank (8J03038-BLK1)** Extracted: 10/03/08 15:47

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/04/08 00:30	
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>97.2%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 00:30</i>	
<i>Octacosane</i>		<i>103%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**LCS (8J03038-BS1)** Extracted: 10/03/08 15:47

Diesel Range Hydrocarbons	NWTPH-Dx	64.1	1.60	10.0	mg/kg wet	1x	--	66.7	96.1%	(78-129)	--	--	10/04/08 01:16	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>94.2%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 01:16</i>	
<i>Octacosane</i>		<i>101%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Duplicate (8J03038-DUP1)** QC Source: BRJ0052-02      Extracted: 10/03/08 15:47

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.66	10.3	mg/kg dry	1x	ND	--	--	--	NR (40)		10/04/08 02:02	
Lube Oil Range Hydrocarbons	"	ND	3.30	25.9	"	"	3.54	--	--	--	--	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>97.2%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 02:02</i>	
<i>Octacosane</i>		<i>99.6%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Duplicate (8J03038-DUP2)** QC Source: BRJ0052-10      Extracted: 10/03/08 15:47

Diesel Range Hydrocarbons	NWTPH-Dx	39.3	1.76	11.0	mg/kg dry	1x	43.0	--	--	--	9.18% (40)		10/04/08 02:48	
Lube Oil Range Hydrocarbons	"	140	3.50	27.5	"	"	146	--	--	--	4.26%	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>97.8%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 02:48</i>	
<i>Octacosane</i>		<i>104%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Matrix Spike (8J03038-MS1)** QC Source: BRJ0052-02      Extracted: 10/03/08 15:47

Diesel Range Hydrocarbons	NWTPH-Dx	64.9	1.67	10.4	mg/kg dry	1x	ND	69.4	93.4%	(46-155)	--	--	10/04/08 03:35	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>92.7%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 03:35</i>	
<i>Octacosane</i>		<i>104%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

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*Kate Haney*  
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 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
TestAmerica Seattle

QC Batch: **8J03038** Soil Preparation Method: **EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J03038-BLK2)</b>													Extracted: 10/03/08 15:47	
Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	10/04/08 00:53	
Lube Oil Range (SGCU)	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>95.5%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 00:53</i>	
<i>Octacosane (SGCU)</i>		<i>101%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	
<b>LCS (8J03038-BS2)</b>													Extracted: 10/03/08 15:47	
Diesel Range (SGCU)	NWTPH-Dx	63.7	1.60	10.0	mg/kg wet	1x	--	66.7	95.6%	(58-140)	--	--	10/04/08 01:39	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>94.5%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 01:39</i>	
<i>Octacosane (SGCU)</i>		<i>101%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	
<b>Duplicate (8J03038-DUP3)</b>													QC Source: BRJ0052-02 Extracted: 10/03/08 15:47	
Diesel Range (SGCU)	NWTPH-Dx	ND	1.66	10.3	mg/kg dry	1x	ND	--	--	--	NR (50)		10/04/08 02:25	
Lube Oil Range (SGCU)	"	ND	3.30	25.9	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>90.6%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 02:25</i>	
<i>Octacosane (SGCU)</i>		<i>94.3%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	
<b>Duplicate (8J03038-DUP4)</b>													QC Source: BRJ0052-10 Extracted: 10/03/08 15:47	
Diesel Range (SGCU)	NWTPH-Dx	23.7	1.76	11.0	mg/kg dry	1x	24.9	--	--	--	4.94% (50)		10/04/08 03:11	
Lube Oil Range (SGCU)	"	59.2	3.50	27.5	"	"	61.3	--	--	--	3.53%	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>79.1%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 03:11</i>	
<i>Octacosane (SGCU)</i>		<i>89.9%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	
<b>Matrix Spike (8J03038-MS2)</b>													QC Source: BRJ0052-02 Extracted: 10/03/08 15:47	
Diesel Range (SGCU)	NWTPH-Dx	61.4	1.67	10.4	mg/kg dry	1x	ND	69.4	88.5%	(46-155)	--	--	10/04/08 03:58	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery:</i>	<i>85.7%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>10/04/08 03:58</i>	
<i>Octacosane (SGCU)</i>		<i>97.5%</i>		<i>62-142%</i>		<i>"</i>							<i>"</i>	

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*Kate Haney*  
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 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Renee Knecht	Report Created: 10/06/08 15:58
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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8J03046      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J03046-BLK1)</b>										Extracted: 10/03/08 18:54				
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/04/08 00:00	

**QC Batch: 8J03047      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8J03047-BLK1)</b>										Extracted: 10/03/08 18:54				
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	10/04/08 00:00	

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 Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Renee Knecht

Report Created:

10/06/08 15:58

## 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.
- Q4 - The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- Z - Due to sample matrix effects, the surrogate recovery was below the 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.
- 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



Kate Haney, Project Manager

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 9405 SW Nimbus Ave, Beaverton, OR 97008-7145  
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

425-420-9200 FAX 420-9210  
 509-924-9200 FAX 924-9290  
 503-906-9200 FAX 906-9210  
 907-563-9200 FAX 563-9210

## CHAIN OF CUSTODY REPORT

Work Order #: **BRJ0052**

CLIENT: <b>BNSF/ENSR</b>		INVOICE TO: <b>Bruce Sheppard/BNSF</b>		TURNAROUND REQUEST	
REPORT TO: <b>Renee Knecht</b>		P.O. NUMBER:		in Business Days *	
ADDRESS: <b>1011 SNKlickitat Way Ste 207</b>		PRESERVATIVE		Organic & Inorganic Analyses	
PHONE: <b>206.628.9349 FAX:</b>		REQUESTED ANALYSES		Petroleum Hydrocarbon Analyses	
PROJECT NAME: <b>Atkins/komish RDT</b>		DATE		STD. <input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1	
PROJECT NUMBER: <b>011 40-204-0320</b>		TIME		STD. <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> <1	
SAMPLED BY: <b>Renee Knecht</b>		SAMPLING DATE/TIME		OTHER Specify:	
CLIENT SAMPLE IDENTIFICATION		DATE/TIME		* Turnaround Requests less than standard may incur Rush Charges.	
126-B-44(2-4)		10/3/08 11:30 AM		MATRIX (W, S, O)	
26-B-44(4-6)		10/3/08 11:40 AM		# OF CONT.	
26-B-44(6-8)		10/3/08 11:45 AM		LOCATION/ COMMENTS	
DUPO1-100308		10/3/08 10:40 AM		TA WO ID	
5				S 1 -11	
6				S 1 -12	
7				S 1 -13	
8				S 1 -14	
9					
10					
RELEASED BY: <b>Renee Knecht</b>		DATE: <b>10/13/08</b>		DATE: <b>10/03/08</b>	
PRINT NAME: <b>Renee Knecht</b>		TIME: <b>1445</b>		TIME: <b>1440</b>	
FIRM: <b>ENSR</b>		FIRM: <b>TA/Seattle</b>		FIRM: <b>TA/Seattle</b>	
RECEIVED BY: <b>Colette Weaver</b>		DATE: <b>10/13/08</b>		DATE: <b>10/03/08</b>	
PRINT NAME: <b>Colette Weaver</b>		TIME: <b>1445</b>		TIME: <b>1440</b>	
FIRM: <b>ENSR</b>		FIRM: <b>TA/Seattle</b>		FIRM: <b>TA/Seattle</b>	
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TAT: 1 Paperwork to PM - Date: \_\_\_\_\_ Time: \_\_\_\_\_

Non-Conformances?

Page Time & Initials: 1443 i: CW

Circle Y or N

(If Y, see other side)

*Notified Sonja & Anthony*

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: \_\_\_\_\_ Logged-in By: \_\_\_\_\_ Unpacked/Labeled By: \_\_\_\_\_ Cooler ID: \_\_\_\_\_  
(applies to temp at receipt)

Date: 10-03-08 Date: 10-03 Date: 10-03 Work Order No. BR10052

Time: 1440 Time: 1515 Time: 1510 Client: ENSR International - Seattle

Initials: CW Initials: CW Initials: CW Project: \_\_\_\_\_

Container Type: \_\_\_\_\_ COC Seals: \_\_\_\_\_ Packing Material: \_\_\_\_\_  
 Cooler \_\_\_\_\_ Ship Container \_\_\_\_\_ Sign By \_\_\_\_\_  
 Box \_\_\_\_\_ On Bottles \_\_\_\_\_ Date \_\_\_\_\_  
 None/Other \_\_\_\_\_  None \_\_\_\_\_  
 Bubble Bags \_\_\_\_\_ Styrofoam \_\_\_\_\_  
 Foam Packs \_\_\_\_\_  
 None/Other \_\_\_\_\_

Refrigerant: \_\_\_\_\_ Received Via: Bill# \_\_\_\_\_  
 Gel Ice Pack \_\_\_\_\_  Fed Ex  Client \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  UPS \_\_\_\_\_ TA Courier \_\_\_\_\_  
 None/Other \_\_\_\_\_  DHL \_\_\_\_\_ Mid Valley \_\_\_\_\_  
 Senvoy \_\_\_\_\_ TDP \_\_\_\_\_  
 GS \_\_\_\_\_ Other \_\_\_\_\_

Cooler Temperature (IR): \_\_\_\_\_ °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
(circle one)  
Temperature Blank? 9.5 °C or NA Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:  
(initial/date/time): \_\_\_\_\_  
Comments: \_\_\_\_\_

Sample Containers: \_\_\_\_\_ ID \_\_\_\_\_ ID \_\_\_\_\_  
Intact?  or N \_\_\_\_\_ Metals Preserved? Y or N or  NA \_\_\_\_\_  
Provided by TA?  or N \_\_\_\_\_ Client QAPP Preserved? Y or N or  NA \_\_\_\_\_  
Correct Type?  or N \_\_\_\_\_ Adequate Volume?  or N \_\_\_\_\_  
(for tests requested)  
#Containers match COC?  or N \_\_\_\_\_ Water VOAs: Headspace? Y or N or  NA \_\_\_\_\_  
IDs/time/date match COC?  or N \_\_\_\_\_ Comments: \_\_\_\_\_  
Hold Times in hold?  or N \_\_\_\_\_

### PROJECT MANAGEMENT

Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total access set up? \_\_\_\_\_ Y or N  
Has client been contacted regarding non-conformances? \_\_\_\_\_ Y or N If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# NOTIFICATION OF DISCREPANCY

DATE: 10-03-08 TIME: 1445 PM: Kate Haney SC INITIALS: CW

Rush/Short Hold?  Yes  No

- Project Not Set Up in ELM       New Client       COC Received ON HOLD
- Analysis Requested on COC – Not Listed for Project in ELM

- PM To Add Analysis: \_\_\_\_\_
- Clarification of Analysis: \_\_\_\_\_
- Hold Time Expired: (Analysis) \_\_\_\_\_
- Turnaround Time Not Checked: \_\_\_\_\_
- Did Not Receive Sample(s) Listed on COC: \_\_\_\_\_

Received Extra Sample(s) Not Listed on COC: \_\_\_\_\_

Sample Description(s) or Date/Time Sampled Do Not Match COC:  
\_\_\_\_\_  
\_\_\_\_\_

- Improper Preservative For method: \_\_\_\_\_
- Sample Received Broken: \_\_\_\_\_
- Insufficient Sample Volume: \_\_\_\_\_
- Sample preserved upon receipt: \_\_\_\_\_

- Temperature Outside recommended range ( $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ): 9.5c
- Received on-ice within 4 hours of collection, temperature between ambient to  $2^{\circ}\text{C}$  acceptable.
- Other: \_\_\_\_\_

PROJECT MANAGER RESOLUTION: \_\_\_\_\_ (Date & Time when returned to SC)  
\_\_\_\_\_  
\_\_\_\_\_

Approval By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Attachment 4 – Fiber Optic Cable Laboratory Reports**

November 12, 2008

Jennifer Wald  
ENSR International - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

RE: BNSF-Skykomish Remedial Design Investigation

Enclosed are the results of analyses for samples received by the laboratory on 11/11/08 16:50.  
The following list is a summary of the Work Orders contained in this report, generated on 11/12/08  
12:10.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRK0122	BNSF-Skykomish Remedial D	01140-204-0320

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TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Jennifer Wald

Report Created:  
11/12/08 12:10

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2-B-W-45 (10-12)	BRK0122-01	Soil	11/11/08 09:30	11/11/08 16:50
2B-W-45 (12-14)	BRK0122-02	Soil	11/11/08 09:35	11/11/08 16:50
2B-W-45 (14-16)	BRK0122-03	Soil	11/11/08 09:40	11/11/08 16:50
2B-W-45 (16-18)	BRK0122-04	Soil	11/11/08 09:50	11/11/08 16:50
2B-W-46 (10-12)	BRK0122-05	Soil	11/11/08 12:30	11/11/08 16:50
2B-W-46 (12-14)	BRK0122-06	Soil	11/11/08 12:40	11/11/08 16:50
2B-W-46 (14-16)	BRK0122-07	Soil	11/11/08 12:50	11/11/08 16:50
2B-W-46 (16-18)	BRK0122-08	Soil	11/11/08 13:00	11/11/08 16:50

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**  
Project Number: 01140-204-0320  
Project Manager: Jennifer Wald

Report Created:  
11/12/08 12:10

**Analytical Case Narrative**

TestAmerica - Seattle, WA

**BRK0122**

**SAMPLE RECEIPT**

The samples were received 11/11/2008 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.5 degrees Celsius.

**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

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)**  
TestAmerica Seattle

Analyte	Method	Result	MDL <sup>a</sup>	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRK0122-01 (2-B-W-45 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:30</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 21:25	
Lube Oil Range Hydrocarbons	"	ND	3.57	28.0	"	"	"	"	"	
Surrogate(s): 2-FBP			88.9%		54 - 148 %	"				
Octacosane			96.7%		62 - 142 %	"				
<b>BRK0122-02 (2B-W-45 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:35</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.76	11.0	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 21:48	
Lube Oil Range Hydrocarbons	"	ND	3.50	27.5	"	"	"	"	"	
Surrogate(s): 2-FBP			78.3%		54 - 148 %	"				
Octacosane			88.1%		62 - 142 %	"				
<b>BRK0122-03 (2B-W-45 (14-16))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:40</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.73	10.8	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:11	
Lube Oil Range Hydrocarbons	"	ND	3.44	27.0	"	"	"	"	"	
Surrogate(s): 2-FBP			88.8%		54 - 148 %	"				
Octacosane			98.9%		62 - 142 %	"				
<b>BRK0122-04 (2B-W-45 (16-18))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:50</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:34	
Lube Oil Range Hydrocarbons	"	ND	3.42	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP			82.8%		54 - 148 %	"				
Octacosane			92.9%		62 - 142 %	"				
<b>BRK0122-05 (2B-W-46 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:30</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:57	
Lube Oil Range Hydrocarbons	"	ND	3.55	27.8	"	"	"	"	"	
Surrogate(s): 2-FBP			77.2%		54 - 148 %	"				
Octacosane			82.6%		62 - 142 %	"				
<b>BRK0122-06 (2B-W-46 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:40</b>							
Diesel Range Hydrocarbons	NWTPH-Dx	6.05	1.80	11.3	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 23:20	J
Lube Oil Range Hydrocarbons	"	35.0	3.59	28.2	"	"	"	"	"	
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"				
Octacosane			99.3%		62 - 142 %	"				

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**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
<b>BRK0122-07 (2B-W-46 (14-16))</b>		<b>Soil</b>			<b>Sampled: 11/11/08 12:50</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.76	11.0	mg/kg dry	1x	8K11039	11/11/08 17:00	11/12/08 00:51	
Lube Oil Range Hydrocarbons	"	ND	3.50	27.4	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			83.2%		54 - 148 %	"				"
<i>Octacosane</i>			92.1%		62 - 142 %	"				"
<b>BRK0122-08 (2B-W-46 (16-18))</b>		<b>Soil</b>			<b>Sampled: 11/11/08 13:00</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8K11039	11/11/08 17:00	11/12/08 01:14	
Lube Oil Range Hydrocarbons	"	ND	3.49	27.4	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			90.6%		54 - 148 %	"				"
<i>Octacosane</i>			95.3%		62 - 142 %	"				"

TestAmerica Seattle

*Kate Haney*  
 \_\_\_\_\_  
 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**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
<b>BRK0122-01 (2-B-W-45 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:30</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.79	11.2	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 21:25	
Lube Oil Range (SGCU)	"	ND	3.57	28.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			76.5%		54 - 148 %	"				"
Octacosane (SGCU)			85.3%		62 - 142 %	"				"
<b>BRK0122-02 (2B-W-45 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:35</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.76	11.0	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 21:48	
Lube Oil Range (SGCU)	"	ND	3.50	27.5	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			69.5%		54 - 148 %	"				"
Octacosane (SGCU)			80.6%		62 - 142 %	"				"
<b>BRK0122-03 (2B-W-45 (14-16))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:40</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.73	10.8	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:11	
Lube Oil Range (SGCU)	"	ND	3.44	27.0	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			73.3%		54 - 148 %	"				"
Octacosane (SGCU)			84.5%		62 - 142 %	"				"
<b>BRK0122-04 (2B-W-45 (16-18))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:50</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:34	
Lube Oil Range (SGCU)	"	ND	3.42	26.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			70.8%		54 - 148 %	"				"
Octacosane (SGCU)			81.4%		62 - 142 %	"				"
<b>BRK0122-05 (2B-W-46 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:30</b>							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 22:57	
Lube Oil Range (SGCU)	"	ND	3.55	27.8	"	"	"	"	"	
Surrogate(s): 2-FBP (SGCU)			66.6%		54 - 148 %	"				"
Octacosane (SGCU)			72.0%		62 - 142 %	"				"
<b>BRK0122-06 (2B-W-46 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:40</b>							
Diesel Range (SGCU)	NWTPH-Dx	<b>3.78</b>	1.80	11.3	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 23:20	J
Lube Oil Range (SGCU)	"	<b>21.1</b>	3.59	28.2	"	"	"	"	"	J
Surrogate(s): 2-FBP (SGCU)			70.3%		54 - 148 %	"				"
Octacosane (SGCU)			82.8%		62 - 142 %	"				"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**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
<b>BRK0122-07 (2B-W-46 (14-16))</b>		<b>Soil</b>			<b>Sampled: 11/11/08 12:50</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.76	11.0	mg/kg dry	1x	8K11039	11/11/08 17:00	11/12/08 00:51	
Lube Oil Range (SGCU)	"	ND	3.50	27.4	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			73.2%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			83.6%		62 - 142 %	"				"
<b>BRK0122-08 (2B-W-46 (16-18))</b>		<b>Soil</b>			<b>Sampled: 11/11/08 13:00</b>					
Diesel Range (SGCU)	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8K11039	11/11/08 17:00	11/12/08 01:14	
Lube Oil Range (SGCU)	"	ND	3.49	27.4	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			74.2%		54 - 148 %	"				"
<i>Octacosane (SGCU)</i>			80.0%		62 - 142 %	"				"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
--	---	-----------------------------------

**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BRK0122-01</b>	<b>(2-B-W-45 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:30</b>						
Dry Weight	BSOPSPL003R0 8	88.7	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-02</b>	<b>(2B-W-45 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:35</b>						
Dry Weight	BSOPSPL003R0 8	90.5	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-03</b>	<b>(2B-W-45 (14-16))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:40</b>						
Dry Weight	BSOPSPL003R0 8	91.8	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-04</b>	<b>(2B-W-45 (16-18))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 09:50</b>						
Dry Weight	BSOPSPL003R0 8	91.8	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-05</b>	<b>(2B-W-46 (10-12))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:30</b>						
Dry Weight	BSOPSPL003R0 8	89.0	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-06</b>	<b>(2B-W-46 (12-14))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:40</b>						
Dry Weight	BSOPSPL003R0 8	88.5	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-07</b>	<b>(2B-W-46 (14-16))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 12:50</b>						
Dry Weight	BSOPSPL003R0 8	91.1	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	
<b>BRK0122-08</b>	<b>(2B-W-46 (16-18))</b>	<b>Soil</b>		<b>Sampled: 11/11/08 13:00</b>						
Dry Weight	BSOPSPL003R0 8	91.4	----	1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00	

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8K11039      Soil Preparation Method: EPA 3550B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

**Blank (8K11039-BLK2)** Extracted: 11/11/08 17:00

Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	11/11/08 19:54	
Lube Oil Range Hydrocarbons	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>84.6%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>11/11/08 19:54</i>	
<i>Octacosane</i>			<i>93.7%</i>	<i>62-142%</i>		<i>"</i>							<i>"</i>	

**LCS (8K11039-BS2)** Extracted: 11/11/08 17:00

Diesel Range Hydrocarbons	NWTPH-Dx	62.3	1.60	10.0	mg/kg wet	1x	--	66.7	93.5%	(78-129)	--	--	11/11/08 20:16	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>82.9%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>11/11/08 20:16</i>	
<i>Octacosane</i>			<i>90.7%</i>	<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Matrix Spike (8K11039-MS2)** QC Source: BRK0122-06      Extracted: 11/11/08 17:00

Diesel Range Hydrocarbons	NWTPH-Dx	72.8	1.78	11.1	mg/kg dry	1x	6.05	74.1	90.1%	(46-155)	--	--	11/11/08 20:39	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>85.1%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>11/11/08 20:39</i>	
<i>Octacosane</i>			<i>97.3%</i>	<i>62-142%</i>		<i>"</i>							<i>"</i>	

**Matrix Spike Dup (8K11039-MSD2)** QC Source: BRK0122-06      Extracted: 11/11/08 17:00

Diesel Range Hydrocarbons	NWTPH-Dx	75.4	1.80	11.2	mg/kg dry	1x	6.05	74.9	92.6%	(46-155)	3.45%	(40)	11/11/08 21:02	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery:</i>	<i>88.7%</i>	<i>Limits: 54-148%</i>		<i>"</i>							<i>11/11/08 21:02</i>	
<i>Octacosane</i>			<i>103%</i>	<i>62-142%</i>		<i>"</i>							<i>"</i>	

TestAmerica Seattle

*Kate Haney*  
 \_\_\_\_\_  
 Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: 8K11039      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8K11039-BLK1)</b> <span style="float:right">Extracted: 11/11/08 17:00</span>														
Diesel Range (SGCU)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x	--	--	--	--	--	--	11/11/08 19:54	
Lube Oil Range (SGCU)	"	ND	3.19	25.0	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 73.8%</i>	<i>Limits: 54-148%</i>		"									11/11/08 19:54
<i>Octacosane (SGCU)</i>		<i>86.2%</i>	<i>62-142%</i>		"									"
<b>LCS (8K11039-BS1)</b> <span style="float:right">Extracted: 11/11/08 17:00</span>														
Diesel Range (SGCU)	NWTPH-Dx	53.6	1.60	10.0	mg/kg wet	1x	--	66.7	80.4%	(58-140)	--	--	11/11/08 20:16	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 79.2%</i>	<i>Limits: 54-148%</i>		"									11/11/08 20:16
<i>Octacosane (SGCU)</i>		<i>81.9%</i>	<i>62-142%</i>		"									"
<b>Matrix Spike (8K11039-MS1)</b> <span style="float:right">QC Source: BRK0122-06      Extracted: 11/11/08 17:00</span>														
Diesel Range (SGCU)	NWTPH-Dx	53.7	1.78	11.1	mg/kg dry	1x	3.78	74.1	67.3%	(46-155)	--	--	11/11/08 20:39	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 72.4%</i>	<i>Limits: 54-148%</i>		"									11/11/08 20:39
<i>Octacosane (SGCU)</i>		<i>76.6%</i>	<i>62-142%</i>		"									"
<b>Matrix Spike Dup (8K11039-MSD1)</b> <span style="float:right">QC Source: BRK0122-06      Extracted: 11/11/08 17:00</span>														
Diesel Range (SGCU)	NWTPH-Dx	56.6	1.80	11.2	mg/kg dry	1x	3.78	74.9	70.6%	(46-155)	5.34% (50)		11/11/08 21:02	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 78.5%</i>	<i>Limits: 54-148%</i>		"									11/11/08 21:02
<i>Octacosane (SGCU)</i>		<i>83.4%</i>	<i>62-142%</i>		"									"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8K11029      Soil Preparation Method: Dry Weight**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8K11029-BLK1)</b>													Extracted: 11/11/08 13:48	
Dry Weight	BSOPSPL00 3R08	100	---	1.00	%	1x	--	--	--	--	--	--	11/12/08 00:00	

TestAmerica Seattle



Kate Haney, Project Manager

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<b>ENSR International - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0320 Project Manager: Jennifer Wald	Report Created: 11/12/08 12:10
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## CERTIFICATION SUMMARY

### TestAmerica Seattle

Method	Matrix	Nelac	Washington
BSOPSP003R08	Soil		
NWTPH-Dx	Soil		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](http://www.TestAmericaInc.com)*

*Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC) .*

TestAmerica Seattle



Kate Haney, Project Manager

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**ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**

Project Number: 01140-204-0320

Project Manager: Jennifer Wald

Report Created:

11/12/08 12:10

## 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.

### 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 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



Kate Haney, Project Manager

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TAT: \_\_\_\_\_

Paperwork to PM - Date: \_\_\_\_\_ Time: \_\_\_\_\_

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

**Received By:**

(applies to temp. receipt)

**Logged-in By:**

**Unpacked/Labeled By:**

**Cooler ID:** \_\_\_\_\_

Date: 11/11/08

Date: 11/11/08

Date: 11/11/08

Work Order No. BK 0122

Time: 1650

Time: 1650

Time: 1700

Client: \_\_\_\_\_

Initials: SB

Initials: SB

Initials: SA

Project: \_\_\_\_\_

**Container Type:**

**COC Seals:**

**Packing Material:**

Cooler \_\_\_\_\_ Ship Container \_\_\_\_\_ Sign By \_\_\_\_\_  
 Box \_\_\_\_\_ On Bottles \_\_\_\_\_ Date \_\_\_\_\_  
 None/Other \_\_\_\_\_  None

\_\_\_\_\_ Bubble Bags \_\_\_\_\_ Styrofoam  
 \_\_\_\_\_ Foam Packs  
 None/Other \_\_\_\_\_

**Refrigerant:**

\_\_\_\_\_ Gel Ice Pack \_\_\_\_\_  
 Loose Ice \_\_\_\_\_  
 \_\_\_\_\_ None/Other \_\_\_\_\_

**Received Via: Bill#**

\_\_\_\_\_ Fed Ex  Client  
 \_\_\_\_\_ UPS \_\_\_\_\_ TA Courier  
 \_\_\_\_\_ DHL \_\_\_\_\_ Mid Valley  
 \_\_\_\_\_ Senvoy \_\_\_\_\_ TDP  
 \_\_\_\_\_ GS \_\_\_\_\_ Other \_\_\_\_\_

Cooler Temperature (IR): 4.3 °C Plastic  Glass (Frozen filters, Tedlars and aqueous Metals exempt)  
 (circle one)

Temperature Blank? \_\_\_\_\_ °C or NA

Trip Blank? Y or  N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

**Sample Containers:**

Intact?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____	Metals Preserved?	Y or N or <input checked="" type="checkbox"/> NA
Provided by TA?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____	Client QAPP Preserved?	Y or N or <input checked="" type="checkbox"/> NA
Correct Type?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____	Adequate Volume? (for tests requested)	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N
#Containers match COC?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____	Water VOAs: Headspace?	Y or N or <input checked="" type="checkbox"/> NA
IDs/time/date match COC?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____	Comments:	_____
Hold Times in hold?	<input checked="" type="checkbox"/> Y or <input type="checkbox"/> N	_____		_____

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Y or N

Has client been contacted regarding non-conformances?

Y or N

If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



December 19, 2008

Halah Voges  
AECOM - Seattle  
1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

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 12/19/08  
11:16.

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

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BRL0202	BNSF-Skykomish Remedial D	01140-204-0340

---

TestAmerica Seattle



Kate Haney, Project Manager

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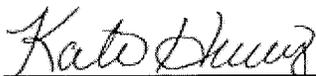


<b>AECOM - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0340 Project Manager: Halah Voges	Report Created: 12/19/08 11:16
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## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5-W-45-1208	BRL0202-01	Water	12/17/08 08:10	12/18/08 10:50
5-W-46-1208	BRL0202-02	Water	12/17/08 08:55	12/18/08 10:50

TestAmerica Seattle



Kate Haney, Project Manager

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**AECOM - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name:

**BNSF-Skykomish Remedial Design Investigation**

Project Number:

01140-204-0340

Report Created:

Project Manager:

Halah Voges

12/19/08 11:16

**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.

**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

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<b>AECOM - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0340 Project Manager: Halah Voges	Report Created: 12/19/08 11:16
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**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
<b>BRL0202-01 (5-W-45-1208)</b>		<b>Water</b>			<b>Sampled: 12/17/08 08:10</b>					
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	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			89.5%		53 - 125 %	"				"
<i>Octacosane</i>			102%		68 - 125 %	"				"
<b>BRL0202-02 (5-W-46-1208)</b>		<b>Water</b>			<b>Sampled: 12/17/08 08:55</b>					
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	"	"	"	"	"	
<i>Surrogate(s): 2-FBP</i>			85.8%		53 - 125 %	"				"
<i>Octacosane</i>			99.6%		68 - 125 %	"				"

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>AECOM - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0340 Project Manager: Halah Voges	Report Created: 12/19/08 11:16
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**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
<b>BRL0202-01 (5-W-45-1208)</b>		<b>Water</b>			<b>Sampled: 12/17/08 08:10</b>					
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	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			79.3%		53 - 125 %	"				"
<i>Octacosane (SGCU)</i>			92.5%		68 - 125 %	"				"
<b>BRL0202-02 (5-W-46-1208)</b>		<b>Water</b>			<b>Sampled: 12/17/08 08:55</b>					
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	"	"	"	"	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>			66.4%		53 - 125 %	"				"
<i>Octacosane (SGCU)</i>			78.7%		68 - 125 %	"				"

TestAmerica Seattle



Kate Haney, Project 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.*



<b>AECOM - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0340 Project Manager: Halah Voges	Report Created: 12/19/08 11:16
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**Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Laboratory Quality Control Results**  
 TestAmerica Seattle

QC Batch: **8L18024**      Water Preparation Method: **EPA 3510C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8L18024-BLK1)</b>													Extracted: 12/18/08 14:33	
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	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 93.9%</i>		<i>Limits: 53-125%</i>								<i>12/18/08 22:19</i>		
<i>Octacosane</i>		<i>97.3%</i>		<i>68-125%</i>								<i>"</i>		
<b>LCS (8L18024-BS1)</b>													Extracted: 12/18/08 14:33	
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)	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 98.3%</i>		<i>Limits: 53-125%</i>								<i>12/18/08 22:41</i>		
<i>Octacosane</i>		<i>101%</i>		<i>68-125%</i>								<i>"</i>		
<b>LCS Dup (8L18024-BSD1)</b>													Extracted: 12/18/08 14:33	
Diesel Range Hydrocarbons	NWTPH-Dx	2.01	0.0400	0.250	mg/l	1x	--	2.00	101%	(61-132)	3.26%	(40)	12/18/08 23:02	
Lube Oil Range Hydrocarbons	"	2.08	0.0900	0.500	"	"	--	"	104%	(60-125)	0.617%	"	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 100%</i>		<i>Limits: 53-125%</i>								<i>12/18/08 23:02</i>		
<i>Octacosane</i>		<i>100%</i>		<i>68-125%</i>								<i>"</i>		

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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<b>AECOM - Seattle</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Name: <b>BNSF-Skykomish Remedial Design Investigation</b> Project Number: 01140-204-0340 Project Manager: Halah Voges	Report Created: 12/19/08 11:16
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**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica Seattle

**QC Batch: 8L18024      Water Preparation Method: EPA 3510C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (8L18024-BLK1)</b>													Extracted: 12/18/08 14:33	
Diesel Range (SGCU)	NWTPH-Dx	ND	0.0400	0.250	mg/l	1x	--	--	--	--	--	--	12/19/08 01:53	
Lube Oil Range (SGCU)	"	ND	0.160	0.500	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 95.2%</i>		<i>Limits: 53-125%</i>		"						<i>12/19/08 01:53</i>		
<i>Octacosane (SGCU)</i>		<i>98.6%</i>		<i>68-125%</i>		"						<i>"</i>		
<b>LCS (8L18024-BS1)</b>													Extracted: 12/18/08 14:33	
Diesel Range (SGCU)	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 (SGCU)	"	2.10	0.160	0.500	"	"	--	4.00	52.5%	(50-150)	--	--	"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 96.6%</i>		<i>Limits: 53-125%</i>		"						<i>12/19/08 02:15</i>		
<i>Octacosane (SGCU)</i>		<i>100%</i>		<i>68-125%</i>		"						<i>"</i>		
<b>LCS Dup (8L18024-BSD1)</b>													Extracted: 12/18/08 14:33	
Diesel Range (SGCU)	NWTPH-Dx	2.04	0.0400	0.250	mg/l	1x	--	2.00	102%	(61-132)	3.17% (35)		12/19/08 02:36	
Lube Oil Range (SGCU)	"	2.10	0.160	0.500	"	"	--	4.00	52.5%	(50-150)	0.0826% (50)		"	
<i>Surrogate(s): 2-FBP (SGCU)</i>		<i>Recovery: 99.9%</i>		<i>Limits: 53-125%</i>		"						<i>12/19/08 02:36</i>		
<i>Octacosane (SGCU)</i>		<i>101%</i>		<i>68-125%</i>		"						<i>"</i>		

TestAmerica Seattle

*Kate Haney*

Kate Haney, Project Manager

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**AECOM - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name:

**BNSF-Skykomish Remedial Design Investigation**

Project Number:

01140-204-0340

Report Created:

Project Manager:

Halah Voges

12/19/08 11:16

## 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](http://www.TestAmericaInc.com)*

*Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC) .*

TestAmerica Seattle



Kate Haney, Project Manager

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**AECOM - Seattle**

1011 SW Klickitat Way, Suite 207  
Seattle, WA 98134

Project Name: **BNSF-Skykomish Remedial Design Investigation**  
Project Number: 01140-204-0340  
Project Manager: Halah Voges

Report Created:  
12/19/08 11:16

## 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.

### 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 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



Kate Haney, Project Manager

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TAT: \_\_\_\_\_

Paperwork to PM - Date: \_\_\_\_\_ Time: \_\_\_\_\_

Non-Conformances?

Page Time & Initials: \_\_\_\_\_

Circle Y or N

(If Y, see other side)

### TEST AMERICA SAMPLE RECEIPT CHECKLIST

**Received By:**  
(applies to temp at receipt)

**Logged-in By:**

**Unpacked/Labeled By:**

**Cooler ID:** \_\_\_\_\_

Date: 12-18-08

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Work Order No. \_\_\_\_\_

Time: 1050

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Client: \_\_\_\_\_

Initials: DSJ

Initials: \_\_\_\_\_

Initials: \_\_\_\_\_

Project: \_\_\_\_\_

**Container Type:**

**COC Seals:**

**Packing Material** \_\_\_\_\_:

Cooler

\_\_\_\_ Ship Container

\_\_\_\_ Sign By

Bubble Bags

\_\_\_\_ Styrofoam

\_\_\_\_ Box

\_\_\_\_ On Bottles

\_\_\_\_ Date

Foam Packs

\_\_\_\_ None/Other \_\_\_\_\_

None

\_\_\_\_ None/Other \_\_\_\_\_

**Refrigerant:**

\_\_\_\_ Gel Ice Pack \_\_\_\_\_

Loose Ice \_\_\_\_\_

\_\_\_\_ None/Other \_\_\_\_\_

**Received Via: Bill#**

\_\_\_\_ Fed Ex  Client

\_\_\_\_ UPS \_\_\_\_\_ TA Courier

\_\_\_\_ DHL \_\_\_\_\_ Mid Valley

\_\_\_\_ Senvoy \_\_\_\_\_ TDP

\_\_\_\_ GS \_\_\_\_\_ Other \_\_\_\_\_

Cooler Temperature (IR): \_\_\_\_\_ °C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)

Temperature Blank? 27 °C of NA (circle one)

Trip Blank? Y or N or NA

BP, OPLC, ARCO-Temperature monitoring every 15 minutes:

(initial/date/time): \_\_\_\_\_

Comments: \_\_\_\_\_

**Sample Containers:**

**ID**

**ID**

Intact? Y or N \_\_\_\_\_

Metals Preserved? Y or N or NA \_\_\_\_\_

Provided by TA? Y or N \_\_\_\_\_

Client QAPP Preserved? Y or N or NA \_\_\_\_\_

Correct Type? Y or N \_\_\_\_\_

Adequate Volume? Y or N \_\_\_\_\_  
(for tests requested)

#Containers match COC? Y or N \_\_\_\_\_

Water VOAs: Headspace? Y or N or NA \_\_\_\_\_

IDs/time/date match COC? Y or N \_\_\_\_\_

Comments: \_\_\_\_\_

Hold Times in hold? Y or N \_\_\_\_\_

### PROJECT MANAGEMENT

Is the Chain of Custody complete?

Y or N If N, circle the items that were incomplete

Comments, Problems \_\_\_\_\_

Total access set up?

Y or N

Has client been contacted regarding non-conformances?

Y or N

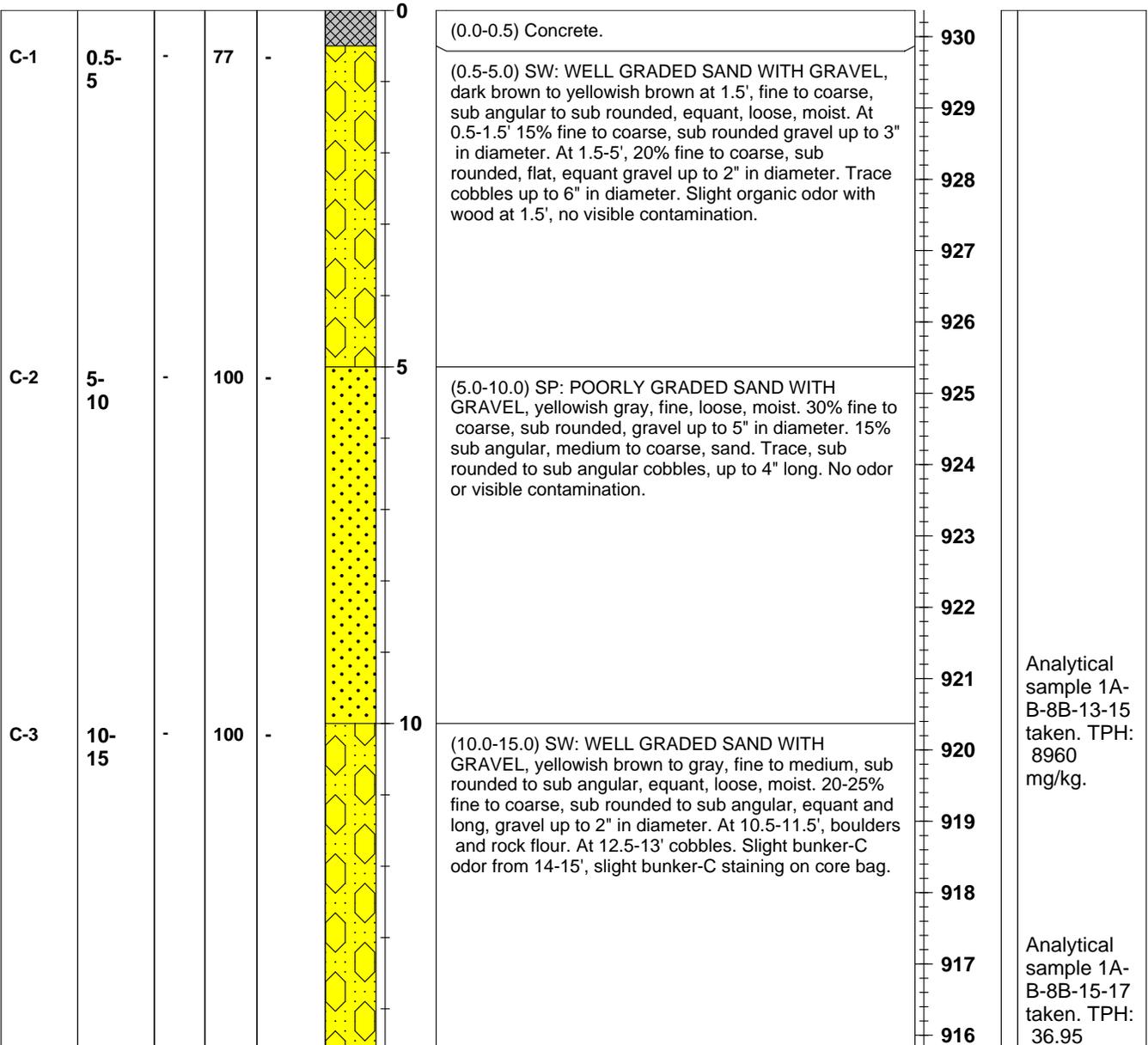
If Y, \_\_\_\_\_ / \_\_\_\_\_  
Date Time

PM Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Attachment 5 – Boring Logs**

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259451.96</b> Easting: <b>1510712.82</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.37 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>24 ft.</b>
Start Date & Time: <b>09/19/2008 0950</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 1050</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

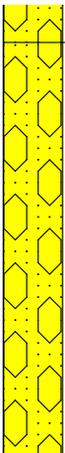
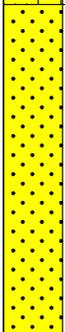


<b>Remarks and Datum Used:</b> ft-bgs = feet below ground surface  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b>	<b>Groundwater</b>		
	SS = SPT	Date	Time	Depth (ft.)
	DP = Direct Push GS = Grab Sample C = Core	9/19/2008	1050	20 ft-bgs

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259451.96</b> Easting: <b>1510712.82</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.37 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>24 ft.</b>
Start Date & Time: <b>09/19/2008 0950</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 1050</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-4	15-20	-	100	-		15	(15.0-20.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to medium, sub rounded to sub angular, equant, loose, moist. 20-25% fine to coarse, sub rounded to sub angular, equant to elongated, gravel up to 2.5" in diameter. Boulder from 19-20'. Rock flour from 18-18.75'. Slight bunker-C odor at 19'. No visible contamination.	915 914 913 912 911	mg/kg.  Analytical sample 1A-B-8B-17-19 taken. TPH: 5160 mg/kg.
C-5	20-24	-	100	-		20	(20.0-24.0) SP: SAND, gray, very fine, loose, slow dilatancy, wet. 20% silt. Little mica. Bunker-C odor on surface of sand and silt, rainbow bunker-C droplets on water table at 20'.	910 909 908 907	Analytical sample 1A-B-8B-19-21 taken. TPH: 10.96 mg/kg.

<b>Remarks and Datum Used:</b> ft-bgs = feet below ground surface  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b>	<b>Groundwater</b>		
	SS = SPT	Date	Time	Depth (ft.)
	DP = Direct Push GS = Grab Sample C = Core	9/19/2008	1050	20 ft-bgs

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259435.01</b> Easting: <b>1510783.80</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>935.63 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/19/2008 0820</b>	Bit Type: <b>Carbide tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 0915</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

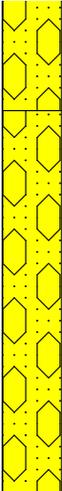
SS-1	0.5-5.0	-	66	-		0	(0.0-0.5) CONCRETE.	935	Analytical sample 1A-B-7B-10-12 taken. TPH: 2.45 mg/kg.	
						5	(0.5-5.0) SW: WELL GRADED SAND WITH SILT, dark brown to yellowish brown, fine to medium, sub rounded, loose, moist. 20% silt. 15% coarse sand. 10-15% fine to coarse, sub rounded, gravel, up to 1.5" in diameter. Trace medium sand, coarse gravel, and cobbles. No odor or visible contamination.	934		
SS-2	5.0-10.0	-	100	-		5	(5.0-10.0) SW: WELL GRADED SAND, yellowish brown to light gray at 7', fine to coarse, sub rounded to sub angular, flat, equant, loose, moist. 10% cobbles, up to 6" in diameter. 30% rock flour. No odor or visible contamination.	933		
						10	(10.0-15.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray to yellowish brown at 13.5', fine to medium, sub rounded, flat, elongated, loose, moist to wet at 13.5'. At 11-12', boulder and rock flour. 25% rounded to sub rounded, fine, gravel. 10% coarse sand. 10% coarse, rounded to sub angular gravel. Trace silt and clay from 14-14.5'. No odor or visible contamination.	932		
SS-3	10.0-15.0	-	100	-		10	(10.0-15.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray to yellowish brown at 13.5', fine to medium, sub rounded, flat, elongated, loose, moist to wet at 13.5'. At 11-12', boulder and rock flour. 25% rounded to sub rounded, fine, gravel. 10% coarse sand. 10% coarse, rounded to sub angular gravel. Trace silt and clay from 14-14.5'. No odor or visible contamination.	931		
						15		930		
								929		Analytical sample 1A-B-7B-12-14 taken. TPH: 2.525 mg/kg.
								928		
								927		
								926		
								925		
								924	Analytical sample 1A-B-7B-14-16 taken. TPH: 2.56	
								923		
								922		

<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>ft.-bgs = feet below ground surface</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)
			9/19/2008	0845	13.5 ft-bgs

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259435.01</b> Easting: <b>1510783.80</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>935.63 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/19/2008 0820</b>	Bit Type: <b>Carbide tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 0915</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

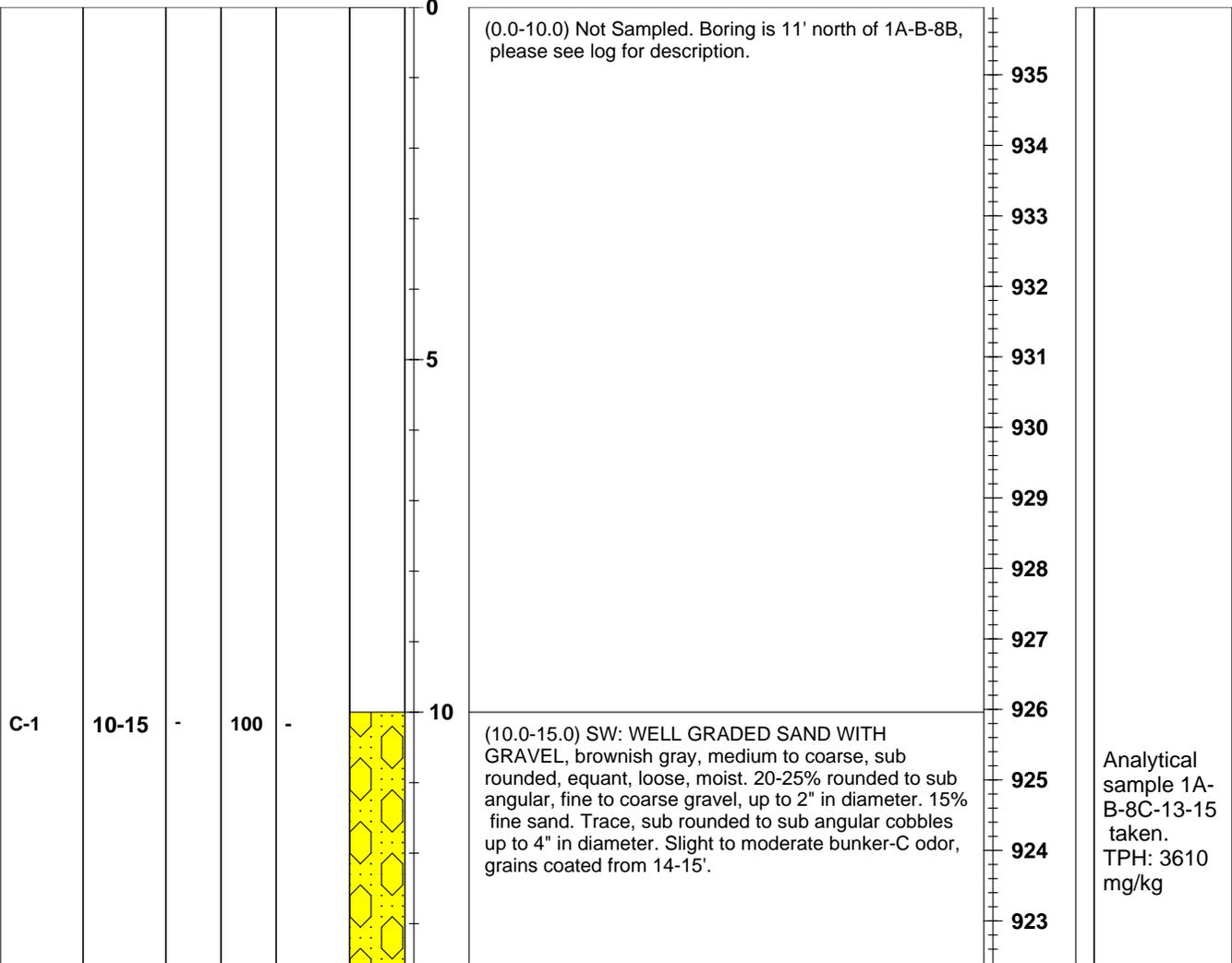
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
SS-4	15.0-20.0	-	95	-		15 20	(15.0-20.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to medium, equant, loose, moist. 20% coarse sand. 20% sub rounded to sub angular, fine gravel. 10% sub rounded to sub angular, coarse gravel to small cobbles, up to 5" in diameter. No odor or visible contamination.	922 921 920 919 918 917 916	mg/kg.  Analytical sample 1A-B-7B-16-18 taken. TPH: 2.435 mg/kg.

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>ft.-bgs = feet below ground surface</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)
			9/19/2008	0845	13.5 ft-bgs

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259368.68</b> Easting: <b>1510808.95</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>935.96 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>09/19/2008 1142</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 1220</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b> ft-bgs = feet below ground surface  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)
		9/19/2008	1200	17.5 ft-bgs

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259368.68</b> Easting: <b>1510808.95</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>935.96 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>09/19/2008 1142</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/19/2008 1220</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
C-2	15-20	-	100	-		15	(15.0-17.5) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, medium to coarse, sub rounded, equant, loose, moist. 20-25% rounded to sub angular, fine to coarse gravel. Trace to 10%, sub rounded to sub angular cobbles up to 4" in diameter. No odor or visible contamination.	922 921 920 919	Analytical sample 1A-B-8C-15-17 taken. TPH: 171.8 mg/kg.
						17.5	(17.5-18.5) SW: WELL GRADED SAND WITH SILT, brown, medium to coarse, sub rounded, equant, loose, wet. Silt is brown, medium plasticity, low dilatency, soft. 10% rounded, equant cobbles up to 4" in diameter. Slight bunker-C odor, rainbow sheen.	918 917	Analytical sample 1A-B-8C-17-19 taken. TPH: 2840 mg/kg.
C-3	20-25	-	100	-		20	(18.5-25.0) SP: POORLY GRADED SAND WITH SILT, brown grading to gray, very fine, dense, wet. 20%, rapid dilatency, low to no plasticity, firm, silt. Little light brown and light gray bedding up to 1" thick from 22-25'. No odor or visible contamination.	916 915 914 913 912 911	Analytical sample 1A-B-8C-19-21 taken. TPH: 12.95 mg/kg.

<b>Remarks and Datum Used:</b> ft-bgs = feet below ground surface  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)
		9/19/2008	1200	17.5 ft-bgs

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259379.52</b> Easting: <b>1510836.40</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>936.19 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>09/29/2008 1345</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/29/2008 1530</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

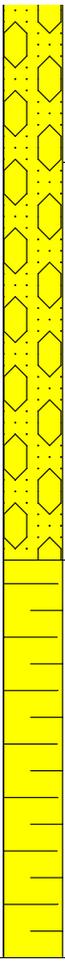
C-1	0-5	-	100	-		0	(0.0-5.0) SW: WELL GRADED SAND, yellowish brown to brownish gray at 1', fine to coarse, sub angular to sub rounded, loose, dry. From 1-5', 25% sub rounded, fine gravel up to 3/4" in diameter. 15% coarse gravel up to 2" in diameter. 10% silt from 4.5-5'. No odor or visible contamination.	936	Sample 1A-B-8D-14-16 taken. TPH: 6.79 mg/kg.
C-2	5-10	-	100	-		5	(5.0-20.0) SW: WELL GRADED SAND WITH GRAVEL, grayish brown, fine to coarse, sub angular to sub rounded, equant to elongated, loose, moist. 30-45% fine to coarse gravel. At 5-10', small cobbles up to 4" in diameter. At 8.5-9', boulder and rock flour. No odor or visible contamination.	935	
C-3	10-15	-	100	-		10		934	
							933		
							932		
							931		
							930		
							929		
							928		
							927		
							926		
							925		
							924		
							923		

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259379.52</b> Easting: <b>1510836.40</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>936.19 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>09/29/2008 1345</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/29/2008 1530</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-4	15-20	-	80	-		15		923	Sample 1A-B-8D-16-18 taken. TPH: 6.95 mg/kg.
C-5	20-25	-	100	-					
					20	918			
					20	917			
					20	916	Sample 1A-B-8D-20-22 taken. TPH: 3.025 mg/kg.		
					20	915			
					25	914			
					25	913			
					25	912			

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring/Well Log

Well #: 2B-W-45

Sheet 1 of 2

Project: <b>Skykomish</b>	Monument: <b>Flush Mount</b>	Stick Up: -
Project #: <b>01140-204-0320</b>	Northing: <b>258704.953</b> Easting: <b>1510734.19</b>	Ground Elevation: <b>935.88 ft.</b>
Location: <b>Skykomish, WA</b>	Drill Rig Type: <b>Spider Sonic</b>	MP Elevation: <b>935.74 ft.</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Total Depth: <b>23.49 ft.</b>
Start Date & Time: <b>11/11/08 0900</b>	Casing ID: <b>2 in.</b>	Filter Pack: -
Finish Date & Time: <b>11/11/08 1100</b>	Boring ID: <b>6 in.</b>	Seal: <b>Bentonite Chips</b>
Contractor: <b>Boart Longyear Inc.</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Grout: -
Operator: <b>Brian Owens</b>	Logged By: <b>J. Wahnitz</b>	Screen: <b>2-in. Sch. 40 PVC from 7-22 ft-bgs</b>

Type & Number	Sample		Well Completion Log	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation(ft.)	Comments & Samples
	Depth Range	% Rec						

C-1	0-5	100		0	(0.0-1.0),(0.0-0.9) SP: POORLY GRADED SAND, light brown, fine, loose, moist. 20% silt. Trace, sub rounded, fine, equant, gravel. No odor or visible contamination.	935	Boring at 20 degrees from vertical. Samples collected at vertical interval. 12 in. diameter manhole cover with concrete pad from 0-1 ft-bgs.  Bentonite chip seal from 1-5 ft-bgs.  2 in. sch. 40 PVC riser from 0-7 ft-bgs.  10/20 silica sand pack from 5-25 ft-bgs. 2 in. sch. 40 PVC screen from 7-22 ft-bgs.  Sample 2B-W-45-10-12 taken. TPH: 2.68 mg/kg.  Sample 2B-W-45-12-14 taken. TPH: 2.63 mg/kg.  Sample 2B-W-45-14-16 taken. TPH: 2.585 mg/kg.
C-2	5-10	100		5	(6.0-9.0),(5.6-8.5) SM: SILTY SAND, gray, coarse, sub rounded, equant, dense, moist. 30% clay. Trace, sub rounded, equant, fine gravel. No odor or visible contamination.	930	
C-3	10-15	100		10	(9.0-10.0),(8.5-9.4) ML: SILT, gray, stiff, slow dilatency, low plasticity, moist. Trace, sub rounded, equant, coarse sand. No odor or visible contamination.		
C-4	15-20	80		15	(10.0-17.0),(9.4-16.0) SP: POORLY GRADED SAND, gray, medium, sub rounded, equant, medium dense, moist. 20% sub rounded, equant cobbles up to 5" in diameter. 10% silt and clay. 10% sub rounded, equant, fine and coarse gravel. No odor or visible contamination.	925	

**Remarks and Datum Used:**

First depth interval angle depth.  
 Second depth interval corrected to vertical depth.  
 ft-bgs = feet below ground surface  
 sch. = schedule

**Sample Type**

N = SPT  
 DP = Direct Push  
 SS = Split Spoon  
 C = Core

**Groundwater**

Date	Time	Depth (ft.)

ENSR  
 1011 SW Klickitat Way, Suite 207  
 Seattle, WA 98134-1162  
 Phone: (206) 624-9349  
 Fax: (206) 624-2839

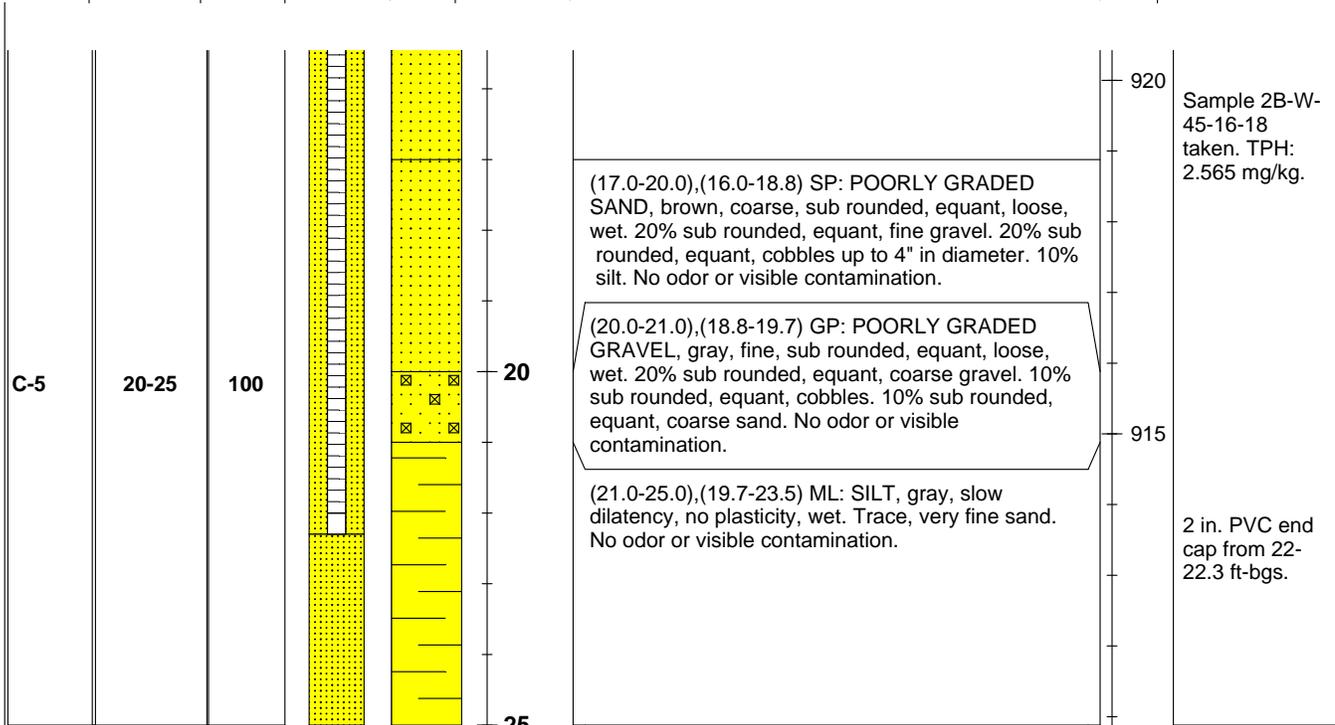
# Boring/Well Log

Well #: 2B-W-45

Sheet 2 of 2

Project: <b>Skykomish</b>	Monument: <b>Flush Mount</b>	Stick Up: -
Project #: <b>01140-204-0320</b>	Northing: <b>258704.953</b> Easting: <b>1510734.19</b>	Ground Elevation: <b>935.88 ft.</b>
Location: <b>Skykomish, WA</b>	Drill Rig Type: <b>Spider Sonic</b>	MP Elevation: <b>935.74 ft.</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Total Depth: <b>23.49 ft.</b>
Start Date & Time: <b>11/11/08 0900</b>	Casing ID: <b>2 in.</b>	Filter Pack: -
Finish Date & Time: <b>11/11/08 1100</b>	Boring ID: <b>6 in.</b>	Seal: <b>Bentonite Chips</b>
Contractor: <b>Boart Longyear Inc.</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Grout: -
Operator: <b>Brian Owens</b>	Logged By: <b>J. Waknitz</b>	Screen: <b>2-in. Sch. 40 PVC from 7-22 ft-bgs</b>

Sample			Well Completion Log	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation(ft.)	Comments & Samples
Type & Number	Depth Range	% Rec						



<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval angle depth.	<b>Sample Type</b> N = SPT DP = Direct Push SS = Split Spoon C = Core	<b>Groundwater</b>		
	Second depth interval corrected to vertical depth.		Date	Time	Depth (ft.)
	ft-bgs = feet below ground surface				
	sch. = schedule				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0230</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258845.58</b> Easting: <b>1511229.90</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.69 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 1052</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1120</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Kencht</b>

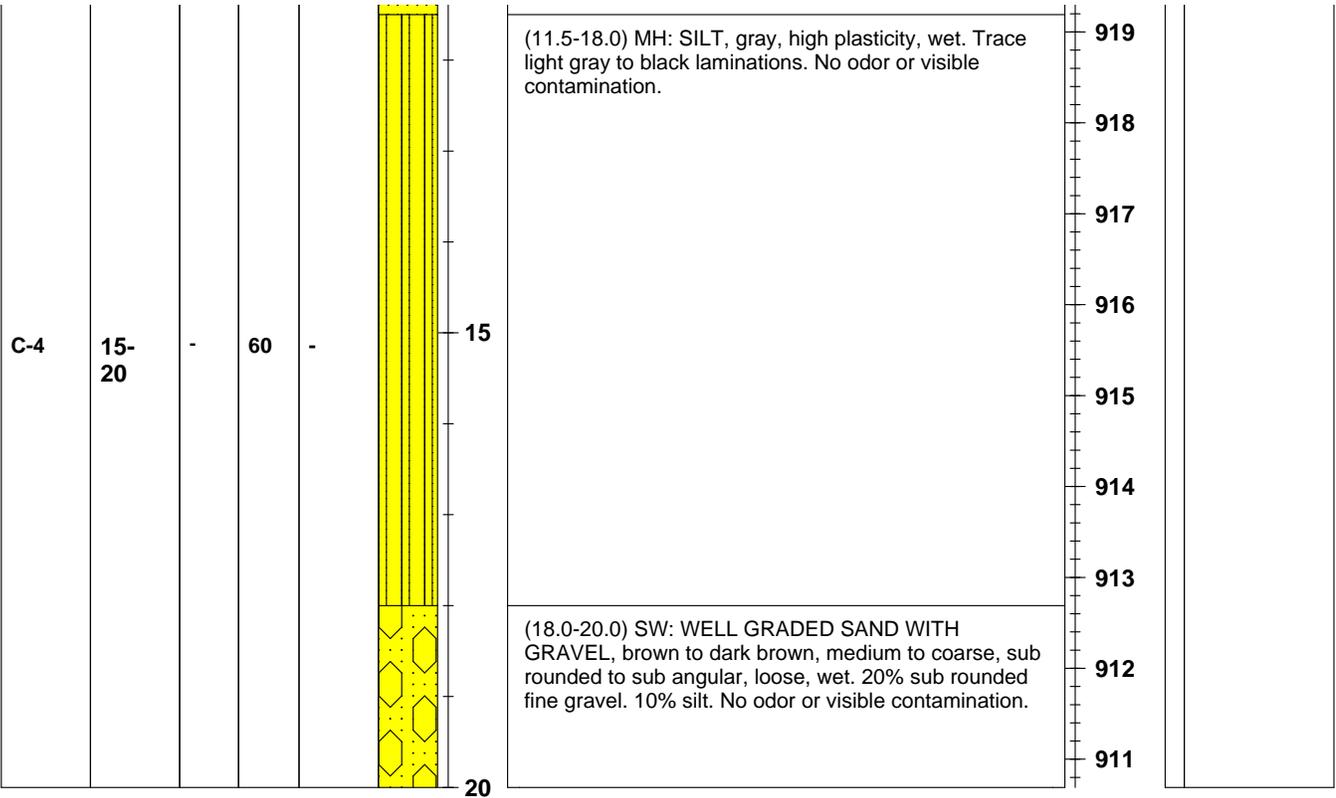
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
C-1	0-5	-	60	-	[Yellow dotted pattern]	0	(0.0-0.25) Top soil. Abundant rootlets.  (0.25-3.5) SP: POORLY GRADED SAND WITH GRAVEL, brown to gray, fine, loose, moist. 20% sub angular to sub rounded, fine to coarse gravel, up to 2 in. long. Trace, flat cobbles up to 4 in. long. Trace to 10% rootlets. No odor or visible contamination.	930 929	Analytical sample 2B-B-44-0-2 taken. TPH: 189 mg/kg.
C-2	5-10	-	100	-	[Yellow dotted pattern]	5	(3.5-5.0) SP: POORLY GRADED SAND WITH SILT, gray, very fine, loose, soft, moist to wet at 5'. 30% silt. Abundant rootlets. Trace mica flakes. No odor or visible contamination.	928 927 926	Analytical sample 2B-B-44-2-4 taken. TPH: 1579 mg/kg. DUP-01 collected. TPH: 684 mg/kg.
C-3	10-15	-	100	-	[Yellow dotted pattern]	10	(5.0-11.0) SW: WELL GRADED SAND, gray, medium to coarse, sub rounded to sub angular, equant to elongated, loose, wet. 20% very fine sand and silt. 20% sub angular, fine to coarse gravel, up to 2-3 in. long. boulder at 7.5-8.5 ft. No odor or visible contamination.	925 924 923 922	Analytical sample 2B-B-44-4-6 taken. TPH: 48.03 mg/kg.
					[Yellow dotted pattern]	10	(11.0-11.5) SP: POORLY GRADED SAND, yellowish brown, very fine, wet. Red laminations 0.5 in. thick. No odor or visible contamination.	921 920	Analytical sample 2B-B-44-6-8 taken. TPH: 4.64 mg/kg.

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0230</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258845.58</b> Easting: <b>1511229.90</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.69 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 1052</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1120</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Kencht</b>

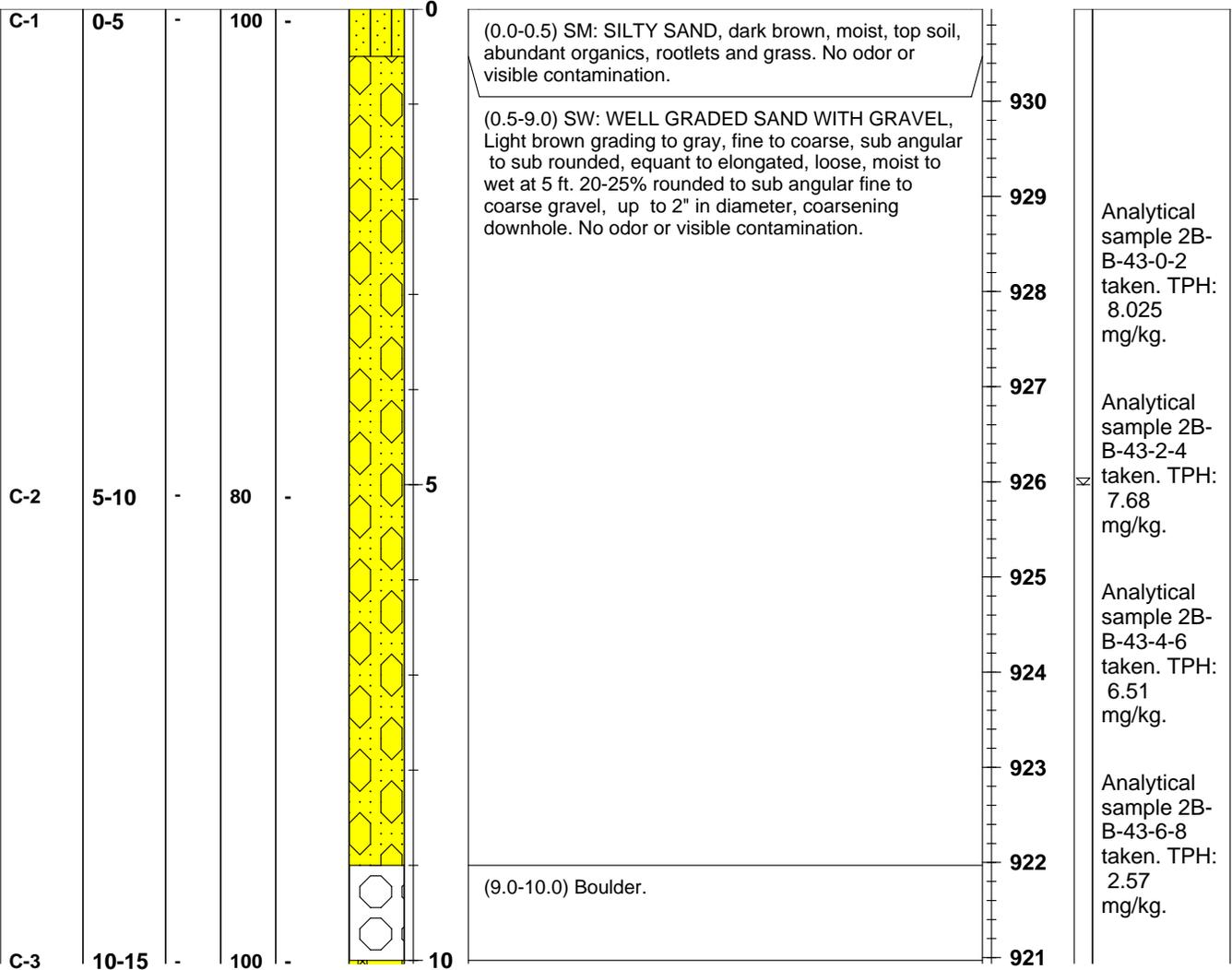
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

Project: <b>SKYKOMISH</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258843.23</b> Easting: <b>1511235.18</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.97 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 1030</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1050</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

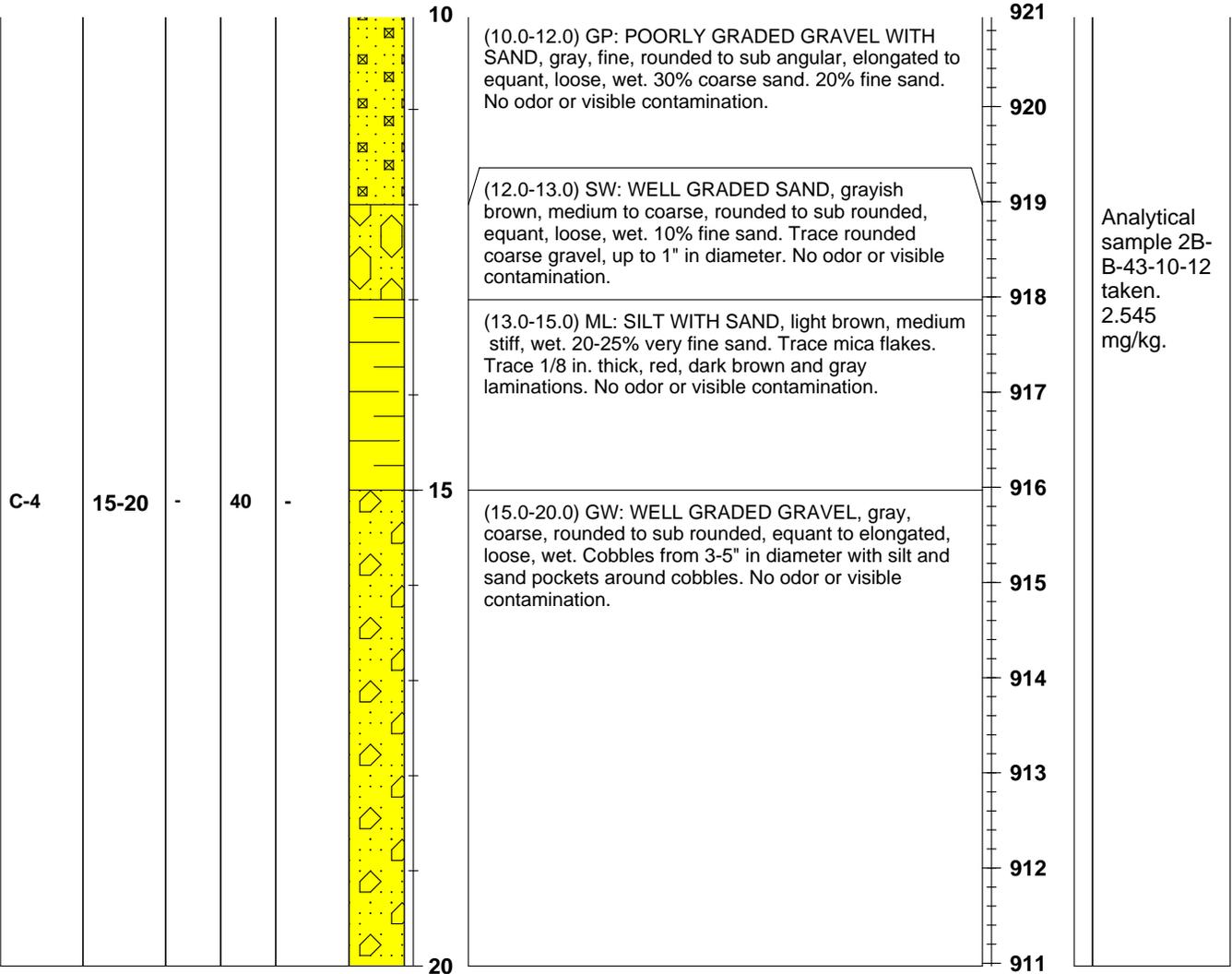
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b>		<b>Groundwater</b>		
	SS = SPT	Date      Time      Depth (ft.)			
	DP = Direct Push				
	GS = Grab Sample				
	C = Core				

Project: <b>SKykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258843.23</b> Easting: <b>1511235.18</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.97 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 1030</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1050</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0230</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258839.38</b> Easting: <b>1511242.53</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>931.17ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 0958</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1025</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

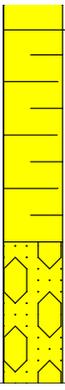
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
C-1	0-5	-	80	-		0	(0.0-1.0) SM: SILTY SAND, brown, fine, loose, moist. Abundant rootlets and grass. Slight organic odor. No visible contamination.	931	Analytical sample 2B-B-42-0-2 taken. TPH: 9.97 mg/kg.
							(1.0-5.0) SW: WELL GRADED SAND, light brown, medium to coarse, sub angular to sub rounded, equant, loose, moist. 20-25% sub angular to sub rounded, fine to coarse gravel. 15% sub angular, elongated cobbles up to 4" diameter. 15% fine sand. No odor or visible contamination.	930 929 928	
C-2	5-10	-	100	-		5	(5.0-10.0) GW: WELL GRADED GRAVEL WITH SAND, brownish gray grading to gray, fine to coarse, sub angular to sub rounded, elongated to equant, loose, wet. 30% coarse sand. 10-15% cobbles. Trace fine sand and silt, increasing to 30% from 7-8'. No odor or visible contamination.	927 926 925 924	Analytical sample 2B-B-42-2-4 taken. TPH: 4.385 mg/kg. Analytical sample 2B-B-42-4-6 taken. TPH: 2.615 mg/kg.
							(10.0-12.0) GW: WELL GRADED GRAVEL WITH SAND, gray, fine to coarse, sub angular to sub rounded, elongated to equant, loose, medium dense, wet. 30% coarse sand. 10-15% cobbles. Trace fine sand and silt. No odor or visible contamination.	923 922	
C-3	10-15	-	100	-		10	(12.0-14.0) MH: SILT WITH GRAVEL, light brown, high plasticity, medium stiff, wet. 20% gravel and coarse sand. rom 12.5-13.0', boulder. No odor or visible contamination.	921 920	Analytical sample 2B-B-42-6-8 taken. TPH: 2.68 mg/kg.
							(14.0-15.0) ML: SILT, gray, non plastic, stiff, wet. 10% fine sand, little laminations from 2mm to 1/4" thick. No odor or visible contamination.	919 918 917	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0230</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258839.38</b> Easting: <b>1511242.53</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>931.17ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/03/08 0958</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>10/03/08 1025</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

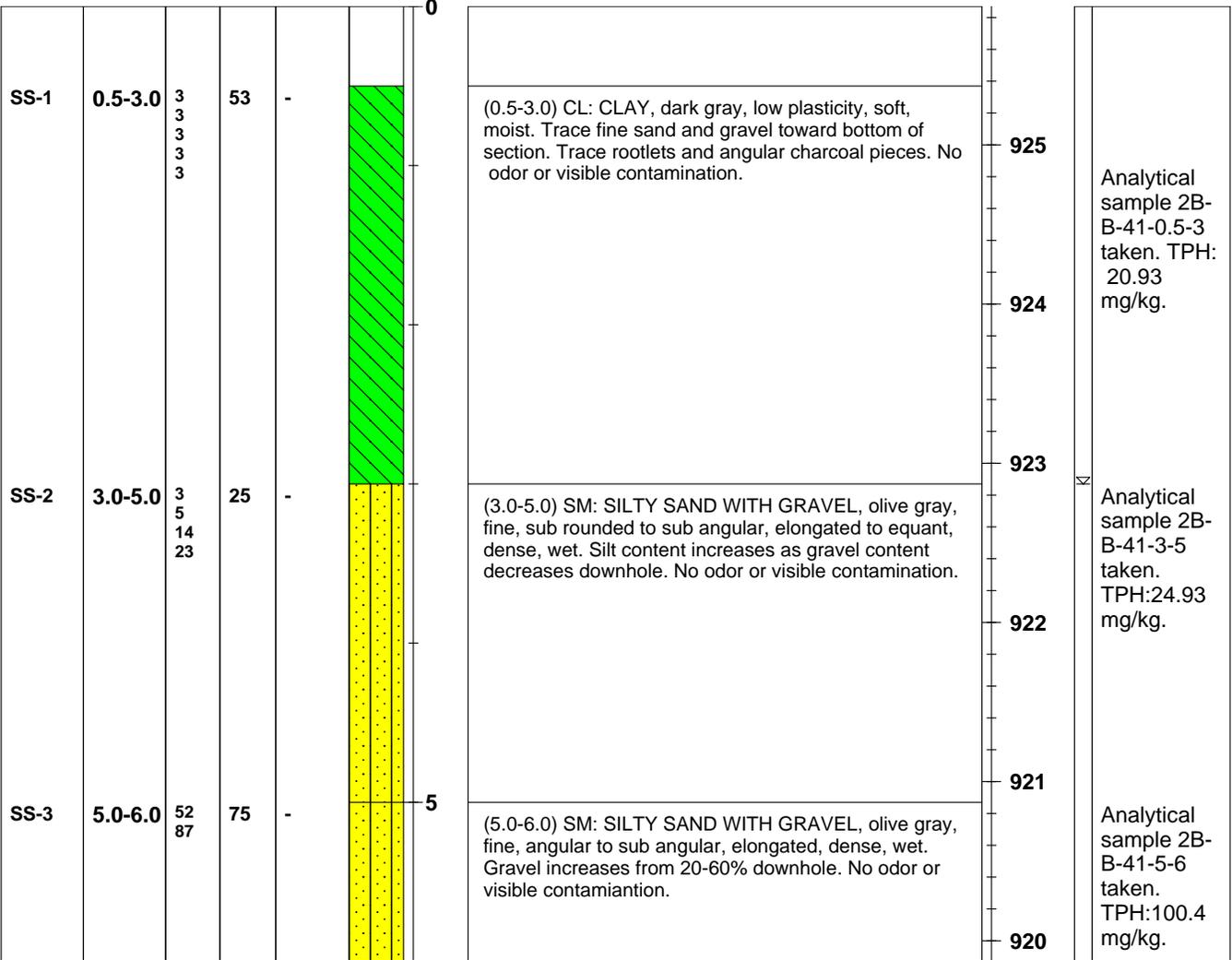
C-4	15-20	-	60	-		15	(15.0-18.0) ML: SILT, gray to brown at 17.0', non plastic, stiff, wet. Trace fine sand lenses in brown silt. Little laminations, light gray and black in gray silt, yellow and red in brown silt. No odor or visible contamination.	916	
						20	(18.0-20.0) SW: WELL GRADED SAND, gray to brown, fine to coarse, sub rounded, equant, loose, wet. 20% silt. 10-15% sub rounded to sub angular fine gravel. Trace coarse gravel up to 2" in diameter. No odor or visible contamination.	913	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>258772.00</b> Easting: <b>1510570.42</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>925.87 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>6 ft.</b>
Start Date & Time: <b>09/11/2008 0808</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/11/2008 0857</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>M. Williams</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

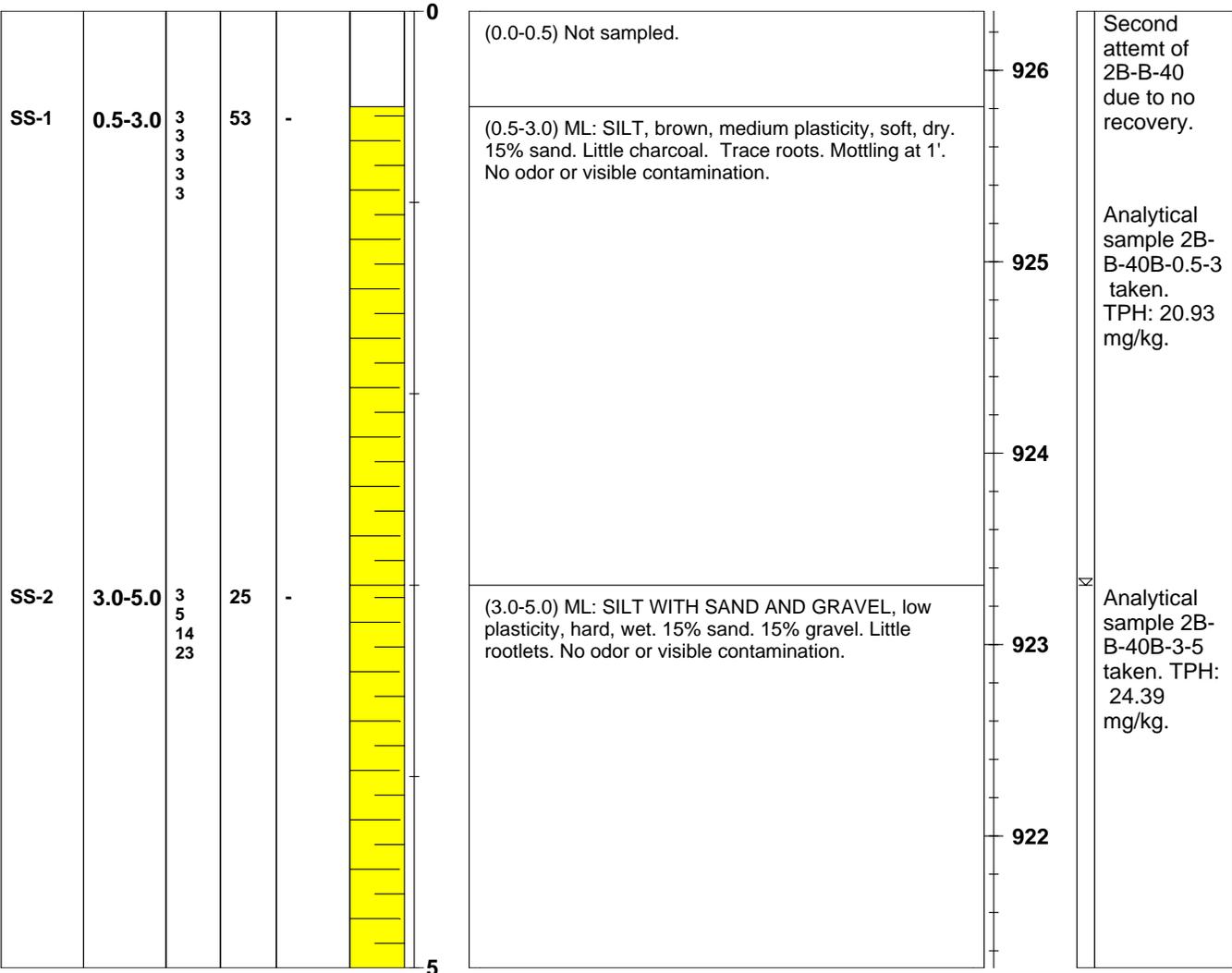


<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>HSA = Hollow Stem Auger</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1510667.97</b> Easting: <b>258746.29</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>926.31 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>5 ft.</b>
Start Date & Time: <b>09/10/2008 1720</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008 1800</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>M. Williams</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>HSA = Hollow Stem Auger</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258804.37</b> Easting: <b>1511149.49</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>928.96 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>10 ft.</b>
Start Date & Time: <b>09/30/08 1146</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>09/30/08 1206</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-1	0-5	-	60	-		0	(0.0-5.0) ML: SILT WITH GRAVEL, brown, soft, low plasticity, moist. From 0.0-0.5', organic silt with wood and roots. From 0.5-1.0', silt. From 1.0-5.0', 30% sub angular, fine gravel. 10% fine sand. No odor or visible contamination.	928	Analytical sample 2B-B-39B-2-4 taken. TPH: 7.985 mg/kg.
								927	
C-2	5-10	-	60	-		5	(5.0-10.0) ML: SILT WITH GRAVEL, brown, soft, wet. 20%, sub angular fine gravel. From 5.0-8.0', 15% sub angular coarse gravel. 10% sub rounded coarse sand. From 8.0-10.0' low plasticity silt. No odor or visible contamination.	926	Analytical sample 2B-B-39B-4-6 taken. TPH: 2.845 mg/kg.
								925	
								924	
								923	
								922	
								921	Analytical sample 2B-B-39B--8-10 taken. TPH: 3.155 mg/kg.
								920	
						10		919	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)



Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>258796.80</b> Easting: <b>1511137.39</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.64 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>10 ft.</b>
Start Date & Time: <b>09/30/08 1120</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite Chips</b>
Finish Date & Time: <b>09/30/08 1137</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme:	Elevation (ft.)	Comments & Sample
C-1	0-5	-	70	-	[Yellow dotted pattern]	0	(0.0-5.0) SM: SILTY SAND, Brown to dark brown, fine, loose, wet to moist, medium to low plasticity, soft, wet to moist. From 0.0-0.5', wood, roots and organics. 0.5-2.0' abundant rootlets. From 3.5-5.0', concrete. No odor or visible contamination.	929	Analytical sample 2B-B-38D-0-2 taken. TPH: 27.47 mg/kg.
C-2	5-10	-	60	-	[Yellow dotted pattern]	5	(5.0-10.0) SM: SILTY SAND, brown, medium to coarse, low plasticity, loose, wet. 15% sub angular fine gravel. 15% sub angular coarse gravel. 5% sub rounded cobbles up to 4" diameter. No odor or visible contamination.	924	Analytical sample 2B-B-38D-4-6 taken. TPH: 7.83 mg/kg.
								927	Analytical sample 2B-B-38D-2-4 taken. TPH: 19.29 mg/kg.
								925	
								926	
								928	
								921	Analytical sample 2B-B-38D-6-8 taken. TPH: 2.68 mg/kg.
								920	

<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1511143.12</b> Easting: <b>258807.82</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>929.14</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>5'</b>
Start Date & Time: <b>09/10/2008 1525</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008</b>	Boring ID: <b>4.25"</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

						(0.0-0.5) Not sampled.	929	Secondary location logged.
SS-1	0.5-3	2 2 2 5 3	26	-		(0.5-3.0) ML: SILT, dark brown, high plasticity, stiff, moist. 15% sand. Trace coarse sand. Little rootlets. No odor or visible contamination.	928	Analytical sample 2B-B-38-0.5-2 taken. TPH: 69.6 mg/kg.
SS-2	3-5	5 52 43 76	37	-		(3.0-5.0) SP: POORLY GRADED SAND WITH GRAVEL, fine, sub angular, equant, very dense, wet. 45% fine gravel and coarse sand. 5-10% silt. No odor or visible contamination.	926	Analytical sample 2B-B-38-3-5 taken. TPH: 7.71 mg/kg.
							925	

<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>HSA = Hollow Stem Auger</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>258807.82</b> Easting: <b>1511143.12</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>929.14 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>5 ft.</b>
Start Date & Time: <b>09/10/2008 1525</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

SS-1	0-3	2	40	-	0		(0.0-3.0) MH: SILT, dark brown, high plasticity, stiff, moist. 15% sand. Trace coarse sand. Little rootlets. No odor or visible contamination.	929	Third attempt, 2B-B-38D was logged and analyzed.
		2						928	
SS-2	3-5	2	29	-	5		(3.0-5.0) SW: WELL GRADED SAND WITH GRAVEL, fine, sub angular, equant, very dense, wet. 45% fine gravel and coarse sand. 5-10% silt. No odor or visible contamination.	927	Analytical sample 2B-B-38-0-2 taken. TPH: 69.6 mg/kg.
		52						926	
		43						925	
		76			5				Analytical sample 2B-B-38-3-5 taken. TPH: 7.71 mg/kg.

<b>Remarks and Datum Used:</b> HSA = Hollow Stem Auger  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1510764.12</b> Easting: <b>258729.44</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>926.94 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>5.4 ft.</b>
Start Date & Time: <b>09/10/2008 1415</b>	Bit Type: <b>2.25" HSA Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008 1430</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

SS-1	0-2.5	4 5 6 11 17	40	-		0	(0.0-2.5) SM: SILTY SAND, brown to dark brown, fine, dense, moist to wet at 2'. 20-30% silt. 10% medium to coarse sand. Trace, rounded, fine to coarse gravel up to 2" in diameter. Abundant rootlets from 0-0.5'. Trace wood. No odor or visible contamination.	926	Analytical sample 2B-B-37-0-2 taken. TPH: 586 mg/kg.
SS-2	2.5-4.5	5 2 12 17	29	-		924	(2.5-4.5) SW: WELL GRADED SAND WITH GRAVEL, brown, medium to coarse, dense, wet. 15% sub angular gravel up to 3/4" in diameter. Top 1" silty sand with trace gravel. Little rootlets. No odor or visible contamination.	923	Analytical sample 2B-B-37-2-4 taken. TPH: 1603 mg/kg.
SS-3	4.5-5.4	21 50/3"	44	-		5	(4.5-5.4) SW: WELL GRADED SAND WITH GRAVEL, brown, fine to coarse, sub angular, equant, very dense, wet. 15-20% sub angular, gravel up to 1" in diameter. No odor or visible contamination.	922	Analytical sample 2B-B-37-4-5 taken. TPH: 616 mg/kg.

<b>Remarks and Datum Used:</b> HSA = Hollow Stem Auger  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1510758.29</b> Easting: <b>258735.56</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>926.17 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>4 ft.</b>
Start Date & Time: <b>09/10/2008 1259</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008 1320</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>M. Williams</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

SS-1	0-2.5	4	40	-		0	(0.0-0.4) CL: CLAY, dark gray, medium plasticity, moist. 40% organic silt. Slight organic odor, no visible contamination.	926	
		3					(0.4-2.0) ML: SILT WITH SAND AN GRAVEL, dark gray, medium plasticity, very stiff, moist. 60% clay decreasing to 0% at 0.04'. At 0.4-2', 30% sub angular, fine to medium, elongate to equant sand and gravel. Slight organic odor, no visible contamination.		
SS-2	2.5-4	5	29	-			(2.0-4.0) SW: WELL GRADED SAND WITH GRAVEL, medium to dark gray, fine to medium, sub angular to angular, elongate, very dense, moist to wet at 2.5'. Gravel ranges from 0.25-1.5", pieces coated with an oderless, dark substance. No odor or visible contamination.	924	
		1							
		14							
		50/6"							

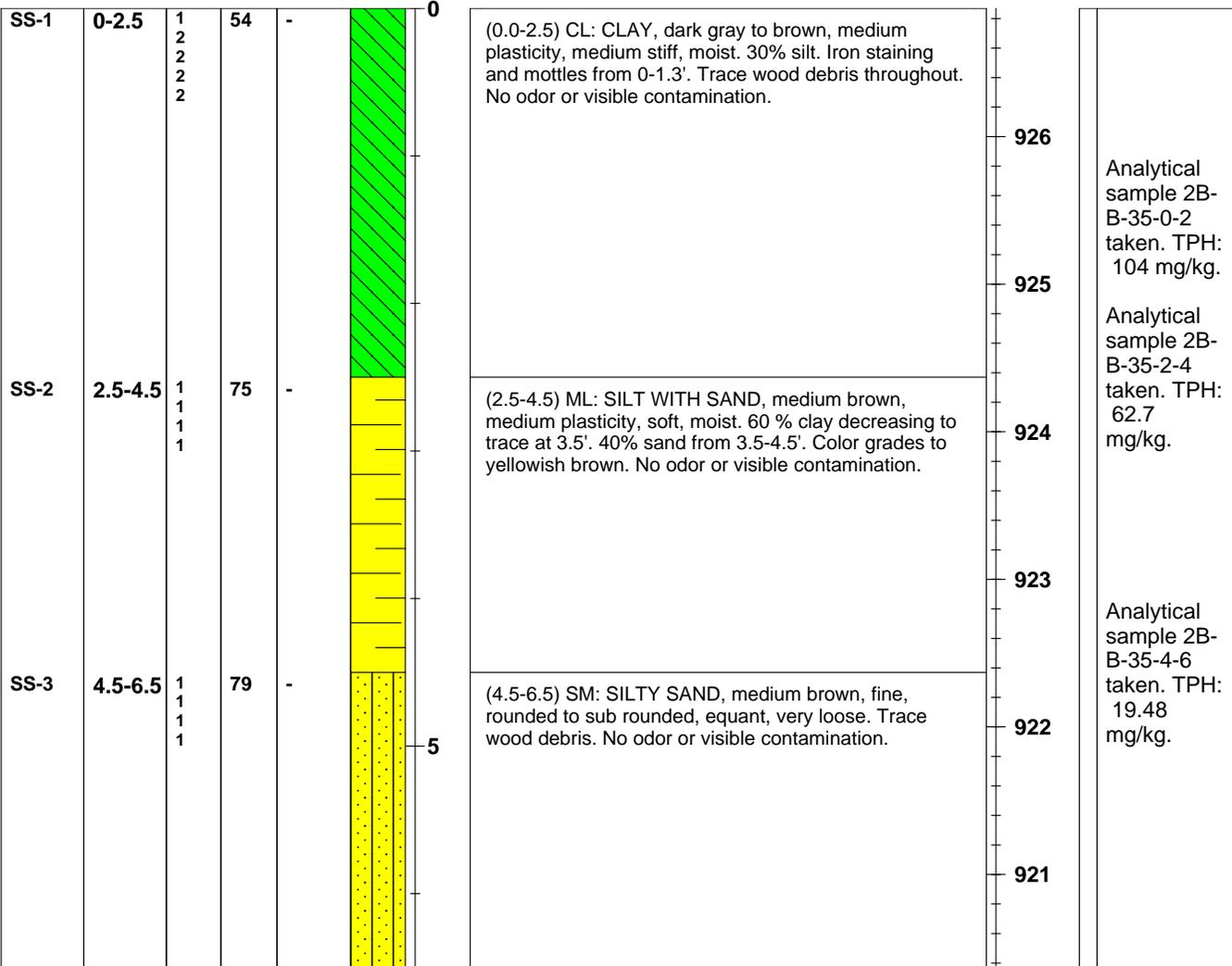
Analytical sample 2B-B-36-0-2 taken. TPH: 9050 mg/kg.

Analytical sample 2B-B-36-2-4 taken. TPH: 137.4 mg/kg.

<b>Remarks and Datum Used:</b> HSA = Hollow Stem Auger  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1510838.36</b> Easting: <b>258719.21</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>926.87 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>6.5 ft.</b>
Start Date & Time: <b>09/10/2008 1130</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008 1210</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>M. Williams</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

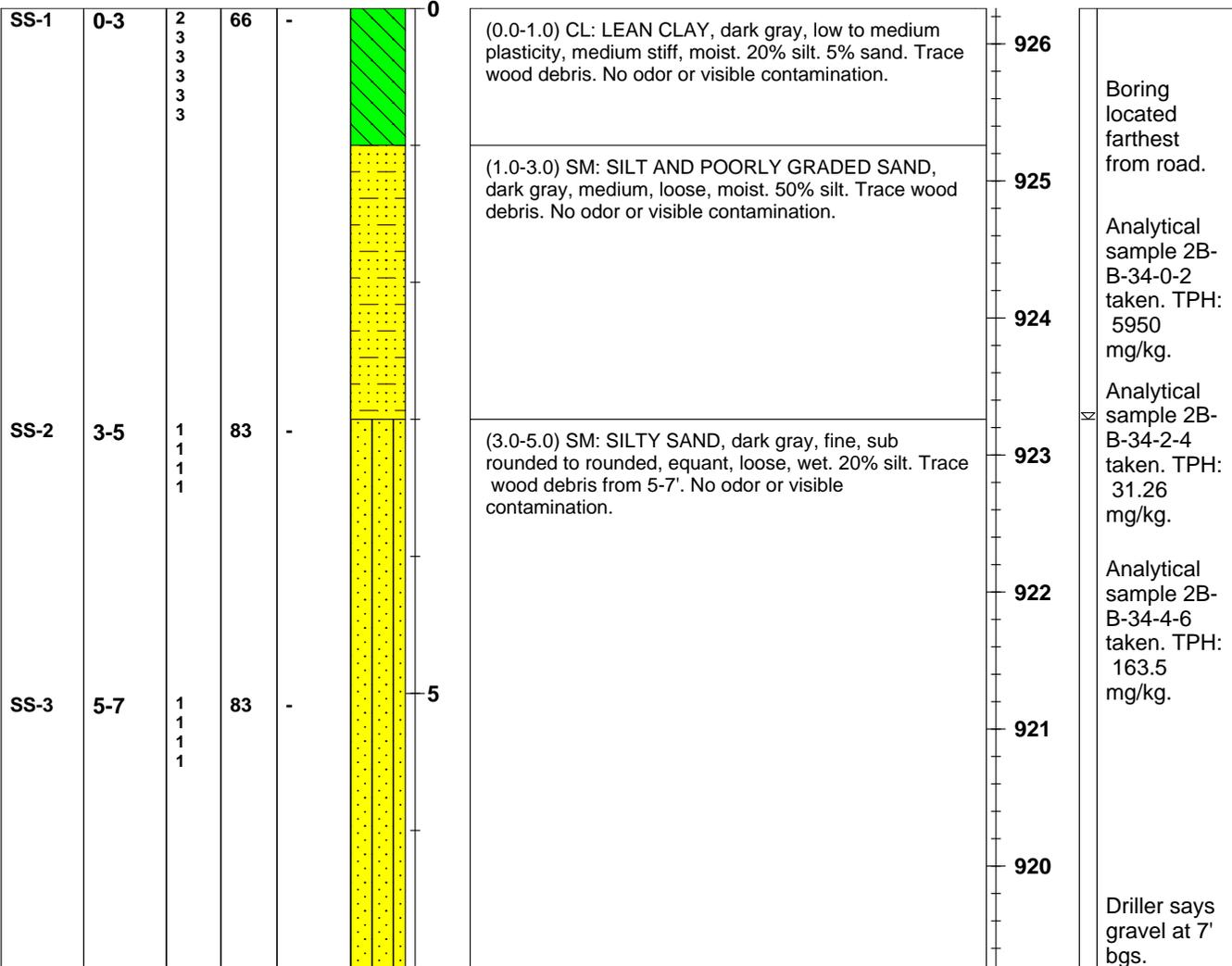


<b>Remarks and Datum Used:</b> 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>HSA = Hollow Stem Auger</b>	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Ritch Gibson</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Acker HSA 140 lbs.</b>	Northing: <b>1510838.56</b> Easting: <b>258725.20</b>
Client: <b>BNSF</b>	Method: <b>HSA</b>	Ground Elevation: <b>926.26 ft.</b>
Contractor: <b>Geologic Drill Exploration Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>7 ft.</b>
Start Date & Time: <b>09/10/2008 1110</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/10/2008 1128</b>	Boring ID: <b>4.25 in.</b>	Logged By: <b>M. Williams</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b> HSA = Hollow Stem Auger  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259561.63</b> Easting: <b>1510594.94</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.15 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>35 ft.</b>
Start Date & Time: <b>10/06/2008 1100</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/06/2008 1215</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-1	0-5	-	80	-		0	(0.0-5.0),(0.0-3.5) SW: WELL GRADED SAND, brown, fine to medium, sub rounded, equant, loose, moist. At 0-2', 10% coarse gravel. Trace roots. At 2-5', fine to medium sand. No odor or visible contamination.	929	45 degree angle boring.
						1			
						2			
						3			
						4			
C-2	5-10	-	60	-		5	(5.0-10.0),(3.5-7.1) SP: POORLY GRADED SAND WITH GRAVEL, brown, medium, sub rounded, equant, loose, moist. At 5-7', medium sand. At 7-8', fine sand. 10% silt. 8-10', 40% sub rounded, equant, fine gravel. 10% sub rounded, equant, flat, coarse gravel. No odor or visible contamination.	924	Sample 1A-B-35-10 taken. TPH: 7660 mg/kg.
						6			
						7			
						8			
						9			
C-3	10-15	-	80	-		10	(10.0-12.0),(7.1-8.5) SM: SILTY SAND WITH GRAVEL, brown, fine, sub rounded, equant, loose, moist. 35% sub angular, equant, fine gravel. 10% sub rounded, equant, coarse gravel up to 2.5". No odor or visible contamination.	919	Sample 1A-B-35-14 taken. TPH: 88.4 mg/kg.
						11			
						12			
						13			
						14			
C-4	15-25	-	80	-		15	(14.0-15.0),(10.0-10.6) SP: POORLY GRADED SAND WITH GRAVEL, light brown, coarse, sub angular, equant, loose, moist. 20% sub rounded, equant, fine gravel. 5% sub rounded, flat cobbles. Moderate bunker-C odor and sheen.	916	Sample 1A-B-35-15 taken. TPH: 14540 mg/kg. DUP-01 collected. TPH: 2670 mg/kg.
						16			
						17			
						18			
						19			
						20	(15.0-18.0),(10.6-12.7) SP: POORLY GRADED SAND WITH SILT AND GRAVEL, light brown and gray, fine, sub rounded, equant, loose, wet. 20% sub rounded, equant, coarse gravel. 10% non-plastic silt. 5%, sub rounded, equant cobbles. No odor or visible contamination.	913	
						21		912	

<b>Remarks and Datum Used:</b> AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval is at angle	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	Second depth interval is vertical depth		Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259561.63</b> Easting: <b>1510594.94</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.15 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>35 ft.</b>
Start Date & Time: <b>10/06/2008 1100</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/06/2008 1215</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

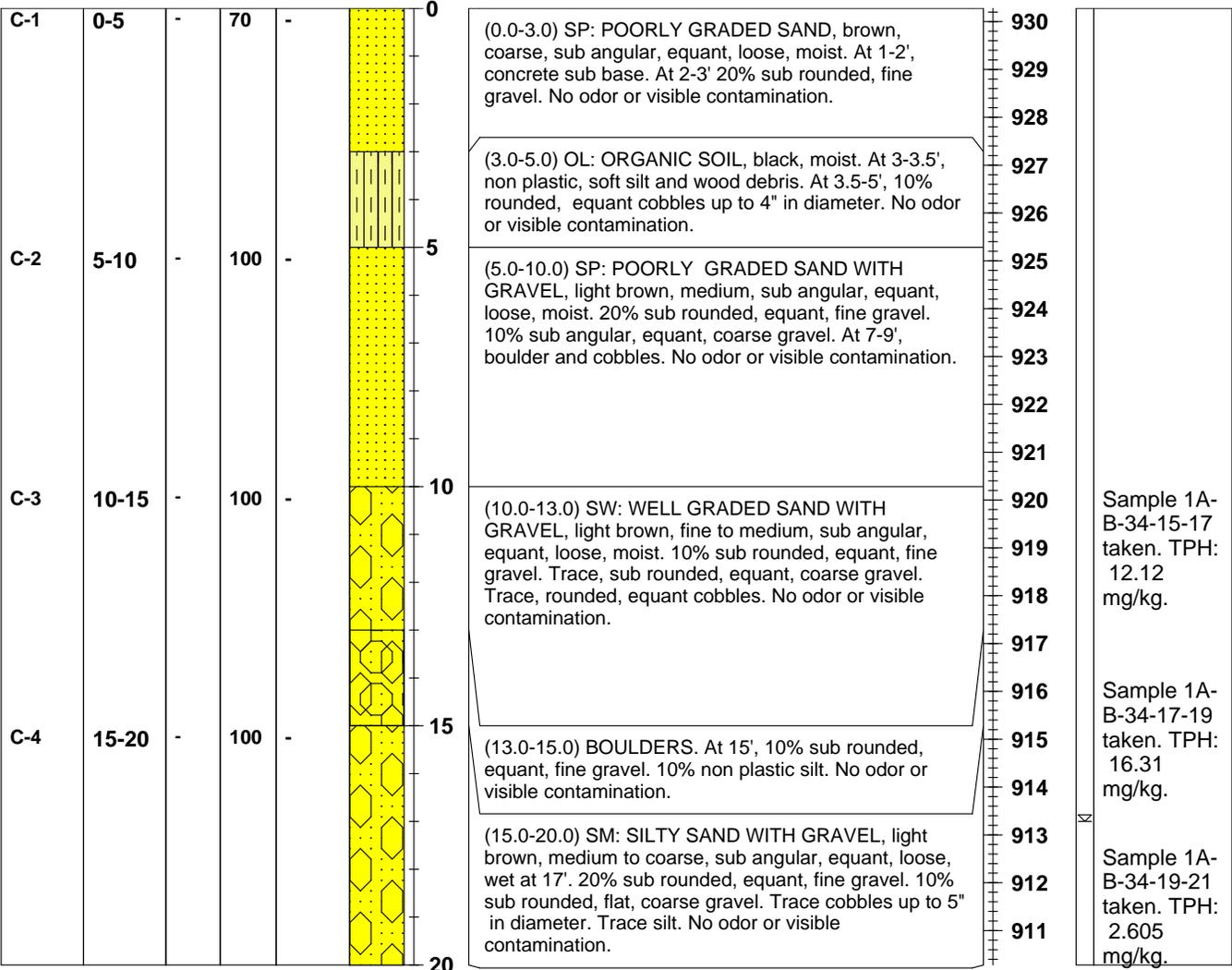
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
C-5	25-30	-	90	-		20	(18.0-22.0),(12.7-15.6) SP: POORLY GRADED SAND WITH SILT AND GRAVEL, light brown, fine, sub rounded, equant, loose, wet. 20% sub rounded, equant, coarse gravel. 10% non-plastic silt. 5% sub rounded, equant cobbles. Strong bunker-C odor, large blebs up to 2" long.	911	Sample 1A-B-35-16 taken. TPH: 34.15 mg/kg.
						25	(22.0-25.0),(15.6-17.7) SP: POORLY GRADED SAND, brown, medium, sub rounded, equant, loose, wet. 5% sub rounded, equant cobbles. 5% silt. Slight bunker-C odor, no visible contamination.	907	
						25	(25.0-29.0),(17.7-20.5) ML: SILT, brown, medium stiff, slow dilatency, non-plastic, wet. 10% very fine sand. No odor or visible contamination.	904	
						30	(29.0-30.0),(20.5-21.2) ML: SILT, brown, medium stiff, slow dilatency, low plasticity, wet. No odor or visible contamination.	900	
C-6	30-35	-	90	-		30	(30.0-31.0),(21.2-21.9) SM: SILTY SAND, brown, fine, medium dense, wet. 20%, low plasticity, slow dilatency silt. No odor or visible contamination.	899	Sample 1A-B-35-17 taken. TPH: 5.495 mg/kg.
						31	(31.0-35.0),(21.9-24.8) SW: WELL GRADED SAND, brown, fine to medium, sub rounded, equant, loose, wet. At 31', sub rounded, equant cobbles. At 31-35', 5% silt. No odor or visible contamination.	898	
						35		895	

<b>Remarks and Datum Used:</b> AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval is at angle	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	Second depth interval is vertical depth		Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259554.17</b> Easting: <b>1510662.98</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.28 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/01/2008 1400</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/01/2008 1440</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

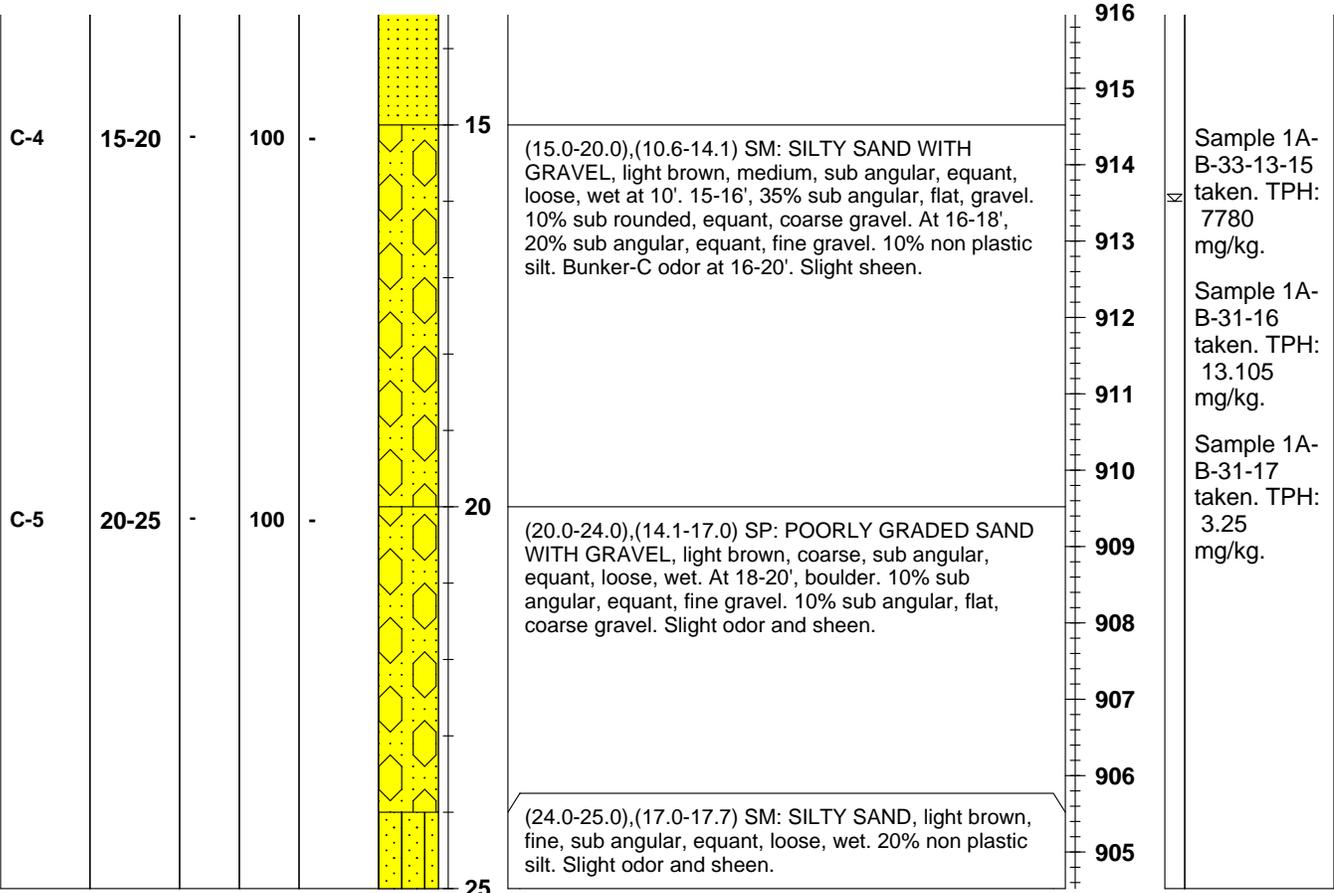


<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
		Date	Time	Depth (ft.)



Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259541.72</b> Easting: <b>1510599.56</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.52 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>10/01/2008 1007</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/01/2008 1250</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b> AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval is at angle	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	Second depth interval is vertical depth		Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259484.54</b> Easting: <b>1510676.35</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.33 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/01/2008 0800</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/01/2008 0920</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
C-1	0-5	-	80	-		0	(0.0-3.5) SW: WELL GRADED SAND WITH GRAVEL, light brown, fine to coarse, sub rounded, equant, loose, dry. Trace wood debris. At 0-1', asphalt with gravel sub-base. At 1-3.5', 30% sub angular, equant, coarse gravel. 10% sub angular, fine gravel. No odor or visible contamination.	929	Sample 1A-B-32-13-15 taken. TPH: 1074 mg/kg. DUP-01 collected. TPH: 1522 mg/kg.
						5	(3.5-5.0) SW: WELL GRADED SAND, light brown, fine to medium, sub rounded, equant, coarse, dry. At 3.5-4', boulder. At 4-5', 10% sub rounded, coarse gravel up to 3" in diameter. 5% sub rounded, fine gravel. No odor or visible contamination.	928	
C-2	5-10	-	100	-		10	(5.0-10.0) SW: WELL GRADED SAND WITH GRAVEL, light brown, medium to coarse, sub rounded, equant, loose, moist. At 6-9', 30% sub angular, equant, fine gravel. 10% sub angular, equant, coarse gravel. At 5-6' and 9-10', boulders. 4" bed of fine gravel. No odor or visible contamination.	927	
								926	
								925	
								924	
								923	
								922	
								921	
								920	
C-3	10-15	-	30	-		10	(10.0-15.0) SW: WELL GRADED SAND WITH GRAVEL, light brown, medium to coarse, sub rounded, equant, loose, wet. 30% sub rounded, fine gravel. 10% sub angular, coarse gravel up to 3" in diameter. 10% cobbles up to 6" in diameter. Trace silt. Slight bunker-C odor and sheen.	919	
								918	
								917	
								916	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core		<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259484.54</b> Easting: <b>1510676.35</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>929.33 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>10/01/2008 0800</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>10/01/2008 0920</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

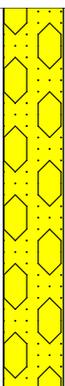
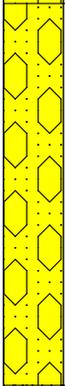
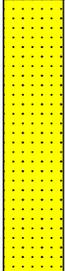
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-4	15-20	-	100	-		15	(15.0-18.0) SW: WELL GRADED SAND WITH GRAVEL, light brown, fine to coarse, sub rounded, equant, loose, wet. At 15-18', 20% sub rounded, fine gravel. 10% silt. sheen and odor. Slight bunker-C sheen and odor.	915	Sample 1A-B-32-15-17 taken. TPH: 3.175 mg/kg.
						18.0	(18.0-20.0) SW: WELL GRADED SAND, light brown, medium to coarse at 19.5, sub angular, moist. Slight bunker-C odor and sheen.	910	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259587.16</b> Easting: <b>1510620.17</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.46 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 1523</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 1545</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

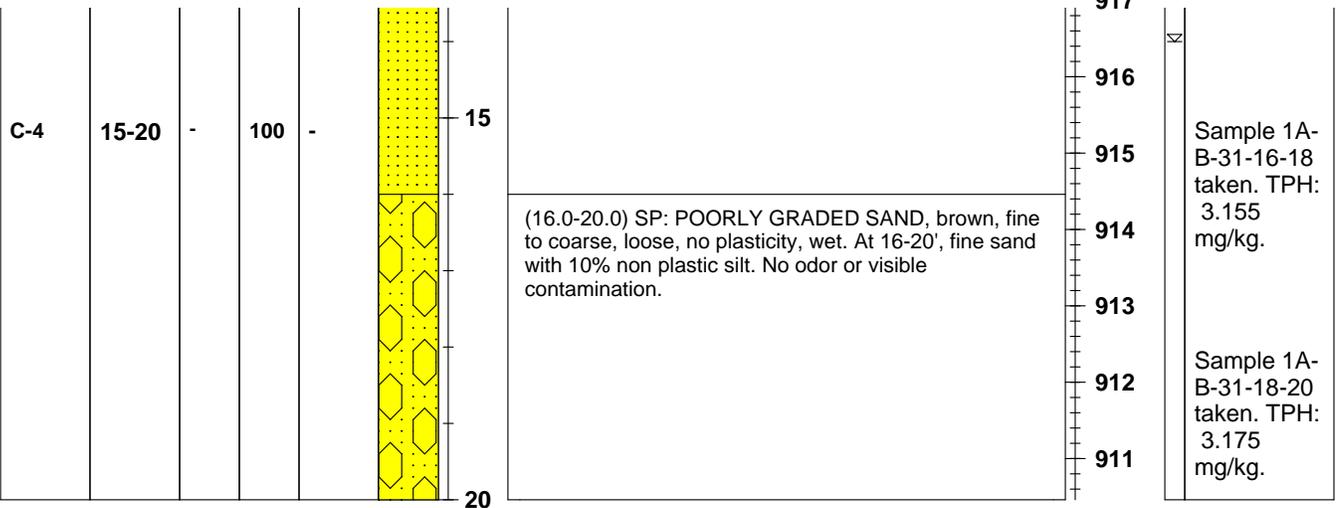
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-1	0-5	-	80	-		0	(0.0-5.0) SW: WELL GRADED SAND WITH GRAVEL, brown, medium to coarse, sub angular, equant, loose, dry to moist at 3'. At 0-2', 10% sub rounded, fine gravel. 5% sub rounded cobbles. At 3-5', 20% sub rounded, coarse gravel up to 3" in diameter. 10% sub rounded, fine gravel. Trace silt. No odor or visible contamination.	930	
								929	
								928	
								927	
								926	
C-2	5-10	-	80	-		5	(5.0-10.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, medium to coarse, sub angular, equant, loose, moist. From 5-8', 20% sub angular, fine and coarse gravel. From 8-10', 20% sub angular, flat, fine gravel. 10% cobbles, sub rounded, up to 4" in diameter. No odor or visible contamination.	925	
								924	
								923	
								922	
								921	
C-3	10-15	-	100	-		10	(10.0-16.0) SP: POORLY GRADED SAND WITH GRAVEL, brown, coarse, sub angular, equant, loose, wet at 14'. At 10-12', 20% sub angular fine and coarse gravel. At 12-13', boulder. At 13-15', 20% sub angular, flat, fine gravel. At 15-16', 10% sub angular, fine gravel. No odor or visible contamination.	920	Sample 1A-B-31-12-14 taken. TPH: 2.535 mg/kg.
								919	
								918	
								917	

<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259587.16</b> Easting: <b>1510620.17</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.46 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 1523</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 1545</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259584.38</b> Easting: <b>1510605.02</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.63 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 1400</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 1445</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-1	0-5	-	100	-		(0.0-5.0) SW: WELL GRADED SAND WITH GRAVEL, brown, fine to coarse, sub angular, equant, loose, dry. At 4', 20% sub rounded, elongated, coarse gravel. 5% sub angular, fine gravel. No odor or visible contamination.	930 929 928 927 926	Sample 1A-B-30-12-14 taken. TPH: 19.07 mg/kg.  Sample 1A-B-30-14-16 taken. TPH: 2.59 mg/kg.
C-2	5-10	-	80	-		(5.0-10.0) SM: SILTY SAND, medium to coarse, sub angular, equant, loose, no plasticity, moist. 20% sub rounded, coarse gravel. At 7.6', sub rounded cobble. At 9', 30% sub rounded cobbles. At 9.5', boulder. No odor or visible contamination.	925 924 923 922	
C-3	10-15	-	60	-		(10.0-15.0) SP: POORLY GRADED SAND WITH GRAVEL, brown, fine, sub angular, equant, loose, moist to wet at 15'. 20% sub rounded, coarse gravel. At 14-14.5', boulder. At 14.5', lense of sub angular, coarse sand. 10% sub rounded, fine gravel. No odor or visible contamination.	921 920 919 918 917	

<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259584.38</b> Easting: <b>1510605.02</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.63 ft.</b>
Contractor: <b>Boart Longyear</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 1400</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 1445</b>	Boring ID: <b>6 in.</b>	Logged By: <b>J. Waknitz</b>

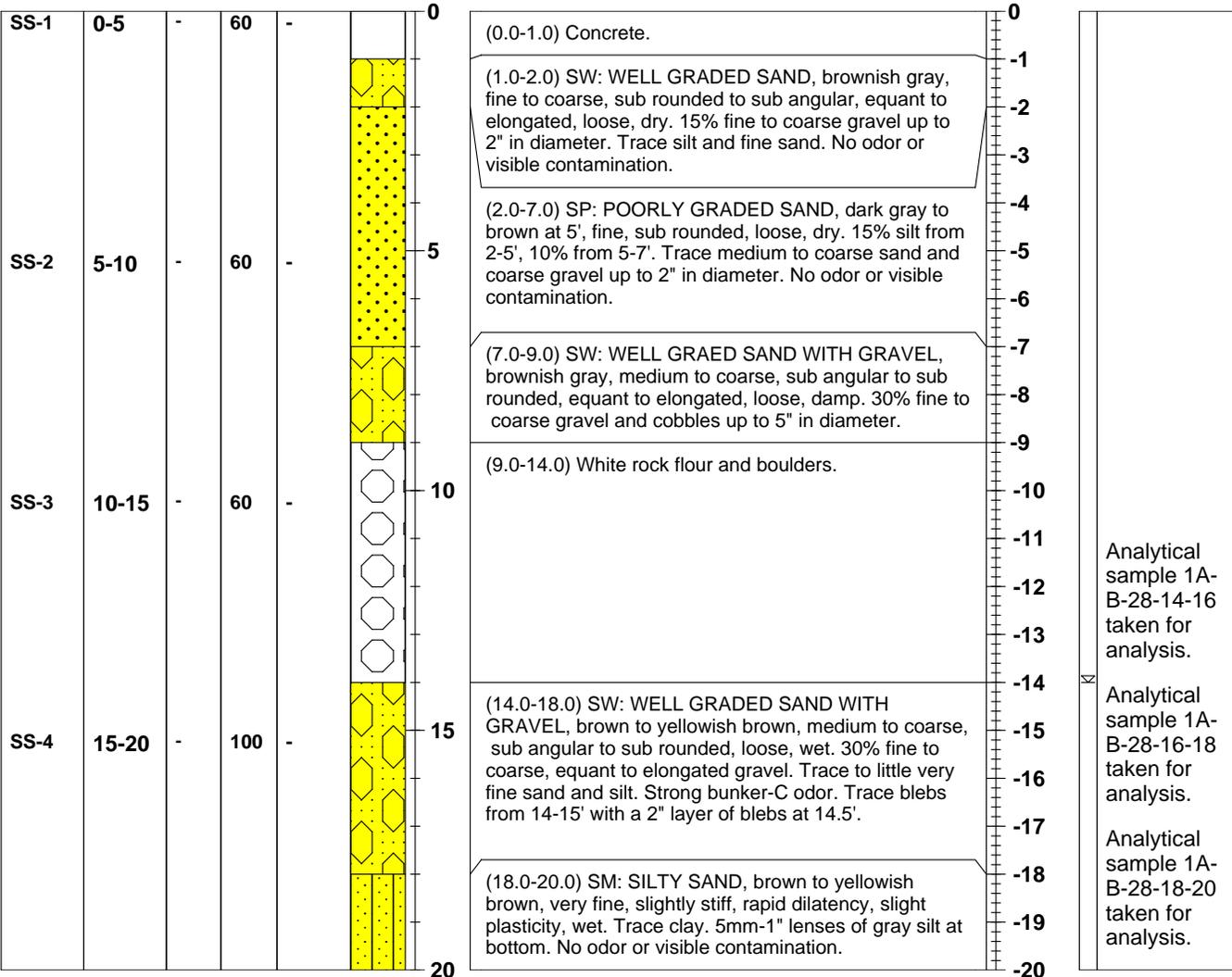
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
C-4	15-20	-	100	-		15	(15.0-20.0) SP: POORLY GRADED SAND, light brown, fine, loose, wet. 15% silt. 1" bed of orange silt at 16'. No odor or visible contamination.	917 916 915 914 913 912 911	Sample 1A-B-30-16-18 taken. TPH: 3.145 mg/kg.  Sample 1A-B-30-18-20 taken. TPH: 3.22 mg/kg.
						20			

<b>Remarks and Datum Used:</b>  AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Tom Craney</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: - Easting: -
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: -
Contractor: <b>Boart Longyear</b>	Casing ID: <b>4"</b>	Total Depth: <b>20'</b>
Start Date & Time: <b>08/25/2008 1050</b>	Bit Type: <b>HSA coring bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>08/25/2008 1145</b>	Boring ID: <b>4"</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	HSA = Hollow Stem Auger	<b>Sample Type</b> N = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	BGS = below ground surface		Date	Time	Depth (ft.)
			8/25/2008	1120	14' BGS

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Tom Craney</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: - Easting: -
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: -
Contractor: <b>Boart Longyear</b>	Casing ID: -	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>08/25/2008 0935</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>08/25/2008 1010</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

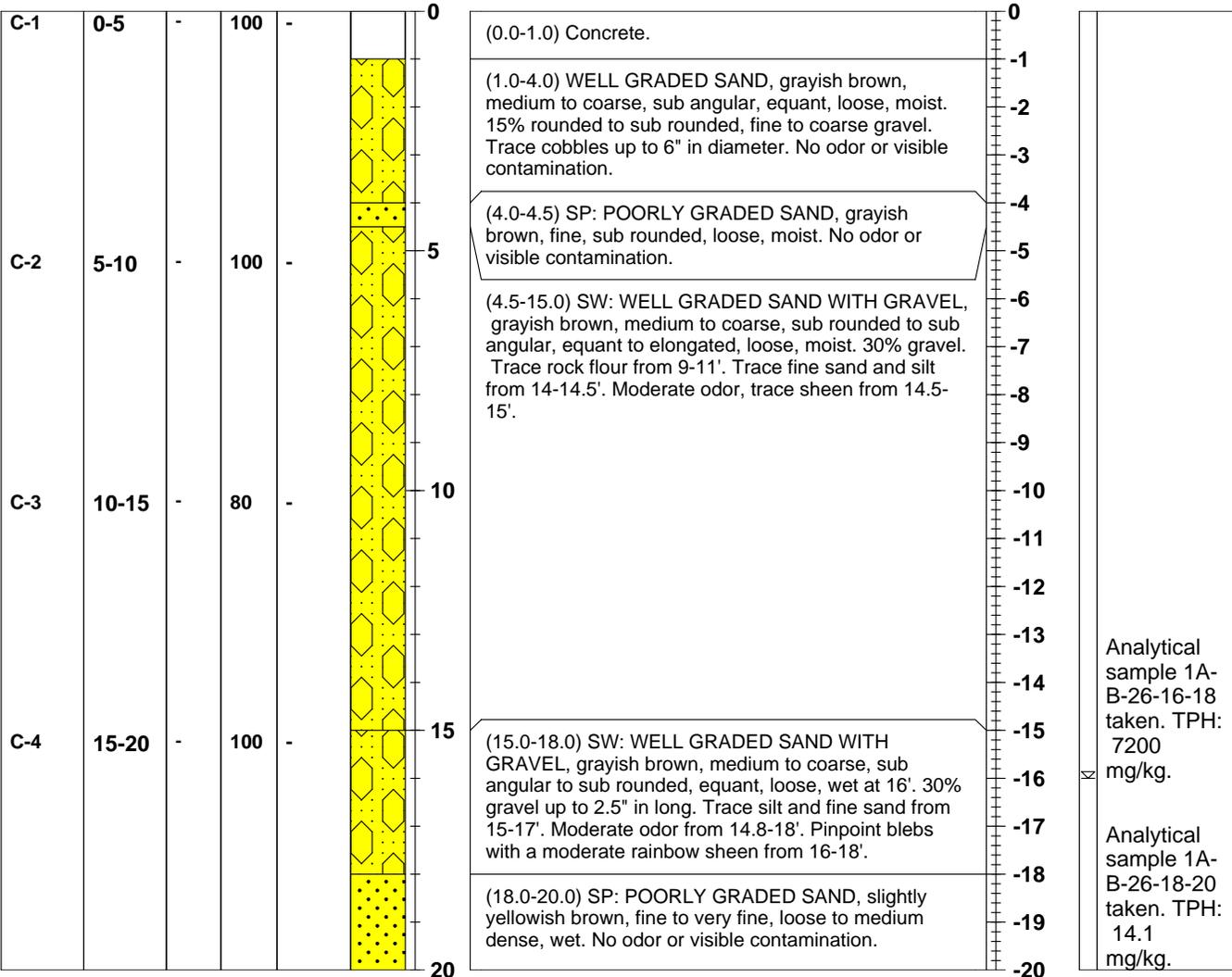
Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
C-1	0-5	-	60	-		0	(0.0-1.0) Concrete.	0	
						5	(1.0-10.0) SW: WELL GRADED SAND WITH GRAVEL, grayish brown, medium to coarse, sub rounded to sub angular, elongated to equant, loose, moist. 30% fine to coarse gravel. Fine sand and cobbles from 3-5'. Trace fine sand. No odor or visible contamination.	-1	
C-2	5-10	-	60	-		10	(10.0-16.0) GW: WELL GRADED GRAVEL WITH SAND, brownish gray, fine to coarse, sub rounded to sub angular, loose, moist to wet. 30-45% medium to coarse sand, becoming more fine with depth. Trace to 10% coarse gravel. Trace to 10% silt and fine sand. Slight to moderate bunker-C odor from 14.25-15, slight rainbow sheen.	-10	Analytical sample 1A-B-27-13-15 taken. TPH: 730 mg/kg.
C-3	10-15	-	100	-		15	(16.0-20.0) SP: POORLY GRADED SAND, yellowish brown, fine to very fine, medium dense, wet. No odor or visible contamination.	-15	Analytical sample 1A-B-27-15-17 taken. TPH: 57 mg/kg.
C-4	15-20	-	100	-		20		-16	Analytical sample 1A-B-27-17-19 taken. TPH: 2.3 mg/kg.

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	_____	<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
	_____		Date	Time	Depth (ft.)
	_____				
	_____				

Project: <b>Skykomish</b>	Operator: <b>Tom Craney</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: - Easting: -
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: -
Contractor: <b>Boart Longyear</b>	Casing ID: -	Total Depth: <b>20 ft</b>
Start Date & Time: <b>08/25/2008 0855</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>08/25/2008 0925</b>	Boring ID: <b>6 in</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259482.19</b> Easting: <b>1510811.24</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>934.42 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 0806</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 0900</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

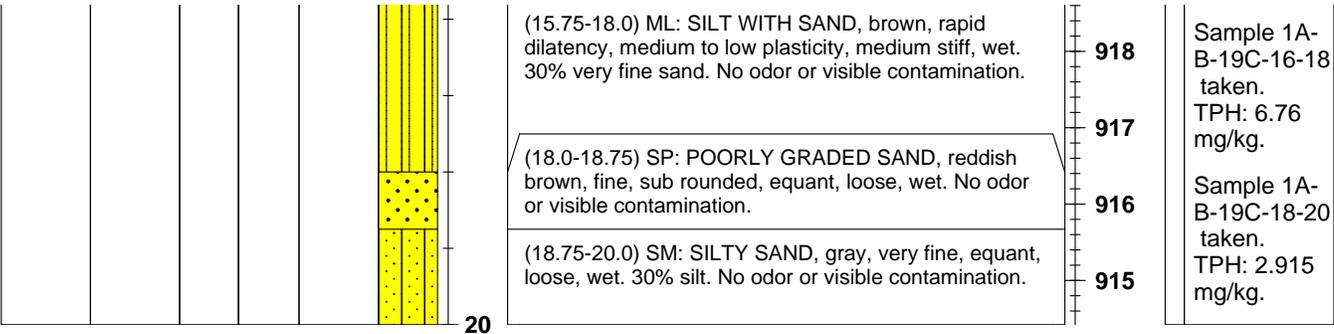
C-1	0-5	-	100	-		0	(0.0-5.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to coarse, sub rounded to sub angular, equant, loose, moist. 25% rounded to sub angular, fine gravel 1/4-3/4" in diameter. 15% rounded to sub angular coarse gravel and small cobble up to 4" long. Top 4" asphalt, then 6" of roadbase. No odor or visible contamination.	934 933 932 931 930	Sample 1A-B-19C-12-14 taken. TPH: 2.66 mg/kg.  Sample 1A-B-19C-14-16 taken. TPH: 2.54 mg/kg.
C-2	5-10	-	100	-		5	(5.0-10.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to coarse, sub rounded to sub angular, moist to dry. 20% flat, equant, fine gravel up to 3/4" in diameter. 20% elongated, equant, coarse gravel and small cobble up to 5" long. 10% coarse sand. At 7.5-8', boulder with rock flour. No odor or visible contamination.	929 928 927 926 925	
C-3	10-15	-	100	-		10	(10.0-15.0) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to medium, sub angular, equant, loose, wet at 13'. 40% sub angular to sub rounded, fine to coarse gravel. Lense of silty gravel from 12.5-13'. Boulder from 13-14', and from 14.75-15'. No odor or visible contamination.	924 923 922 921	
C-4	15-20	-	100	-		15	(15.0-15.75) SW: WELL GRADED SAND WITH GRAVEL, brownish gray, fine to medium, sub angular, equant, loose, wet. 40% gravel. No odor or visible contamination.	920 919	

<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	Sample Type SS = SPT DP = Direct Push GS = Grab Sample C = Core	Groundwater		
		Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259482.19</b> Easting: <b>1510811.24</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>934.42 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>20 ft.</b>
Start Date & Time: <b>09/30/2008 0806</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/30/2008 0900</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					



<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring Log

Project: <b>Skykomish</b>	Operator: <b>Brian Owens</b>	Location: <b>Skykomish, WA</b>
Project #: <b>01140-204-0320</b>	Drill Rig Type: <b>Spider Sonic</b>	Northing: <b>259451.96</b> Easting: <b>1510712.82</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Ground Elevation: <b>930.37 ft.</b>
Contractor: <b>Boart Longyear Inc.</b>	Casing ID: <b>-</b>	Total Depth: <b>15 ft.</b>
Start Date & Time: <b>09/29/2008 1015</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Seal: <b>Bentonite chips</b>
Finish Date & Time: <b>09/29/2008 1130</b>	Boring ID: <b>6 in.</b>	Logged By: <b>R. Knecht</b>

Sample					Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation (ft.)	Comments & Sample
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)					

C-1	0-5	-	40	-		0	(0.0-5.0) SP: POORLY GRADED SAND WITH GRAVEL, light yellowish brown, fine, loose, dry. At 1.5-2', 40% rounded, large gravel up to 2" in diameter. At 2-5', 20% medium to coarse sand. 20% silt. Trace gravel. At 3-4', boulders with rock flour. No odor or visible contamination.	930	Hit refusal at 15 ft-bgs, relocated 11' north to 1A-B-18C.
						5	(5.0-10.0) SW: WELL GRADED SAND WITH GRAVEL, whitish gray grading to brownish gray, fine to medium, sub rounded, equant, loose, moist at 8'. 30% sub angular to sub rounded, fine gravel up to 3/4" in diameter. 10% sub rounded to sub angular, coarse gravel up to 3" in diameter. Trace to 10% silt. No odor or visible contamination.	929	
C-2	5-10	-	100	-		10	(10.0-15.0) SW: WELL GRADED SAND, brownish gray, fine to medium, sub rounded, equant, loose, moist at 14'. 20% sub rounded, fine gravel up to 3/4" in diameter. 10-15% sub rounded to sub angular coarse gravel and cobbles up to 4" long. 10% silt. At 14-15', cobbles up to 5" in diameter with little to no gravel. No odor or visible contamination.	928	
								927	
								926	
								925	
								924	
								923	
								922	
								921	
C-3	10-15	-	94	-				920	
								919	
								918	
								917	
								916	

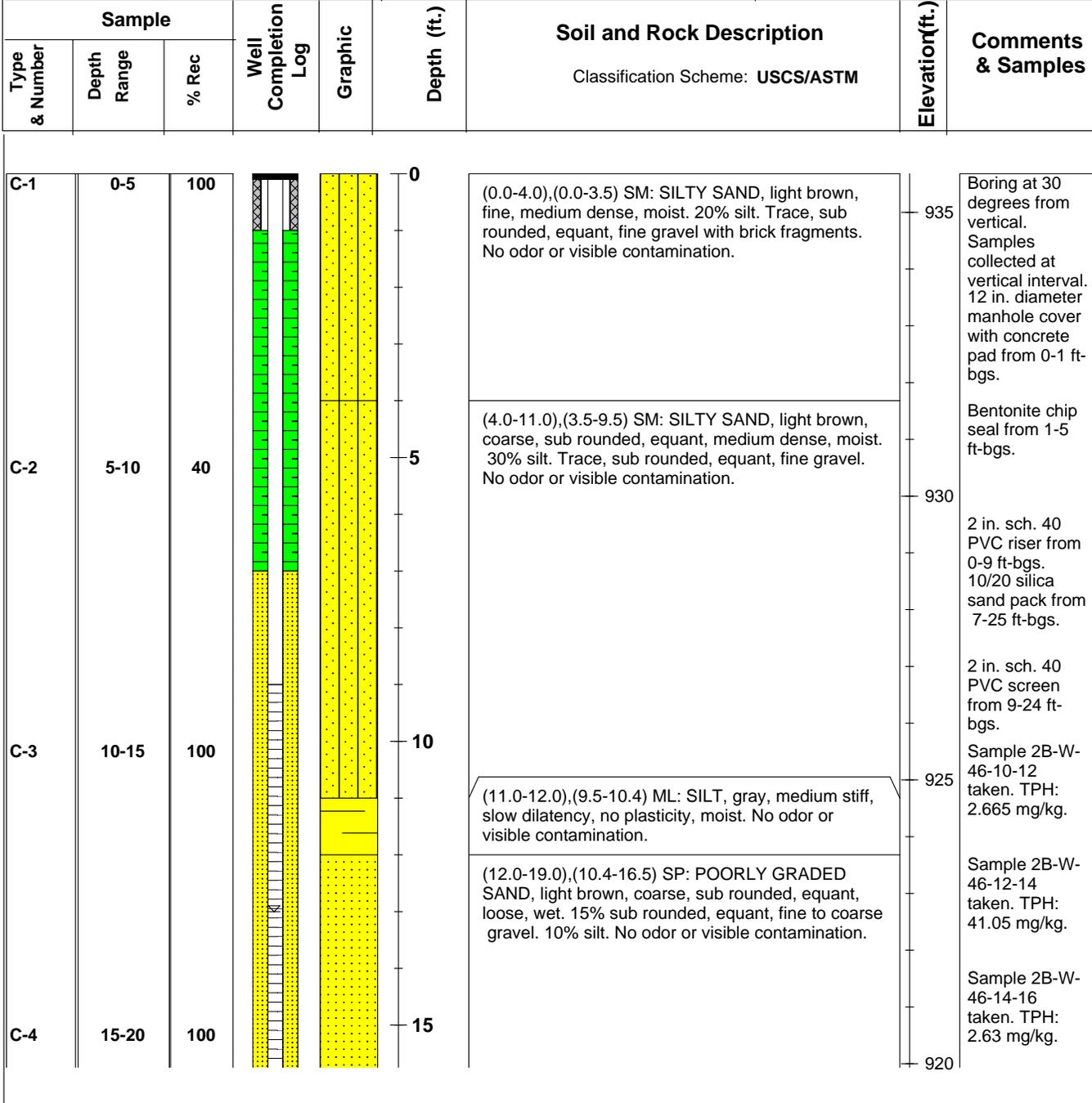
<b>Remarks and Datum Used:</b>  ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		<b>Sample Type</b> SS = SPT DP = Direct Push GS = Grab Sample C = Core	<b>Groundwater</b>		
			Date	Time	Depth (ft.)

# Boring/Well Log

Well #: 2B-W-46

Sheet 1 of 2

Project: <b>Skykomish</b>	Monument: <b>Flush Mount</b>	Stick Up: -
Project #: <b>01140-204-0320</b>	Northing: <b>258697.832</b> Easting: <b>1510811.78</b>	Ground Elevation: <b>935.68 ft.</b>
Location: <b>Skykomish, WA</b>	Drill Rig Type: <b>Spider Sonic</b>	MP Elevation: <b>935.28 ft.</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>11/11/08 1200</b>	Casing ID: <b>2 in.</b>	Filter Pack: -
Finish Date & Time: <b>11/11/08 1300</b>	Boring ID: <b>6 in.</b>	Seal: <b>Bentonite Chips</b>
Contractor: <b>Boart Longyear Inc.</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Grout: -
Operator: <b>Brian Owens</b>	Logged By: <b>J. Waknitz</b>	Screen: <b>2-in. Sch. 40 PVC from 9-24 ft-bgs</b>



<b>Remarks and Datum Used:</b> ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval angle depth.	<b>Sample Type</b> N = SPT DP = Direct Push SS = Split Spoon C = Core	<b>Groundwater</b>		
	Second depth interval corrected to vertical depth.		Date	Time	Depth (ft.)
	ft-bgs = feet below ground surface				
	sch. = schedule				

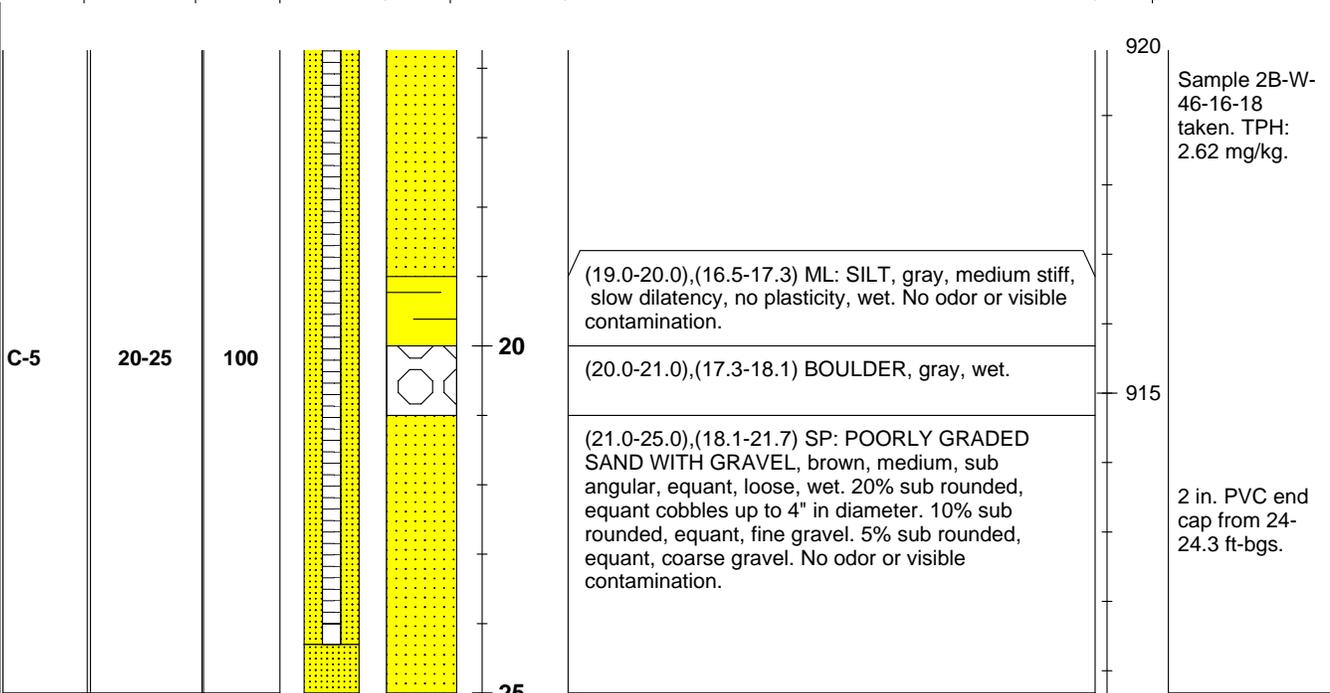
# Boring/Well Log

Well #: 2B-W-46

Sheet 2 of 2

Project: <b>Skykomish</b>	Monument: <b>Flush Mount</b>	Stick Up: -
Project #: <b>01140-204-0320</b>	Northing: <b>258697.832</b> Easting: <b>1510811.78</b>	Ground Elevation: <b>935.68 ft.</b>
Location: <b>Skykomish, WA</b>	Drill Rig Type: <b>Spider Sonic</b>	MP Elevation: <b>935.28 ft.</b>
Client: <b>BNSF</b>	Method: <b>Rotosonic</b>	Total Depth: <b>25 ft.</b>
Start Date & Time: <b>11/11/08 1200</b>	Casing ID: <b>2 in.</b>	Filter Pack: -
Finish Date & Time: <b>11/11/08 1300</b>	Boring ID: <b>6 in.</b>	Seal: <b>Bentonite Chips</b>
Contractor: <b>Boart Longyear Inc.</b>	Bit Type: <b>Carbide Tooth Coring Bit</b>	Grout: -
Operator: <b>Brian Owens</b>	Logged By: <b>J. Waknitz</b>	Screen: <b>2-in. Sch. 40 PVC from 9-24 ft-bgs</b>

Type & Number	Sample		Well Completion Log	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: <b>USCS/ASTM</b>	Elevation(ft.)	Comments & Samples
	Depth Range	% Rec						



Remarks and Datum Used: ENSR 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	First depth interval angle depth.	<b>Sample Type</b> N = SPT DP = Direct Push SS = Split Spoon C = Core	<b>Groundwater</b>		
	Second depth interval corrected to vertical depth.		Date	Time	Depth (ft.)
	ft-bgs = feet below ground surface				
	sch. = schedule				

## **Appendix B**

### **Evaluation of Groundwater Flow Conditions in the Former Maloney Creek Zone**

## **B1. Evaluation of Groundwater Flow Conditions in the Former Maloney Creek Zone**

BNSF has performed a hydrogeologic investigation of the Former Maloney Creek Zone (FMCZ). This investigation was performed in accordance with the Remedial Design Investigation Work Plan (ENSR, 2007) to allow a better understanding of groundwater flow in the Former Maloney Creek Zone (FMCZ); specifically, to determine if groundwater exceeding the FMCZ cleanup level (CUL) of 208 µg/L NWTPH-Dx flows from the Railyard Zone (RYZ) into the FMCZ.

The Cleanup Action Plan (CAP) (Ecology, 2007) requires BNSF to implement groundwater containment and remediation measures 25 feet north of the RYZ/FMCZ boundary if 1) it is determined that groundwater is flowing from the RYZ into the FMCZ and 2) this groundwater contains total petroleum hydrocarbons (TPH) at concentrations exceeding the CUL, contains free product, or petroleum hydrocarbon sheen<sup>1</sup>.

Based on the findings of the investigation and these criteria, BNSF has concluded that groundwater does appear to flow into a small section of the FMCZ from the RYZ during some monitoring events. Groundwater samples collected from these wells contained TPH at concentrations exceeding the CUL during some monitoring events (the detected TPH concentrations in these wells have varied between ND and 708 µg/L NWTPH-Dx), but only marginally during one event when groundwater was flowing from the RYZ towards the FMCZ.

### **B1.1 Investigation Methodology**

BNSF measured fluid levels in all wells and piezometers in the vicinity of the RYZ/FMCZ boundary monthly between November 2007 and September 2008. These fluid level data (Table 1) were used to prepare potentiometric surface elevation maps (Figures 1 through 10). The potentiometric surface elevation maps were used to determine groundwater flow directions in the vicinity of the RYZ/FMCZ boundary at the time of each gauging event and evaluate potential changes in groundwater flow direction and gradient over time. Specifically, the data from each gauging event were carefully reviewed to evaluate the potential for groundwater flow from the RYZ into the FMCZ. Groundwater monitoring data collected from wells in the vicinity of the FMCZ in March and September 2008 were used to evaluate if TPH concentrations exceeded the CUL.

### **B2.1 Results and Conclusions**

The potentiometric surface maps indicate that groundwater flows north or northwest from the FMCZ to the RYZ during most monitoring events. However, groundwater apparently flows from the RYZ towards a section of the FMCZ during the March 2008 and September 2008 monitoring events; this section comprises part of the eastern portion of the FMCZ. The potentiometric surface maps prepared using gauging data from March 2008 and September 2008 (Figures 4 and 10) indicate that groundwater appears to be flowing towards portions of FMCZ in the vicinity of RYZ monitoring wells 2A-W-10, MW-3, and MW-4 and FMCZ piezometers 2B-W-11 and 2B-W-12. The interpreted inflow zones are shown on each figure. These inflow

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<sup>1</sup> CAP Section 4.1.6 states that "Groundwater entering the FMC Zone from either the Railyard Zone or the SDZ and flowing toward the FMC Zone must be remediated to a petroleum concentration of 208 µg/L NWTPH-DX and absence of sheen or free product. This will be measured at least 25 feet from of the boundary of the FMC Zone...BNSF will implement groundwater containment and remediation measures along the north of BNSF's railyard facility property boundary where soil petroleum concentrations exceed 3,400 mg/kg NWTPH-DX and, if necessary, along a line 25 feet north of the FMC and Railyard Zone boundary, with the length to be determined by required hydrogeologic investigations."

zones are approximately 100-feet long during each gauging event; however they are not coincident and the aggregate zone length is interpreted to be 180 feet.

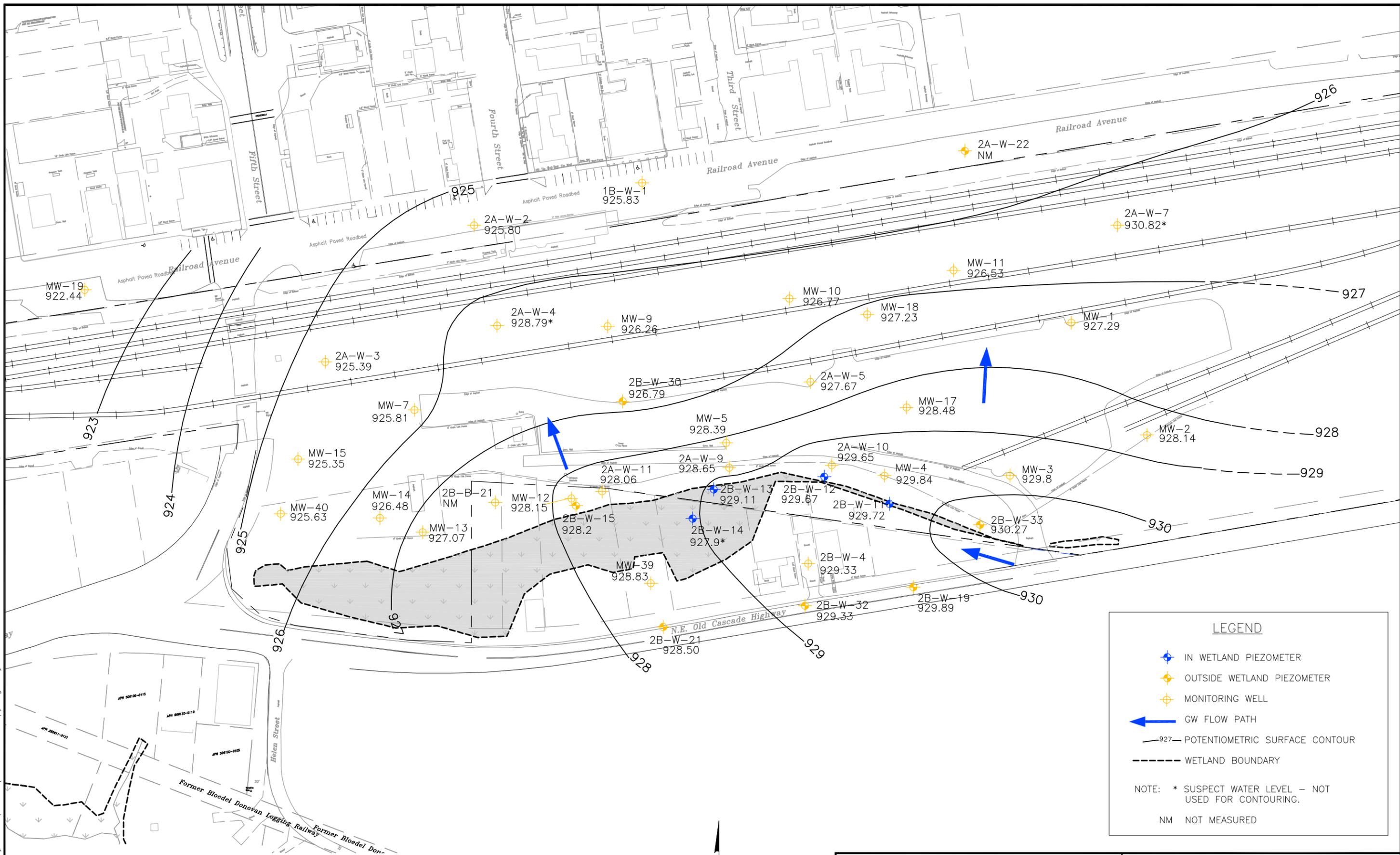
The March 2008 gauging event shows that there is a groundwater divide on the railyard approximately 40 feet north of the FMCZ/RYZ boundary. Groundwater north of the divide flows away from the boundary and groundwater south of the divide flows towards the boundary.

RYZ monitoring well analytical data collected from 2002 to 2008 are summarized in Table B-2. These data indicate that TPH groundwater concentrations have at times exceeded the CUL within parts of the RYZ. Groundwater samples have not been collected from the FMCZ piezometers. Samples collected from RYZ monitoring wells 2A-W-10, MW-3, and MW-4 are therefore representative of groundwater quality in the immediate vicinity of the FMCZ. MW-4 is located in the inflow zone approximately 25 feet north of the RYZ/FMCZ boundary and is a suitable location for evaluating the quality of groundwater flowing from the RYZ into the FMCZ.

Analytical data from the MW-4 sample collected in March 2008 showed that TPH concentrations were below the CUL. Therefore, groundwater flowing from the RYZ towards the FMCZ during this event did not exceed the CUL. The September 2008 potentiometric surface map (Figure 10) shows that the groundwater generally flows to the northwest in the RYZ and FMCZ. However, there appears to be a slight groundwater divide in the southeast corner of the gauged area, with MW-3 approximately located at the divide. This divide appears to result in groundwater locally flowing from the RYZ towards the FMCZ in the easternmost 100 feet of the FMCZ. The flow gradient along this 100-foot section was low ( $6 \times 10^{-3}$ ) and this flow direction is not seen elsewhere along the RYZ/FMCZ boundary. Petroleum hydrocarbons were not detected in the March 2008 groundwater sample collected from MW-3; the September 2008 groundwater sample had a detected (currently unvalidated) concentration of 245  $\mu\text{g/L}$  NWTPH-Dx, which is marginally above the CUL. Data collected from MW-3 between 2002 and 2008 indicates that concentrations exceeded the CUL in six of the eight events with a maximum concentration of 433  $\mu\text{g/L}$  NWTPH-Dx. Fluid levels were not recorded when these samples were collected, therefore it is unknown whether or not groundwater in this area was flowing from the RYZ towards the FMCZ.

In summary, the investigation has shown that groundwater appeared to flow from the RYZ into the eastern section of the FMCZ during two of the ten monthly gauging events (approximately 20 percent of the time); however, analytical data collected since 2007 demonstrate that petroleum hydrocarbon concentrations typically do not appear to exceed the CUL in the influent groundwater, though sometimes the influent groundwater concentration may slightly exceed the CUL.

File: L:\BNSF-Skykomish\01140\_poten\_11-2007(f).dwg Layout: FIGURE 1 User: MarshallE Plotted: Nov 21, 2008 - 11:08am Xref's:



**LEGEND**

- ◆ IN WETLAND PIEZOMETER
- ◆ OUTSIDE WETLAND PIEZOMETER
- MONITORING WELL
- ← GW FLOW PATH
- 927— POTENTIOMETRIC SURFACE CONTOUR
- - - - WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.

NM NOT MEASURED

**ENSR | AECOM**



**BNSF RAILWAY - SKYKOMISH, WA.**  
**2009 EDR - APPENDIX B**  
 01140-204-0290

DATE: 11/21/08    DRWN: E.M./SEA

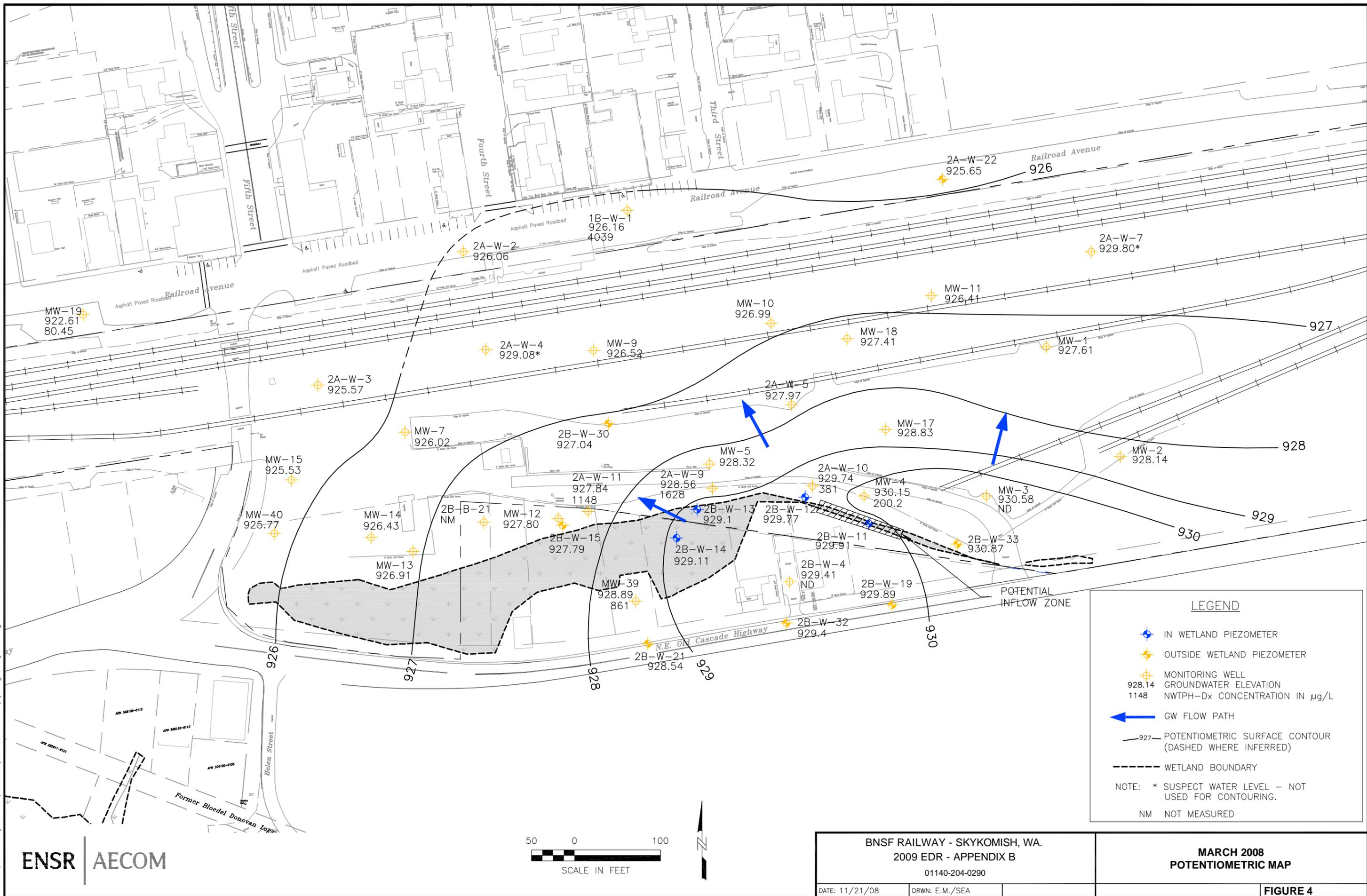
**NOVEMBER 2007**  
**POTENTIOMETRIC MAP**

**FIGURE 1**

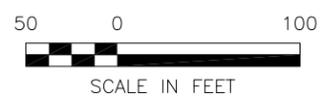




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ENSR | AECOM



**LEGEND**

- IN WETLAND PIEZOMETER
- OUTSIDE WETLAND PIEZOMETER
- MONITORING WELL
- GROUNDWATER ELEVATION
- NWTPH-Dx CONCENTRATION IN µg/L
- GW FLOW PATH
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.

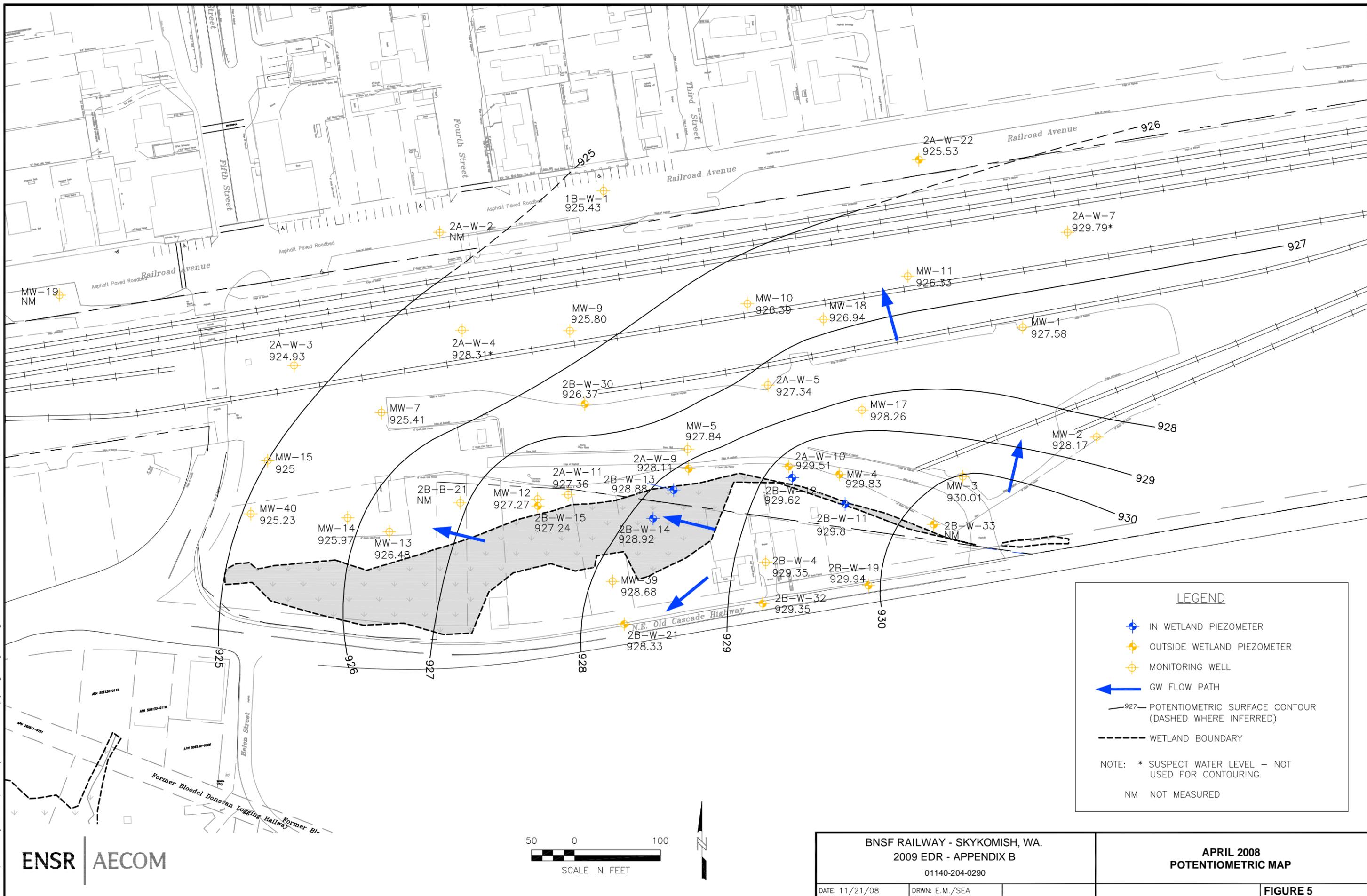
NM NOT MEASURED

BNSF RAILWAY - SKYKOMISH, WA.  
 2009 EDR - APPENDIX B  
 01140-204-0290  
 DATE: 11/21/08 DRWN: E.M./SEA

**MARCH 2008  
 POTENTIOMETRIC MAP**

**FIGURE 4**

File: L:\BNSF-Skykomish\01140\_poten\_4-2008(b).dwg Layout: figure 5 User: MarshallE Plotted: Nov 21, 2008 - 11:22am Xref's:



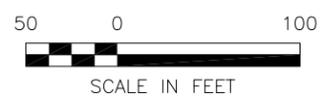
**LEGEND**

- IN WETLAND PIEZOMETER
- OUTSIDE WETLAND PIEZOMETER
- MONITORING WELL
- GW FLOW PATH
- 927 - POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.

NM NOT MEASURED

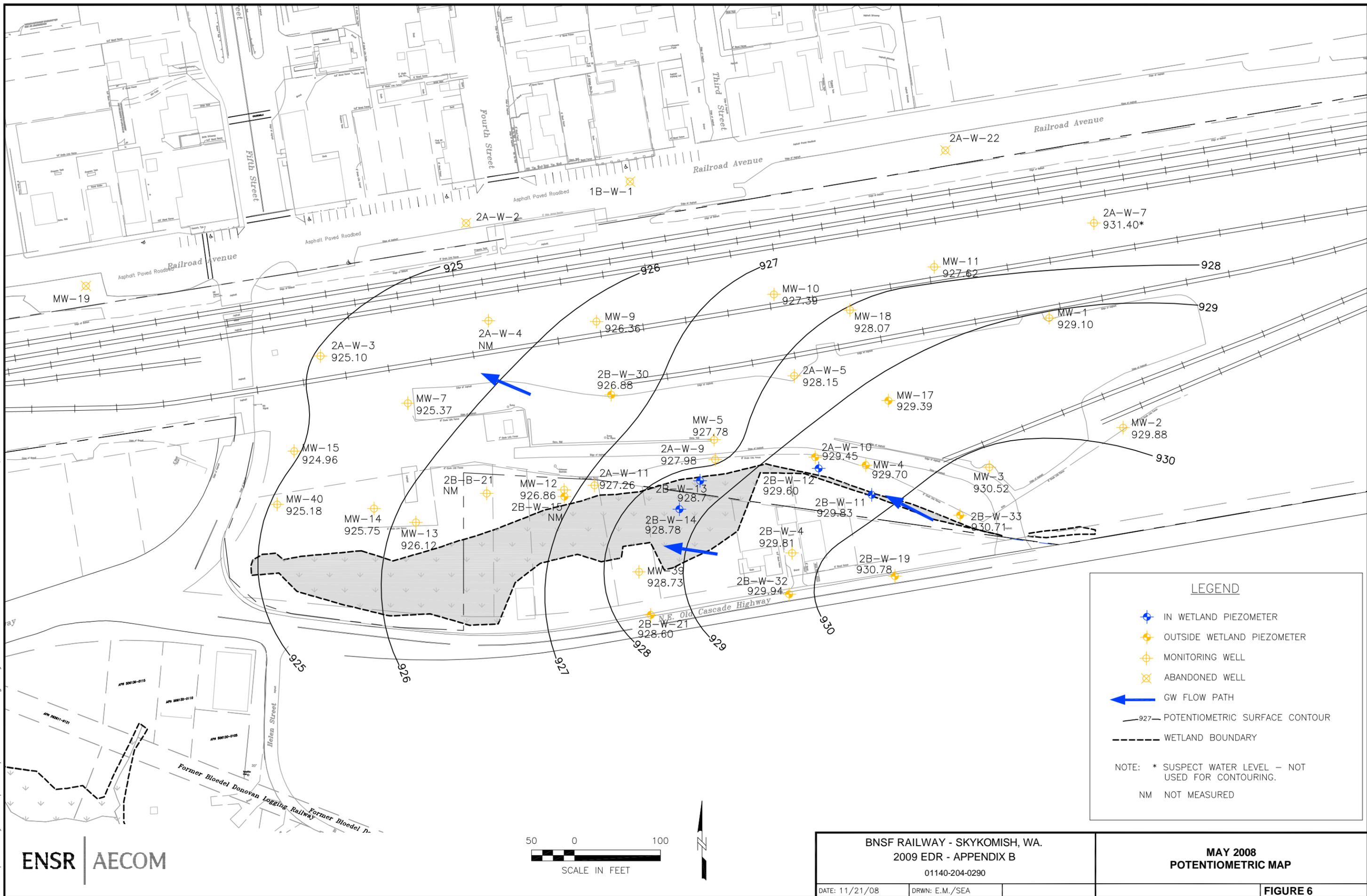
**ENSR | AECOM**



**BNSF RAILWAY - SKYKOMISH, WA.**  
**2009 EDR - APPENDIX B**  
 01140-204-0290  
 DATE: 11/21/08 DRWN: E.M./SEA

**APRIL 2008**  
**POTENTIOMETRIC MAP**  
**FIGURE 5**

File: L:\BNSF-Skykomish\01140\_poten\_5-2008.dwg Layout: FIGURE 6 User: MarshallE Plotted: Nov 21, 2008 - 11:35am Xref's:

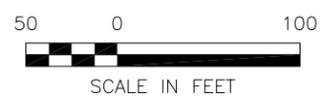


**LEGEND**

- ◆ IN WETLAND PIEZOMETER
- ◆ OUTSIDE WETLAND PIEZOMETER
- ◆ MONITORING WELL
- ⊗ ABANDONED WELL
- ← GW FLOW PATH
- 927 — POTENTIOMETRIC SURFACE CONTOUR
- - - - WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
 NM NOT MEASURED

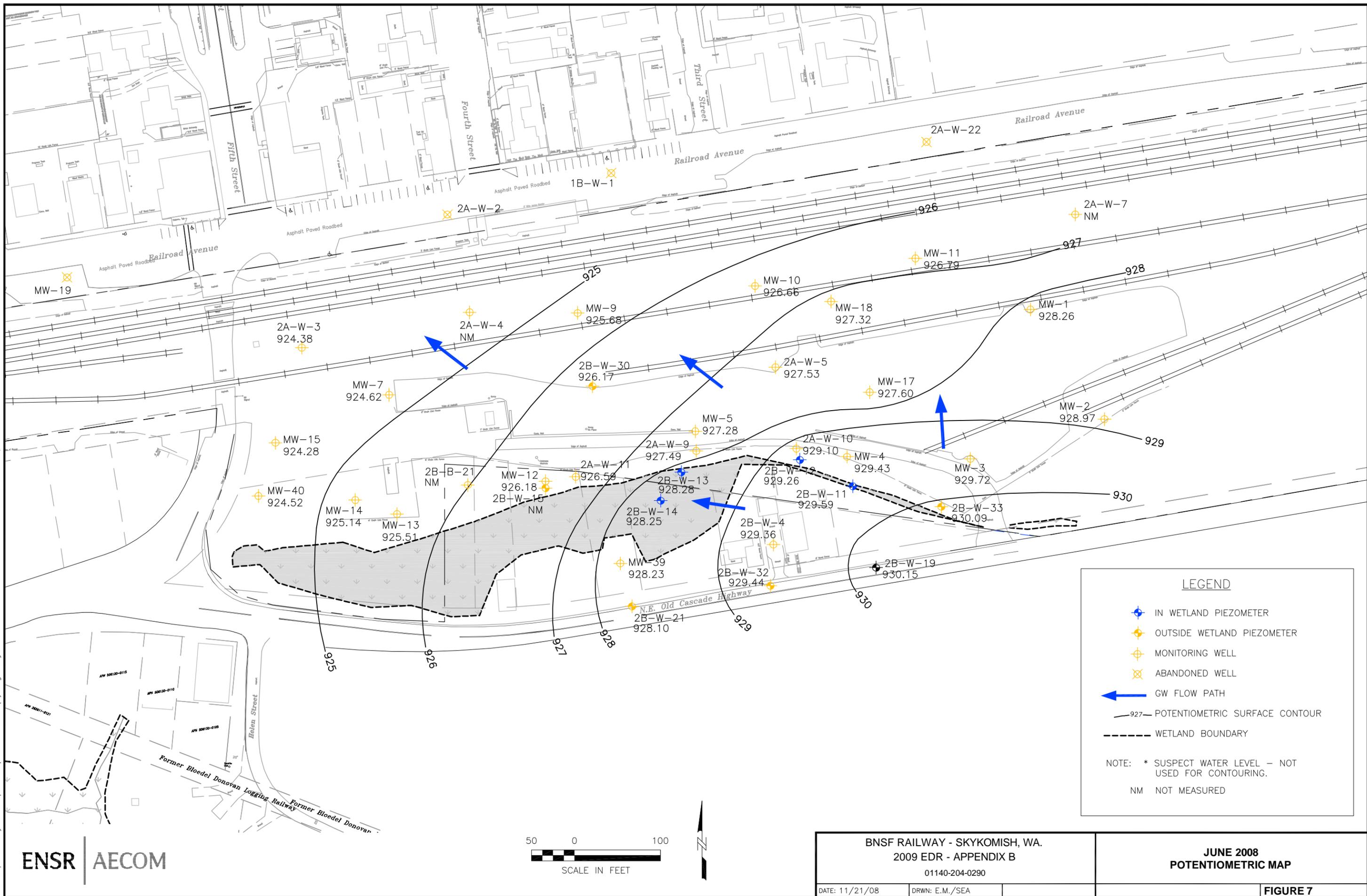
**ENSR | AECOM**



**BNSF RAILWAY - SKYKOMISH, WA.**  
 2009 EDR - APPENDIX B  
 01140-204-0290  
 DATE: 11/21/08 DRWN: E.M./SEA

**MAY 2008**  
**POTENTIOMETRIC MAP**  
**FIGURE 6**

File: L:\BNSF-Skykomish\01140\_poten\_6-2008(b).dwg Layout: FIGURE 7 User: MarshallE Plotted: Nov 21, 2008 - 11:39am Xref's:

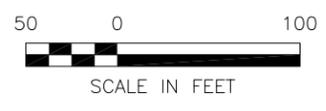


**LEGEND**

- ◆ IN WETLAND PIEZOMETER
- ◆ OUTSIDE WETLAND PIEZOMETER
- ⊕ MONITORING WELL
- ⊗ ABANDONED WELL
- ← GW FLOW PATH
- 927— POTENTIOMETRIC SURFACE CONTOUR
- - - WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
 NM NOT MEASURED

**ENSR | AECOM**



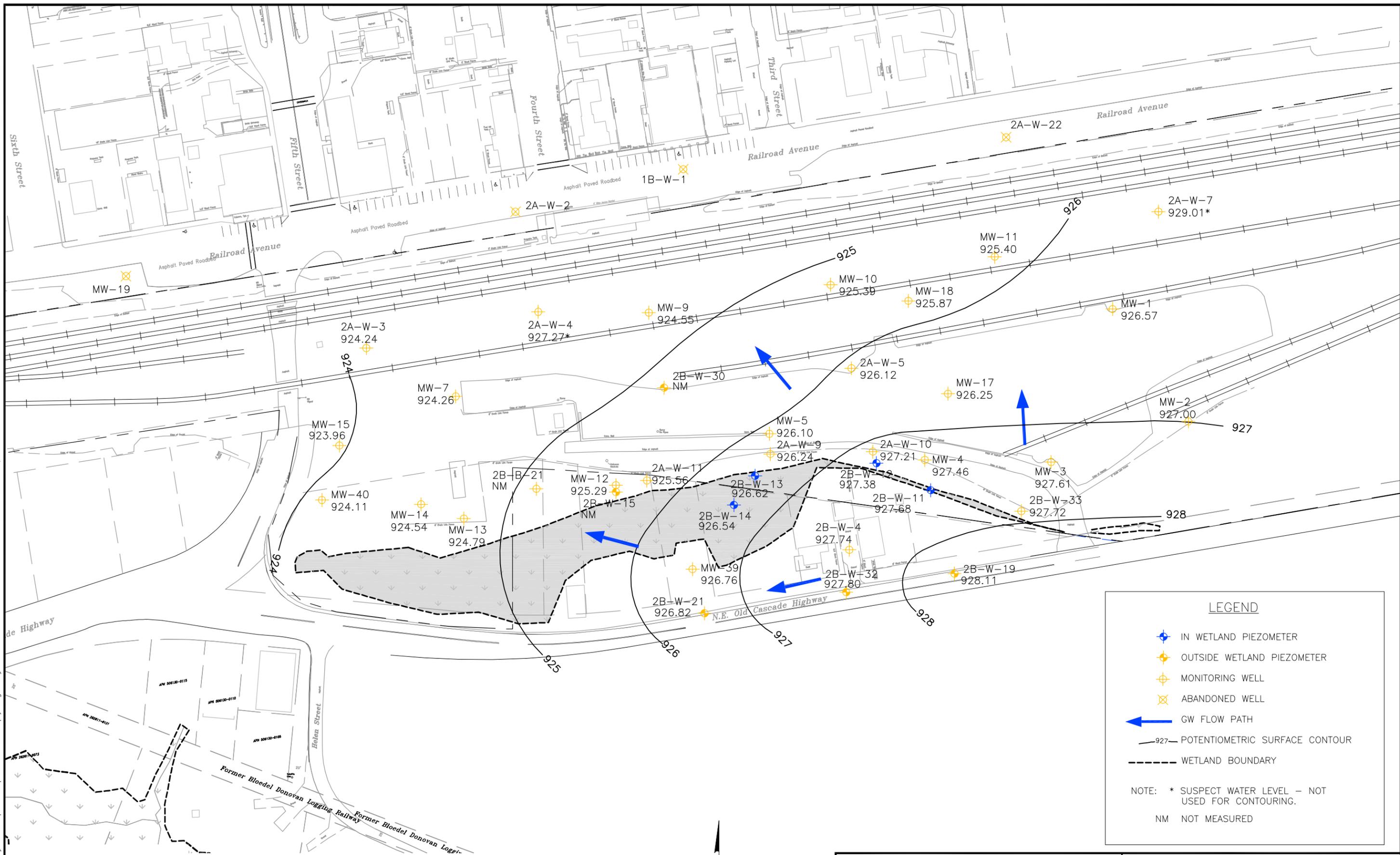
**BNSF RAILWAY - SKYKOMISH, WA.**  
 2009 EDR - APPENDIX B  
 01140-204-0290

DATE: 11/21/08    DRWN: E.M./SEA

**JUNE 2008**  
**POTENTIOMETRIC MAP**

**FIGURE 7**

File: L:\BNSF-Skykomish\01140\_poten\_7-2008(b).dwg Layout: FIGURE 8 User: MarshallE Plotted: Nov 21, 2008 - 11:42am Xref's:

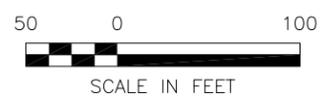


**LEGEND**

- IN WETLAND PIEZOMETER
- OUTSIDE WETLAND PIEZOMETER
- MONITORING WELL
- ABANDONED WELL
- GW FLOW PATH
- POTENTIOMETRIC SURFACE CONTOUR
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
 NM NOT MEASURED

ENSR | AECOM

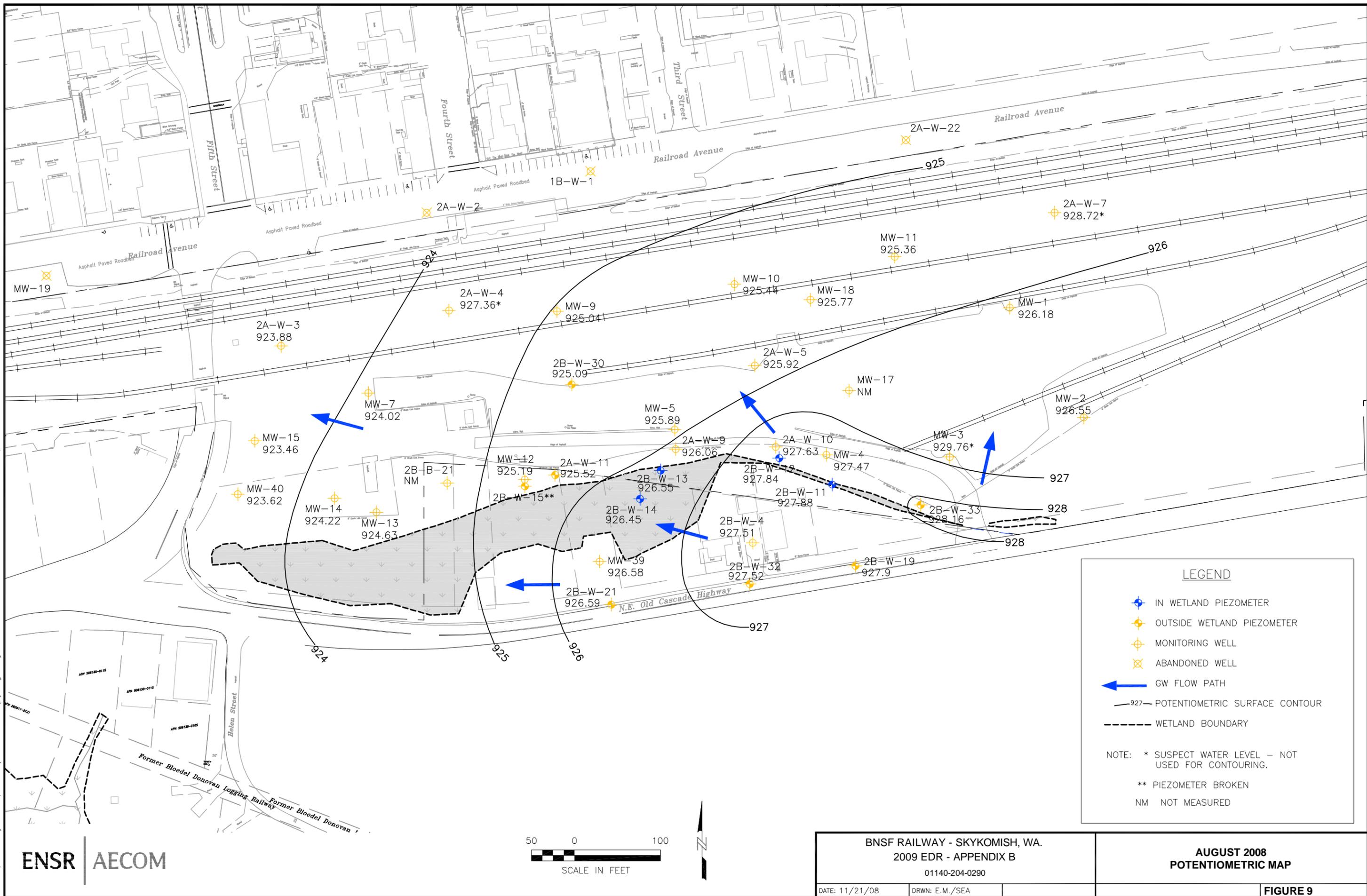


BNSF RAILWAY - SKYKOMISH, WA.  
 2009 EDR - APPENDIX B  
 01140-204-0290  
 DATE: 11/21/08 DRWN: E.M./SEA

**JULY 2008  
 POTENTIOMETRIC MAP**

**FIGURE 8**

File: L:\BNSF-Skykomish\01140\_poten\_8-2008(b).dwg Layout: FIGURE 9 User: MarshallE Plotted: Nov 21, 2008 - 11:46am Xref's:



**LEGEND**

- ◆ IN WETLAND PIEZOMETER
- ◆ OUTSIDE WETLAND PIEZOMETER
- ◆ MONITORING WELL
- ✕ ABANDONED WELL
- ← GW FLOW PATH
- 927— POTENTIOMETRIC SURFACE CONTOUR
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
 \*\* PIEZOMETER BROKEN  
 NM NOT MEASURED

**ENSR | AECOM**



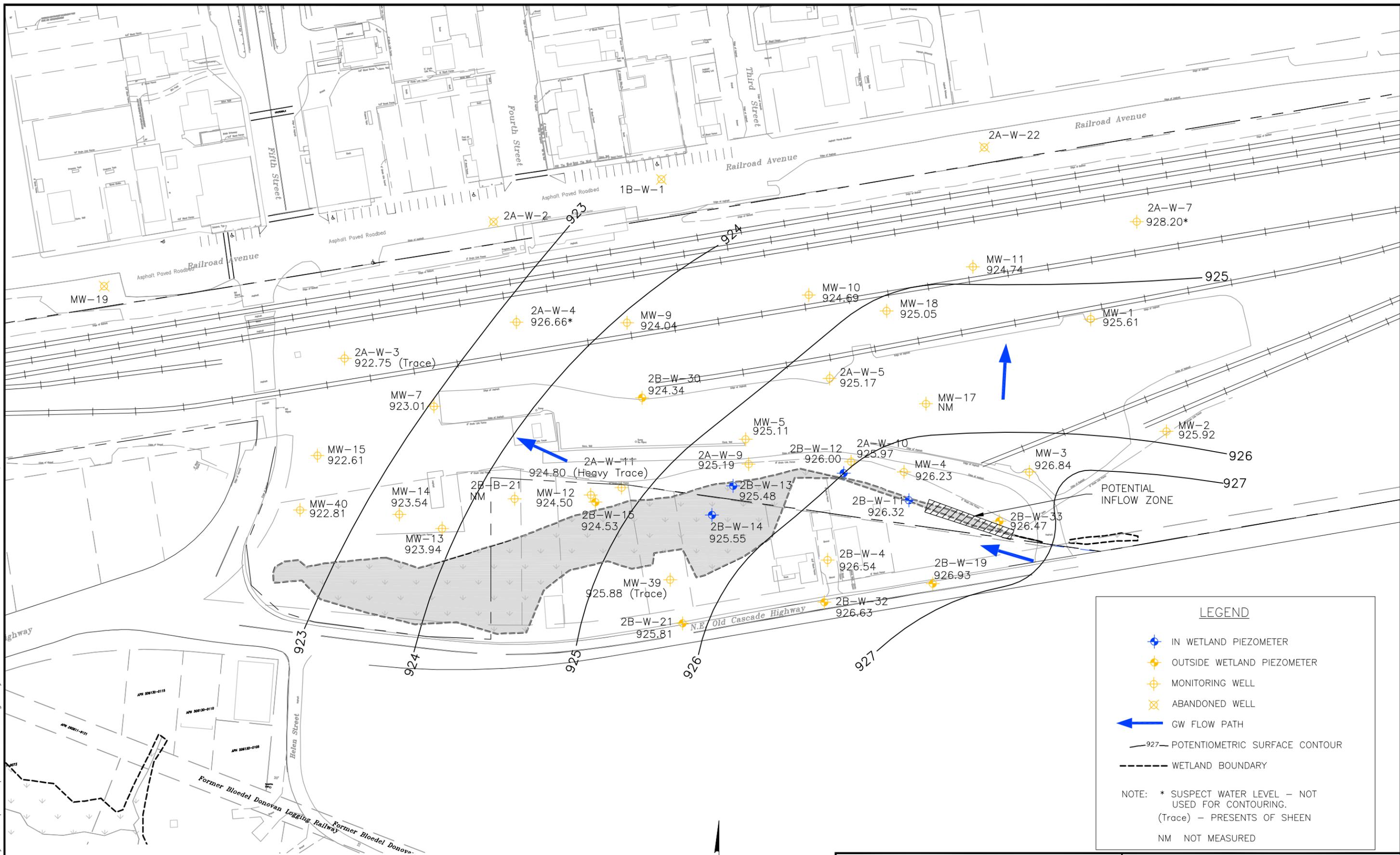
**BNSF RAILWAY - SKYKOMISH, WA.**  
 2009 EDR - APPENDIX B  
 01140-204-0290

DATE: 11/21/08    DRWN: E.M./SEA

**AUGUST 2008  
 POTENTIOMETRIC MAP**

**FIGURE 9**

File: L:\BNSF-Skykomish\01140\_poten\_9-2008.dwg Layout: FIGURE 10 User: MarshallE Plotted: Nov 21, 2008 - 11:52am Xref's:

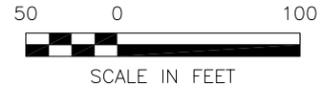


**LEGEND**

- IN WETLAND PIEZOMETER
- OUTSIDE WETLAND PIEZOMETER
- MONITORING WELL
- ABANDONED WELL
- GW FLOW PATH
- 927- POTENTIOMETRIC SURFACE CONTOUR
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
(Trace) - PRESENTS OF SHEEN  
NM NOT MEASURED

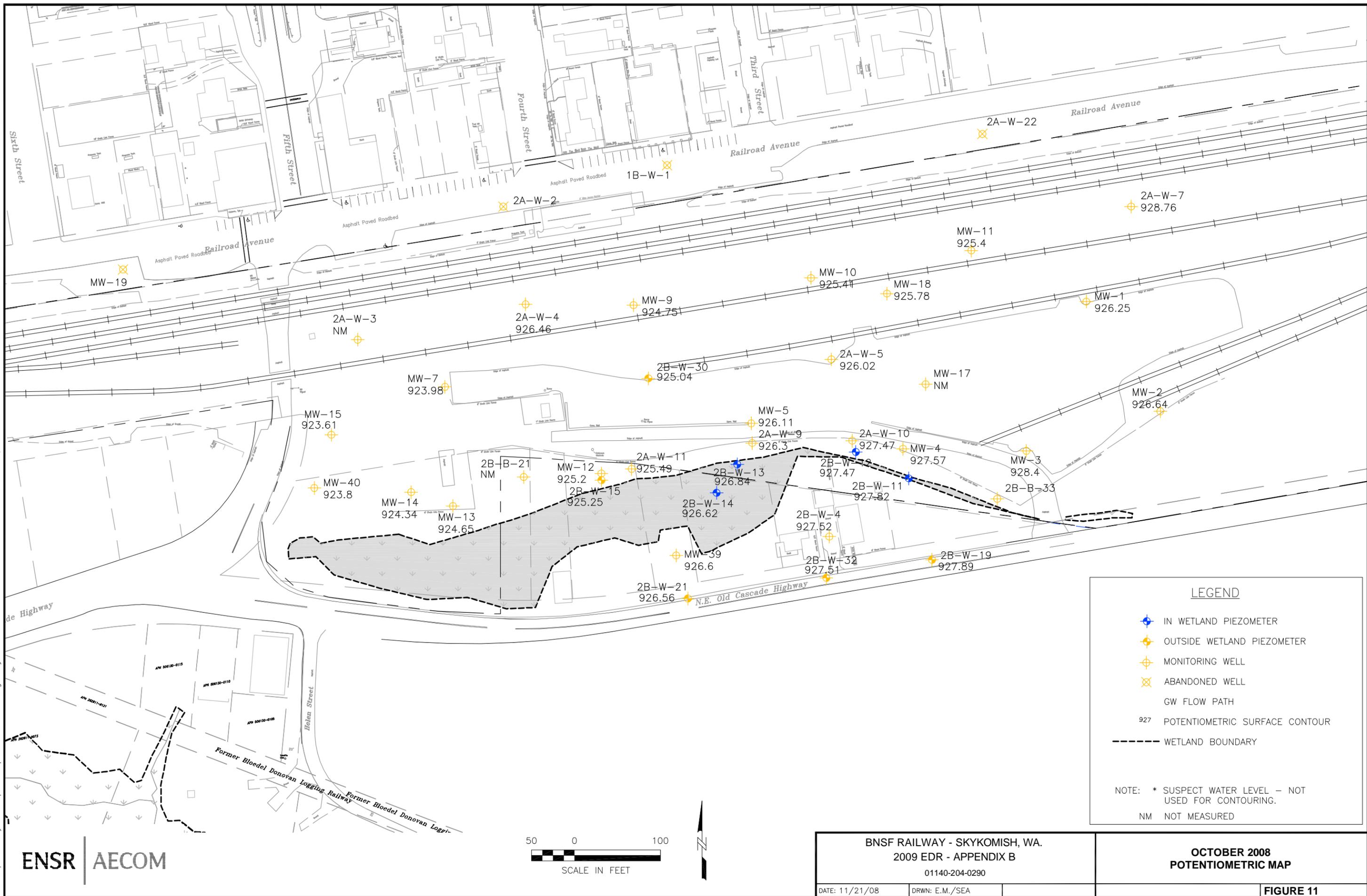
**ENSR | AECOM**



**BNSF RAILWAY - SKYKOMISH, WA.**  
**2009 EDR - APPENDIX B**  
 01140-204-0290  
 DATE: 11/21/08    DRWN: E.M./SEA

**SEPTEMBER 2008**  
**POTENTIOMETRIC MAP**  
**FIGURE 10**

File: L:\BNSF-Skykomish\01140\_poten\_10-2008.dwg Layout: FIGURE 11 User: MarshallE Plotted: Nov 21, 2008 - 11:58am Xrefs:



ENSR | AECOM

BNSF RAILWAY - SKYKOMISH, WA.  
 2009 EDR - APPENDIX B  
 01140-204-0290  
 DATE: 11/21/08 DRWN: E.M./SEA

**LEGEND**

- ◆ IN WETLAND PIEZOMETER
- ◆ OUTSIDE WETLAND PIEZOMETER
- ◆ MONITORING WELL
- ◆ ABANDONED WELL
- GW FLOW PATH
- 927 POTENTIOMETRIC SURFACE CONTOUR
- WETLAND BOUNDARY

NOTE: \* SUSPECT WATER LEVEL - NOT USED FOR CONTOURING.  
 NM NOT MEASURED

**OCTOBER 2008  
 POTENTIOMETRIC MAP**

**FIGURE 11**

**Table B-1 Potentiometric, Surface Water, and Product Thicknesses  
— November 2007 to September 2008**

Well ID	Date	TOC Elevation (feet above MSL)	DTW from TOC (feet)	Corrected DTW from TOC (feet)	Outside PVC- DTW (feet)	DTP from TOC (feet)	Potentiometric Elevation (ft-msl)	Product
1B-W-1	11/15/2007	935.52	9.69				925.83	
2A-W-10	11/15/2007	937.93	8.28				929.65	
2A-W-11	11/15/2007	933.59	5.53				928.06	
2A-W-2	11/15/2007	935.55	9.75				925.80	
2A-W-3	11/15/2007	934.43	9.04				925.39	
2A-W-4	11/15/2007	938.21	9.42				928.79	
2A-W-5	11/15/2007	939.47	11.8				927.67	
2A-W-7	11/15/2007	940.59	9.77				930.82	
2A-W-9	11/15/2007	936.58	7.93				928.65	
2B-B-21	11/15/2007		3.33				-3.33	
2B-W-11	11/15/2007	930.71	0.99		0.8		929.72	
2B-W-12	11/15/2007	933.48	3.93	3.81	3.75		929.67	
2B-W-13	11/15/2007	932.52	3.41		3.18		929.11	
2B-W-14	11/15/2007	931.25	3.35		3.25		927.90	
2B-W-15	11/15/2007	931.74	3.54		2.77		928.20	
2B-W-19	11/15/2007	935.25	5.36				929.89	
2B-W-21	11/15/2007	935.81	7.31				928.50	
2B-W-30	11/15/2007	936.6	9.81				926.79	
2B-W-32	11/15/2007	935.45	6.12				929.33	
2B-W-33	11/15/2007	938.28	8.01		6.5		930.27	
2B-W-4	11/15/2007	931.03	1.7				929.33	
MW-1	11/15/2007	939.2	11.91				927.29	
MW-10	11/15/2007	938.34	11.57				926.77	
MW-11	11/15/2007	939.2	12.67				926.53	
MW-12	11/15/2007	931.45	3.3				928.15	
MW-13	11/15/2007	934.93	7.86				927.07	
MW-14	11/15/2007	936.49	10.01				926.48	
MW-15	11/15/2007	936.8	11.45				925.35	
MW-17	11/15/2007	939.11	10.63				928.48	
MW-18	11/15/2007	940.68	13.45				927.23	
MW-19	11/15/2007	932.55	10.11				922.44	
MW-2	11/15/2007	939.2	11.06				928.14	
MW-3	11/15/2007	938.03	8.23				929.80	
MW-39	11/15/2007	936.21	7.38				928.83	
MW-4	11/15/2007	936.95	7.11				929.84	
MW-40	11/15/2007	936.52	10.89				925.63	
MW-5	11/15/2007	933.36	4.97				928.39	
MW-7	11/15/2007	936.89	11.08				925.81	
MW-9	11/15/2007	937.53	11.27				926.26	
1B-W-1	12/13/2007	935.52	10.09				925.43	Trace
2A-W-10	12/13/2007	937.93	8.83				929.10	
2A-W-11	12/13/2007	933.59	7.86			7.86	925.73	Trace
2A-W-2	12/13/2007	935.55	10.29				925.26	
2A-W-22	12/13/2007	935.32	9.81				925.51	
2A-W-3	12/13/2007	934.43	9.95			9.95	924.48	Trace
2A-W-4	12/13/2007	938.21	10.04			10.04	928.17	Trace
2A-W-5	12/13/2007	939.47	10.63				928.84	
2A-W-7	12/13/2007	940.59	10.89				929.70	
2A-W-9	12/13/2007	936.58	8.69				927.89	
2B-B-21	12/13/2007		NM				NM	
2B-W-11	12/13/2007	930.71	1.24				929.47	
2B-W-12	12/13/2007	933.48	4.34	4.21			929.27	
2B-W-13	12/13/2007	932.52	3.81				928.71	
2B-W-14	12/13/2007	931.25	2.78				928.47	
2B-W-15	12/13/2007	931.74	NM				NM	
2B-W-19	12/13/2007	935.25	5.49				929.76	
2B-W-21	12/13/2007	935.81	7.87				927.94	
2B-W-30	12/13/2007	936.6	10.19				926.41	
2B-W-32	12/13/2007	935.45	6.29				929.16	
2B-W-33	12/13/2007	938.28	8.24				930.04	
2B-W-4	12/13/2007	931.03	1.91				929.12	
MW-1	12/13/2007	939.2	11.67				927.53	
MW-10	12/13/2007	938.34	11.82				926.52	
MW-11	12/13/2007	939.2	12.74				926.46	
MW-12	12/13/2007	931.45	4.95				926.50	
MW-13	12/13/2007	934.93	9.19				925.74	
MW-14	12/13/2007	936.49	11.12				925.37	
MW-15	12/13/2007	936.8	12.34				924.46	
MW-17	12/13/2007	939.11	10.79			10.79	928.32	Trace
MW-18	12/13/2007	940.68	13.67				927.01	
MW-19	12/13/2007	932.55	10.72				921.83	
MW-2	12/13/2007	939.2	11.14				928.06	
MW-3	12/13/2007	938.03	8.73				929.30	
MW-39	12/13/2007	936.21	7.98				928.23	
MW-4	12/13/2007	936.95	7.58				929.37	
MW-40	12/13/2007	936.52	11.79				924.73	
MW-5	12/13/2007	933.36	5.74				927.62	
MW-7	12/13/2007	936.89	12.1				924.79	
MW-9	12/13/2007	937.53	11.77				925.76	

**Table B-1 Potentiometric, Surface Water, and Product Thicknesses  
— November 2007 to September 2008**

Well ID	Date	TOC Elevation (feet above MSL)	DTW from TOC (feet)	Corrected DTW from TOC (feet)	Outside PVC- DTW (feet)	DTP from TOC (feet)	Potentiometric Elevation (ft-msl)	Product
1B-W-1	1/1/2008	935.52	9.7				925.82	
2A-W-10	1/1/2008	937.93	8.48				929.45	
2A-W-11	1/1/2008	933.59	5.94				927.65	
2A-W-2	1/1/2008	935.55	9.71				925.84	
2A-W-22	1/1/2008	935.32	NM				NM	
2A-W-3	1/1/2008	934.43	9.15				925.28	
2A-W-4	1/1/2008	938.21	NM				NM	
2A-W-5	1/1/2008	939.47	11.87				927.60	
2A-W-7	1/1/2008	940.59	NM				NM	
2A-W-9	1/1/2008	936.58	8.2				928.38	
2B-B-21	1/1/2008		NM				NM	
2B-W-11	1/1/2008	930.71	1.02		0.08		929.69	
2B-W-12	1/1/2008	933.48	4.02	3.90			929.58	
2B-W-13	1/1/2008	932.52	3.59				928.93	
2B-W-14	1/1/2008	931.25	2.38				928.87	
2B-W-15	1/1/2008	931.74	4.02				927.72	
2B-W-19	1/1/2008	935.25	5.6				929.65	
2B-W-21	1/1/2008	935.81	NM				NM	
2B-W-30	1/1/2008	936.6	9.87				926.73	
2B-W-32	1/1/2008	935.45	6.3				929.15	
2B-W-33	1/1/2008	938.28	7.58				930.70	
2B-W-4	1/1/2008	931.03	1.85				929.18	
MW-1	1/1/2008	939.2	11.91				927.29	
MW-10	1/1/2008	938.34	NM				NM	
MW-11	1/1/2008	939.2	NM				NM	
MW-12	1/1/2008	931.45	3.71				927.74	
MW-13	1/1/2008	934.93	8.02				926.91	
MW-14	1/1/2008	936.49	10.16				926.33	
MW-15	1/1/2008	936.8	11.48				925.32	
MW-17	1/1/2008	939.11	10.7			10.79	928.32	
MW-18	1/1/2008	940.68	13.62				927.06	
MW-19	1/1/2008	932.55	NM				NM	
MW-2	1/1/2008	939.2	11.44				927.76	
MW-3	1/1/2008	938.03	8.46				929.57	
MW-39	1/1/2008	936.21	7.55				928.66	
MW-4	1/1/2008	936.95	7.26				929.69	
MW-40	1/1/2008	936.52	10.95				925.57	
MW-5	1/1/2008	933.36	5.24				928.12	
MW-7	1/1/2008	936.89	11.22				925.67	
MW-9	1/1/2008	937.53	11.3				926.23	
1B-W-1	3/24/2008	935.52	9.36				926.16	Trace
2A-W-10	3/24/2008	937.93	8.19				929.74	
2A-W-11	3/24/2008	933.59	5.75				927.84	Trace
2A-W-2	3/24/2008	935.55	9.49				926.06	
2A-W-22	3/24/2008	935.32	9.67				925.65	
2A-W-3	3/24/2008	934.43	8.86				925.57	Trace
2A-W-4	3/24/2008	938.21	9.13				929.08	Heavy Trace
2A-W-5	3/24/2008	939.47	11.5				927.97	
2A-W-7	3/24/2008	940.59	10.79				929.80	
2A-W-9	3/24/2008	936.58	8.02				928.56	
2B-B-21	3/24/2008		NM				NM	
2B-W-11	3/24/2008	930.71	0.8		0.75		929.91	
2B-W-12	3/24/2008	933.48	3.82	3.71	3.6		929.77	
2B-W-13	3/24/2008	932.52	3.42		3.14		929.10	
2B-W-14	3/24/2008	931.25	2.14		2.14		929.11	
2B-W-15	3/24/2008	931.74	3.95		2.51		927.79	
2B-W-19	3/24/2008	935.25	5.36				929.89	
2B-W-21	3/24/2008	935.81	7.27				928.54	
2B-W-30	3/24/2008	936.6	9.56				927.04	
2B-W-32	3/24/2008	935.45	6.05				929.40	
2B-W-33	3/24/2008	938.28	7.41				930.87	
2B-W-4	3/24/2008	931.03	1.62				929.41	
MW-1	3/24/2008	939.2	11.59				927.61	
MW-10	3/24/2008	938.34	11.35				926.99	
MW-11	3/24/2008	939.2	12.79				926.41	
MW-12	3/24/2008	931.45	3.65				927.80	
MW-13	3/24/2008	934.93	8.02				926.91	
MW-14	3/24/2008	936.49	10.06				926.43	
MW-15	3/24/2008	936.8	11.27				925.53	
MW-17	3/24/2008	939.11	10.28				928.83	Trace
MW-18	3/24/2008	940.68	13.27				927.41	
MW-19	3/24/2008	932.55	9.94				922.61	
MW-2	3/24/2008	939.2	11.06				928.14	
MW-3	3/24/2008	938.03	7.45				930.58	
MW-39	3/24/2008	936.21	7.32				928.89	Trace
MW-4	3/24/2008	936.95	6.8				930.15	
MW-40	3/24/2008	936.52	10.75				925.77	
MW-5	3/24/2008	933.36	5.04				928.32	
MW-7	3/24/2008	936.89	10.87				926.02	Trace
MW-9	3/24/2008	937.53	11.01				926.52	

**Table B-1 Potentiometric, Surface Water, and Product Thicknesses  
— November 2007 to September 2008**

Well ID	Date	TOC Elevation (feet above MSL)	DTW from TOC (feet)	Corrected DTW from TOC (feet)	Outside PVC- DTW (feet)	DTP from TOC (feet)	Potentiometric Elevation (ft-msl)	Product
1B-W-1	4/30/2008	935.52	10.09				925.43	Trace
2A-W-10	4/30/2008	937.93	8.42				929.51	
2A-W-11	4/30/2008	933.59	6.23				927.36	Trace
2A-W-2	4/30/2008	Well Abandoned						
2A-W-22	4/30/2008	935.32	9.79				925.53	
2A-W-3	4/30/2008	934.43	9.5				924.93	Trace
2A-W-4	4/30/2008	938.21	9.9				928.31	Heavy Trace
2A-W-5	4/30/2008	939.47	12.13				927.34	
2A-W-7	4/30/2008	940.59	10.8				929.79	
2A-W-9	4/30/2008	936.58	8.47				928.11	
2B-B-21	4/30/2008		4.05				-4.05	
2B-W-11	4/30/2008	930.71	0.91		0.75		929.80	
2B-W-12	4/30/2008	933.48	3.98	3.86	3.75		929.62	
2B-W-13	4/30/2008	932.52	3.64		3.19		928.88	
2B-W-14	4/30/2008	931.25	2.33		2		928.92	
2B-W-15	4/30/2008	931.74	4.5		2.6		927.24	
2B-W-19	4/30/2008	935.25	5.31				929.94	
2B-W-21	4/30/2008	935.81	7.48				928.33	
2B-W-30	4/30/2008	936.6	10.23				926.37	
2B-W-32	4/30/2008	935.45	6.1				929.35	
2B-W-33	4/30/2008	938.28	7.71				930.57	
2B-W-4	4/30/2008	931.03	1.68				929.35	
MW-1	4/30/2008	939.2	11.62				927.58	
MW-10	4/30/2008	938.34	11.95				926.39	
MW-11	4/30/2008	939.2	12.87				926.33	
MW-12	4/30/2008	931.45	4.18				927.27	
MW-13	4/30/2008	934.93	8.45				926.48	
MW-14	4/30/2008	936.49	10.52				925.97	
MW-15	4/30/2008	936.8	11.8				925.00	
MW-17	4/30/2008	939.11	10.85				928.26	
MW-18	4/30/2008	940.68	13.74				926.94	
MW-19	4/30/2008	Well Abandoned						
MW-2	4/30/2008	939.2	11.03				928.17	
MW-3	4/30/2008	938.03	8.02				930.01	
MW-39	4/30/2008	936.21	7.53				928.68	Trace
MW-4	4/30/2008	936.95	7.12				929.83	
MW-40	4/30/2008	936.52	11.29				925.23	
MW-5	4/30/2008	933.36	5.52				927.84	
MW-7	4/30/2008	936.89	11.48				925.41	
MW-9	4/30/2008	937.53	11.73				925.80	
1B-W-1	5/29/2008	Well Abandoned						
2A-W-10	5/29/2008	937.93	8.48				929.45	
2A-W-11	5/29/2008	933.59	6.33				927.26	Heavy Trace
2A-W-22	5/29/2008	Well Abandoned						
2A-W-3	5/29/2008	934.43	9.33				925.10	Trace
2A-W-4	5/29/2008	938.21	NM				NM	
2A-W-5	5/29/2008	939.47	11.32				928.15	
2A-W-7	5/29/2008	940.59	9.19				931.40	
2A-W-9	5/29/2008	936.58	8.6				927.98	
2B-B-21	5/29/2008		4.45				-4.45	
2B-W-11	5/29/2008	930.71	0.88		1.17		929.83	
2B-W-12	5/29/2008	933.48	4	3.88	4.11		929.60	
2B-W-13	5/29/2008	932.52	3.82		3.3		928.70	
2B-W-14	5/29/2008	931.25	2.47		Dry		928.78	
2B-W-15	5/29/2008	931.74	NM		Dry		NM	
2B-W-19	5/29/2008	935.25	4.47				930.78	
2B-W-21	5/29/2008	935.81	7.21				928.60	
2B-W-30	5/29/2008	936.6	9.72				926.88	
2B-W-32	5/29/2008	935.45	5.51				929.94	
2B-W-33	5/29/2008	938.28	7.57				930.71	
2B-W-4	5/29/2008	931.03	1.22				929.81	
MW-1	5/29/2008	939.2	10.1				929.10	
MW-10	5/29/2008	938.34	10.95				927.39	
MW-11	5/29/2008	939.2	11.58				927.62	
MW-12	5/29/2008	931.45	4.59				926.86	
MW-13	5/29/2008	934.93	8.81				926.12	
MW-14	5/29/2008	936.49	10.74				925.75	
MW-15	5/29/2008	936.8	11.84				924.96	
MW-17	5/29/2008	939.11	9.72				929.39	Trace
MW-18	5/29/2008	940.68	12.61				928.07	
MW-2	5/29/2008	939.2	9.32				929.88	
MW-3	5/29/2008	938.03	7.51				930.52	
MW-39	5/29/2008	936.21	7.48				928.73	Trace
MW-4	5/29/2008	936.95	7.25				929.70	
MW-40	5/29/2008	936.52	11.34				925.18	
MW-5	5/29/2008	933.36	5.58				927.78	
MW-7	5/29/2008	936.89	11.52				925.37	Trace
MW-9	5/29/2008	937.53	11.17				926.36	

**Table B-1 Potentiometric, Surface Water, and Product Thicknesses  
— November 2007 to September 2008**

Well ID	Date	TOC Elevation (feet above MSL)	DTW from TOC (feet)	Corrected DTW from TOC (feet)	Outside PVC- DTW (feet)	DTP from TOC (feet)	Potentiometric Elevation (ft-msl)	Product
2A-W-10	6/23/2008	937.93	8.83				929.10	
2A-W-11	6/23/2008	933.59	7				926.59	Heavy Trace
2A-W-3	6/23/2008	934.43	10.05				924.38	Trace
2A-W-4	6/23/2008	938.21	NM				NM	
2A-W-5	6/23/2008	939.47	11.94				927.53	
2A-W-7	6/23/2008	940.59	NM				NM	
2A-W-9	6/23/2008	936.58	9.09				927.49	
2B-B-21	6/23/2008		5.13				-5.13	
2B-W-11	6/23/2008	930.71	1.12		1.12		929.59	
2B-W-12	6/23/2008	933.48	4.35	4.22	4.31		929.26	
2B-W-13	6/23/2008	932.52	4.24		3.43		928.28	
2B-W-14	6/23/2008	931.25	3		Dry		928.25	
2B-W-15	6/23/2008	931.74	NM		Dry		NM	
2B-W-19	6/23/2008	935.25	5.1				930.15	
2B-W-21	6/23/2008	935.81	7.71				928.10	
2B-W-30	6/23/2008	936.6	10.43				926.17	
2B-W-32	6/23/2008	935.45	6.01				929.44	
2B-W-33	6/23/2008	938.28	8.19				930.09	
2B-W-4	6/23/2008	931.03	1.67				929.36	
MW-1	6/23/2008	939.2	10.94				928.26	
MW-10	6/23/2008	938.34	11.68				926.66	
MW-11	6/23/2008	939.2	12.41				926.79	
MW-12	6/23/2008	931.45	5.27				926.18	
MW-13	6/23/2008	934.93	9.42				925.51	
MW-14	6/23/2008	936.49	11.35				925.14	
MW-15	6/23/2008	936.8	12.52				924.28	
MW-17	6/23/2008	937.15	9.55				927.60	Trace
MW-18	6/23/2008	940.68	13.36				927.32	
MW-2	6/23/2008	939.2	10.23				928.97	
MW-3	6/23/2008	938.03	8.31				929.72	
MW-39	6/23/2008	936.21	7.98				928.23	Trace
MW-4	6/23/2008	936.95	7.52				929.43	
MW-40	6/23/2008	936.52	12				924.52	
MW-5	6/23/2008	933.36	6.08				927.28	
MW-7	6/23/2008	936.89	12.27				924.62	
MW-9	6/23/2008	937.53	11.85				925.68	
2A-W-10	7/24/2008	937.93	10.72				927.21	
2A-W-11	7/24/2008	933.59	8.03				925.56	Heavy Trace
2A-W-3	7/24/2008	934.43	10.19				924.24	Trace
2A-W-4	7/24/2008	938.21	11.22			10.93	927.27	0.29
2A-W-5	7/24/2008	939.47	13.35				926.12	
2A-W-7	7/24/2008	940.59	11.58				929.01	
2A-W-9	7/24/2008	936.58	10.34				926.24	
2B-B-21	7/24/2008		5.89				-5.89	
2B-W-11	7/24/2008	930.71	3.03		Dry		927.68	
2B-W-12	7/24/2008	933.48	6.29	6.10	Dry		927.38	
2B-W-13	7/24/2008	932.52	5.9		Dry		926.62	
2B-W-14	7/24/2008	931.25	4.71		Dry		926.54	
2B-W-15	7/24/2008	931.74	NM				NM	
2B-W-19	7/24/2008	935.25	7.14				928.11	
2B-W-21	7/24/2008	935.81	8.99				926.82	
2B-W-30	7/24/2008	936.6	NM				NM	
2B-W-32	7/24/2008	935.45	7.65				927.80	
2B-W-33	7/24/2008	938.28	10.56				927.72	
2B-W-4	7/24/2008	931.03	3.29				927.74	
MW-1	7/24/2008	939.2	12.63				926.57	
MW-10	7/24/2008	938.34	12.95				925.39	
MW-11	7/24/2008	939.2	13.8				925.40	
MW-12	7/24/2008	931.45	6.16				925.29	
MW-13	7/24/2008	934.93	10.14				924.79	
MW-14	7/24/2008	936.49	11.95				924.54	
MW-15	7/24/2008	936.8	12.84				923.96	
MW-17	7/24/2008	937.15	10.9				926.25	Heavy Trace
MW-18	7/24/2008	940.68	14.81				925.87	
MW-2	7/24/2008	939.2	12.2				927.00	
MW-3	7/24/2008	938.03	10.42				927.61	
MW-39	7/24/2008	936.21	9.45				926.76	Trace
MW-4	7/24/2008	936.95	9.49				927.46	
MW-40	7/24/2008	936.52	12.41				924.11	
MW-5	7/24/2008	933.36	7.26				926.10	
MW-7	7/24/2008	936.89	12.63				924.26	Trace
MW-9	7/24/2008	937.53	12.98				924.55	

**Table B-1 Potentiometric, Surface Water, and Product Thicknesses  
— November 2007 to September 2008**

Well ID	Date	TOC Elevation (feet above MSL)	DTW from TOC (feet)	Corrected DTW from TOC (feet)	Outside PVC- DTW (feet)	DTP from TOC (feet)	Potentiometric Elevation (ft-msl)	Product
2A-W-10	8/27/2008	937.93	10.3				927.63	
2A-W-11	8/27/2008	933.59	8.07				925.52	Heavy Trace
2A-W-3	8/27/2008	934.43	10.55				923.88	Trace
2A-W-4	8/27/2008	938.21	10.85				927.36	Heavy Trace
2A-W-5	8/27/2008	939.47	13.55				925.92	
2A-W-7	8/27/2008	940.59	11.87				928.72	
2A-W-9	8/27/2008	936.58	10.52				926.06	
2B-B-21	8/27/2008		6.12				-6.12	
2B-W-11	8/27/2008	930.71	2.83		1.15		927.88	
2B-W-12	8/27/2008	933.47	5.8	5.63	4.46		927.84	
2B-W-13	8/27/2008	932.52	5.97		Dry		926.55	
2B-W-14	8/27/2008	931.25	4.8		Dry		926.45	
2B-W-15	8/27/2008	931.74	4.3		Dry		927.44	
2B-W-19	8/27/2008	935.25	7.35				927.90	
2B-W-21	8/27/2008	935.81	9.22				926.59	
2B-W-30	8/27/2008	936.6	11.51				925.09	
2B-W-32	8/27/2008	935.45	7.93				927.52	
2B-W-33	8/27/2008	938.28	10.12				928.16	
2B-W-4	8/27/2008	931.03	3.52				927.51	
MW-1	8/27/2008	939.2	13.02				926.18	
MW-10	8/27/2008	938.34	12.9				925.44	
MW-11	8/27/2008	939.2	13.84				925.36	
MW-12	8/27/2008	931.45	6.26				925.19	
MW-13	8/27/2008	934.93	10.3				924.63	
MW-14	8/27/2008	936.49	12.27				924.22	
MW-15	8/27/2008	936.8	13.34				923.46	
MW-17	8/27/2008	939.11	NM				NM	
MW-18	8/27/2008	940.68	14.91				925.77	
MW-2	8/27/2008	939.2	12.65				926.55	
MW-3	8/27/2008	938.03	8.27				929.76	
MW-39	8/27/2008	936.21	9.63				926.58	Trace
MW-4	8/27/2008	936.95	9.48				927.47	
MW-40	8/27/2008	936.52	12.9				923.62	
MW-5	8/27/2008	933.36	7.47				925.89	
MW-7	8/27/2008	936.89	12.87				924.02	
MW-9	8/27/2008	937.53	12.49				925.04	
2A-W-10	9/22/2008	937.93	11.96				925.97	
2A-W-11	9/22/2008	933.59	8.79				924.80	Heavy Trace
2A-W-3	9/22/2008	934.43	11.68				922.75	Trace
2A-W-4	9/22/2008	938.21	11.55				926.66	
2A-W-5	9/22/2008	939.47	14.3				925.17	
2A-W-7	9/22/2008	940.59	12.39				928.20	
2A-W-9	9/22/2008	936.58	11.39				925.19	
2B-B-21	9/22/2008		6.8				-6.80	
2B-W-11	9/22/2008	930.71	4.39		1.15		926.32	
2B-W-12	9/22/2008	933.47	7.7	7.47	4.46		926.00	
2B-W-13	9/22/2008	932.52	7.04		Dry		925.48	
2B-W-14	9/22/2008	931.25	5.7		Dry		925.55	
2B-W-15	9/22/2008	931.74	7.21		Dry		924.53	
2B-W-19	9/22/2008	935.25	8.32				926.93	
2B-W-21	9/22/2008	935.81	10				925.81	
2B-W-30	9/22/2008	936.6	12.26				924.34	
2B-W-32	9/22/2008	935.45	8.82				926.63	
2B-W-33	9/22/2008	938.28	11.81				926.47	
2B-W-4	9/22/2008	931.03	4.49				926.54	
MW-1	9/22/2008	939.2	13.59				925.61	
MW-10	9/22/2008	938.34	13.65				924.69	
MW-11	9/22/2008	939.2	14.46				924.74	
MW-12	9/22/2008	931.45	6.95				924.50	
MW-13	9/22/2008	934.93	10.99				923.94	
MW-14	9/22/2008	936.49	12.95				923.54	
MW-15	9/22/2008	936.8	14.19				922.61	
MW-17	9/22/2008	939.11	NM				NM	
MW-18	9/22/2008	940.68	15.63				925.05	
MW-2	9/22/2008	939.2	13.28				925.92	
MW-3	9/22/2008	938.03	11.19				926.84	
MW-39	9/22/2008	936.21	10.33				925.88	Trace
MW-4	9/22/2008	936.95	10.72				926.23	
MW-40	9/22/2008	936.52	13.71				922.81	
MW-5	9/22/2008	933.36	8.25				925.11	
MW-7	9/22/2008	936.89	13.88				923.01	
MW-9	9/22/2008	937.53	13.49				924.04	

**Table B-2 Total Petroleum Hydrocarbon Results in Groundwater**

Analytical Method Chemical Name Unit				NWTPH-Dx Diesel µg/L			NWTPH-Dx Lube Oil µg/L			NWTPH-Dx TPH (Calculated) µg/L
Location ID	Sample ID	Sample Date	Sample Type	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	
1B-W-1	1B-W-1-0103	1/15/2003	N	ND	110	110	458	54	54	513
1B-W-1	1B-W-1-0505	5/12/2005	N	140 J	90	500	748	26	250	888
1B-W-1	1B-W-1-0805	9/1/2005	N	140 J	85.7	476	732	61.9	238	872
1B-W-1	1B-W-1-1105	12/2/2005	N	313 J	85.7	476	1560	61.9	238	1873
1B-W-1	1B-W-1-0206	2/23/2006	N	526 J	84.9	472	3400	61.3	236	3926
1B-W-1	1B-W-1-0506	5/23/2006	N	ND	84.9	472	942 J	61.3	236	984.45
1B-W-1	1B-W-1-1106	11/29/2006	N	812 J	84.9	472	3570 J	37.7	236	4382
1B-W-1	1B-W-1-0707	7/31/2007	N	141 J	84.9	472	478	37.7	236	619
1B-W-1	1B-W-1-0308	3/25/2008	N	859	84.9	472	3180	37.7	236	4039
2A-W-10	2A-W-110-0102	1/21/2002	FD	ND	20	250	ND	500	500	260
2A-W-10	2A-W-10-0102	1/21/2002	N	ND	20	250	ND	500	500	260
2A-W-10	2A-W-10-0103	1/15/2003	N	125	54	54	ND	110	110	180
2A-W-10	2A-W-10-0505	5/12/2005	N	313	26	250	266 J	90	500	579
2A-W-10	2A-W-10-0805	9/1/2005	N	ND	63.7	245	176 J	88.2	490	207.85
2A-W-10	2A-W-10-1105	12/2/2005	N	330 J	61.9	238	341 J	85.7	476	671
2A-W-10	2A-W-10-0206	2/22/2006	N	371	61.3	236	ND	84.9	472	413.45
2A-W-10	2A-W-10-0506	5/24/2006	N	274	62.5	240	ND	86.5	481	317.25
2A-W-10	2A-W-10-1106	11/30/2006	N	446 J	9.05	238	212 J	86.7	476	658
2A-W-10	2A-W-10-0707	7/31/2007	N	322 J	37.7	236	95.5 J	84.9	472	417.5
2A-W-10	2A-W-10-0308	3/25/2008	N	136 J	37.7	236	245 J	84.9	472	381
2A-W-11	2A-W-11-0102	1/21/2002	N	ND	20	250	ND	500	500	260
2A-W-11	2A-W-11-0103	1/15/2003	N	1090	54	54	375	110	110	1465
2A-W-11	2A-W-11-0505	5/12/2005	N	990	26	250	671	90	500	1661
2A-W-11	2A-W-11-0805	9/1/2005	N	ND	63.7	245	183 J	88.2	490	214.85
2A-W-11	2A-W-11-1105	12/1/2005	N	1590 J	61.9	238	673 J	85.7	476	2263
2A-W-11	2A-W-11-0206	2/23/2006	N	815 J	61.3	236	ND	84.9	472	857.45
2A-W-11	2A-W-11-0506	5/25/2006	N	380	61.9	238	ND	85.7	476	422.85
2A-W-11	2A-W-11-1106	11/30/2006	N	434 J	9.05	238	312 J	86.7	476	746
2A-W-11	2A-W-11-0707	7/31/2007	N	884 J	37.7	236	1120 J	84.9	472	2004
2A-W-11	2A-W-11-0308	3/24/2008	N	675	37.7	236	473	84.9	472	1148
2A-W-9	2A-W-9EC	1/18/2002	FSp	250		140	NA			250
2A-W-9	2A-W-9-0102	1/18/2002	N	540	20	250	ND	500	500	790
2A-W-9	2A-W-9-0103	1/15/2003	N	464	54	54	292	110	110	756
2A-W-9	2A-W-9-0505	5/12/2005	N	563	26	250	210 J	90	500	773
2A-W-9	2D-W-9-0805	9/1/2005	FD	ND	63.7	245	ND	88.2	490	75.95
2A-W-9	2A-W-9-0805	9/1/2005	N	ND	63.7	245	ND	88.2	490	75.95
2A-W-9	2A-W-9-1105	12/2/2005	N	321 J	61.3	236	ND	84.9	472	363.45
2A-W-9	2A-W-9-0206	2/22/2006	N	590	61.3	236	ND	84.9	472	632.45
2A-W-9	2A-W-90-0206	2/22/2006	FD	600	61.3	236	ND	84.9	472	642.45
2A-W-9	2A-W-9-0506	5/24/2006	N	873 J	62.5	240	ND	86.5	481	916.25
2A-W-9	2A-W-9-1106	11/30/2006	N	999 J	9.05	238	277 J	86.7	476	1276
2A-W-9	2A-W-9-0707	7/31/2007	N	728 J	37.7	236	195 J	84.9	472	923
2A-W-9	2A-W-9-0308	3/25/2008	N	1030	37.7	236	598	84.9	472	1628
2B-W-4	2B-W-4-0102	1/21/2002	N	ND	20	250	ND	500	500	260
2B-W-4	2B-W-40-0103	1/14/2003	FD	124	54	54	ND	110	110	179
2B-W-4	2B-W-4-0103	1/14/2003	N	138	54	54	183	110	110	321
2B-W-4	2B-W-14-0505	5/10/2005	FD	63.8 J	26	250	ND	90	500	108.8
2B-W-4	2B-W-4-0505	5/10/2005	N	64.9 J	26	250	ND	90	500	109.9
2B-W-4	2B-W-4-0805	9/1/2005	N	ND	63.7	245	ND	88.2	490	75.95
2B-W-4	2B-W-4-1105	12/2/2005	N	176 J	61.9	238	92.4 J	85.7	476	268.4
2B-W-4	2B-W-4-0206	2/24/2006	N	ND	62.5	240	ND	86.5	481	74.5
2B-W-4	2B-W-4-0506	5/25/2006	N	ND	61.9	238	ND	85.7	476	73.8
2B-W-4	2B-W-4-1106	11/30/2006	N	ND	9.22	243	ND	88.3	485	48.76
2B-W-4	2B-W-4-0707	7/31/2007	N	ND	37.7	236	ND	84.9	472	61.3
2B-W-4	2B-W-4-0308	3/25/2008	N	ND	37.7	236	ND	84.9	472	61.3
MW-3	MW-3-0102	1/17/2002	N	ND	500	500	ND	20	250	260
MW-3	MW-3-0505	5/11/2005	N	206 J	90	500	132 J	26	250	338
MW-3	MW-3-0805	9/1/2005	N	116 J	86.5	481	121 J	62.5	240	237
MW-3	MW-3-1105	12/1/2005	N	206 J	85.7	476	227 J	61.9	238	433
MW-3	MW-3-0206	2/22/2006	N	ND	84.9	472	ND	61.3	236	73.1
MW-3	MW-3-0506	5/25/2006	N	ND	86.5	481	ND	62.5	240	74.5
MW-3	MW-3-1106	11/30/2006	N	ND	86.7	476	257 J	9.05	238	300.35
MW-3	MW-3-0707	7/31/2007	N	ND	84.9	472	130 J	37.7	236	172.45
MW-3	MW-3-0308	3/26/2008	N	ND	84.9	472	ND	37.7	236	61.3
MW-4	MW-4-0102	1/17/2002	N	ND	20	250	ND	500	500	260
MW-4	MW-4-0505	5/11/2005	N	124 J	26	250	115 J	90	500	239
MW-4	MW-4-0805	9/1/2005	N	147 J	61.9	238	ND	85.7	476	189.85
MW-4	MW-4-1105	12/1/2005	N	353 J	63.1	243	355 J	87.4	485	708
MW-4	MW-4-0206	2/22/2006	N	ND	61.3	236	ND	84.9	472	73.1
MW-4	MW-4-0506	5/24/2006	N	ND	61.9	238	ND	85.7	476	73.8
MW-4	MW-4-1106	11/30/2006	N	97.2 J	9.05	238	139 J	86.7	476	236.2
MW-4	MW-4-0707	7/31/2007	N	ND	37.7	236	ND	84.9	472	61.3
MW-4	MW-4-0308	3/26/2008	N	81.2 J	38.5	240	119 J	86.5	481	200.2
MW-12	MW-12-0102	1/16/2002	N	ND	20	250	ND	500	500	260
MW-12	MW-12A-0505	5/10/2005	FD	72 J	26	250	ND	90	500	117
MW-12	MW-12-0505	5/10/2005	N	65.4 J	26	250	ND	90	500	110.4
MW-12	MW-12-0805	9/1/2005	N	ND	63.7	245	ND	88.2	490	75.95
MW-12	MW-12-1105	12/1/2005	N	158 J	61.3	236	105 J	84.9	472	263
MW-12	MW-12-0206	2/23/2006	N	ND	61.3	236	ND	84.9	472	73.1
MW-12	MW-12-0506	5/25/2006	N	ND	61.3	236	ND	84.9	472	73.1

**Table B-2 Total Petroleum Hydrocarbon Results in Groundwater**

Analytical Method Chemical Name Unit				NWTPH-Dx Diesel µg/L			NWTPH-Dx Lube Oil µg/L			NWTPH-Dx TPH (Calculated) µg/L
Location ID	Sample ID	Sample Date	Sample Type	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL	
MW-12	MW-12-1106	11/30/2006	N	<b>148 J</b>	<b>9.05</b>	<b>238</b>	ND	86.7	476	<b>191.35</b>
MW-13	MW-13-0102	1/16/2002	N	ND	20	250	ND	500	500	260
MW-13	MW-13-0505	5/10/2005	N	<b>54.5 J</b>	<b>26</b>	<b>250</b>	ND	90	500	<b>99.5</b>
MW-13	MW-13-0805	9/1/2005	N	ND	61.9	238	ND	85.7	476	73.8
MW-13	MW-13-1105	12/1/2005	N	<b>78.1 J</b>	<b>61.9</b>	<b>238</b>	ND	85.7	476	<b>120.95</b>
MW-13	MW-13-0206	2/21/2006	N	ND	62.5	240	ND	86.5	481	74.5
MW-13	MW-13-0506	5/24/2006	N	ND	61.9	238	ND	85.7	476	73.8
MW-13	MW-13-1106	11/30/2006	N	ND	9.05	238	ND	86.7	476	47.875
MW-19	MW-19-0102	1/17/2002	N	ND	500	500	ND	20	250	260
MW-19	MW-19-0103	1/15/2003	N	ND	110	110	<b>57.2</b>	<b>54</b>	<b>54</b>	<b>112.2</b>
MW-19	MW-19-0505	5/9/2005	N	ND	90	500	<b>55.4 J</b>	<b>26</b>	<b>250</b>	<b>100.4</b>
MW-19	MW-119-0805	8/31/2005	FD	ND	85.7	476	<b>68.8 J</b>	<b>61.9</b>	<b>238</b>	<b>111.65</b>
MW-19	MW-19-0805	8/31/2005	N	ND	85.7	476	<b>72.6 J</b>	<b>61.9</b>	<b>238</b>	<b>115.45</b>
MW-19	MW-19-1105	12/2/2005	N	ND	86.5	481	ND	62.5	240	74.5
MW-19	MW-19-0206	2/23/2006	N	ND	86.5	481	ND	62.5	240	74.5
MW-19	MW-19-0506	5/23/2006	N	ND	84.9	472	ND	61.3	236	73.1
MW-19	MW-19-1106	11/29/2006	N	ND	86.7	476	ND	9.05	238	47.875
MW-19	MW-19-0707	7/31/2007	N	ND	85.7	476	ND	38.1	238	61.9
MW-19	MW-19-0308	3/26/2008	N	ND	84.9	472	<b>38 J</b>	<b>37.7</b>	<b>236</b>	<b>80.45</b>
MW-39	MW-39-0102	1/17/2002	N	<b>520</b>	<b>20</b>	<b>250</b>	ND	500	500	<b>770</b>
MW-39	MW-39-0103	1/14/2003	N	<b>1070</b>	<b>54</b>	<b>54</b>	<b>356</b>	<b>110</b>	<b>110</b>	<b>1426</b>
MW-39	MW-39-0505	5/11/2005	N	<b>1120</b>	<b>26</b>	<b>250</b>	<b>450 J</b>	<b>90</b>	<b>500</b>	<b>1570</b>
MW-39	MW-39-0805	8/31/2005	N	<b>844 J</b>	<b>61.3</b>	<b>236</b>	ND	84.9	472	<b>886.45</b>
MW-39	MW-39-1105	12/1/2005	N	<b>1960 J</b>	<b>61.9</b>	<b>238</b>	<b>727 J</b>	<b>85.7</b>	<b>476</b>	<b>2687</b>
MW-39	MW-39-0206	2/22/2006	N	<b>712 J</b>	<b>61.3</b>	<b>236</b>	ND	84.9	472	<b>754.45</b>
MW-39	MW-39-0506	5/24/2006	N	<b>716 J</b>	<b>61.3</b>	<b>236</b>	ND	84.9	472	<b>758.45</b>
MW-39	MW-39-1106	11/30/2006	N	<b>566 J</b>	<b>9.13</b>	<b>240</b>	<b>240 J</b>	<b>87.5</b>	<b>481</b>	<b>806</b>
MW-39	MW-39-0707	7/31/2007	N	<b>681 J</b>	<b>37.7</b>	<b>236</b>	<b>380 J</b>	<b>84.9</b>	<b>472</b>	<b>1061</b>
MW-39	MW-39-0308	3/26/2008	N	<b>639</b>	<b>38.5</b>	<b>240</b>	<b>222 J</b>	<b>86.5</b>	<b>481</b>	<b>861</b>

**Notes:**

- N Normal Field Sample
- FD Field Duplicate
- FSp Field Split
- ND Not detected
- J Estimated concentration
- MDL Method Detection Limit
- RDL Reporting Detection Limit
- Total NWTPH-Dx concentration exceeds CUL 208 µg/L
- Total NWTPH-Dx non-detected result exceeds CUL 208 µg/L
- Bold** TPH detected

## AECOM

710 2<sup>nd</sup> Avenue, Suite 1000, Seattle, WA 98104  
T 206.624.9349 F 206.624.2839 www.ensr.aecom.com

## Memorandum

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Date: February 16, 2009  
To: File  
From: M. Gardner  
Subject: Former Maloney Creek Hydraulic Barrier

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Distribution: M. Byers      H. Voges      S. Albano      M. Havighorst  
W. Chen

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### Background

Review of groundwater monitoring data indicates that seasonal groundwater fluctuations may result in a temporary groundwater flow direction reversal in the eastern portion of the FMC. Groundwater from the site may temporarily discharge to surface water in the FMC wetland during these flow reversal periods. A hydraulic barrier will be installed prevent discharge of site groundwater to the FMC surface water. The attached figure shows a proposed barrier configuration. The hydraulic barrier's physical properties, vertical limits and horizontal limits are provided below.

### Hydraulic Barrier Physical Properties

The barrier may consist of 1) a compacted clay layer (Unified Soil Classification CL, USDA silty clay); 2) a geosynthetic clay liner (Bentomat™ or equivalent); or 3) a layered combination of compacted clay and geosynthetic clay liner (GCL). The barrier will have an in-place hydraulic conductivity less than or equal to  $1 \times 10^{-6}$  cm/sec.

A compacted clay layer would be selected if material meeting the hydraulic conductivity requirements is available from a local borrow source. AECOM will collect clay samples from local borrow sources. The samples will be placed in molds and compacted to within 90 percent of maximum dry density as measured by Standard Proctor (ASTM D698). The molds will then be tested for hydraulic conductivity using ASTM D 5084.

A GCL alone or a combination of GCL and clay layer would be used if an acceptable clay source cannot be identified. A GCL is a manufactured composite. The composite can be engineered to meet the hydraulic conductivity requirement by itself, or when used in combination with a backfill material. GCL materials are suited for various construction scenarios, including in-water installation, but are subject to damage from root penetration. A GCL will be used by itself if wetland plantings can be modified such that potential root penetration would not likely result in a hydraulic conductivity greater than  $1 \times 10^{-6}$  cm/sec. This would likely preclude installation of woody plants, including alders. A GCL in combination with a compacted clay layer would be used if selection and placement of wetland and buffer zone plants can not be effectively modified to avoid significant root penetration. The clay layer would be placed in a 12-inch maximum loose lift thickness and compacted to within 90 percent of its maximum dry density to ensure hydraulic performance. Geosynthetic clay liner would be installed in accordance with the manufactures requirements.

**AECOM**

710 2<sup>nd</sup> Avenue, Suite 1000, Seattle, WA 98104

T 206.624.9349 F 206.624.2839 www.ensr.aecom.com

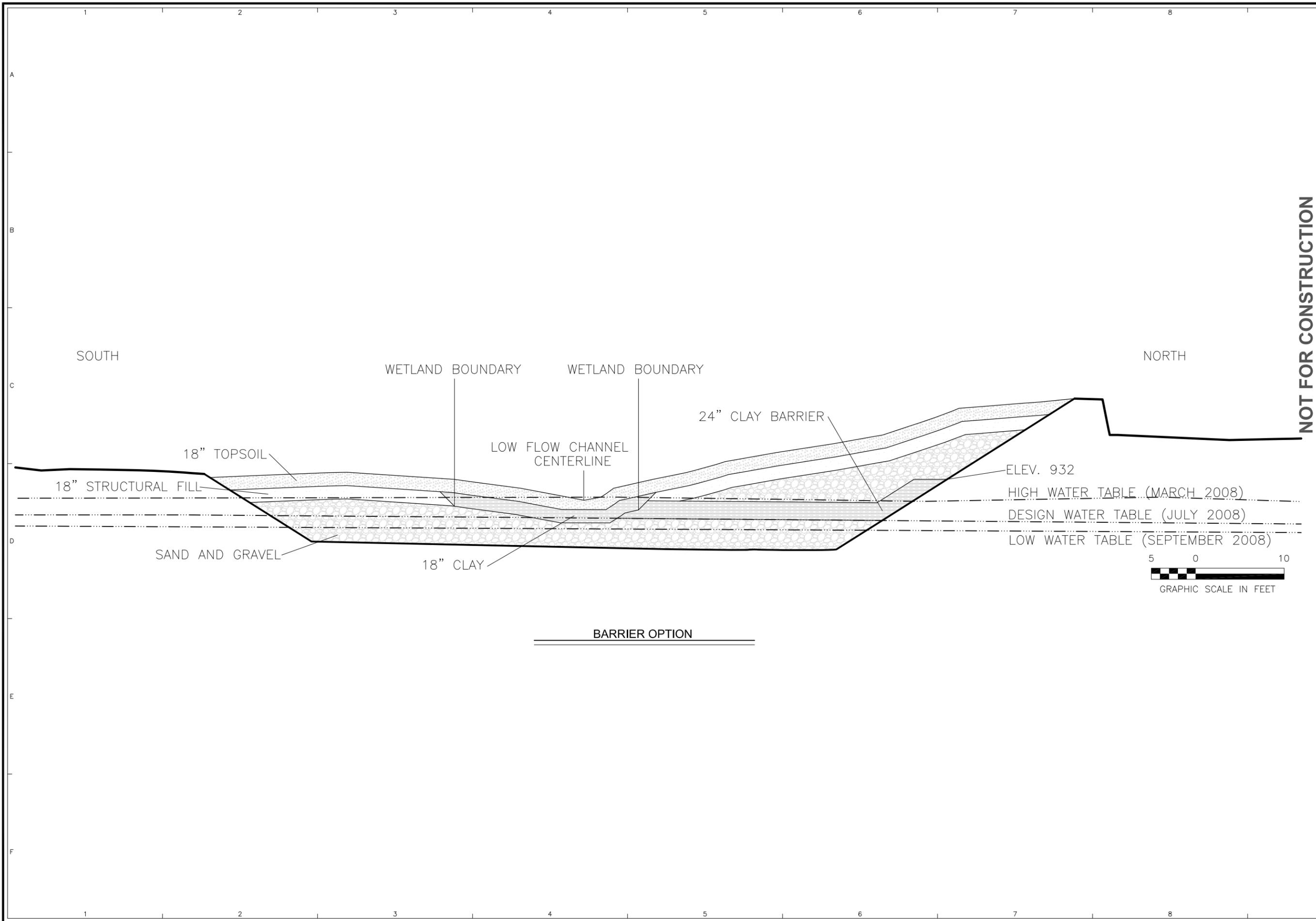
**Hydraulic Barrier Limits**

The hydraulic barrier will be installed as a continuous layer across the eastern 200 feet of the FMC excavation where flow reversal has been observed during groundwater monitoring. The barrier will extend up the FMC's northern bank to elevation 932. This will put the barrier above the high groundwater table of 930 observed during groundwater monitoring in the area. The barrier will extend south to the wetland boundary of the restored FMC.

**Mike Gardner, P.E.**

Attachment: Drawing C-307 Former Maloney Creek East Wetlands Barrier Option

File: C:\temp\working\files\skykomish\BARRIER\_OPTIONS.dwg Layout: DETAILS-1 User: carolm1 Plotted: Feb 16, 2009 - 4:26pm Title:

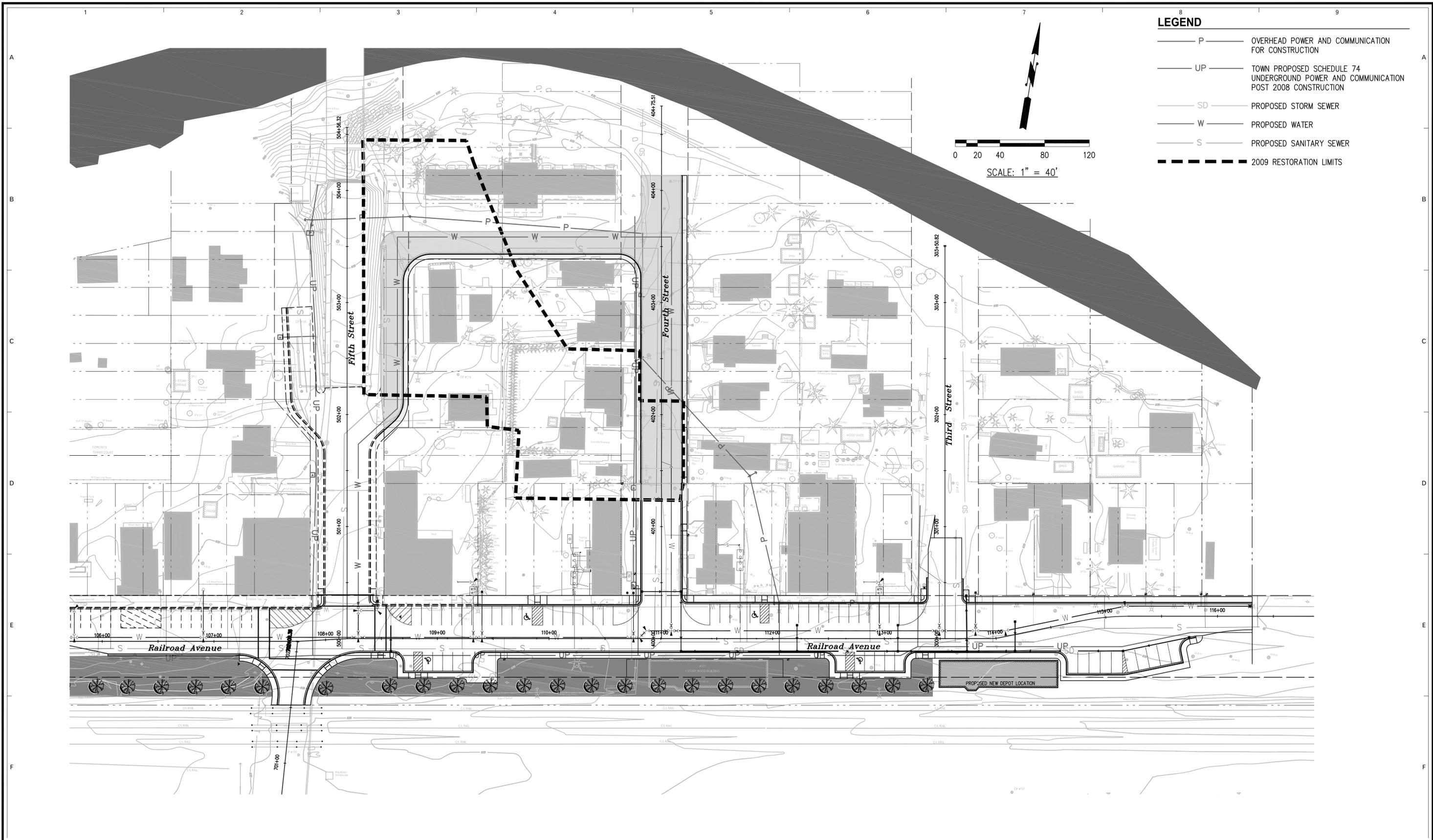


**NOT FOR CONSTRUCTION**

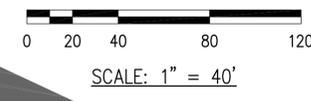
<b>AECOM</b>		<small>ENSR CORPORATION Seattle, Washington 98104 www.ensr.com</small>	
BURLINGTON NORTHERN FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON		PROJ. NO.: 01140-204-0370   DATE: 12/30/08	
<b>FORMER MALONEY CREEK EAST WETLANDS BARRIER OPTION</b>		2009 REMEDIATION	
DRAWING NUMBER: <b>C-307</b>		REVISION: <b>A</b>	
SHEET NUMBER:		NO. DRWN/DATE	
REVISION		FOR INTERNAL REVIEW	
		CHKD DATE	
		APPV DATE	

## **Appendix C**

### **2009 Conceptual Restoration Plan**



- LEGEND**
- P — OVERHEAD POWER AND COMMUNICATION FOR CONSTRUCTION
  - UP — TOWN PROPOSED SCHEDULE 74 UNDERGROUND POWER AND COMMUNICATION POST 2008 CONSTRUCTION
  - SD — PROPOSED STORM SEWER
  - W — PROPOSED WATER
  - S — PROPOSED SANITARY SEWER
  - — — — — 2009 RESTORATION LIMITS



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Merged with ENSR in 2007

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE

**KPG**

Architecture  
Landscape Architecture  
Civil Engineering  
Urban Design  
Surveying

BNSF SKYKOMISH  
2009 CONCEPTUAL RESTORATION PLAN  
PROJECT # 0559C

CURRENT DATE: SEPTEMBER 2008

2009-EDR CONCEPT PLAN Rev1.dwg

1 OF 1

REVISION