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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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.

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		
		Annual EDRs	FMC SDR	
(i) Cleanup Action Goals				
Overall goals of the cleanup action including the all specific cleanup and performance requirements.	x	x	x	
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.		x	x	
(ii) Site Information				
General Site information and a summary of information in the remedial investigation/feasibility study.	x			
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.		x	x	
(iii) Owner, Operator, Maintenance Responsibilities				
Identification of who will generally own, operate, and maintain the cleanup action during and following construction.	X			
(iv) Facility Maps				
Facility maps showing existing Site conditions and the proposed location of the cleanup action.	x			
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.		x	x	
(v) Hazardous Substances Treatment and Management				
Characteristics, quantity, and locations of materials to be treated or otherwise managed, including ground water containing hazardous substances.	x			
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.		x	x	
(vi) Schedule				
A general schedule for the overall cleanup action	X			
A schedule for final design and construction for the time period covered by the Annual EDR		x	x	

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Information required per WAC 173-340-400(a)		Included in		
		Annual EDRs	FMC SDR	
(viii) Engineering justification for design and operation parameters				
A summary of the general design criteria for components of the cleanup action.	Х			
Design criteria, assumptions, and calculations for the cleanup action components that will be conducted throughout the cleanup action (e.g. construction water treatment).	x			
Design criteria, assumptions, and detailed calculations for cleanup action components that will be completed within the time period covered by the Annual EDR.		x	х	
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.	x			
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.		x	x	
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.	х			
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.		x	x	
(ix) Spill Control				
A general description of the spill control and response measures that will be implemented throughout the cleanup action.	x			
Design features for control of hazardous materials spills and accidental discharges (for example, containment structures, leak detection devices, run-on and runoff controls).		x	х	
(x) Public and Worker Safety				
A general description of the public and worker safety measures that will be implemented throughout the cleanup action	x			
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).		x	x	

Information required per WAC 173-340-400(a)		Included in		
		Annual EDRs	FMC SDR	
(xi) Waste Management				
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	x			
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.		x	x	
(xii) Facility-Specific Characteristics				
Facility-specific characteristics that may affect design, construction, or operation of the selected cleanup action, including:				
The general relationship of the proposed cleanup action to existing facility operations	x			
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.		x	x	
General probability of flooding, probability of seismic activity, temperature extremes, local planning and development issues.	x			
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.		x	x	
General soil characteristics and ground water system characteristics.	х			
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.		x	x	
(xiii) Quality Control				
A general description of the overall approach to quality control.	х			
A description of construction testing that will be used to demonstrate adequate quality control within time period covered by the Annual EDR		х	х	
(xiv) Compliance Monitoring				
A general description of compliance monitoring that will be performed during and after construction to meet the requirements of WAC 173-340-410	x			
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.		X ¹	X ¹	

Information required per WAC 173-340-400(a)		Included in		
		Annual EDRs	FMC SDR	
(xv) Health and Safety				
A general description of construction procedures proposed to assure that the safety and health requirements of WAC 173-340-810 are met	х			
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		X²	X²	
(xvi) SEPA Requirements				
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).		x	х	
(xvii) Permitting				
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		x	x	
(xviii) Financial Assurance				
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.	X³			
(xix) Institutional Controls				
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	X³			
(xx) Other	×4			
Other information as required by the department (e.g., supplemental investigation data).	X			

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/m³.

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 5th 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/furanimpacted 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.

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

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

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.

2009 Zone-Specific Design Requirement	Master EDR Section
Railyard Zone	3.2.2
Cleanup Levels (CULs)	Table 3-2
HCC Water Treatment System	3.2.2.4
HCC Treated Water Disposal	3.2.2.5
Northwest Developed Zone	3.2.4
CULs	Table 3-2
Relocate Hotel/other Buildings	3.2.4.2
Excavation Extents	3.2.4.4
Compliance Monitoring	3.2.4.8
Northeast Developed Zone	3.2.5
CULs	Table 3-2
Air Sparging System	3.2.5.3
Compliance Monitoring	3.2.5.4
Former Maloney Creek Zone	3.2.3
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

Table 3-2	Master EDR	Zone-Specific	Design	Requirements	Citations
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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 4th, 5th, 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 5th Street ROW
- Maintaining access to the SRI
- Coordination with Washington State Department of Transportation (WSDOT) for excavation near the 5th 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 4th, 5th, and East River Street ROWs. The sloped excavation in the 4th Street ROW will be completed in order to remove soil exceeding the petroleum RL on Martin and Sarno properties. The 5th 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 properties. The west excavation extents approach the 5th Street bridge embankment. The excavation extents and sloping will be completed to maintain embankment stability.

The 4th, 5th, 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. 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 redefined 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 μ g/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 μ g/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.

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

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

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 4th 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.

Parcel Number	Property Owner or Designation	2009 Scope of Work	Access Status
NDWZ Remediati	ion Properties		
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

Table 4-2	Access Agreement and Scope of Work Summary

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 though October 31, 2008
			for 2009
7807800440 7807800445	Whistling Post	Partial excavation	Current access agreement valid though October 31, 2008
7807800455			Negotiations in progress for 2009
78078000	Town Hall Property	Partial excavation	Access obtained
FMC East Wetland Remediation Properties			
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 4th Street, 5th 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 5th 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.

Sieve Size	Percent Passing
2 ½ square	100
2 square	65-100
³ ∕₄ square	40-80
U.S. No. 4	5 (max.)
U.S. No. 100	0-2
% Fracture	75 (min.)

Table 4-3 Stabilization Aggregate Grain-Size Requirements

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

U.S Standard Sieve Size	Allowable Percent Passing
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

<u>Topsoil</u>

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"
рН	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 ¹	≤ 9 mg/kg
Nickel	< 210 mg/kg
Selenium ¹	≤ 18 mg/kg
Zinc	≤ 1400 mg/kg
NWTPH-Dx	≤ 1,870 mg/kg

¹If 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 4th Street, 5th 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 5th 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 4th Street, 5th 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 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 4th Street ROW. The 4th 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 5th Street and East River Street. Phase 2 would include completion of the remaining excavation. The 5th 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 4th 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 4th Street.
- Open up 4th 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 5th 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 5th Street and East River Street to traffic.

5.1.3 Traffic Routing and Pedestrian Access

Construction will impact 4th Street, 5th 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

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- Washington State Department of Ecology, 2007d. *Final Environmental Impact Statement (EIS)*. Former Maintenance and Fueling Facility, Skykomish, Washington.

AECOM Environment

Drawings

2009 ENGINEERING DESIGN REPORT FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON

SUBMITTED BY: THE BNSF RAILWAY COMPANY 2454 OCCIDENTAL AVE. S. Suite #1A SEATTLE, WASHINGTON (206) 625-6298

SHEET

T-100

T-102

C-100

C-101

C - 102

C-103 C-104

C - 105

C-106

C - 200

C-201

C-202 C-203

C-204

C - 205

PREPARED BY: ENSR 1011 KLICKITAT WAY Suite 207 SEATTLE, WASHINGTON (206) 624-9349

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30% DRAWINGS - NOT FOR CONSTRUCTION



SURFACE FEATURES:

- BNSF PROPERTY LINE

_____ SILT FENCE

SHEET PILE - EXISTING

MSE WALL

 \times

*

SHEET PILE - PROPOSED

GUARD RAIL

WETLAND

BUILDING TO BE MOVED

SOIL HANDLING AREA

SKYKOMISH CITY PARK

----- RIGHT OF WAY LINE

EXISTING CURB/PAVEMENT/SIDEWALK

EXISTING GRADE CONTOUR 5' INTERVAL

EXISTING GRADE CONTOUR 1' INTERVAL

- TEMPORARY CONSTRUCTION FENCE

----- 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 - TEMPORARY TO REMAIN

BUILDING TEMPORARY LOCATION

DESIGNATED VEHICLE TRAFFIC LANE

PILOT SCALE DEMONSTRATION AREA

BUILDING FOOTPRINT

RAILROAD TRACK

SYMBOLS:

- ↔ MONITORING WELL TO BE PROTECTED
- + INJECTION WELL
- SURVEY CONTROL POINT

.3

▲ SETTLEMENT POINT

LEGEND:

UTILITY FEATURES:

~	FIRE DEPARTMENT CONNECTION	W	WATER LINE	C.
Q	FIRE HYDRANT	G	GAS LINE	
⊞	WATER METER	SD	STORM DRAIN LINE	
M	WATER VALVE	OHP	OVERHEAD POWER	
ð	HOSE BIB	UĢP	UNDERGROUND POWER	
e	ELECTRIC METER	онс	OVERHEAD COMMUNICATION	
Ø	GAS VALVE	UGC	UNDERGROUND COMMUNICATION	HORIZO
° OFC	OIL FILLER CAP			1 HORIZON
0	STORM DRAIN MANHOLE			2 VERTICA
	CATCH BASIN			3 BENCHM
S	SEPTIC SYSTEM MANHOLE			THE PUBLIS
^{CO} O	SEPTIC SYSTEM CLEANOUT			NOTES
Vent Pipe _o	SEPTIC SYSTEM VENT			
-0-	UTILITY POLE			NORTH
~	UTILITY POLE GUIDE WIRE			2. PROPER
×→	UTILITY POLE W/LIGHT			3 411 DIS
Ð	ELECTRIC MANHOLE			
	TELEPHONE RISER BOX			ALL WE
\bowtie	JUNCTION BOX			mose
	BURIED FIBER OPTIC			BMPs F
000	INTEGRATED UNMANNED TRAFFIC SIGNAL			MANU
Septic Vault	BELOW GROUND STRUCTURE			BM
	PROPANE GAS TANK			BM
	BOLLARD			BM
				BM
				BM

ABBREVIATIONS:

C.P.B - CONTROL PANEL BOX

DRIZONTAL & VERTICAL CONTROL

IORIZONTAL DATUM: NAD 83/91

/ERTICAL DATUM: NAVD 88

BENCHMARK: KING COUNTY MONUMENT STAMPED "1995 GPS 8823" WITH E PUBLISHED ELEVATION OF 931.73.

SITE PLAN IS BASED ON 2007 SURVEY DATA PROVIDED BY TRUE NORTH LAND SURVEYING, INC., DATED 12/10/2007.

PROPERTIES AND AREAS THAT WERE NOT INCLUDED IN THE SURVEY ARE NOT SHOWN.

ALL DISTANCES ARE U.S. SURVEY FEET.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL WELLS OUTSIDE THE REMEDIATION BOUNDARY AS WELL AS THOSE INSIDE THE SOIL HANDLING FACILITY.

MPs 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

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SOIL HANDLING FACILITY NOTES

1. EXISTING STOCKPILE AREA DETAILS ARE SHOWN. THIS AREA WILL BE USED TO THE EXTENT PRACTICABLE. ALL CONSTRUCTION DETAILS AND SUBSEQUENT NOTES SHOWN WILL BE USED TO CONSTRUCT ADDITIONAL AREAS, IF REQUIRED. CONTRACTOR SHALL INSPECT EXISTING SOIL HANDLING FACILITY AND DECON AREAS, AND REPAIR PAVEMENT AND BERMS AS NECCESSARY TO BRING THE AREA UP TO THESE STANDARDS.

2. STOCKPILE AREA DIMENSIONS AND SHAPE MAY VARY. ACTUAL SIZE WILL BE DETERMINED BASED ON SITE CONDITIONS AND REQUIRED STORAGE AREA. CONTRACTOR SHALL DETERMINE FINAL SIZE OF AREA WITH APPROVAL BY SITE ENGINEER.

3. STOCKPILE AREA IS TO BE GRADED TO POSITIVELY DRAIN TOWARDS THE WATER COLLECTION AREA.

4. CONTAINMENT BERMS SHALL BE CONSTRUCTED OF UNIMPACTED SOIL. PLACE WATER CONTAINMENT BERM SOILS IN MAXIMUM OF 12" LIFTS.

5. WATER CONTAINMENT BERMS ARE TO BE MOISTURE CONDITIONED AND COMPACTED TO A FIRM, UNVIELDING CONDITION, AS DIRECTED BY THE SITE ENGINEER.

6. DAILY INSPECTION AND MAINTENANCE OF THE WATER CONTAINMENT BERMS IS REQUIRED DURING PERIODS OF PRECIPITATION.

7. CONTRACTOR SHALL REMOVE WATER FROM COLLECTION SUMP, FILTER IT FOR DISPOSAL AT THE CONSTRUCTION WATER TREATMENT SYSTEM, AND TRANSFER IT TO THE WATER TREATMENT SYSTEM. NO VEHICLE DECONTAMINATION WATER IS TO BE DISPOSED OF WITH THE ON-SITE TREATMENT SYSTEM

8. SOLIDS ACCUMULATED IN THE SUMP WILL BE REMOVED PERIODICALLY AND PLACED ON THE STOCKPILE.

9. UPON COMPLETION OF THE WORK, THE CONTAMINATED MATERIAL STOCKPILE AREA SHALL BE FULLY DECONTAMINATED AND CLEANED TO THE SATISFACTION OF THE ENGINEER. ONCE DECONTAMINATION IS APPROVED, THE CONTRACTOR SHALL BREACH CONTAINMENT BERM AS DIRECTED BY THE ENGINEER.

10. ANY DAMAGE TO CONTAMINATED MATERIAL STOCKPILE AREA MUST BE REPORTED TO THE SITE ENGINEER IMMEDIATELY AND REPAIRED AT NO ADDITIONAL COST.

11. ALL WELLS TO BE PROTECTED DURING OPERATION OF STOCKPILE AREA.

12. WATER COLLECTED FROM WHEEL WASH/DECON AREA SHALL BE REMOVED AND DISPOSED OF OR RECYCLED AT A LICENSED FACILITY.

TRAFFIC ROUTING AND PEDESTRIAN ACCESS NOTES

1. SIDEWALKS OUTSIDE THE REMEDIATION AREA WILL BE ACCESIBLE TO PEDESTRIANS.

2. CONTRACTOR MAY PROPOSE MODIFICATIONS TO THIS PLAN PROVIDED THAT ALL PEDESTRIAN AND VEHICULAR ACCESS IS MAINTAINED.

3. CONTRACTOR SHALL MODIFY PUBLIC ACCESS PLAN AS THEY DETERMINE APPROPRIATE. CONTRACTOR SHALL ADD SIGNAGE TO PLAN FOR BOTH VEHICULAR AND PEDESTRIAN ACCESS SO THAT IT IS CLEAR TO BOTH PEDESTRIANS AND VEHICLES.

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES

1. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENAN THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONS AND VEGETATION/LANDSCAPING IS ESTABLISHED.

2. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

3. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.

4. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

5. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.

6. ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).

7. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.

8. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH DURING THE DRY SEASON, BI-MONTHLY DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.

9. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.

10. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE ENGINEER.

11. ALL PAVED AREAS SHALL BE KEPT CLEAN FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL PROVIDE A DEDICATED STREET CLEANER CAPABLE OF VACUUMING STREETS.

12. TO THE EXTENT PRACTICABLE, NATURAL VEGETATION SHALL BE PRESERVED.

13. SEDIMENT AND EROSION CONTROL PLAN TEXT IS INCLUDED IN THE STORMWATER POLLUTION PREVENTION PLAN.

14. THE PLACEMENT OF SILT FENCING AND OTHER TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE DONE WITH GUIDANCE FROM BNSF RAILWAY PERSONNEL SO AS TO NOT INTERFERE WITH ACTIVE RAILWAY LINES.

15. WIRE AND SILT FENCE CONFIGURATIONS MAY VARY BASED ON FIELD CONDITIONS AND CONSTRUCTION PLANNING. ALTERNATE CONFIGURATIONS MAY BE IMPLEMENTED WITH APPROVAL FROM THE ENGINEER.

16. CONTRACTOR SHALL NOT DIVERT STORMWATER RUNON ENTERING THE EXCAVATION AREA. STORMWATER RUNOFF FROM THE CONSTRUCTION AREA SHALL BE FULLY PROTECTED BY THE BMP AS INDICATED ON THE ESC PLANS.

17. BMP LEGEND IS FOUND ON SHEET T-101.

SITE PREPARATION, BUILDING RELOCATION, AND EROSION CONTROL NOTES

1. BREAK AND REMOVE ASPHALT/CONCRETE ROAD AND WALKWAYS IN EXCAVATION AREA, AS NECESSARY.

2. CLEAR AND GRUB WITHIN EXCAVATION AREA, AS NECESSARY.

3. REMOVE ABOVEGROUND STRUCTURES, INCLUDING FOUNDATIONS, OIL AND PROPANE TANKS, PIPING, ARCHITECTURAL ELEMENTS, AND STORE DURING CONSTRUCTION

4. REMOVE UNDERGROUND STRUCTURES, SUCH AS SEPTIC TANKS, OIL AND PROPANE TANKS, PIPING, CATCH BASINS, MANHOLES AND FOUNDATIONS/FOOTINGS.

5. BREAK AND REMOVE ASPHALT AS REQUIRED FOR TRENCHING.

6. TEMPORARILY RELOCATE ABOVEGROUND TANKS, IF NECESSARY.

7. COORDINATE WITH UTILITY COMPANIES AND ENGINEER TO REMOVE POWER POLES AND OVERHEAD UTILITIES, AS NECESSARY.

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- FILTER FABRIC 2' MIN 6' MAX BACKFILLED TRENCH - FILTER FABRIC ATTACHED SECURELY TO POST STEEL OR -WOOD POST - COMPACTED BACKFILL RUNOFF MINIMUM 4"X4" TRENCH BACKFILL WITH NATIVE 24" MIN SOIL OR ³/₄"-1½" WASHED GRAVEL

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.

SILT FENCE C-101 SCALE: NTS





9 GATE C-101 SCALE: NTS

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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 and 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-Dx¹. 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 μ g/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 buffer². 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

¹ 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.

² 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 14th meeting³ 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-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.⁴

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

⁴ 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 DataDraft (Not Validated)

			Chemical	NWTPH	Dx Diesel Range	9	NWTP	H-Dx Oil Range		NWTPH-Dx
			Name		ma/ka			ma/ka		(Calculated)
			Dawth		iiig/kg			ilig/kg		ilig/kg
		Sample	Depth							
Location ID	Sample ID	Date	(ft)	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	4310	33.5	209	4650	66.7	523	8960
1A-B-8B	1A-B-8B(15-17)	9/19/2008	15-17	3.55	1.63	10.2	33.4	3.25	25.5	36.95
1A-B-8B	1A-B-8B(17-19)	9/19/2008	17-19	2440	16.6	104	2720	33.1	259	5160
1A-B-8B	1A-B-8B(19-21)	9/19/2008	19-21	ND	2.04	12.7	9.94	4.06	31.8	10.96
1A-B-8C	1A-B-8C(19-21)	9/19/2008	19-21	ND	2.3	14.4	11.8	4.58	35.9	12.95
1A-B-8C	1A-B-8C(13-15)	9/19/2008	13-15	1440	17.4	109	2170	34.7	272	3610
1A-B-8C	1A-B-8C(15-17)	9/19/2008	15-17	77.7	1.63	10.2	94.1	3.24	25.4	171.8
1A-B-8C	1A-B-8C(17-19)	9/19/2008	17-19	1350	9.48	59.2	1490	18.9	148	2840
1A-B-8D	1A-B-8D (14-16)	9/29/2008	14-16	ND	1.74	10.9	5.92	3.46	27.1	6.79
1A-B-8D	1A-B-8D (16-18)	9/29/2008	16-18	ND	1.64	10.3	6.13	3.28	25.7	6.95
1A-B-8D	1A-B-8D (18-20)	9/29/2008	18-20	ND	1.65	10.3	10.8	3.28	25.7	11.625
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	3.07	1.68	10.5	13.2	3.34	26.2	16.27
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	5.67	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	13	2.2	10	ND	2.2	25	14.1
1A-B-26	1A-B-26(16-18)	8/25/2008	16-18	4300	24	100	2900	22	250	7200
1A-B-27	1A-B-27(13-15)	8/25/2008	13-15	420	2.4	10	310	2.2	25	730
1A-B-27	1A-B-27(15-17)	8/25/2008	15-17	29	2.4	10	28	2.2	25	57
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	5600	24	100	4400	22	250	10000
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	11.9	3.29	25.8	12.725
1A-B-29	1A-B-29(10-12)	9/30/2008	10-12	ND	1.63	10.2	4.81	3.25	25.4	5.625
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	3.77	1.67	10.4	15.3	3.32	26	19.07
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	569	8.92	55.8	505	17.8	139	1074
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	2530	19.6	122	2250	39	306	4780
1A-B-33	1A-B-33 (13-15)	10/1/2008	13-15	4220	17.5	109	3560	34.8	273	7780
1A-B-33	1A-B-33 (16)	10/1/2008	16	ND	1.81	11.3	12.2	3.61	28.3	13.105
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	3.32	1.75	10.9	8.8	3.49	27.3	12.12
1A-B-34	1A-B-34 (17-19)	10/1/2008	17-19	2.51	1.73	10.8	13.8	3.45	27.1	16.31
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	3110	16.9	106	4550	67.5	529	7660
1A-B-35	1A-B-35(14)	10/6/2008	14	25.5	1.66	10.4	62.9	3.31	25.9	88.4
1A-B-35	1A-B-35(15)	10/6/2008	15	6360	36	225	8180	144	1120	14540
1A-B-35	1A-B-35(16)	10/6/2008	16	2.85	1.76	11	31.3	3.52	27.6	34.15
1A-B-35	1A-B-35(17)	10/6/2008	17	ND	1.75	10.9	4.62	3.49	27.4	5.495

[Bold] ND

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

DRAFT (Dat	a Not Validated)																	
		Analyti	ical Method		NW	/TPH-D>	c		NW	/TPH-Dx	C C	NWTP	H-Dx SG	Add	NWTPI	H-Dx SG	Add	NWTPH-Dx	NWTPH-Dx SG Add
		Cher	mical Name Unit		Oil r	Range ng/kg			Dies r	el Rang ng/kg	e	0	il Range mg/kg		Dies	sel Rang mg/kg	je	(Calculated) mg/kg	(Calculated) mg/kg
Location ID	Sample ID	Sample Date	Depth Interval	Result Qualif	t & ier	MDL	RDL	Result Qualif	t & ier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL		
2B-B-1	2B-B-1	1/8/2002	0-2	20		0.55	5	59		10	10							79	
2B-B-1	2B-B-1	1/8/2002	6	19		0.53	5	30		10	10							49	
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	5.54	J	3.59	28.1	ND		1.8	11.3							6.44	
2B-B-23	2B-B-23	8/20/2007	6-8	7.07	J	3.53	27.7	2.39	J	1.77	11.1							9.46	
2B-B-23	2B-B-23	8/20/2007	8-10	ND		3.53	27.7	ND		1.77	11.1							2.65	
2B-B-23	2B-B-23	8/20/2007	10-12	ND		4.44	34.8	ND		2.23	13.9							3.34	
2B-B-38	2B-B-38 (0-2)	9/10/2008	0-2	45.9		4.45	34.8	23.7		2.23	13.9	15.5	4.45	34.8	7.19	2.23	13.9	69.6	22.7
2B-B-38	2B-B-38 (3-5)	9/10/2008	3-5	4.1		3.55	27.9	3.61		1.78	11.1	ND	3.55	27.9	ND	1.78	11.1	7.71	2.67
2B-B-38D	2B-B-38D	9/30/2008	0-2	24.1		4.45	34.9	3.37		2.23	13.9	9.59	4.45	34.9	ND	2.23	13.9	27.5	10.7
2B-B-38D	2B-B-38D	9/30/2008	2-4	16.2		4.6	36.1	3.09		2.31	14.4	ND	4.6	36.1	ND	2.31	14.4	19.3	3.46
2B-B-38D	2B-B-38D	9/30/2008	4-6	6.87		3.84	30.1	ND		1.92	12	ND	3.84	30.1	ND	1.92	12	7.83	2.88
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	41.4		3.62	28.3	10.9		1.81	11.3	14.4	3.62	28.3	3.13	1.81	11.3	52.3	17.5
2B-B-39B	2B-B-39B	9/30/2008	2-4	6.87		4.44	34.8	ND		2.23	13.9	ND	4.44	34.8	ND	2.23	13.9	7.99	3.34
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	12/17/200	1 0-2	34		0.51	5	130		10	10							164	
2B-W-4	2B-W-4	12/17/200	1 4	ND		0.5	5	ND		10	10							5.25	
2B-W-4	2B-W-4	12/17/200	1 7	7.4		0.54	5	33		10	10							40.4	
2B-W-4	2B-W-4	12/17/200	1 7	ND		0.51	5	13		10	10							13.3	
2B-W-4	2B-W-4	12/17/200	1 19	23		0.5	5	130		10	10							153	

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/sillca gel cleanup																
SPLP	Synthetic Precipitation Leaching Procedure																
DRAFT (Dat	a Not Validated)																
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		Analyti	cal Method	NWTPH-D	x SPLP	iltered	NWTPH-D	x SPLP F	iltered	NWTPH-Dx	SPLP U	nfiltered	NWTPH-Dx	SPLP U	nfiltered	NWTPH-Dx SPLP Filtered	NWTPH-Dx SPLP Unfiltered
		Cher	nical Name Unit	Oi	l Range µg/l		Dies	sel Range µq/l	9	Oi	l Range μq/l		Dies	sel Range µq/l	9	(Calculated) µq/l	(Calculated) µq/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

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 not analyzed

 [Bold Italics]
 exceeds 22 mg/kg or 2

 NWTPH-Dx SG Add
 samples analyzed follor

 SPLP
 Synthetic Precipitation

Table A-3 Robinson Property Supplementary Soil Investigation Data DRAFT (Data Not Validated)

		Analyt	ical Method		NW	/TPH-Dx	l.		NW	TPH-Dx		NWTF	PH-Dx SG	Add	NWTP	H-Dx SG	Add	NWTPH-Dx	NWTPH-Dx SG Add
		Che	mical Name		Oil	I Range			Diese	el Rang	e	c	Dil Range		Dies	sel Rang	е	(Calculated)	(Calculated)
			Unit		r	ng/kg			m	ng/kg			mg/kg			mg/kg		mg/kg	mg/kg
Location ID	Sample ID	Sample Date	Depth Interval	Result Qualif	t & ier	MDL	RDL	Result Qualif	t & ier	MDL	RDL	Result & Qualifier	MDL	RDL	Result & Qualifier	MDL	RDL		
2B-B-42	2B-B-42 (0-2)	10/3/2008	0-2	9.08	J	3.54	27.8	ND		1.78	11.1	ND	3.54	27.8	ND	1.78	11.1	9.97	2.66
2B-B-42	2B-B-42 (2-4)	10/3/2008	2-4	3.54	J	3.37	26.4	ND		1.69	10.6	ND	3.37	26.4	ND	1.69	10.6	4.39	2.53
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	7.17	J	3.42	26.8	ND		1.71	10.7	ND	3.42	26.8	ND	1.71	10.7	8.03	2.57
2B-B-43	2B-B-43 (2-4)	10/3/2008	2-4	6.82	J	3.43	26.9	ND		1.72	10.8	ND	3.43	26.9	ND	1.72	10.8	7.68	2.58
2B-B-43	2B-B-43 (4-6)	10/3/2008	4-6	5.64	J	3.46	27.1	ND		1.74	10.8	ND	3.46	27.1	ND	1.74	10.8	6.51	2.6
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	146		3.49	27.4	43		1.75	10.9	61.3	3.49	27.4	24.9	1.75	10.9	189	86.2
2B-B-44	2B-B-44 (2-4)	10/3/2008	2-4	1240	Q4	82.6	647	339	Q4	41.4	259	325 Q	4 4.13	32.4	165 Q4	2.07	12.9	1579	490
2B-B-44	2B-B-44 (4-6)	10/3/2008	4-6	41.1		3.71	29.1	6.93	Q4	1.86	11.6	16.2	I 3.71	29.1	3.69 J	1.86	11.6	48.03	19.89
2B-B-44	2B-B-44 (6-8)	10/3/2008	6-8	3.75	J	27.8	27.8	ND	J	1.78	11.1	ND	3.54	27.8	ND	1.78	11.1	4.64	2.66

[Bold] ND detected value non detect [blank cell] [Bold Italics] NWTPH-Dx SG Add not analyzed exceeds 22 mg/kg samples analyzed following acid/sillca gel cleanup DRAFT (Data Not Validated)

		Analyti Cher	ical Method nical Name Unit	N	IWTPH-Dx Dil Range mg/kg		NV Die:	VTPH-Dx sel Rang mg/kg	e	NWTPI Oi	H-Dx SG il Range mg/kg	Add	NWTPH Dies	l-Dx SG / sel Range ng/kg	Add Ə	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-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	35 .	J 3.59	28.2	6.05	1.8	11.3	21.1	3.59	28.2	ND	1.8	11.3	41.05	22.00
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/sillca gel cleanup

		Analyti Cher	cal Method nical Name Unit	NW Oil	TPH-Dx Range μg/l		NW Dies	/TPH-Dx el Range μg/l	•	NWTPH-Dx (Calculated) µg/l
Location ID	Sample ID	Sample Date	Depth Interval	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] ND [blank cell] [Bold Italics] NWTPH-Dx SG Add

detected value non detect not analyzed exceeds 22 mg/kg or 20& samples analyzed followi Figures



	LEGEND
	PROPERTY LINE
	2008 SUPPLEMENTARY INVESTIGATION BORING LOCATIONS
+ +	2007 BORING LOCATIONS
$\Rightarrow \Rightarrow$	PRE-2007 BORING LOCATIONS
•	2006 PHASE I INVESTIGATION BOREHOLE LOCATION
0	2006 PHASE II INVESTIGATION BOREHOLE LOCATION
۲	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
0	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



FIGURE A-1





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>	ENSR	<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	Diesel Range (C10-C25)	Motor Oil Range (C25-C36)	Surrogate <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

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

			$\operatorname{Percent}$	
	Reporting	Spike Level	Recovery	Acceptance
Analyte	Units		LCS	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.

Segerres 25A TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

1720 North Creek Pkory N Suite 400, Bethell, WA 55011-8244 11923 htt Frist Ave, Spokane, WA 60206-5302

9405 NW Nimbus Ave. Beaverron, OR 97008-7145 2000 W International Auport Rd Ste A10, Archorage, AK 99502-1119

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Work Order #:

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Report IVI

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CASE NARRATIVE

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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>	ENSR	<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	Diesel Range (C10-C25)	Motor Oil Range (C25-C36)	Surrogate <u>(% Recovery)</u> (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

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

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike Level	Recovery	Acceptance
Analyte	Units		LCS	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 probablility.

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.



SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

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> BRJ0004 Project BNSF-Skykomish Remedial D ProjectNumber 01140-204-0320

TestAmerica Seattle

Kato Duug 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.



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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	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

und

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



www.testamericainc.com



ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Des	sign Investigation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	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.





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

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
BRJ0004-01 (1A-B-29(8-10))		Soi	1		Sampl	ed: 09/3	30/08 13:35			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	ND 11.9	1.65 3.29	10.3 25.8	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 12:41	J
Surrogate(s): 2-FBP Octacosane			84.5% 72.5%		54 - 148 % 62 - 142 %	н н			n n	
BRJ0004-02 (1A-B-29(10-12))		Soi	ł		Sampl	ed: 09/3	30/08 13:36			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons Surrogate(s): 2-FBP Octacosane	NWTPH-Dx "	ND 4.81	1.63 3.25 82.9% 73.8%	10.2 25.4	mg/kg dry " 54 - 148 % 62 - 142 %	1x " "	8J01038 "	10/01/08 14:39 "	10/02/08 13:09 " "	J
BRJ0004-03 (1A-B-29(12-14))		Soi	1		Sampl	ed: 09/3	30/08 13:37			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	1.85 3.69	11.6 28.9	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 13:37	<u></u>
Surrogate(s): 2-FBP Octacosane			85.5% 78.1%		54 - 148 % 62 - 142 %	u U			n	
BRJ0004-04 (1A-B-30(12-14))		Soi	l		Sampl	ed: 09/3	80/08 14:45			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	3.77 15.3	1.67 3.32	10.4 26.0	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 14:07 "	1
Surrogate(s): 2-FBP Octacosane			86.9% 69.8%		54 - 148 % 62 - 142 %	n 11			u u	
BRJ0004-05 (1A-B-30(14-16))		Soi	1		Sampl	ed: 09/3	80/08 14:46			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	1.73 3.45	10.8 27.0	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 14:36	
Surrogate(s): 2-FBP Octacosane			87.3% 87.5%		54 - 148 % 62 - 142 %	"			n N	
BRJ0004-06 (1A-B-30(16-18))		Soi	1		Sample	ed: 09/3	60/08 14:47			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	ND ND	2.10 4.19	13.1 32.8	mg/kg dry	1x "	8J01038 "	10/01/08 14:39	10/02/08 18:22 "	
Surrogate(s): 2-FBP Octacosane			92.2% 102%		54 - 148 % 62 - 142 %	" "			n 11	

und

Octacosane

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

Sem	ivolatile Petrol	eum Produ	cts by N TestAm	WTPF erica Se	H-Dx (w/c attle	Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0004-07 (1A-B-30(18-20))		Soi	1		Sampl	ed: 09/3	30/08 14:48			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	2.15 4.29	13.5 33.6	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 13:44 "	
Surrogate(s): 2-FBP Octacosane			90.3% 102%		54 - 148 % 62 - 142 %	"			1) 11	
BRJ0004-08 (1A-B-31(12-14))		Soi	1		Sampl	ed: 09/3	0/08 15:45			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	1.69 3.38	10.6 26.5	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39	10/02/08 14:08 "	
Surrogate(s): 2-FBP Octacosane			91.4% 99.2%		54 - 148 % 62 - 142 %	"			u u	
BRJ0004-09 (1A-B-31(14-16))		Soil	l		Sample	ed: 09/3	0/08 15:46			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	ND ND	1.75 3.49	10.9 27.3	mg/kg dry "	lx "	8J01038 "	10/01/08 14:39 "	10/02/08 14:31	
Surrogate(s): 2-FBP Octacosane			91.3% 101%		54 - 148 % 62 - 142 %	u H			"	
BRJ0004-10 (1A-B-31(16-18))		Soil			Sample	ed: 09/3	0/08 15:47			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	2.11 4.20	13.2 32.9	mg/kg dry "	1x "	8J01038 "	10/01/08 14:39	10/02/08 16:03	
Surrogate(s): 2-FBP Octacosane			89.4% 96.9%		54 - 148 % 62 - 142 %	11 11			17	
BRJ0004-11 (1A-B-31(18-20))		Soil			Sample	ed: 09/3	0/08 15:48			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	2.12 4.23	13.2 33.1	mg/kg dry "	1x "	8J01038 "	10/01/08 14:39 "	10/02/08 16:26	
Surrogate(s): 2-FBP Octacosane			88.8% 94.4%		54 - 148 % 62 - 142 %	"			"	
BRJ0004-12 (1A-B-32(13-15))		Soil			Sample	d: 10/0	1/08 09:05			
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	u	505	17.8	139			"	N	н	Q4
Surrogate(s): 2-FBP Octacosane			102% 108%		54 - 148 % 62 - 142 %	n H			л 11	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/03/08 08:59

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
BRJ0004-13 (DUP01-100108)	So	il		Sampl	led: 10/()1/08 08:30		<u></u>	
Diesel Range Hydrocarbons	NWTPH-Dx	812	8.70	54.4	mg/kg dry	5x	8J01038	10/01/08 14:39	10/02/08 17:11	Q4
Lube Oil Range Hydrocarbons	н	710	17.3	136	u			u		Q4
Surrogate(s): 2-FBP			108%		54 - 148 %	"			n	
Octacosane			114%		62 - 142 %	n			n	
BRJ0004-14 (1A-B-32(15-17))	So	il		Sampl	ed: 10/0	1/08 09:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.12	13.3	mg/kg dry	lx	8J01038	10/01/08 14:39	10/02/08 17:35	
Lube Oil Range Hydrocarbons	u	ND	4.23	33.1	u	u	н	11	19	
Surrogate(s): 2-FBP			94.1%		54 - 148 %	u			u	
Octacosane			104%		62 - 142 %	"			"	
BRJ0004-15 (1A-B-32(17-19))	Soi	il		Sampl	ed: 10/0	1/08 09:25			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.73	10.8	mg/kg dry	lx	8J01038	10/01/08 14:39	10/02/08 17:59	
Lube Oil Range Hydrocarbons	н	ND	3.46	27.1		10	n	н	*	
Surrogate(s): 2-FBP			92.6%		54 - 148 %	"			"	
Octacosane			101%		62 - 142 %	"			"	

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ENSR Int 1011 SW F Seattle, W.	ernational - Seattle Klickitat Way, Suite 207 A 98134	,		Project Name: BNSF-Skykomish Remedial Design Investigation Project Number: 01140-204-0320 R Project Manager: Renee Knecht 1							Report Created: 0/03/08 08:59
		Physic	cal Parame	ters by A TestAm	APHA/ erica Sea	ASTM/	EPA M	lethods		-	· · · · · · · · · · · · · · · · · · ·
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0004-01	(1A-B-29(8-10))		Soi	l		Sam	pled: 09/3	0/08 13:35			
Dry Weight		BSOPSPL003R0 8	96.0		1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00	:00
BRJ0004-02	(1A-B-29(10-12))		Soil			Sam	pled: 09/3	0/08 13:36			
Dry Weight		BSOPSPL003R0 8	96.6		1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00	00

BRJ0004-03	(1A-B-29(12-14))		Soil		Sam	pled: 09/3	0/08 13:37		
Dry Weight		BSOPSPL003R0 8	86.6	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00
BRJ0004-04	(1A-B-30(12-14))		Soil		Sam	pled: 09/3	0/08 14:45		
Dry Weight		BSOPSPL003R0 8	95.4	 1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00

BRJ0004-05	(1A-B-30(14-16))		Soil		Sam	pled: 09/3	0/08 14:46		
Dry Weight		BSOPSPL003R0 8	92.0	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00
BRJ0004-06	(1A-B-30(16-18))		Soil		Sam	pled: 09/3	0/08 14:47		
Dry Weight		BSOPSPL003R0	75.9	 1,00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00

BRJ0004-07	(1A-B-30(18-20))		Soil		Sam	pled: 09/3	0/08 14:48		
Dry Weight		BSOPSPL003R0 8	74.1	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00
BRJ0004-08	(1A-B-31(12-14))		Soil		Sam	pled: 09/3	0/08 15:45		
Dry Weight		BSOPSPL003R0 8	93.8	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00
BRJ0004-09	(1A-B-31(14-16))		Soil		Sam	pled: 09/3	0/08 15:46		
Dry Weight		BSOPSPL003R0 8	90.6	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00
BRJ0004-10	(1A-B-31(16-18))		Soil		Sam	pled: 09/3	0/08 15:47		
Dry Weight		BSOPSPL003R0	75.9	 1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00

BRJ0004-11 (1A-B-31(18-20))

TestAmerica Seattle

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Sampled: 09/30/08 15:48

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Soil



ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/03/08 08:59

Physical Parameters by APHA/ASTM/EPA Methods TestAmerica Seattle												
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRJ0004-11	(1A-B-31(18-20))		Soil			Sam	pled: 09/3	30/08 15:48				
Dry Weight		BSOPSPL003R0 8	75.5		1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00		
BRJ0004-12	RJ0004-12 (1A-B-32(13-15)) Soil Sampled: 10/01/08 09:05											
Dry Weight		BSOPSPL003R0 8	88.8		1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00		
BRJ0004-13	(DUP01-100108)		Soil			Sam	pled: 10/0	1/08 08:30				
Dry Weight		BSOPSPL003R0 8	91.7		1.00	%	1x	8J01039	10/01/08 14:41	10/02/08 00:00		
BRJ0004-14	(1A-B-32(15-17))		Soil			Sam	pled: 10/0	1/08 09:20				
Dry Weight		BSOPSPL003R0 8	74.9		1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00		
BRJ0004-15	(1A-B-32(17-19))		Soil			Sam	pled: 10/0	1/08 09:25				
Dry Weight		BSOPSPL003R0 8	92.0		1.00	%	lx	8J01039	10/01/08 14:41	10/02/08 00:00		

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ENSR Inte	rnational - Seattle				Project N	Jame:	BNSF	-Skykomi	ish Rer	nedia	l Design	Inve	stigatio	n	
1011 SW K	lickitat Way, Suite 20	7			Project N	lumber:	01140-:	204-0320						Report Create	ed:
Seattle, WA	98134				Project N	lanager:	Renee I	Knecht						10/03/08 08	:59
	Semivolatile Petr	oleum Pro	ducts by l	NWTPH-E	Dx (w/o A TestAme	cid/Silica (erica Seattle	Gel Cle	an-up) -	Labor	atory	y Quality	y Con	trol Re	sults	
QC Bate	h: 8J01038	Soil Pre	eparation N	Aethod: E	PA 3550B										
Analyte		Method	Result	MDI	.* MRI	L Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Blank (8J0103	38-BLK1)								Extr	acted:	10/01/08 14	4:39			
Diesel Range Hydro	carbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x							10/02/08 10:17	
Lube Oil Range Hyd	rocarbons	17	18.3	3.19	25.0		н								J
Surrogate(s):	2-FBP Octacosane		Recovery:	82.9% 82.7%		Limits: 54-148 62-142	% " ?% "							10/02/08 10:17 "	
Blank (8J0103	38-BLK2)								Extr	acted:	10/01/08 14	:39			
Diesel Range Hydro	carbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							10/02/08 11:04	
Lube Oil Range Hyd	rocarbons	н	ND	3.19	25.0	14	11							0	
Surrogate(s):	2-FBP Octacosane		Recovery:	84.5% 99.6%		Limits: 54-148 62-142	% " ?% "							10/02/08 11:04 "	
LCS (0101030	DC1)								Fyte	acted.	10/01/08 14	1.30			
Diesel Range Hydrod	-DST)	NWTPH-Dx	66.3	1.60	10.0	mg/kg wet	lx		66.7	99.4%	(78-129)			10/02/08 10:46	
Surrogate(s):	2-FBP		Recovery:	83.3%	i	Limits: 54-148	% "							10/02/08 10:46	
1.05 (0101020	BS2)			75.070		024142	.70		Fyte	actad.	10/01/08 14	.30			
Diesel Range Hydrog	-D.52)	NWTPH-Dx	54 1	1.60	10.0	mg/kg wet	lx		66 7	81.2%	(78-129)			10/02/08 11:28	
	2 EPP		Pagouanu	80.0%		Limiter 51 1.19					(10 123)			10/02/09 11.20	
surrogaie(s):	2-r br Octacosane		Recovery:	97.0%	,	62-142	~~ % "							"	
Duplicate (8J0	1038-DUP1)				QC Source	ce: BRJ0004-(02		Extra	acted:	10/01/08 14	:39			
Diesel Range Hydroc	arbons	NWTPH-Dx	ND	1.66	10.3	mg/kg dry	1 x	ND				NR	(40)	10/02/08 11:15	
Lube Oil Range Hyd	rocarbons	н	14.0	3.30	25.9		н	4.81				97.5%	, II	11	R4, J
Surrogate(s):	2-FBP Octacosane	-	Recovery:	89.2% 78.9%	1	Cimits: 54-1489 62-142	% " % "							10/02/08 11:15 "	
Duplicate (8J0	1038-DUP2)				QC Sourc	e: BRJ0004-0)3		Extra	acted:	10/01/08 14	:39			
Diesel Range Hydroc	arbons	NWTPH-Dx	ND	1.85	11.6	mg/kg dry	lx	ND	·			NR	(40)	10/02/08 11:43	
Lube Oil Range Hyde	rocarbons		11.5	3.69	28.9	'n	"	ND							J
Surrogate(s):	2-FBP Octacosane		Recovery:	92.7% 86.0%	I	Limits: 54-1489 62-142	% "							10/02/08 11:43 "	
Dunlicate (810	1038-D11P3)				OC Source	e; BR.10004-0	2RE1		Extra	acted:	10/01/08 14	:39			
Diesel Range Hydroc	arbons	NWTPH-Dx	ND	1.66	10.3	mg/kg drv	1×	ND				NR	(40)	10/02/08 11:50	
Lube Oil Range Hydr	ocarbons	"	ND	3.30	25.9	"	"	ND				NR	"		
Surrogate(s):	2-FBP Octacosane		Recovery:	91.3% 99,7%	l	imits: 54-1489 62-142	% "							10/02/08 11:50 "	

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

Soil Pre														
	paration M	lethod:	EPA 3	550B										
Method	Result		IDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
			Q	C Sourc	e: BRJ0004-0.	BRE1		Exti	racted:	10/01/08 14	:39			
NWTPH-Dx	ND	1.	85	11.6	mg/kg dry	1x	ND				NR	(40)	10/02/08 12:13	
н	ND	3.	69	28.9	n	0	ND				NR		н	
	Recovery:	90.9% 101%		L	imits: 54-148% 62-142%	" , "							10/02/08 12:13 "	
			Q	C Source	e: BRJ0004-02	:		Extr	acted:	10/01/08 14	:39			
NWTPH-Dx	68.4	1.4	66	10.3	mg/kg dry	lx	ND	69.0	99.1%	(46-155)			10/02/08 12:11	
	Recovery:	86.6%		Li	imits: 54-148%	"							10/02/08 12:11	
		87.7%			62-142%	5 "							"	
			Q	C Source	e: BRJ0004-02	REI		Extr	acted:	10/01/08 14	:39			
NWTPH-Dx	55.1	1.0	66	10.3	mg/kg dry	lx	ND	69.0	79.9%	(46-155)			10/02/08 12:37	
	Recovery:	97.4%		Li	imits: 54-148%	"							10/02/08 12:37	
		102%			62-142%	; <i>"</i>							v	
-	Method NWTPH-Dx " NWTPH-Dx NWTPH-Dx	Method Result Method Result NWTPH-Dx ND " ND Recovery: Recovery: NWTPH-Dx 68.4 Recovery: 68.4 Recovery: 8.4 Recovery: 8.4 Recovery: 8.4	Method Result M NWTPH-Dx ND 1. " ND 3. Recovery: 90.9% 101% NWTPH-Dx 68.4 1. Recovery: 86.6% 87.7% NWTPH-Dx 55.1 1. Recovery: 97.4% 102%	Method Result MDL* Q NWTPH-Dx ND 1.85 " ND 3.69 Recovery: 90.9% 101% Q 101% Q NWTPH-Dx 68.4 1.66 Recovery: 86.6% 87.7% Q NWTPH-Dx 55.1 1.66 Recovery: 97.4% 102%	Method Result MDL* MRL QC Source QC Source QC Source NWTPH-Dx ND 1.85 11.6 " ND 3.69 28.9 Recovery: 90.9% L 101% VWTPH-Dx 68.4 1.66 10.3 Recovery: 86.6% L 87.7% QC Source NWTPH-Dx 55.1 1.66 10.3 Recovery: 97.4% L 102%	Method Result MDL* MRL Units QC Source: BRJ0004-03 NWTPH-Dx ND 1.85 11.6 mg/kg dry " ND 3.69 28.9 " Recovery: 90.9% Limits: 54-148% 101% 62-142% QC Source: BRJ0004-02 NWTPH-Dx 68.4 1.66 10.3 mg/kg dry Recovery: 86.6% Limits: 54-148% 87.7% 62-142% 62-142% QC Source: BRJ0004-02 NWTPH-Dx 55.1 1.66 10.3 mg/kg dry Recovery: 97.4% Limits: 54-148% 102% 62-142% 62-142%	Method Result MDL* MRL Units Dil QC Source: BRJ0004-03RE1 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x " ND 3.69 28.9 " " Recovery: 90.9% Limits: 54-148% " 101% CS source: BRJ0004-03RE1 NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x Recovery: 86.6% Limits: 54-148% " 87.7% 62-142% " 62-142% " VWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x Recovery: 86.6% Limits: 54-148% " 0C Source: BJ0004-02RE1 NWTPH-Dx 55.1 1.66 10.3 mg/kg dry 1x Recovery: 97.4% Limits: 54-148% " 102% 62-142% "	Method Result MDL* MRL Units Dil Source Result QC Source: BRJ0004-03RE1 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND "ND 3.69 28.9 " " ND Recovery: 90.9% Limits: 54-148% " 101% 62-142% " ND NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND Recovery: 86.6% Limits: 54-148% " 62-142% " QC Source: BRJ0004-02RE1 ND Recovery: 86.6% Limits: 54-148% " WTPH-Dx 55.1 1.66 10.3 mg/kg dry 1x ND Recovery: 97.4% Limits: 54-148% " 102% 62-142% "	Method Result MDL* MRL Units Dil Source Result Spike Amt QC Source: BRJ0004-03RE1 Extr NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND "ND 3.69 28.9 " " ND Recovery: 90.9% Limits: 54-148% " NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 Recovery: 86.6% Limits: 54-148% " 62-142% " VWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 Recovery: 86.6% Limits: 54-148% " 62-142% " VWTPH-Dx 55.1 1.66 10.3 mg/kg dry 1x ND 69.0 Recovery: 97.4% Limits: 54-148% " 102% 62-142% "	Method Result MDL* MRL Units Dil Source Result Spike %. Amt REC QC Source: BRJ0004-03RE1 Extracted: NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND " ND 3.69 28.9 " " ND Recovery: 90.9% Limits: 54-148% " QC Source: BRJ0004-02 Extracted: NNTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 99.1% Recovery: 86.6% Limits: 54-148% " <t< td=""><td>Method Result MDL* MRL Units Dil Source Result Spike Amt % REC (Limits) QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND "ND 3.69 28.9 " "ND Recovery: 90.9% Limits: 54-148% " </td><td>Method Result MDL* MRL Units Dil Source Result Spike Amt %. REC (Limits) RPD %. RPD QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14:39 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR " ND 3.69 28.9 " " ND NR Recovery: 90.9% Limits: 54-148% " NR NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 99.1% (46-155) Recovery: 86.6% Limits: 54-142% " NR NR NR NR </td><td>Method Result MDL* MRL Units Dil Source Result Spike Amt REC (Limits) RPD (Limits) QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14:39 (Limits) NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR (40) " ND 3.69 28.9 " " ND NR " Recovery: 90.9% Limits: 54-148% " - NR " NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 99.1% (46-155) Recovery: 86.6% Limits: 54-148%<"</td> " - <td< td=""><td>Method Result MDL* MRL Units Dil Source Result Spike Amt % REC (Limits) RPD % RPD (Limits) Analyzed VMTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " 101% 62-142% " ND 69.0 99.1% (46-155) 10/02/08 12:11 Recovery: 86.6% Limits: 54-148%<"</td> " " " 10/02/08 12:11 Recovery: 86.6% Limits: 54-148%<"</td<></t<>	Method Result MDL* MRL Units Dil Source Result Spike Amt % REC (Limits) QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND "ND 3.69 28.9 " "ND Recovery: 90.9% Limits: 54-148% "	Method Result MDL* MRL Units Dil Source Result Spike Amt %. REC (Limits) RPD %. RPD QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14:39 NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR " ND 3.69 28.9 " " ND NR Recovery: 90.9% Limits: 54-148% " NR NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 99.1% (46-155) Recovery: 86.6% Limits: 54-142% " NR NR NR NR	Method Result MDL* MRL Units Dil Source Result Spike Amt REC (Limits) RPD (Limits) QC Source: BRJ0004-03RE1 Extracted: 10/01/08 14:39 (Limits) NWTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR (40) " ND 3.69 28.9 " " ND NR " Recovery: 90.9% Limits: 54-148% " - NR " NWTPH-Dx 68.4 1.66 10.3 mg/kg dry 1x ND 69.0 99.1% (46-155) Recovery: 86.6% Limits: 54-148%<"	Method Result MDL* MRL Units Dil Source Result Spike Amt % REC (Limits) RPD % RPD (Limits) Analyzed VMTPH-Dx ND 1.85 11.6 mg/kg dry 1x ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " ND 3.69 28.9 " " ND NR (40) 10/02/08 12:13 " 101% 62-142% " ND 69.0 99.1% (46-155) 10/02/08 12:11 Recovery: 86.6% Limits: 54-148%<"

Kate Haney, Project Manager

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Report Created:

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

Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results TestAmerica Seattle								
QC Batch: 8J01039	Soil Prej	paration Met	hod: Dry V	Weight				
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % (Limits) % (Limits) Analyzed Notes Amt REC
Blank (8J01039-BLK1)								Extracted: 10/01/08 14:41
Dry Weight	BSOPSPL00 3R08	100		1.00	%	lx		10/02/08 00:00

TestAmerica Seattle

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Kate Haney, Project Manager

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ENSR International - Seattle Project Name: BNSF-Skykomish Remedial Design Investigation								
1011 SW Klie	ckitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:				
Seattle, WA	98134	Project Manager:	Renee Knecht	10/03/08 08:59				
		Notes and Definit	ions					
Report Spec	ific Notes:							
J.	 Estimated value. Analyte detected at a level less th (MDL). The user of this data should be aware that the 	an the Reporting Lim his data is of limited	it (RL) and greater than or equal to the Method Detection I reliability.	limit.				
Q4 ·	- The hydrocarbons present are a complex mixture of	f diesel range and hea	vy oil range organics.					
R4 -	- Due to the low levels of analyte in the sample, the o	duplicate RPD calcula	tion does not provide useful information.					
Laboratory F	Reporting Conventions:							
DET -	Analyte DETECTED at or above the Reporting Limit	. Qualitative Analyse	es 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. Resu	ilts and Reporting Lir	nits have been corrected for Percent Dry Weight.					
wet	Sample results and reporting limits reported on a Wet on a Wet Weight Basis.	Weight Basis (as rec	eived). Results with neither 'wet' nor 'dry' are reported					
RPD -	RELATIVE PERCENT DIFFERENCE (RPDs calcu	lated using Results, n	ot 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 *MDLs are listed on the report only if the data has be as Estimated Results.	, or above, the statisti en evaluated below th	cally derived limit based on 40CFR, Part 136, Appendix B. he MRL. Results between the MDL and MRL are reported					
Dil -	Dilutions are calculated based on deviations from the found on the analytical raw data.	standard dilution per	formed for an analysis, and may not represent the dilution					
Reporting - Limits	Reporting limits (MDLs and MRLs) are adjusted base percent solids, where applicable.	ed on variations in sar	nple preparation amounts, analytical dilutions and	r				

 Electronic
 - Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.

 Signature
 Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

 Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

UUR Kate Haney, Project Manager

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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 96-9210 907-563-9200 FAX 966-9210

THE LEADER IN ENVIRONMENTAL TESTING	TOTAL OF ALM OF ALM		1141 U K
	CHAIN OF CUSIOL		Work Order #: RX V OUT
CLIENT: ENSK FOR BUSF	INVOICE TO: BRUCE	SHEPARD /BNSE	TURNAROUND REQUEST
REPORT TO: RENES: ADDRESS:	SARA	ABLANU	in Business Days * Organic & Inorganic Analyses
PHONE: 206-992-109 FAX:	P.O. NUMBER:		$\begin{bmatrix} 10 & 7 & 5 & 4 & 3 & 2 & 1 \\ \hline 37D. Perfoleum Hydrocarbon Analyses \end{bmatrix}$
PROJECT NAME: SKY KOMISH PUT	PRESERV	ATIVE	5 4 3 2 1 <1
PROJECT NUMBER:	<u>ا</u>] <u>ا</u>		
0///U- 764 - 6330	REQUESTED	ANALYSES	• Transmed Resurves less than standard mer insur Right Channes
CLIENT SAMPLE SAMPLING SAMPLING DATE/TIME			MATRIX # 0F LOCATION TA (W, S, 0) CONT. COMMENTS W0 [D
1 1A-B-39(8-10) 9/30/08 1335 X			
X 222 1 1 (0-0) 6-8-41			
1337 X 13-14 1337 X			S / B
1A-B-30/19-14) 9/30/08 1445 X			S / A
5/A-B-30(M-K) 1 1446 X			511
«IΔ-B-30(k-18) 1447 X			5 1 02
111-B-30/18-30 × 1448 X			2 1 2
* iA-B-31(12-14) 9/30/08 1545 X			k1 1 5
X -B31(14-16) 1546 X			1 5
10/10-B-3(16-18) - 1547 X		// / //	5 1 2
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			TAL-1000(0408)
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THE LEADER IN ENVIRONMENTAL TESTING

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

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	U	HAIN OF CUSTOD	Y REPORT	Work Ord	r#: BRUDDY		
CLENT LNSL FOR BUSF		INVOICE TO: BEUCE	SHEPARD /BUSE	UT	INAROUND REQUEST		
REPORT TO: RENEES: REPORT ADDRESS: RENEES:		SARA	ABLANOLÉNSR		in Bustness Days * nic & Inorganic Analyses <td <td<="" td=""><td></td></td>	<td></td>	
PHONE 706 - 99 1095 FAX:		P.O. NUMBER:		STD. Pet	اللال التي التي التي التي التي التي التي		
PROJECT NAME: SKYKOM 13 H RDI		PRESERV	ATIVE	5	4 3 2 1 <1		
	NUNE			STD.			
000 0-LOD - 05110		REQUESTED /	ANALYSES	etto	R Specify:		
SAMPLED BY: UNAKNITZ + RENEZ	0.			* Turnaround Req	eks less than standard may incur Rush Char	rges.	
CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	-Hal			MATRIX (W, S, O) C	OF LOCATION/ TA	_ <u>_</u>	
1 1 A-B-31 (18-30) 9/30/08 1548	\times			\sim			
1 1 - B - 32 (13-15) 10/1/08 905	· X			2			
, DWP 01 - 100108 10/1/08 830	X			<i>\</i>			
069 80/1/01 (TI-21)-62-81-A1	X			N			
1 1 - 13 - 32 (17-19) 10/108 925	X			S			
		F					
6							
10							
RELEASED BY: J' Ac-C.		DATE: (0/1/08	RECEIVED BY:		DATE:		
PRINT NAME JESSE WARNITZ. FIRM. E.	NSR	тме (Э .О.О	PRINT NAME:	FIRM:	TIME:	[
RELEASED BY:		DATE:	RECEIVED BY:		DATE		
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					TAL-1000	(0408)	



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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.

Work Order BRJ0007 Project BNSF-Skykomish Remedial D ProjectNumber 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.





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

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 Haney, Project Manager

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

	Semivolatile Petrol	eum Produ	cts by N TestAm	WTPH erica Se	H-Dx (w/o attle) Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0007-01 (1A-B-33 (1	1-13'))	So	il		Samp	led: 10/(01/08 12:49		÷	
Diesel Range Hydrocarbons	NWTPH-Dx	2530	19.6	122	mg/kg dry	10x	8J01061	10/01/08 18:26	10/02/08 22:27	Q4
Surrogate(s): 2-I ⁻ BP Octacosane			81.4% 117%		54 - 148 % 62 - 142 %	n u			p n	
BRJ0007-01RE1 (1A-B-33	(11-13'))	Soi	il		Sampl	led: 10/()1/08 12:49			
Lube Oil Range Hydrocarbons	NWTPH-Dx	2250	39.0	306	mg/kg dry	10x	8J01061	10/01/08 18:26	10/03/08 10:25	Q4
Surrogate(s): 2-FBP Octacosane		, , , , , , , , , , , , , , , , , , ,	95.6% 124%		54 - 148 % 62 - 142 %	"			u u	
BRJ0007-02 (1A-B-33 (13	3-15))	Soil			Sampled: 10/01/08 12:52					
Diesel Range Hydrocarbons	NWTPH-Dx	4220	17.5	109	mg/kg dry	10x	8J01061	10/01/08 18:26	10/02/08 22:50	Q4
Surrogate(s): 2-FBP Octacosane			69.4% 131%		54 - 148 % 62 - 142 %	"			11 11	
BRJ0007-02RE1 (1A-B-33	(13-15))	Soi	il		Sampl	ed: 10/()1/08 12:52			
Lube Oil Range Hydrocarbons	NWTPH-Dx	3560	34.8	273	mg/kg dry	10x	8J01061	10/01/08 18:26	10/03/08 10:47	Q4
Surrogate(s): 2-FBP Octacosane			81.6% 149%		54 - 148 % 62 - 142 %	u n			n n	ZX
BRJ0007-03 (1A-B-33 (16	5'))	Soi	1		Sampl	ed: 10/0	01/08 13:02			
Diesel Range Hydrocarbons	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 Octacosane			90.2% 85.5%		54 - 148 % 62 - 142 %	"			n	
BRJ0007-03RE1 (1A-B-33	(16'))	Soi	1		Sampl	ed: 10/0	01/08 13:02			
Lube Oil Range Hydrocarbons	NWTPH-Dx	12.2	3.61	28.3	mg/kg dry	łx	8J01061	10/01/08 18:26	10/03/08 11:10	J
Surrogate(s): 2-FBP Octacosane			91.3% 89.4%		54 - 148 % 62 - 142 %	11 11			"	
BRJ0007-04 (1A-B-33 (17	"))	Soi	1		Sampl	ed: 10/0	1/08 13:04			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.17	13.6	mg/kg dry	lx	8301061	10/01/08 18:26	10/02/08 23:36	
Surrogate(s): 2-FBP Octacosane			93.7% 86.8%		54 - 148 % 62 - 142 %	0 11			a U	

TestAmerica Seattle

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Page 4 of 9

TestAmerica

ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial De	sign Investigation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/03/08 14:31
Semivolatile Petrol	eum Products by NWTPI	H-Dx (w/o Acid/Silica Gel Cl	ean-up)
	TestAmerica Se	attle	- /

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0007-04RE	1 (1A-B-33 (17'))		So	il		Sampl	ed: 10/()1/08 13:04			
Lube Oil Range H	ydrocarbons	NWTPH-Dx	ND	4.33	34.0	mg/kg dry	lx	8J01061	10/01/08 18:26	10/03/08 11:33	
Surrogate(s):	2-FBP			95.3%		54 - 148 %	н			и	
	Octacosane			88.7%		62 - 142 %	u			"	
BRJ0007-05	(1A-B-34 (15-17))		Soi	il		Sampl	ed: 10/()1/08 14:40			
Diesel Range Hyd	rocarbons	NWTPH-Dx	3.32	1.75	10.9	mg/kg dry	lx	8J01061	10/01/08 18:26	10/02/08 23:59	J
Surrogate(s):	2-FBP			91.5%		54 - 148 %	"			IJ	
	Octacosane			83.9%		62 - 142 %	"			"	
BRJ0007-05RE1	l (1A-B-34 (15-17))		Soi	1		Sampl	ed: 10/0	01/08 14:40			
Lube Oil Range H	ydrocarbons	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 %	μ			"	
	Octacosane			89.7%		62 - 142 %	u			"	
BRJ0007-06	(1A-B-34 (17-19))		Soi	l		Sample	ed: 10/0	1/08 14:43			
Diesel Range Hydi	rocarbons	NWTPH-Dx	2.51	1.73	10.8	mg/kg dry	lx	8J01061	10/01/08 18:26	10/03/08 00:21	J
Surrogate(s):	2-FBP			94.1%		54 - 148 %	"			п	
	Octacosane			88.0%		62 - 142 %	"			"	
BRJ0007-06RE1	(1A-B-34 (17-19))		Soi	1	Sampled: 10/01/08 14:43						
Lube Oil Range H	ydrocarbons	NWTPH-Dx	13.8	3.45	27.1	mg/kg dry	lx	8J01061	10/01/08 18:26	10/03/08 10:25	J
Surrogate(s):	2-FBP			97.8%		54 - 148 %	"			"	
0	Octacosane			106%		62 - 142 %	"			n	
BRJ0007-07	(1A-B-34 (19-20))		Soi	1		Sample	ed: 10/0	1/08 14:46			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.74	10.9	mg/kg dry	lx	8J01061	10/01/08 18:26	10/03/08 03:01	
Surrogate(s):	2-FBP			93.8%		54 - 148 %	n			17	
	Octacosane			87.3%		62 - 142 %	"			"	
BRJ0007-07RE1	(1A-B-34 (19-20))		Soi	i		Sample	ed: 10/0	1/08 14:46			
Lube Oil Range Hy	drocarbons	NWTPH-Dx	ND	3.47	27.2	mg/kg dry	łx	8J01061	10/01/08 18:26	10/03/08 10:47	
Surrogate(s):	2-FBP			98.3%		54 - 148 %	"			н	
5 (7	Octacosane			102%		62 - 142 %	"			"	

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investi	gation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/03/08 14:31
	······································		······································
Physical Pa	rameters by APHA	/ASTM/EPA Methods	

		• •		TestĂm	erica Se	attle					
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0007-01	(1A-B-33 (11-13'))		Soil			Sam	pled: 10/0)1/08 12:49			
Dry Weight		BSOPSPL003R0 8	81.4		1.00	%	lx	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-02	(1A-B-33 (13-15))		Soil			Sam	pled: 10/0	1/08 12:52			
Dry Weight		BSOPSPL003R0 8	91.7		1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-03	(1A-B-33 (16'))			Sam	pled: 10/0	1/08 13:02					
Dry Weight		BSOPSPL003R0 8	87.8		1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-04	(1A-B-33 (17'))		Soil			Sam	pled: 10/0	1/08 13:04			
Dry Weight		BSOPSPL003R0 8	72.9		1.00	%	łx	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-05	(1A-B-34 (15-17))		Soil			Sam	pled: 10/0	1/08 14:40			
Dry Weight		BSOPSPL003R0 8	91.5	ga ay an an	1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-06	(1A-B-34 (17-19))		Soil			Samj	pled: 10/0	1/08 14:43			
Dry Weight		BSOPSPL003R0 8	90.9		1.00	%	lx	8J01067	10/01/08 20:16	10/02/08 00:00	
BRJ0007-07	(1A-B-34 (19-20))		Soil			Samj	pled: 10/0	1/08 14:46			
Dry Weight		BSOPSPL003R0 8	90.9		1.00	%	1x	8J01067	10/01/08 20:16	10/02/08 00:00	

TestAmerica Seattle

ind Kate Haney, Project Manager





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ENSR Internat	tional - Seattle				Project	Na	me: B	NSF-	Skykomi	ish Rei	media	al Design	Inve	stigatio	n	
1011 SW Klicki	tat Way, Suite 20	7			Project	Nu	mber: 01	140-2	04-0320						Report Create	ed:
Seattle, WA 98	134				Project	Ma	mager: R	enee K	Lnecht						10/03/08 14	:31
······															-	
S	emivolatile Pet	roleum Pro	oducts by I	NWTPE	I-Dx (w/o A TestAi	Aci ner	d/Silica Ge ica Seattle	I Clea	ın-up) -	Labor	ratory	y Quality	' Con	trol Res	ults	
QC Batch: 8	3J01061	Soil Pr	eparation N	Aethod:	EPA 3550	B					·					
Analyte		Method	Result	M	IDL* M	RL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J01061-B	LK1)									Exte	racted:	10/01/08 18	:26			
Diesel Range Hydrocarbor	15	NWTPH-Dx	ND	1.	.60 10	0.0	mg/kg wet	lx							10/02/08 20:57	
Surrogate(s): 2-F1 Octa	BP acosane		Recovery:	92.0% 95.2%		Li	mits: 54-148% 62-142%	" "							10/02/08 20:57 "	
Blank (8.J01061-B	LK2)									Exti	racted:	10/01/08 18	:26			
Lube Oil Range Hydrocart	oons	NWTPH-Dx	3.81	3.	.19 25	.0	mg/kg wet	lx							10/03/08 09:39	J
Surrogate(s): 2-FI Ocid	BP acosane		Recovery:	94.0% 87.4%		Li	mits: 54-148% 62-142%	"							10/03/08 09:39 "	
Blank (8J01061-B)	LK3)									Exti	racted:	10/01/08 18	:26			
Lube Oil Range Hydrocart	oons	NWTPH-Dx	3.93	3.	19 25	.0	mg/kg wet	lx							10/03/08 10:02	J
Surrogate(s): 2-Fh	BP		Recovery:	96.6%		Li	mits: 54-148%	**							10/03/08 10:02	
Octo	acosane			99.1%			62-142%	"							n	
LCS (8J01061-BS)	0									Exti	acted:	10/01/08 18	:26			
Diesel Range Hydrocarbon)S	NWTPH-Dx	63.0	1.	60 10	.0	mg/kg wet	lx		66.7	94.6%	6 (78-129)			10/02/08 21:20	
Surrogate(s): 2-FI	3P		Recovery:	95.2%		Li	mits: 54-148%	"							10/02/08 21:20	
Octo	acosane			98.6%			62-142%	"							n	
Duplicate (8J0106)	1-DUP1)				QC So	urce	BRJ0007-03			Extr	acted:	10/01/08 18	:26			
Diesel Range Hydrocarbon	IS	NWTPH-Dx	ND	1.	82 11	.4	mg/kg dry	l×	ND				NR	(40)	10/02/08 21:42	
Surrogate(s): 2-FI	3P		Recovery:	88.4%		Li	mits: 54-148%	"							10/02/08 21:42	
Octa	acosane			97.7%			62-142%	"							"	
Duplicate (8J0106)	1-DUP2)				QC So	urce	: BRJ0007-03I	RE1		Extr	acted:	10/01/08 18	:26			
Lube Oil Range Hydrocarb	oons	NWTPH-Dx	ND	3.	63 28	.5	mg/kg dry	lx	12.2					(40)	10/03/08 10:02	
Surrogate(s): 2-FL	3P		Recovery:	88.6%		Li	mits: 54-148%	"							10/03/08 10:02	
Octa	icosane			84.9%			62-142%	"							"	
Matrix Spike (8J0)	1061-MS1)				QC So	irce	BRJ0007-03			Extr	acted:	10/01/08 18	:26			
Diesel Range Hydrocarbon	s	NWTPH-Dx	74.2	1.	82 11	.4	mg/kg dry	lx	ND	75.7	98.1%	(46-155)			10/02/08 22:04	
Surrogate(s): 2-FE	3P		Recovery:	96.1%		Li	mits: 54-148%	"							10/02/08 22:04	
Octo	cosane			85.6%			62-142%	н							u	

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/03/08 14:31

	Physical Paran	neters by Al	PHA/ASTN T	1/EPA N estAmeric	1ethods ca Seattle	- Labo	oratory (Quality	Con	trol Res	ults			
QC Batch: 8J01067	Soil Prej	paration Met	hod: Dry V	Veight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J01067-BLK1)								Extr	acted:	10/01/08 20):16			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	l×	~~					1	0/02/08 00:00	

TestAmerica Seattle lund

Kate Haney, Project Manager





ENSR Interr	national - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation									
1011 SW Klie	ckitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:								
Seattle, WA	98134	Project Manager:	Renee Knecht	10/03/08 14:31								
	Notes and Definitions											
Report Speci	fic Notes:											
J -	 Estimated value. Analyte detected at a level less tha (MDL). The user of this data should be aware that th 	n the Reporting Lim	it (RL) and greater than or equal to the Method Detection L reliability.	imit								
Q4 -	The hydrocarbons present are a complex mixture of	diesel range and hea	vy oil range organics.									
ZX -	Due to sample matrix effects, the surrogate recovery	was outside the account	eptance limits.									
Laboratory R	Reporting Conventions:											
DET -	Analyte DETECTED at or above the Reporting Limit.	Qualitative Analyse	es only.									
ND -	Analyte NOT DETECTED at or above the reporting lin	mit (MDL or MRL,	as appropriate).									
NR/NA _	Not Reported / Not Available											
dry -	Sample results reported on a Dry Weight Basis. Result	ts and Reporting Lin	nits have been corrected for Percent Dry Weight.									
wet _	Sample results and reporting limits reported on a Wet on a Wet Weight Basis.	Weight Basis (as rec	eived). Results with neither 'wet' nor 'dry' are reported									
RPD -	RELATIVE PERCENT DIFFERENCE (RPDs calcula	ated using Results, n	ot 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, *MDLs are listed on the report only if the data has been as Estimated Results.	or above, the statistion n evaluated below th	cally derived limit based on 40CFR, Part 136, Appendix B. te MRL. Results between the MDL and MRL are reported									
Dil -	Dilutions are calculated based on deviations from the s found on the analytical raw data.	tandard dilution perf	ormed for an analysis, and may not represent the dilution									
Reporting - Limits	Reporting limits (MDLs and MRLs) are adjusted based percent solids, where applicable.	l on variations in san	nple preparation amounts, analytical dilutions and									

TestAmerica Seattle

Electronic Signature

und Kate Haney, Project Manager

The results in this report apply to the samples analyzed m accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

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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

425420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210

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	CH	AIN OF CUSTODY	REPORT	Work Order #: RRV000	7
CLIENT FUSP FOR BUSP	H	NVOICE TO: BRUKE	SHEPARD BUSF	TURNAROUND REQUEST	
REPORT TO: RENETS: ADDRESS:		SARA A	BLANO /ENSR	In Business Days * Organic & Inorganic Analyses 10 7 5 4 3 2 1	<1
EAX: EAX:		O. NUMBER:		STD. Petroleum Hydrocarbon Analyses	
PROJECT NAME: SKY KUM ISH ROT		PRESERVAT	IVE	5 4 3 2 1 <1	
PROJECT NUMBER:		REQUESTED AN	ALYSES	OTHER Specify:	
sampled BY: warnitz				* Turnaround Requests less than standard may incur Rush	1 Charges.
CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	-Hat WN			MATRIX # OF LOCATION/ (W, S, O) CONT: COMMENTS	TA WO ID
14-13-33 (11-13) 10/1/08 1349	×			- 5	10-
ESEI (SI-21) 22-241.	×			- 2	22
. IA-R-33 (16) 1300	×			- S	60
HOEI (LI) 82-21-VI.	×			S.	+0-
· iA - R - Z4/K-17/ 10/1/08 1440					502
14-8-14-14	×				90-
9 HH A (00-61/HE-8-01.	×				50-
		, Pf:			
2					
6					
RELEASED BY SECSAL WAXN'S RELEASED BY SECSAL WAXN'S AND TO RELEASED BY SECSAL WAXN'S AND TO RELEASED BY SECSAL WAYN'S AND TO RELEASE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DATE: /U/// 0 (\$ TIME: 16 //6	RECEIVED BY. COLODA (JULIA) PRINT NAME: COLODA 2 W CAU CP	D. CHARLESCONTROND	1.08 016
REFEASED BY:		DATE:	RECEIVED BY:	DATE:	
FIRM: FIRM:		TIME:	PRINT NAME:	FIRM: TIME:	
ADDITIONAL REMARKS:				TEMP: WD	OF
				TAL	-1000(0408)

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TAT: Page Time & Initials:	Paperwork to	PM – Date: Tim	ne:	Non-Conformances?
	······			(If Y, see other side)
	TEST AMERICA SA	AMPLE RECEIPT C	HECKLIST	· · · /
Received By: (applies to temp at receipt)	Logged-in By:	Unpacked/Labeled B	y: Cooler ID:	
Date: 10-01-08	Date: 10.01	Date: 1/1/08	Work Order No.	R.)0007
Time: 1616	Time: <u>162</u> 8	Time: 1640	Client: ENSR 1	Hernational - Seattle
Initials: <u>CW</u>	Initials: <u>C</u> W	Initials: <u>FL</u> .	Project:	
Container Type:	COC S	eals:	Packing Material	<u>.</u>
$\underline{\times}$ Cooler	Ship Container	Sign By	$\underline{\lambda}$ Bubble Bags	Styrofoam
Box	On Bottles	Date	Foam Packs	
None/Other	N	one	None/Other	
Refrigerant: Gel Ice Pack			Received Via: Bill# Fed ExX	Client
			UPS	_ TA Courier
			DHL	_ Mid Valley
			Senvoy	TDP
Cooler Temperature (<u>IR)</u>	C Plastic Glas	ss (Frozen filters, Ted	ars and aqueous Meta	als exempt)
Temperature Blank? 19	.9_°C or NA		Trip Blank	? Y or N or NA
BP, OPLC,ARCO-Tempe (initial/date/time): Comments:	erature monitoring every	15 minutes:		
Sample Containers:	ID			
Intact?	Ø or N	Metals Preserved	? Y or N or	MA
Provided by TA?	Ø or N	Client QAPP Pres	served? Y or N or	NA
Correct Type?	Ø or N	Adequate Volume	? Cor N _	
#Containers match COC	?Y or 🕢	Water VOAs: Hea	adspace? Y or N or	NA
IDs/time/date match COC	C? @ or N	Comments:		
Hold Times in hold?	Øor N			
PROJECT MANAGEME	NT			
Is the Chain of Custody c	omplete?		Y or N If N, circle the it	ems that were incomplete
Comments,Problems				
Total access set up? Has client been contacted regar	ding non-conformances?		YorN YorN IfY,/	
PM Initials:	Date: Tin	ne:	Date	Time

(rev 4, 01/24/07)

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NOTIFICATION OF DISCREPANCY

DATE: 10.01.08 TIME: 1634	PM: Kate Haney	SC INITIALS: CW
Rush/Short Hold? Yes DNo		
 Project Not Set Up in ELM Analysis Requested on COC – Not Listed 	Client I for Project in EL	COC Received ON HOLD M
 PM To Add Analysis:	C:	
□ Received Extra Sample(s) Not Listed on	COC:	
□ Sample Description(s) or Date/Time Sam	pled Do Not Matc	h COC:
 Improper Preservative For method: Sample Received Broken: Insufficient Sample Volume: Sample preserved upon receipt: 		
 Temperature Outside recommended ran Received on-ice within 4 hours of coll acceptable. Other: Ne. Last 3 samples on COC do 	ge (4°C±2°C): <u> </u> 9 lection, temperatur not have # o	<u><i>Aic</i></u> re between ambient to 2°C f containers,
PROJECT MANAGER RESOLUTION:	(Date &	z Time when returned to SC)
Approval By:	Date:	Time:



SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

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.

Work Order	Project	ProjectNumber
BRJ0076	BNSF-Skykomish Remedial D	01140-204-0320

TestAmerica Seattle

IIIA 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



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

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	Project Name:	BNSF-Skykomish Remedial Design Investigation		
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:	
Seattle, WA 98134	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

Kato Dung_

Kate Haney, Project Manager





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

Sc	emivolatile Petrol	eum Produ	cts by N TestAm	WTPH erica Se	I-Dx (w/o attle	o Acid	l/Silica G	el Clean-up)		
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRJ0076-01 (1A-B-35(15))		So	il		Sampl	ed: 10/	06/08 11:52				
Diesel Range Hydrocarbons	NWTPH-Dx	6360	36.0	225	mg/kg dry	10x	8J06043	10/06/08 16:25	10/06/08 21:58	Q4	
Surrogate(s): 2-FBP Octacosana			82.3% 99.6%		54 - 148 % 62 - 142 %	u U			11 11		
DD 10057 01051 (14 D 25/15)	X	E al			G	. J. 10/	0.000 11-53				
BRJ0070-01RE1 (IA-B-35(15)) NWTPH Dy	9190	1.11	1120	Sampi	20.	8106042	10/06/08 16:25	10/07/00 10 47		
		8180	144	1120		20x	8308043	10/00/08 10:25	10/07/08 13:47	Q4	
Surrogate(s): 2-FBP Octacosane			67.6% 192%		54 - 148 % 62 - 142 %	"			"	ZX	
BRJ0076-02 (1A-B-35(16))		Soi	1		Sampl	ed: 10/(06/08 11:57				
Diesel Range Hydrocarbons	NWTPH-Dx	2.85	1.76	11.0	mg/kg dry	1x	8J06043	10/06/08 16:25	10/06/08 22:26	J	
Lube Oil Range Hydrocarbons	п	31.3	3.52	27.6	"	"		"	u		
Surrogate(s): 2-FBP			86.0%		54 - 148 %	"			"		
Octacosane			101%		62 - 142 %	"			u		
BRJ0076-03 (1A-B-35(17))		Soil S		Sampl	ed: 10/(6/08 11:59					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	1x	8J06043	10/06/08 16:25	10/06/08 22:54		
Lube Oil Range Hydrocarbons	8	4.62	3.49	27.4	"	н	н	н	u	J	
Surrogate(s): 2-FBP			82.6%		54 - 148 %	n			"		
Octacosane			99.6%		62 - 142 %	"			n		
BRJ0076-04 (1A-B-35(10))		Soi	1		Sampl	ed: 10/(6/08 12:04				
Diesel Range Hydrocarbons	NWTPH-Dx	3110	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 %	"			n		
BRJ0076-04RE1 (1A-B-35(10)))	Soi	1		Sample	ed: 10/0	6/08 12:04				
Lube Oil Range Hydrocarbons	NWTPH-Dx	4550	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 %	u			"		
Octacosane			192%		62 - 142 %	"			"	ZX	

TestAmerica Seattle

Kato Duug Kate Haney, Project Manager





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

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
BRJ0076-05 (14	A-B-35(14))		So	il		Sampl	ed: 10/(6/08 12:11			
Diesel Range Hydroca	arbons	NWTPH-Dx	25.5	1.66	10.4	mg/kg dry	İx	8J06043	10/06/08 16:25	10/06/08 23:51	Q.
Lube Oil Range Hydr	rocarbons	h	62.9	3.31	25.9		н		n	11	Q4
Surrogate(s): 2	2-FBP			86.8%		54 - 148 %	"			"	
0	Octacosane			99.6%		62 - 142 %	"			"	
BRJ0076-06 (D)	UP01-100608)		Soi	il		Sampl	ed: 10/0	6/08 11:00			
Diesel Range Hydroca	arbons	NWTPH-Dx	1160	3.59	22.5	mg/kg dry	lx	8106043	10/06/08 16:25	10/07/08 00:18	Q
Surrogate(s): 2	2-FBP			86.2%		54 - 148 %	"			11	
0 17	Octacosane			93.6%		62 - 142 %	"			"	
BRJ0076-06RE1	(DUP01-100608)		Soi	il		Sampl	ed: 10/0	6/08 11:00			
Lube Oil Range Hydr	rocarbons	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 %	"			17	·····
5 ()	Detacosane			118%		62 - 142 %	"			"	

TestAmerica Seattle

Katobhung

Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Sk		
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204		
Seattle, WA 98134	Project Manager:	Grant Hain		

-0320 nsworth

xykomish Remedial Design Investigation

Report Created: 10/07/08 16:34

		Physic	al Paramet	ers by A TestAm	APHA/. erica Sea	ASTM/	EPA N	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0076-01	(1A-B-35(15))		Soil			Sam	pled: 10/0	6/08 11:52			
Dry Weight		BSOPSPL003R0 8	86.6		1.00	%	lx	8J06040	10/06/08 16:20	10/07/08 00:00	
BRJ0076-02	(1A-B-35(16))		Soil			Sam	pled: 10/0	6/08 11:57			
Dry Weight		BSOPSPL003R0 8	90.7		1.00	%	lx	8J06040	10/06/08 16:20	10/07/08 00:00	
BRJ0076-03	(1A-B-35(17))		Soil			Sam	pled: 10/0	6/08 11:59			
Dry Weight		BSOPSPL003R0 8	90.8		1.00	%	1x	8J06040	10/06/08 16:20	10/07/08 00:00	
BRJ0076-04	(1A-B-35(10))		Soil			Sam	pled: 10/0	6/08 12:04			
Dry Weight		BSOPSPL003R0 8	93.3		1.00	%	lx	8J06040	10/06/08 16:20	10/07/08 00:00	
BRJ0076-05	(1A-B-35(14))		Soil			Sam	pled: 10/0	6/08 12:11			
Dry Weight		BSOPSPL003R0 8	95.7		1.00	%	lx	8 J 06040	10/06/08 16:20	10/07/08 00:00	
BRJ0076-06	(DUP01-100608)		Soil			Samj	pled: 10/0	6/08 11:00			
Dry Weight		BSOPSPL003R0 8	86.2		1.00	%	1 x	8J06040	10/06/08 16:20	10/07/08 00:00	

TestAmerica Seattle

www Kate Haney, Project Manager





ENSR Inter	national - Seattle				1	Project Na	ame:	BNSF-	Skykom	ish Rei	nedia	l Design	Inves	tigation	1	
1011 SW Kli	ckitat Way, Suite 20	7			I	Project Nu	umber:	01140-2	204-0320						Report Create	ed:
Seattle, WA	98134				I	Project M	anager:	Grant H	Iainsworth						10/07/08 16:	:34
L	·····															
	Semivolatile Pet	roleum Pro	ducts by I	NWTPI	H-Dx (w/o Ac	id/Silica (Gel Clea	an-up) -	Labor	atory	Quality	y Cont	rol Res	ults	
					1	ſestAme	rica Seattle									
QC Batch:	: 8J06043	Soil Pr	eparation N	lethod:	EPA	3550B										
Analyte		Method	Result	ľ	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J06043	B-BLK1)									Ext	racted:	10/06/08 16	5:25			
Diesel Range Hydroca	rbons	NWTPH-Dx	ND		1.60	10.0	mg/kg wet	1x							10/06/08 20:07	
Lube Oil Range Hydro	ocarbons	n	6.70		3.19	25.0	11	"							"	J
Surrogate(s):	2-FBP		Recovery:	84.6%		L	imits: 54-148.	1% "							10/06/08 20:07	
	Octacosane			96.6%			62-14.	2% "							"	
Blank (8J06043	3-BLK2)									Ext	acted:	10/06/08 16	5:25			
Lube Oil Range Hydro	ocarbons	NWTPH-Dx	5.49	:	3.19	25.0	mg/kg wet	lx							10/07/08 13:02	J
Surrogate(s):	2-FBP		Recovery:	97.1%		L	imits: 54-148	1% "							10/07/08 13:02	
	Octacosane			102%			62-14.	2% "							n	
LCS (8J06043-)	BS1)									Ext	acted:	10/06/08 16	5:25			
Diesel Range Hydroca	rbons	NWTPH-Dx	63.4		1.60	10.0	mg/kg wet	1x		66.7	95.1%	(78-129)			10/06/08 20:35	
Surrogate(s):	2-FBP		Recovery:	80.6%		L	imits: 54-148	1% "							10/06/08 20:35	
	Octacosane			93.4%			62-14.	2% "							п	
Duplicate (8.106	5043-DUP1)					QC Sourc	e: BRJ0076-	-02		Ext	acted:	10/06/08 16	5:25			
Diesel Range Hydroca	rbons	NWTPH-Dx	14.2		1.75	10.9	mg/kg dry	lx	2.85				133%	(40)	10/06/08 21:03	R3
Lube Oil Range Hydro	ocarbons	н	23.4	:	3.49	27.4	н		31.3				28.7%	ĸ	11	J
Surrogate(s):	2-FBP		Recovery:	80.5%		L	imits: 54-148	3% "							10/06/08 21:03	
	Octacosane			93.8%			62-14.	2% "							0	
Matrix Snike (8	3J06043-MS1)					QC Sourc	e: BRJ0076-	-02		Ext	acted:	10/06/08 16	5:25			
Diesel Range Hydroca	rbons	NWTPH-Dx	63.5		1.76	11.0	mg/kg dry	lx	2.85	73.5	82.6%	(46-155)			10/06/08 21:31	
Surrogate(s):	2-FBP		Recovery:	73.1%		I	imits: 54-148	1% "							10/06/08 21:31	
	Octacosane			85.8%			62-14.	2% "							п	

TestAmerica Seattle

Kate Haney, Project Manager

Kato Dung





ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

Number: 01140-204-0320 Manager: Grant Hainsworth

BNSF-Skykomish Remedial Design Investigation 01140-204-0320 Grant Hoingworth

Report Created: 10/07/08 16:34

Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results TestAmerica Seattle													
QC Batch: 8J06040	Soil Pre	paration Met	hod: Dry V	Weight									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt R	% (Limits) EC	% RPD	(Limits)	Analyzed	Notes
Blank (8J06040-BLK1)								Extract	ed: 10/06/08 1	6:20			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	1x						10/07/08 00:00	

TestAmerica Seattle

und

Kate Haney, Project Manager

The results in this report apply to the samples analyzed in accordance with the cham of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



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ENSR Inte	ern	ational - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	n
1011 SW K	Clic	kitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA	4 9	08134	Project Manager:	Grant Hainsworth	10/07/08 16:34
					, , , , , , , , , , , , , , , , , , ,
]	Notes and Definit	ions	
Report Spe	eci	fic Notes:			
J	-	Estimated value. Analyte detected at a level less the (MDL). The user of this data should be aware that	an the Reporting Lim this data is of limited	it (RL) and greater than or equal to the Method Detection I reliability.	Limit
Q3	-	The chromatographic pattern is not consistent with	diesel fuel.		
Q4	-	The hydrocarbons present are a complex mixture o	f diesel range and hea	vy oil range organics.	
R3	-	The RPD exceeded the acceptance limit due to same	ple matrix effects.		
ZX	-	Due to sample matrix effects, the surrogate recover	y was outside the acc	eptance limits.	
Laboratory	<u>y R</u>	eporting Conventions:			
DET	-	Analyte DETECTED at or above the Reporting Limi	t. Qualitative Analyse	es only.	
ND	-	Analyte NOT DETECTED at or above the reporting	limit (MDL or MRL,	as appropriate).	
NR/NA	-	Not Reported / Not Ávailable			
dry	-	Sample results reported on a Dry Weight Basis. Results	ilts and Reporting Lir	nits have been corrected for Percent Dry Weight.	
wet	-	Sample results and reporting limits reported on a Wet on a Wet Weight Basis.	t Weight Basis (as rec	eived). Results with neither 'wet' nor 'dry' are reported	
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calcu	lated using Results, n	ot 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 *MDLs are listed on the report only if the data has be as Estimated Results.	, or above, the statisti en evaluated below th	cally derived limit based on 40CFR, Part 136, Appendix B to MRL. Results between the MDL and MRL are reported	4
Dil	-	Dilutions are calculated based on deviations from the found on the analytical raw data.	standard dilution per	formed for an analysis, and may not represent the dilution	
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted base percent solids, where applicable.	ed on variations in sar	nple preparation amounts, analytical dilutions and	
Electronic Signature	-	Electronic Signature added in accordance with TestA Application of electronic signature indicates that the Electronic signature is intended to be the legally bind	merica's <i>Electronic R</i> report has been reviev ing equivalent of a tra	eporting and Electronic Signatures Policy. ved and approved for release by the laboratory. ditionally handwritten signature.	

TestAmerica Seattle

Kate Haney, Project Manager

Katobung



		ABORATORY INFORMATION		ALUD76
	LADORADON TEST ANNERICA	G	KA TIS 14 A.C.Y	SHIPMENT INFORMATION
RAILWAY	ADDING 1, JOU N. CREEK	PKWY Si 400	196- 196- 1981	Stupment Method.
CHAIN OF CUSTODY	CANISLAREZIP. BOTHELL UNA	98011-8244		Tracking Number:
BNSF PROJECT INFORMATION	Project State of Ongin: ·	CON	SULTANT INFORMATION	Project Namber OF/2014/04 10/2020
NSF Project Number O/アン・エンジェーのぶつろ	Project City	COMPANY: ENER (IN	WOILE TO: SARA ARTA	NO KINI KNIT KNIT
NSF Projed Name SKYKO GAIGH RUT		Abdress.		Enhait
NSF CORTACE BRUCK SHEPARD	BNSF Wark Order No.:	CRYSTANZIP: SEATT 2 E		Phone: Fac: Fac: Fac: Fac: -6.04 -9349
TURNAROUND TIME	DELIVERABLES	Deliverables?	METHODS FOR ANALYS	S
💋 1-day Rush	BNSF Standard (Level II)			
2-day Rush		keq, Format?		
3-day Rush				
40 1	AMPLE INFORMATION		****	
Promotio Manada	Sample Collection	Filtered Type Matrix		
Sample (denexication	Containers Date Time Sample	ter Y/N Grab)		COMMENTS
1A-B-35(15)	1 10/6/08/152 RK	S 9 - V		0/
14-13-35/16	1 10/1/08 1157 RK			8
1A-B-35 (17)	1 10/6/08 1159 RK	- C S .		8
. iA-B-35(10)	1 10/6/08 1004 RK	- C S -	· · · · · · · · · · · · · · · · · · ·	04
·1A-B-35 (14)	1 10/6/08 1211 RK	- C S .		<i>B</i>
· DUPO1 - 100608	1 10/6/08 1000 AK	- 0 S		<i>W</i>
2				
9				
10				
12				
51. 11.				
5	0			
and the Me	10/6/08 141.35 Received By 1 /	, Vanal	Date Time: / 18 14. 50	wruments and Special Analytical Requirements:
Reinory/actient By: /	Date/Time:		Date/Tyre: /	15.9 cm/s
Rainquisted By:	Date/Time. Received By:		Date/Time:	
Received by Laboratory:	Date/Time		Late: Custody Intact? Cu	stody Seal No BNSF COC No.
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICATE · CONSULTANT		TAL-1001 (0600)

TAT:	Paperwork t	o PM – Date: Tir	me: Non-Conformances?
Page Time & Initials:			Circle Y or N
			(If Y, see other side)
	TEST AMERICA S	AMPLE RECEIPT (CHECKLIST
Received By: (applies to term at receipt)	Logged-in By:	Unpacked/Labeled E	By: Cooler ID:
Date: 10//	Date: p/4	Date: 10 6	Work Order No
Time: 14:35	Time: 14:36	Time: 10:45	Client:
Initials: M	Initials:	Initials:	Project:
Container Type:	COC	Seals:	Packing Material
Copler	Ship Containe	r Sign By	Bubble Bags Styrofoam
Box	On Bottles	Date	Foam Packs
None/Other		None	None/Other
Refrigerant:			Received Via: Bill#
Gel Ice Pack			
	a na an		
None/Other			
			GS Other
Cooler Temperature (IR): 15.9 °C Plastic G	lass (Frozen filters, Te	ediars and aqueous Metals exempt)
Temperature Blank?	°C or NA	e)	Trip Blank? Y or N or N
BP, OPLC,ARCO-Temp (initial/date/time): Comments:	perature monitoring eve	ery 15 minutes:	
Sample Containers:	ID		<u>ID</u>
Intact?	A) or N	Metals Preserv	ed? Y or N or A
Provided by TA?	(7) or N	Client QAPP P	reserved? Y or N or NA
Correct Type?	Ø or N	Adequate Volu	me? Por N
#Containers match COC	C? () or N	Water VOAs: H	Headspace? Y or N or A
IDs/time/date match CC	0C? 0 or N	Comments:	
Hold Times in hold?	Ø or N		
PROJECT MANAGEM	ENT		
Is the Chain of Custody	complete?		$Y \ \text{or} \ N$ $$ If N, circle the items that were incomplete
Comments,Problems			
Total access set up? Has client been contacted reg	garding non-conformances?		Y or N Y or N If Y,/
PM Initials:	_ Date:	Time:	

(rev 4, 01/24/07)

-

NOTIFICATIO	N OF DIS	SCREPANCY
DATE: 10/4 TIME: 14:35	<u>РМ: ///</u>	SC INITIALS:
Rush/Short Hold? Yes 🗆 No		
 Project Not Set Up in ELM Analysis Requested on COC – Not List 	w Client ed for Project in	COC Received ON HOLD ELM
 PM To Add Analysis:	OC:	
□ Received Extra Sample(s) Not Listed of	n COC:	
□ Sample Description(s) or Date/Time Sa	mpled Do Not M	atch COC:
 Improper Preservative For method:		
 Temperature Outside recommended rational received on-ice within 4 hours of caretaceptable. Other: 	ange (4°C±2°C):_ ollection, temper:	ature between ambient to 2°C
PROJECT MANAGER RESOLUTION:	(Da	nte & 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.

Work OrderProjectProjectNumberBRI0310BNSF-Skykomish01140-222-0100

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish	······
1011 SW Klickitat Way, Suite 207	Project Number:	01140-222-0100	Report Created:
Seattle, WA 98134	Project Manager:	Sarah Albano	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

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Curtis D. Armstrong For Kate Haney, Project Manager

Page 2 of 10

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ENSR International - Seattle	Project Name:	BNSF-Skykomish	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-222-0100	Report Created:
Seattle, WA 98134	Project Manager:	Sarah Albano	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

5-2-5-202-1 م. مرتبع با مينية المرجعين المرجعة المرجعين

Curtis D. Armstrong For Kate Haney, Project Manager





ENSR International - Seattle			Project Na	ame:	BNSF-S	kykom	ish			
1011 SW Klickitat Way, Suite 20)7		Project Ni	umber:	01140-22	2-0100			Report	t Created:
Seattle, WA 98134			Project M	anager:	Sarah Alt	oano			09/22/	08 17:02
C			- 4- 1- NT	wrot	I D ((-				.)	
Sem	ivolatile Petrolo	eum Produ	TestAm	w I Pf erica Se	attle) Acia	/Sinca G	ei Ciean-up))	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0310-01 (1A-B-7B(10-12))		So	il		Samp	leđ: 09/	19/08 09:15			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.64	10.2	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 00:04	
Lube Oil Range Hydrocarbons	u	ND	3.26	25.6	n	u	"	"	••	
Surrogate(s): 2-FBP			78.5%		54 - 148 %	"			"	
Octacosane			91.6%		62 - 142 %	"			n	
BRI0310-02 (1A-B-7B(12-14))		So	il		Samp	led: 09/1	19/08 09:20			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.69	10.5	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 00:25	
Lube Oil Range Hydrocarbons	u	ND	3.36	26.3	н		tr	н	16	
Surrogate(s): 2-FBP			84.7%		54 - 148 %	"			"	
Octacosane			94.3%		62 - 142 %	"			"	
BRI0310-03 (1A-B-7B(14-16))		Soi	1		Sampl	led: 09/J	19/08 09:25			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.71	10.7	mg/kg dry	lx	8I19052	09/19/08 17:56	09/20/08 00:46	
Lube Oil Range Hydrocarbons	u	ND	3.41	26.8	и	"	п	н	D	
Surrogate(s): 2-FBP			82.8%		54 - 148 %	"			"	
Octacosane			92.3%		62 - 142 %	u			n	
BRI0310-04 (1A-B-7B(16-18))		Soi	1		Sampl	ed: 09/1	19/08 09:30			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.63	10.2	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 01:07	
Lube Oil Range Hydrocarbons	п	ND	3.24	25.4	R	11	н	н	н	
Surrogate(s): 2-FBP			83.1%		54 - 148 %	"			11	
Octacosane			93.5%		62 - 142 %	н			n	
BRI0310-05 (1A-B-8B(13-15))		Soi	I		Sampl	ed: 09/1	19/08 10:50			
Diesel Range Hydrocarbons	NWTPH-Dx	4310	33.5	209	mg/kg dry	20x	8119052	09/19/08 17:56	09/20/08 01:29	Q4
Lube Oil Range Hydrocarbons	11	4650	66.7	523	"	n	n	л	n	Q4
Surrogate(s): 2-FBP			72.6%		54 - 148 %	"			"	
Octacosane			150%		62 - 142 %	"			n	ZX
BRI0310-06 (1A-B-8B(15-17))		Soi	I		Sampl	ed: 09/1	9/08 10:51			
Diesel Range Hydrocarbons	NWTPH-Dx	3.55	1.63	10.2	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 02:55	j
Lube Oil Range Hydrocarbons	н	33.4	3.25	25.5	"	n	в	и	"	
Surrogate(s): 2-FBP			88.9%		54 - 148 %	"			"	

TestAmerica Seattle

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

"

62 - 142 %

Curtis D. Armstrong For Kate Haney, Project Manager

Octacosane

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98.6%

TestAmei

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

Semi	volatile Petrol	eum Produ	TestAm	WTPH erica Se	I-Dx (w/o attle	o Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0310-07 (1A-B-8B(17-19))		So	il		Sampl	ed: 09/	19/08 10:52			
Diesel Range Hydrocarbons	NWTPH-Dx	2440	16.6	104	mg/kg dry	10x	8119052	09/19/08 17:56	09/20/08 03:16	Q4
Lube Oil Range Hydrocarbons	п	2720	33.1	259	n		"	п		Q4
Surrogate(s): 2-FBP			81.0%		54 - 148 %	"			"	
Octacosane			130%		62 - 142 %	"			"	
BRI0310-08 (1A-B-8B(19-21))		So	il		Sampl	ed: 09/	19/08 10:53			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.04	12.7	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 03:38	
Lube Oil Range Hydrocarbons	н	9.94	4.06	31.8	n	и	n	u	Ŋ	J
Surrogate(s): 2-FBP			81.1%		54 - 148 %	"			"	
Octacosane			92.7%		62 - 142 %	"			"	
BRI0310-09 (1A-B-8C(13-15))		So	il		Sampl	ed: 09/1	19/08 12:05			
Diesel Range Hydrocarbons	NWTPH-Dx	1440	17.4	109	mg/kg dry	10x	8119052	09/19/08 17:56	09/20/08 03:59	Q4
Lube Oil Range Hydrocarbons	u	2170	34.7	272	u	"	u	u	и	Q4
Surrogate(s): 2-FBP			84.2%		54 - 148 %	"			v	
Octacosane			115%		62 - 142 %	"			0	
BRI0310-10 (1A-B-8C(15-17))		So	il		Sampl	ed: 09/1	19/08 12:10			
Diesel Range Hydrocarbons	NWTPH-Dx	77.7	1.63	10.2	mg/kg dry	1 x	8119052	09/19/08 17:56	09/20/08 04:20	Q4
Lube Oil Range Hydrocarbons	พ	94.1	3.24	25.4	н	P	n	n	0	Q4
Surrogate(s): 2-FBP			87.8%		54 - 148 %	"			n	
Octacosane			99.4%		62 - 142 %	"				
BRI0310-11 (1A-B-8C(17-19))		Soi	il		Sampl	ed: 09/1	19/08 12:15			
Diesel Range Hydrocarbons	NWTPH-Dx	1350	9.48	59.2	mg/kg dry	5x	8119052	09/19/08 17:56	09/20/08 04:41	Q4
Lube Oil Range Hydrocarbons	U	1490	18.9	148	"	11	**	"	n	Q4
Surrogate(s): 2-FBP			82.9%		54 - 148 %	"			"	
Octacosane			105%		62 - 142 %	"			17	
BRI0310-12 (1A-B-8C(19-21))		Soi	il		Sampl	ed: 09/1	19/08 12:16			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	2.30	14.4	mg/kg dry	lx	8119052	09/19/08 17:56	09/20/08 05:03	
Lube Oil Range Hydrocarbons	н	11.8	4.58	35.9	11	н	u 	"	n	
Surrogate(s): 2-FBP			77.0%		54 - 148 %	n			"	
Octacosane			94.0%		62 - 142 %				"	

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Curtis D. Armstrong For Kate Haney, Project Manager

Octacosane

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

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ENSR Int 1011 SW 1 Seattle, W	ternational - Scattle Klickitat Way, Suite 20 A 98134	7		Project Na Project Nu Project M	nme: 1mber: anager:	BNSF-3 01140-2 Sarah A	Skykomi 22-0100 Ibano	sh		Rep0 09/2	ort Created: 2/08 17:02
		Physic	cal Paramet	TestAm	APHA/	ASTM/ attle	EPA M	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0310-01	(1A-B-7B(10-12))		Soil			Sam	pled: 09/1	9/08 09:15			
Dry Weight		BSOPSPL003R0 8	96.1		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-02	(1A-B-7B(12-14))		Soil			Samj	pled: 09/1	9/08 09:20			
Dry Weight		BSOPSPL003R0 8	95.0		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-03	(1A-B-7B(14-16))		Soil			Samj	pled: 09/1	9/08 09:25			
Dry Weight		BSOPSPL003R0 8	92.5		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BR10310-04	(1A-B-7B(16-18))		Soil			Samj	pled: 09/1	9/08 09:30			
Dry Weight		BSOPSPL003R0 8	96.8		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-05	(1A-B-8B(13-15))		Soil			Samj	pled: 09/1	9/08 10:50			
Dry Weight		BSOPSPL003R0 8	94.7		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-06	(1A-B-8B(15-17))		Soil			Samj	pled: 09/1	9/08 10:51			
Dry Weight		BSOPSPL003R0 8	96.9		1.00	%	1 x	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-07	(1A-B-8B(17-19))		Soil			Sam	pled: 09/1	9/08 10:52			
Dry Weight		BSOPSPL003R0 8	96.2		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-08	(1A-B-8B(19-21))		Soil			Samj	pled: 09/1	9/08 10:53			
Dry Weight		BSOPSPL003R0 8	78.1		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	·
BR10310-09	(1A-B-8C(13-15))		Soil			Samp	pled: 09/1	9/08 12:05			
Dry Weight	<u> </u>	BSOPSPL003R0 8	92.0		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-10	(1A-B-8C(15-17))		Soil			Samj	pled: 09/1	9/08 12:10			
Dry Weight	. "	BSOPSPL003R0 8	97.1		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-11	(1A-B-8C(17-19))		Soil			Samp	oled: 09/1	9/08 12:15			

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SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

THE LEADER IN ENVIRONMENTAL TESTING

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

		Physic	cal Parame	TestAm	erica Sea	AST M/	EPA N	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0310-11	(1A-B-8C(17-19))		Soil			Sam	pled: 09/1	9/08 12:15			
Dry Weight		BSOPSPL003R0 8	83.6		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	
BRI0310-12	(1A-B-8C(19-21))		Soil			Sam	pled: 09/1	9/08 12:16			
Dry Weight		BSOPSPL003R0 8	69.6		1.00	%	lx	8119053	09/19/08 17:57	09/22/08 00:00	

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Curtis D. Armstrong For Kate Haney, Project Manager





ENSR International - Sea 1011 SW Klickitat Way, Sui Seattle WA 98134	ttle te 207			Project N Project N Project M	ame: umber: lanager:	BNSF- 01140-2 Sarah A	Skykom 22-0100 Ibano	ish					Report Crea	ated:
Semivolatile	Petroleum Pro	ducts by I	WTPH-Dx	(w/o Ac TestAme	id/Silica (Gel Clea	in-up) -	Labor	atory	y Quality	/ Con	trol Res	sults	
QC Batch: 8119052	Soil Pre	paration N	lethod: EP/	A 3550B		, 								
Analyte	Method	Result	MDL*	MRL	J Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)) Analyzed	Notes
Blank (8119052-BLK1)								Extr	acted:	09/19/08 17	:56			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1,60	10.0	mg/kg wet	1×			**				09/19/08 22:18	
Lube Oil Range Hydrocarbons	17	6,61	3.19	25.0		u							n	J
Surrogate(s): 2-FBP Octacosane		Recovery:	80.4% 92.2%	L	imits: 54-148 62-14	2% " 2% "							09/19/08 22:1	8

LCS (8119052	-BS1)								Ext	racted:	09/19/08 17;	56		
Diesel Range Hydro	carbons	NWTPH-Dx	58,7	1.60	10.0	mg/kg wet	lx		66.7	88.0%	(78-129)			09/19/08 22:38
Surrogate(s):	2-FBP Octacosane		Recovery:	88.5% 96.1%	Lii	mits: 54-148% 62-142%	"							09/19/08 22:38 "
Duplicate (811	19052-DUP1)				QC Source	BRI0310-08			Exti	racted:	09/19/08 17:	56		
Diesel Range Hydro	carbons	NWTPH-Dx	ND	2.04	12.7	mg/kg dry	1x	ND				NR	(40)	09/19/08 22:59
Lube Oil Range Hyd	lrocarbons	u	ND	4.06	31.8	н	*1	9.94					+1	D
Surrogate(s):	2-FBP Octacosane		Recovery:	82.1% 92.9%	Lir	nits: 54-148% 62-142%	n n			· •				09/19/08 22:59 "
Duplicate (811	9052-DUP2)				QC Source:	BRI0310-12			Exti	acted:	09/19/08 17::	56		
Diesel Range Hydro	carbons	NWTPH-Dx	ND	2.27	14.2	mg/kg dry	lx	ND				NR	(40)	09/19/08 23:21
Lube Oil Range Hyd	rocarbons	"	ND	4.54	35,5	н		11.8					ĸ	н
Surrogate(s):	2-FBP Octacosane		Recovery:	83.4% 95.0%	Lin	nits: 54-148% 62-142%	u H							09/19/08 23:21 "
Matrix Spike	(8119052-MS1)				QC Source:	BR10310-08			Extr	acted:	09/19/08 17::	56		
Diesel Range Hydro	carbons	NWTPH-Dx	72.2	2.02	12.6	mg/kg dry	lx	ND	84.3	85.6%	(46-155)			09/19/08 23:42
Surrogate(s):	2-FBP Octacosane		Recovery:	84.5% 94.5%	Lin	nits: 54-148% 62-142%	"							09/19/08 23:42 "

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Curtis D. Armstrong For Kate Haney, Project Manager





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

	Physical Paran	neters by A	PHA/ASTM T	A/EPA N estAmeria	1ethods ca Seattle	- Lab	oratory (Quality Control Results
QC Batch: 8119053	Soil Prej	paration Met	hod: Dry V	Weight				
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike ¹⁰ / ₂ (Limits) ¹⁰ / ₂ (Limits) Analyzed Notes Amt REC
Blank (8119053-BLK1)								Extracted: 09/19/08 17:57
Dry Weight	BSOPSPL00	100		1.00	%	1x		09/22/08 00:00

Dry Weight

BSOPSPL00 3R08

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Curtis D. Armstrong For Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-222-0100	Report Created:
Seattle, WA 98134	Project Manager:	Sarah Albano	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.
Laborate	ory Re	eporting Conventions:
DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

- NR/NA _ Not Reported / Not Available
- dry Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
 *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
- Electronic
 Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.

 Signature
 Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

 Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Curtis D. Armstrong For Kate Haney, Project Manager



Chain of Custody	Record	οN	3808	The F 300 Bal (978) 3	ETEC Group, Int (er Avenue • Concord, 71-1422 Phone • (978)	MA 01742 371-1448 Fax		RETEC
				www.re	lec.com	5	510310	
Project Name: Sky komish	Project Number: Oli 16.	0620.400		1				-
Send Report TO: Revee Knew JA	Sampler (Print Name): Re	nee Khrich	+	25				Pageof
Address. ICH SWKLICL tut Way	Sampler (Print Name):			Pers		-	/ / /	
stract	Shipment Method: Hernol	Delivera	UNDON	D'HIC				
Sauthe, WA 98134	Airbill Number:	_	SISAJE	VX				
Phone: 206. 434. 4349	Laboratory Receiving: T	rAmerica		7.1			Order #:	
Fax:			4 4					
Field Sample ID	Sample Sample Date Time	Sample Matrix Nur Cor	nber of S	/ /		////	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
(21-01) 82-8-VI	9/19/09 0915	s	×					20-01 20128
(H1-C1)82-8-41	0260 80/51/6	- S	×			-		40-
(01-11) 82-78 (11-110)	3/19/08 0925	-	×					202
(10-12) JF-B-12)	9/19/08 0930	S	×					þ0-
11-6-8B (13-15)	9/14/0201 80/1020	- N	×					50-
14-6-8B(16-17)	1501 89/11/4	- V	X					100
14-6-86(17-19)	2501 8/4//3	-	×					1 L
14-B- 8B(14-21)	9/19/053	- N	X					2 P
14-6-86 (13-15)	2021 80/11/P	s	×					-09
(A-B-8C (15-17)	01-21 29/61/5	5	×					- 10
1A-B-& (17-19)	9/19/08 1215	S 1	۲					Ŧ
12-6-80 (19-21)	0/10/08/12/0	S	×					21- V
Relinquit terboy: (Signature)	Rec <u>ei</u> ved by: (Signature)		Date: Tir	me:	Sample Custodian F	Aemarks (Completed B	 v Laboratory):	-
A Link	K Burkha	L	3/14/55/10	6 <u>7</u> 0	QA/QC Level	Tumaround	Sampl	e Receipt
Relinquished by: (Signature)	Beceived by: (Signature)	1	Date: Tir	je:			Total # Containers Received?	
•						Routine	COC Seals Present?	
Relinquished by: (Signature)	Received by: (Signature)		Date: Tir	Te:		24 Hour	COC Seals Intact?	
					Level III	1 Week	Received Containers Intact?	
							Temperature?	
White: Lab Copy Yellow: PM Copy Pink:	Field Copy Gold: PM/QA/QC	Copy						

TAT:	Paperwork to	PM – Date: Tim	ie:	Non-Conformances?
Page Time & Initials:_				Circle Y or N
				(If Y, see other side)
	TEST AMERICA SA	MPLE RECEIPT CI	HECKLIST	
Received By: (applies to temp(at receipt)	Logged-in By: /	Unpacked/Labeled By	y: Cooler ID:	
Date: 9/19	Date: 9/19	Date: 9/19	Work Order No. 🖉	R10309
Time:	Time: 47:15:58	Time: U:N	Client:	
Initials:	Initials: <u>()</u>	Initials#0	Project:	
Container Type:	<u>COC Se</u>	<u>als:</u>	Packing Material	
Cooler	Ship Container	Sign By	Bubble Bags	Styrofoam
Box	On Bottles	Date	Foam Packs	
None/Other	No	ne	None/Other	•
Refrigerant:			Received Via: Bill#	
			UPS	_ TA Courier
Cooler Temperature (I	R): 4.1 °C Plastic Glass	S Frozen filters. Tedl	ars and aqueous Met	als exempt)
Temperature Blank?	°C of NA) (circle one)		Trip Blank	? Y or N or NA
BP, OPLC,ARCO-Tem (initial/date/time): Comments:	operature monitoring every	15 minutes:		
Sample Containers:	al			
Intact?		Metals Preserved	12 Yor Nor	<u>ID</u> NA
Provided by TA?	(*) or N	Client QAPP Pres	served? Yor Nor	
Correct Type?	(P) or N	Adequate Volume	? (Y) or N	
#Containers match CC	C? (Y) or N	(for tests requested) Water VOAs: Hea	adspace? R or N or	NA All was have
IDs/time/date match C	OC? Yor N	Comments:	headsmall	notion in WO.
Hold Times in hold?	Ø or N		, <i>can ji za, j</i>	
PROJECT MANAGEM	IENT			
Is the Chain of Custody	y complete?		Y or N If N, circle the	items that were incomplete
Comments,Problems_				
Total access set up? Has client been contacted re			Y or N	
	garding non-conformances?		Y or N if Y,/_	
PM Initials:	garding non-conformances? Date:Tim	ne:	Y or N if Y,/	Time

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Attachment 2 – Scisco Property Laboratory Reports

File : L:\1\DATA\I1208.SEC\I1108018.D Operator : MAT : 9-13-08 4:08:37 AM using AcqMethod TPHF.M Acquired GC9 Instrument : Sample Name: BRI0171-07 Misc Info : 1x NWTPH-Dx Soil Vial Number: 67



File : K:\1\DATA\I1608\I1608018.D
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


File : L:\1\DATA\I1208.SEC\I1108019.D
Operator : MAT
Acquired : 9-13-08 4:34:32 AM using AcqMethod TPHF.M
Instrument : GC9
Sample Name: BRI0171-08
Misc Info : 1x NWTPH-Dx Soil
Vial Number: 68



File : K:\1\DATA\I1608\I1608019.D
Operator : MAT
Acquired : 17 Sep 2008 2:47 am using AcqMethod TPHI0808.M
Instrument : GC-7
Sample Name: bri0171-08
Misc Info : 1x NWTPH-Dx SG Addon Soil
Vial Number: 18



: L:\1\DATA\I1208.SEC\I1108020.D File : MAT Operator : 9-13-08 5:00:30 AM using AcqMethod TPHF.M Acquired GC9 Instrument : Sample Name: BRI0171-09 Misc Info : 1x NWTPH-Dx Soil Vial Number: 69



: K:\1\DATA\I1608\I1608023.D File Operator : MAT : 17 Sep 2008 10:40 am using AcqMethod TPHI0808.M Acquired GC-7 Instrument : Sample Name: bri0171-09 Misc Info : 1x NWTPH-Dx SG Addon Soil Vial Number: 19



File : H:\HPCHEM\1\DATA\J0108.SEC\J0108022.D Operator : WAS Acquired : 1 Oct 2008 7:36 pm using AcqMethod TPHI1008.M Instrument : GC-1 Sample Name: BRI0460-11RE1 Misc Info : 1x NWTPH-Dx SOIL Vial Number: 71



File : L:\1\DATA\I3008.SEC\I3008041.D
Operator : EKK
Acquired : 10-1-2008 12:10:13 AM using AcqMethod TPHI1808.M
Instrument : GC-9
Sample Name: BRI0460-11
Misc Info : 1x NWTPH-Dx SG Addon Soil
Vial Number: 62



Sec. 1

File : H:\HPCHEM\1\DATA\J0108.SEC\J0108023.D
Operator : WAS
Acquired : 1 Oct 2008 7:58 pm using AcqMethod TPHI1008.M
Instrument : GC-1
Sample Name: BRI0460-12RE1
Misc Info : 1x NWTPH-Dx SOIL
Vial Number: 72



File : L:\1\DATA\I3008.SEC\I3008042.D
Operator : EKK
Acquired : 10-1-2008 12:33:26 AM using AcqMethod TPHI1808.M
Instrument : GC-9
Sample Name: BRI0460-12
Misc Info : 1x NWTPH-Dx SG Addon Soil
Vial Number: 63

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File : L:\1\DATA\I3008.SEC\I3008043.D
Operator : EKK
Acquired : 10-1-2008 12:56:42 AM using AcqMethod TPHI1808.M
Instrument : GC-9
Sample Name: BRI0460-13
Misc Info : 1x NWTPH-Dx SG Addon Soil
Vial Number: 64



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File : H:\HPCHEM\1\DATA\J0108.SEC\J0108025.D
Operator : WAS
Acquired : 1 Oct 2008 8:43 pm using AcqMethod TPHI1008.M
Instrument : GC-1
Sample Name: BRI0460-14RE1
Misc Info : lx NWTPH-Dx SOIL
Vial Number: 74



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File : L:\1\DATA\I3008.SEC\I3008044.D
Operator : EKK
Acquired : 10-1-2008 1:20:00 AM using AcqMethod TPHI1808.M
Instrument : GC-9
Sample Name: BRI0460-14
Misc Info : 1x NWTPH-Dx SG Addon Soil
Vial Number: 65



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File : H:\HPCHEM\1\DATA\J0108.SEC\J0108026.D
Operator : WAS
Acquired : 1 Oct 2008 9:05 pm using AcqMethod TPHI1008.M
Instrument : GC-1
Sample Name: BRI0460-15RE1
Misc Info : 1x NWTPH-Dx SOIL
Vial Number: 75



File : L:\1\DATA\I3008.SEC\I3008048.D
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



Sec. 1

File : H:\HPCHEM\1\DATA\J0108.SEC\J0108033.D Operator : WAS Acquired : 1 Oct 2008 11:44 pm using AcqMethod TPHI1008.M Instrument : GC-1 Sample Name: BRI0460-16RE1 Misc Info : 1x NWTPH-Dx SOIL Vial Number: 76



1.1

File : L:\1\DATA\I3008.SEC\I3008049.D Operator : EKK Acquired : 10-1-2008 3:16:22 AM using AcqMethod TPHI1808.M Instrument : GC-9 Sample Name: BRI0460-16 Misc Info : 1x NWTPH-Dx SG Addon Soil Vial Number: 67



: H:\HPCHEM\1\DATA\J0108.SEC\J0108034.D File : WAS Operator Acquired : 2 Oct 2008 12:06 am using AcqMethod TPHI1008.M Instrument : GC-1 Sample Name: BRI0460-17RE1 Misc Info : 1x NWTPH-Dx SOIL Vial Number: 77



File : L:\1\DATA\I3008.SEC\I3008050.D
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\13008.SEC\13008051.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





THE LEADER IN ENVIRONMENTAL TESTING

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.

Work Order	Project	ProjectNumber
BRI0171	BNSF-Skykomish (Former Με	01140-204-0320

TestAmerica Seattle

Aug 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.





THE LEADER IN ENVIRONMENTAL TESTING

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

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

TestAmerica Seattle

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

Sem	ivolatile Petrol	eum Produ	cts by N TestAm	WTPH erica Se	I-Dx (w/o attle	Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-01 (2B-B-35 (4-6))		Soi	il		Sampl	ed: 09/1	10/08 12:20			
Diesel Range Hydrocarbons	NWTPH-Dx	8.88	2.70	16.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 00:14	
Lube Oil Range Hydrocarbons	11	10.6	5.38	42.2	11	0	п	u	91	
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"			п	
Octacosane			95.6%		62 - 142 %	"			"	
BRI0171-02 (2B-B-36 (0-2))		Soi	il		Sampl	ed: 09/1	0/08 13:11			
Diesel Range Hydrocarbons	NWTPH-Dx	2010	329	2050	mg/kg dry	50x	8111058	09/12/08 08:00	09/13/08 00:40	J, Q6, RL1
Lube Oil Range Hydrocarbons	н	7040	655	5130	п	11	u	и	н	
Surrogate(s): 2-FBP			970%		54 - 148 %	"			"	Z3
Octacosane			675%		62 - 142 %	"			u .	Z3
BRI0171-03 (2B-B-36 (2-4))		Soi		Sampled: 09/10/08 13:12						
Diesel Range Hydrocarbons	NWTPH-Dx	28.4	2.05	12.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:06	Qe
Lube Oil Range Hydrocarbons	и	109	4.10	32,1	н	н		п	15	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	н			"	
Octacosane			99.6%		62 - 142 %	"			13	
BRI0171-04 (2B-B-37 (0-2))		Soi	il		Sampl	ed: 09/1	10/08 14:39			
Diesel Range Hydrocarbons	NWTPH-Dx	112	2.43	15.2	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 01:32	Q
Lube Oil Range Hydrocarbons	n	474	4.85	38.0	n	11	n	υ	u	
Surrogate(s): 2-FBP			88.4%		54 - 148 %	"			"	
Octacosane			93.8%		62 - 142 %	"			"	
BRI0171-05 (2B-B-37 (2-4))		Soi	il		Sampl	ed: 09/1	10/08 14:40			
Diesel Range Hydrocarbons	NWTPH-Dx	263	11.3	70.5	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 01:58	Qe
Lube Oil Range Hydrocarbons	н	1340	22.5	176	u	н	"	н	Pt	
Surrogate(s): 2-FBP			113%		54 - 148 %	n			"	
Octacosane			111%		62 - 142 %	IJ			n	
BRI0171-06 (2B-B-37 (4-5))		So	il		Sampl	ed: 09/	10/08 14:41			
Diesel Range Hydrocarbons	NWTPH-Dx	120	9.87	61.7	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 03:42	Qe
Lube Oil Range Hydrocarbons	**	496	19.7	154	u	u	н	п	te	
Surrogate(s): 2-FBP			112%		54 - 148 %	"			п	
Octacosane			111%		62 - 142 %	"			"	

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THE LEADER IN ENVIRONMENTAL TESTING

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

Sem	ivolatile Petrol	eum Produ	cts by N TestAm	WTPF erica Se	I-Dx (w/o attle	Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-07 (2B-B-38 (0-2))		So	il		Sampl	ed: 09/	10/08 16:20			
Diesel Range Hydrocarbons	NWTPH-Dx	23.7	2.23	13.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 04:08	Q12
Lube Oil Range Hydrocarbons	11	45.9	4.45	34.8	12		н	υ	и	
Surrogate(s): 2-FBP			84.1%		54 - 148 %	"			"	
Octacosane			97.5%		62 - 142 %	"			"	
BRI0171-08 (2B-B-38 (3-5))		So	il		Sampl	ed: 09/	10/08 16:35			
Diesel Range Hydrocarbons	NWTPH-Dx	3.61	1.78	11.1	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 04:34	J
Lube Oil Range Hydrocarbons	n	4.10	3.55	27.9	n	u	0	19	11	J
Surrogate(s): 2-FBP			89.3%		54 - 148 %	"			"	
Octacosane			101%		62 - 142 %	"			"	
BRI0171-09 (2B-B-39 (0.5-3))		Soi	i)		Sampl	ed: 09/2	10/08 16:45			
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	и	41.4	3.62	28.3	u	u	o	IT	u	
Surrogate(s): 2-FBP			81.1%		54 - 148 %	"			"	
Octacosane			98.1%		62 - 142 %	"			17	
BRI0171-10 (2B-B-40B (0.5-3))		So	il		Sampl	ed: 09/	10/08 17:46			
Diesel Range Hydrocarbons	NWTPH-Dx	6.43	2.38	14.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 05:26	J
Lube Oil Range Hydrocarbons	9	14.5	4.75	37.2	"	"	u	u	11	J
Surrogate(s): 2-FBP			81.8%		54 - 148 %	p			"	
Octacosane			93.5%		62 - 142 %	"			"	
BRI0171-16 (2B-B-34 (0-2))		Soi	il		Sampl	ed: 09/2	10/08 11:25			
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	P	4660	96.7	758	11	u	v		n	<u> </u>
Surrogate(s): 2-FBP			217%		54 - 148 %	0			"	ZX
Octacosane			196%		62 - 142 %	"			"	ZX
BRI0171-17 (2B-B-34 (2-4))		Soi	il		Sampl	ed: 09/	10/08 11:30			
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		U	0	u	n 	J
Surrogate(s): 2-FBP			78.8%		54 - 148 %	"			"	
Octacosane			96.2%		62 - 142 %	"			"	

TestAmerica Seattle

Kate Haney, Project Manager

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THE LEADER IN ENVIRONMENTAL TESTING

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

Sem	ivolatile Petrol	eum Produ	cts by N TestAm	WTPH erica Se	H-Dx (w/o attle	o Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-18 (2B-B-34 (4-6))		Soi	1		Sampl	ed: 09/1	10/08 11:35	· · · · · · · · · · · · · · · · · · ·		
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	33.5 130	2.43 4.85	15.2 38.0	mg/kg dry "	1x "	8111058	09/12/08 08:00	09/13/08 06:44	Q6
Surrogate(s): 2-FBP Octacosane			89.9% 98.1%		54 - 148 % 62 - 142 %	"			u H	
BRI0171-19 (2B-B-35 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 12:10			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	19.3 84.7	2.64 5.26	16.5 41.2	mg/kg dry "	lx "	8111058	09/12/08 08:00 "	09/13/08 07:10 "	Q6
Surrogate(s): 2-FBP Octacosane			89.4% 99.3%		54 - 148 % 62 - 142 %	"			u u	
BRI0171-20 (2B-B-35 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 12:15			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	16.5 46.2	2.91 5.80	18.2 45.4	mg/kg dry "	lx "	8111058 "	09/12/08 08:00	09/13/08 07:36 "	J
Surrogate(s): 2-FBP Octacosane			87.5% 100%		54 - 148 % 62 - 142 %	" U			n	
BRI0171-21 (2B-B-40B (3-5))		Soi	I ,		Sampl	ed: 09/1	0/08 17:49			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	6.19 18.2	2.25 4.49	14.1 35.2	mg/kg dry "	lx "	8111058 "	09/12/08 08:00	09/13/08 09:20	1
Surrogate(s): 2-FBP Octacosane			87.8% 98.7%		54 - 148 % 62 - 142 %	n			11 11	
BRI0171-22 (2B-B-41 (0-2))		Soi	l		Sample	ed: 09/1	0/08 08:25			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	192 713	10.5 21.0	65.8 164	mg/kg dry "	5x "	8111058	09/12/08 08:00	09/13/08 09:46 "	Q6
Surrogate(s): 2-FBP Octacosane			115% 112%		54 - 148 % 62 - 142 %	11 11			"	
BRI0171-23 (2B-B-41 (2-4))		Soil	I		Sample	ed: 09/1	0/08 08:30			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	74.2 224	2.24 4.47	14.0 35.0	mg/kg dry	lx "	8I11058 "	09/12/08 08:00	09/13/08 10:12 "	Q6
Surrogate(s): 2-FBP Octacosane			85.8% 97.6%		54 - 148 % 62 - 142 %	"			u	

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

Sem	vivolatile Petrol	eum Produ	cts by N TestAm	WTPI erica Se	H-Dx (w/c attle	o Acid	/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-24 (2B-B-41 (4-6))		Soi	il		Sampl	ed: 09/1	10/08 08:35			
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	Q
Lube Oil Range Hydrocarbons	a	76.3	4.37	34.3	1+			н	н	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	п			n	
Octacosane			97.8%		62 - 142 %	n			"	
BRI0171-25 (3-B-26 (0-2))		Soi	il		Sampl	ed: 09/1	1/08 10:35			
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	
Lube Oil Range Hydrocarbons	11	86.7	5.50	43.1		н	u	"	n	Q13
Surrogate(s): 2-FBP			92.5%		54 - 148 %	u			"	
Octacosane			103%		62 - 142 %	"			U	
BRI0171-26 (3-B-26 (2-4))		Soi	il		Sampl	ed: 09/1	1/08 10:35			
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	Qé
Lube Oil Range Hydrocarbons	19	209	6.13	48.0	u	n	н	**	11	
Surrogate(s): 2-FBP			92.4%		54 - 148 %	п			и	
Octacosane			135%		62 - 142 %	и			"	
BRI0171-27 (3-B-26 (4-6))		Soi	il		Sampl	ed: 09/1	1/08 10:40			
Diesel Range Hydrocarbons	NWTPH-Dx	21.5	2.26	14.1	mg/kg dry	1 x	8111061	09/12/08 08:03	09/14/08 03:33	Qé
Lube Oil Range Hydrocarbons	н	149	4.50	35.3	11	n	n	ц	U-	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	n			"	
Octacosane			102%		62 - 142 %	"			"	
BRI0171-28 (3-B-27 (0-2))		Soi	1		Sampl	ed: 09/1	1/08 11:35			
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	u	729	29.8	234	D	"	n	n 	u	Q4
Surrogate(s): 2-FBP			91.2%		54 - 148 %	"			"	
Octacosane			94.4%		62 - 142 %	0			"	
BRI0171-29 (3-B-27 (2-4))		Soi	l		Sampl	ed: 09/1	1/08 11:40			
Diesel Range Hydrocarbons	NWTPH-Dx	53.1	2.25	14.0	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 04:15	Qé
Lube Oil Range Hydrocarbons	í)	240	4.48	35.1	11	"	11	0	11	
Surrogate(s): 2-FBP			89.9%		54 - 148 %	"			п	
Octacosane			97.4%		62 - 1-12 %	"			п	

Kate Haney, Project Manager

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

Sen	nivolatile Petrol	eum Produ	cts by N TestAm	WTPH-Dx erica Seattle	w/o Aci	d/Silica G	el Clean-up))	
Analyte	Method	Result	MDL*	MRL Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-30 (3-B-27 (4-6))		So	il	s	ampled: 09	/11/08 11:45			
Diesel Range Hydrocarbons	NWTPH-Dx	288	12.1	75.9 mg/kg o	ry 5x	8111061	09/12/08 08:03	09/14/08 07:04	Qé
Lube Oil Range Hydrocarbons	н	1200	24.2	190 "	"	11	н		
Surrogate(s): 2-FBP			94.7%	54 - 1-	8% "			11	
Octacosane			99.7%	62 - 1-	2% "			н	

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

	Semivolatile Petr	roleum Prod	ucts by N TestAm	WTPF erica Se	I-Dx wit l attle	h Acid	I/Silica G	el Clean-up)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-01 (2B-B-3	5 (4-6))	Se	əil		Sampl	led: 09/1	0/08 12:20			
Diesel Range (SGCU) Lube Oil Range (SGCU)	NWTPH-Dx "	ND ND	2.70 5.38	16.9 42.2	mg/kg dry "	lx "	8111058 "	09/12/08 08:00 "	09/16/08 22:34 "	
Surrogate(s): 2-FBP Octace	(SGCU) osane (SGCU)		70.6% 80.0%		54 - 148 % 62 - 142 %	n			n 11	
BRI0171-02 (2B-B-3	6 (0-2))	So	oil		Sampl	ed: 09/1	0/08 13:11			
Diesel Range (SGCU)	NWTPH-Dx	832	6.57	41.1	mg/kg dry	lx	8111058	09/12/08 08:00	09/16/08 22:48	Qe
Surrogate(s): 2-FBP Octace	(SGCU) isane (SGCU)		72.6% 88.4%		54 - 148 % 62 - 142 %	"			0 11	
BRI0171-02RE1 (2B-E	8-36 (0-2))	So	Soil		Sampled: 09/10/08 13:11					
Lube Oil Range (SGCU)	NWTPH-Dx	1890	65.5	513	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:23	Q4
Surrogate(s): 2-FBP Octaco	(SGCU) sane (SGCU)		71.0% 98.0%		54 - 148 % 62 - 142 %	" "			n D	
BRI0171-03 (2B-B-3	6 (2-4))	Se	il		Sampl	ed: 09/1	0/08 13:12			
Diesel Range (SGCU)	NWTPH-Dx	15.6	2.05	12.8	mg/kg dry	lx	8111058	09/12/08 08:00	09/16/08 23:18	Q6
Lube Oil Range (SGCU)	п	53.4	4.10	32.1		II	11	u 	It	
Surrogate(s): 2-FBP Octaco	(SGCU) sane (SGCU)		70.9% 83.2%		54 - 148 % 62 - 142 %	v			"	
BRI0171-04 (2B-B-3'	7 (0-2))	So	oil		Sampl	ed: 09/1	0/08 14:39			
Diesel Range (SGCU)	NWTPH-Dx	44.2	2.43	15,2	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 23:48	Q3
Lube Oil Range (SGCU)	ņ	222	4.85	38.0	п	W		4	11	
Surrogate(s): 2-FBP Octaco	(SGCU) sane (SGCU)		70.6% 81.0%		54 - 148 % 62 - 142 %	u U			n	
BRI0171-05 (2B-B-3'	7 (2-4))	So	oil		Sampl	ed: 09/1	0/08 14:40			
Diesel Range (SGCU)	NWTPH-Dx	120	2.25	14.1	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 00:18	Q6
Lube Oil Range (SGCU)	11	431	4.50	35.2	н	"	н	"		
Surrogate(s): 2-FBP Octaco	(SGCU) sane (SGCU)		62.2% 70.8%		54 - 148 % 62 - 142 %	"			"	

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

Semi	volatile Petrol	eum Produ	icts by N TestAm	WTPI erica Se	I-Dx witl attle	n Acid	l/Silica G	el Clean-up		
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-06 (2B-B-37 (4-5))		So	il		Sampl	ed: 09/1	0/08 14:41			
Diesel Range (SGCU)	NWTPH-Dx	53.8	1.97	12.3	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 01:47	Q6
Lube Oil Range (SGCU)	IJ	180	3.93	30.8	н	H	"	11	u	
Surrogate(s): 2-FBP (SGCU)			65.5%		54 - 148 %	u			н	
Octacosane (SGCU)			78.9%		62 - 142 %	v			"	
BRI0171-07 (2B-B-38 (0-2))		So	il		Sampl	ed: 09/1	0/08 16:20			
Diesel Range (SGCU)	NWTPH-Dx	7.19	2.23	13.9	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:17	J
Lube Oil Range (SGCU)	н	15.5	4.45	34.8	"	n		"	н	J
Surrogate(s): 2-FBP (SGCU)			68.1%		54 - 148 %	"			"	
Octacosane (SGCU)			78.2%		62 - 142 %	"			"	
BRI0171-08 (2B-B-38 (3-5))		So	Soil Sampled: 09/10/08 16:35							
Diesel Range (SGCU)	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 02:47	
Lube Oil Range (SGCU)	sı	ND	3.55	27.9	11				11	
Surrogate(s): 2-FBP (SGCU)			76.6%		54 - 148 %	n			н	
Octacosane (SGCU)			87.2%		62 - 142 %	"			"	
BRI0171-09 (2B-B-39 (0.5-3))		Soi	il		Sampl	ed: 09/1	0/08 16:45			
Diesel Range (SGCU)	NWTPH-Dx	3.13	1.81	11.3	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 10:40	J
Lube Oil Range (SGCU)	11	14.4	3.62	28.3	н	н	н	н	ш	J
Surrogate(s): 2-FBP (SGCU)			72.2%		54 - 148 %	"			"	
Octacosane (SGCU)			87.3%		62 - 142 %	"			n	
BRI0171-10 (2B-B-40B (0.5-3))		Soi	il		Sampl	ed: 09/1	0/08 17:46			
Diesel Range (SGCU)	NWTPH-Dx	ND	2.38	14.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 11:10	
Lube Oil Range (SGCU)	и	ND	4.75	37.2		"	H	H	n	
Surrogate(s): 2-FBP (SGCU)			68.8%		54 - 148 %	0			"	
Octacosane (SGCU)			80.7%		62 - 142 %	"			"	
BRI0171-16 (2B-B-34 (0-2))		Soi	il		Sampl	ed: 09/1	0/08 11:25			
Diesel Range (SGCU)	NWTPH-Dx	562	2.42	15.2	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 11:25	Q6
Surrogate(s): 2-FBP (SGCU)			61.3%		54 - 148 %	u			п	

62 - 142 % "

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Octacosane (SGCU)

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74.8%



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

Semi	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
BRI0171-16RE1 (2B-B-34 (0-2))		Soi	il		Sampl	ed: 09/1	10/08 11:25			
Lube Oil Range (SGCU)	NWTPH-Dx	1210	24.2	189	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:52	Q4
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)			57.9% 77.6%		54 - 148 % 62 - 142 %	"			H H	
BRI0171-17 (2B-B-34 (2-4))		Soi	I		Sampl	ed: 09/1	10/08 11:30			
Diesel Range (SGCU)	NWTPH-Dx	2.73	2.20	13.8	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 11:55	J
Lube Oil Range (SGCU)	н	25.3	4.40	34.5	u.	81			n	J
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)			63.6% 81.7%		54 - 148 % 62 - 142 %	n n			, 11 11	
BRI0171-18 (2B-B-34 (4-6))		Soi	1		Sampled: 09/10/08 11:35					
Diesel Range (SGCU)	NWTPH-Dx	18.1	2.43	15,2	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 12:25	Q6
Lube Oil Range (SGCU)	*	53.6	4.85	38.0	n	u	v	н	н	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)			77.0% 87.0%		54 - 148 % 62 - 142 %	u U			n n	
BRI0171-19 (2B-B-35 (0-2))		Soi	l		Sampl	ed: 09/1	10/08 12:10			
Diesel Range (SGCU)	NWTPH-Dx	6.58	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:39	J
Lube Oil Range (SGCU)	n	36.6	5.26	41.2	u	н	н	IJ	B	J
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)			76.5% 90.8%		54 - 148 % 62 - 142 %	u u			u u	
BRI0171-20 (2B-B-35 (2-4))		Soi	I		Sampl	ed: 09/1	10/08 12:15			
Diesel Range (SGCU)	NWTPH-Dx	ND	2.91	18.2	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 13:09	
Lube Oil Range (SGCU)	U	12.4	5.80	45.4	v	п	υ	u	и	J
Surrogate(s): 2-FBP (SGCU)			75.5%		54 - 148 %	"			u	
Octacosane (SGCU)			87.8%		62 - 142 %	"			"	
BRI0171-21 (2B-B-40B (3-5))		Soi	1		Sampl	ed: 09/1	10/08 17:49			
Diesel Range (SGCU)	NWTPH-Dx	ND	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 13:39	
Lube Oil Range (SGCU)	**	ND	4.49	35.2	и		n		11	
Surrogate(s): 2-FBP (SGCU)			73.3%		54 - 148 %	"			17	
Octacosane (SGCU)			84.5%		62 - 142 %	0			11	

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Octacosane (SGCU)

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

	Semiv	volatile Petrol	eum Produ	i cts by N TestAm	WTPI erica Se	H-Dx witl attle	h Acid	l/Silica G	el Clean-ur)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-22	(2B-B-41 (0-2))		Soi	1		Sampl	ed: 09/1	10/08 08:25			
Diesel Range (SG)	CU) SGCU)	NWTPH-Dx	88.7 240	2.10 4.20	13.2 32.9	mg/kg dry "	lx "	8111058	09/12/08 08:00	09/17/08 13:54	Q6 Q4
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			69.4% 82.0%		54 - 148 % 62 - 142 %	"			ıı ır	
BRI0171-23	(2B-B-41 (2-4))	e ⁿ	Soi	I		Sampl	ed: 09/1	10/08 08:30			
Diesel Range (SG	CU)	NWTPH-Dx	43.9	2.24	14.0	mg/kg dry	İx	8111058	09/12/08 08:00	09/17/08 14:24	Qé
Lube Oil Range (S	SGCU)	0	83.6	4.47	35.0	D.	и	н	11	N	Q4
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			67.4% 82.1%		54 - 148 % 62 - 142 %	"			n V	
BRI0171-24	(2B-B-41 (4-6))		Soi	1		Sampl	ed: 09/1	10/08 08:35			
Diesel Range (SG	CU)	NWTPH-Dx	8.05	2.19	13.7	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 16:08	J
Lube Oil Range (S	SGCU)	н	23.7	4.37	34.3	u	н	н	11	*1	J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			76.1% 86.0%		54 - 148 % 62 - 142 %	u U			"	
BRI0171-25	(3-B-26 (0-2))		Soi	1		Sampl	ed: 09/1	1/08 10:35			
Diesel Range (SGC Lube Oil Range (S	CU) 3 GCU)	NWTPH-Dx "	ND 24.3	2.76 5.50	17.2 43.1	mg/kg dry "	1x "	8111061 "	09/12/08 08:03	09/14/08 07:25 "	J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			80.6% 92.2%		54 - 148 % 62 - 142 %	"		<u> </u>	n N	
BRI0171-26	(3-B-26 (2-4))		Soi	1		Sampl	ed: 09/1	1/08 10:35			
Diesel Range (SGG	CU)	NWTPH-Dx	20.2	3.07	19.2	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 07:46	Q6
Lube Oil Range (S	GCU)		103	6.13	48.0	21				n	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			82.7% 93.5%		54 - 148 % 62 - 142 %	n			"	
BRI0171-27	(3-B-26 (4-6))		Soi	1		Sampl	ed: 09/1	1/08 10:40			
Diesel Range (SGC	CU)	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 (S	GCU)	U	34.5	4.50	35.3	н	"	9	н	n	J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			73.2% 85.6%		54 - 148 % 62 - 142 %	"			n n	

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

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
BRI0171-28 (3-B-27 (0-2))		So	il		Sampl	ed: 09/1	1/08 11:35			
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)	н	249	5.97	46.8		U	н	н	н	Q4
Surrogate(s): 2-FBP (SGCU)			77.7%		54 - 148 %	"			"	
Octacosane (SGCU)			84.9%		62 - 142 %	"			U	
BRI0171-29 (3-B-27 (2-4))		So	il		Sampl	ed: 09/1	1/08 11:40			
Diesel Range (SGCU)	NWTPH-Dx	31.0	2.25	14.0	mg/kg dry	łx	8111061	09/12/08 08:03	09/14/08 09:53	Q6
Lube Oil Range (SGCU)	"	69.4	4.48	35.1	н			и	н	
Surrogate(s): 2-FBP (SGCU)			78.5%		54 - 148 %	n			"	
Octacosane (SGCU)			90.9%		62 - 142 %	"			u	
BRI0171-30 (3-B-27 (4-6))		So	il		Sampl	ed: 09/1	1/08 11:45			
Diesel Range (SGCU)	NWTPH-Dx	179	2.43	15.2	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 10:15	Q6
Lube Oil Range (SGCU)	n	456	4.84	38.0	"	*1		0	н	
Surrogate(s): 2-FBP (SGCU)			80.4%		54 - 148 %	п			U	
Octacosane (SGCU)			90.5%		62 - 142 %	п			и	

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ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Br Project Number: 01 Project Manager: Ha

ct Number: 01140-204-0320 ct Manager: Halah Voges

BNSF-Skykomish (Former Maloney Creek West) 01140-204-0320 Halah Voges

Report Created: 09/25/08 16:13

Physical Parameters by APHA/ASTM/EPA Methods TestAmerica Seattle											
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-01	(2B-B-35 (4-6))		Soil		Sampled: 09/10/08 12:20						
Dry Weight		BSOPSPL003R0 8	58.9		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-02	(2B-B-36 (0-2))		Soil		Sampled: 09/10/08 13:			0/08 13:11			
Dry Weight		BSOPSPL003R0 8	60.9		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-03	(2B-B-36 (2-4))	· · · · · · · · · · · · · · · · · · ·	Soil			Sampled: 09/10/08 13:12					
Dry Weight		BSOPSPL003R0 8	77.9	*****	1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-04	(2B-B-37 (0-2))		Soil			Sampled: 09/10/08 14:39					
Dry Weight		BSOPSPL003R0 8	65.3		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-05	(2B-B-37 (2-4))		Soil		Sampled: 09/10/08 1			0/08 14:40			
Dry Weight		BSOPSPL003R0 8	71.0		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-06	(2B-B-37 (4-5))		Soil		Sampled: 09/10/08 14:41						
Dry Weight		BSOPSPL003R0 8	80.3		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-07	(2B-B-38 (0-2))		Soil			Sampled: 09/10/08 16:20					
Dry Weight		BSOPSPL003R0 8	71.5		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-08	(2B-B-38 (3-5))		Soil		Sampled: 09/10/08 1			0/08 16:35			
Dry Weight		BSOPSPL003R0 8	88.8		1.00	%	łx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-09	(2B-B-39 (0.5-3))		Soil			Samp	mpled: 09/10/08 16:45				
Dry Weight		BSOPSPL003R0 8	87.6		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-10	(2B-B-40B (0.5-3))		Soil		Sampled: 09/10/08 17:46						
Dry Weight		BSOPSPL003R0 8	67.0	*****	1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	····
BRI0171-16	(2B-B-34 (0-2))		Soil		Sampled: 09/10/08 11:25						

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ENSR International - SeattleProject Name:BNSF-Skykomish (Former Maloney Creek West)1011 SW Klickitat Way, Suite 207Project Number:01140-204-0320Report Created:Seattle, WA 98134Project Manager:Halah Voges09/25/08 16:13

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

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ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

ct Number: 01140-204-0320 ct Manager: Halah Voges

BNSF-Skykomish (Former Maloney Creek West) 01140-204-0320 Halah Voges

Report Created: 09/25/08 16:13

Physical Parameters by APHA/ASTM/EPA Methods TestAmerica Seattle												
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRI0171-26	(3-B-26 (2-4))		Soil			Sam	pled: 09/1	1/08 10:35				
Dry Weight		BSOPSPL003R0 8	51.9		1.00	%	lx	8112033	09/12/08 14:18	09/13/08 00:00		
BRI0171-27	(3-B-26 (4-6))		Soil			Sam	pled: 09/1	1/08 10:40				
Dry Weight		BSOPSPL003R0 8	69.9		1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00		
BRI0171-28	(3-B-27 (0-2))		Soil			Samj	pled: 09/1	1/08 11:35				
Dry Weight		BSOPSPL003R0 8	52.7		1.00	%	lx	8112033	09/12/08 14:18	09/13/08 00:00		
BRI0171-29	(3-B-27 (2-4))		Soil			Samj	pled: 09/1	1/08 11:40				
Dry Weight		BSOPSPL003R0 8	71.2		1.00	%	lx	8112033	09/12/08 14:18	09/13/08 00:00		
BRI0171-30	(3-B-27 (4-6))		Soil			Samp	pled: 09/1	1/08 11:45				
Dry Weight		BSOPSPL003R0	65.2		1.00	%	1 x	8112033	09/12/08 14:18	09/13/08 00:00		

TestAmerica Seattle

IIIA Kate Haney, Project Manager





1011 SW Klickitat Way, Suite 207Project Number:01140-204-0320Report Created:Seattle, WA 98134Project Manager:Halah Voges09/25/08 16:13	ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West))
Seattle, WA 98134 Project Manager: Halah Voges 09/25/08 16:13	1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
	Seattle, WA 98134	Project Manager:	Halah Voges	09/25/08 16:13

Organic Carbon, Total (TOC) TestAmerica Tacoma												
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes		
BRI0171-25 (3-B-26 (0-2))		Soil	l		Sam	pled: 09/1	1/08 10:35					
Total Organic Carbon	9060 STD	54000		2000	mg/Kg	lx	36166	09/18/08 10:09	09/18/08 10:09			
BRI0171-26 (3-B-26 (2-4))	· · · · · · · · · · · · · · · · · · ·	Soil	I		Sam	pled: 09/1	1/08 10:35					
Total Organic Carbon	9060 STD	29000		2000	mg/Kg	1x	36166	09/18/08 10:09	09/18/08 10:09			
BRI0171-27 (3-B-26 (4-6))	Soil	I		Sam	pled: 09/1	1/08 10:40						
Total Organic Carbon	9060 STD	20000		2000	mg/Kg	lx	36166	09/18/08 10:09	09/18/08 10:09			
BRI0171-28 (3-B-27 (0-2))		Soil	[Sam	pled: 09/1	1/08 11:35					
Total Organic Carbon	9060 STD	49000		2000	mg/Kg	lx	36166	09/18/08 10:09	09/18/08 10:09			
BRI0171-29 (3-B-27 (2-4)) Soil Sampled: 09/11/08 11:40												
Total Organic Carbon	9060 STD	35000		2000	mg/Kg	lx	36166	09/18/08 10:09	09/18/08 10:09			
BRI0171-30 (3-B-27 (4-6))		Soil	l		Samj	pled: 09/1	1/08 11:45					
Total Organic Carbon	9060 STD	29000		2000	mg/Kg	lx	36166	09/18/08 10:09	09/18/08 10:09			

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Yund Kate Haney, Project Manager

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ENSR Internation		Project Name: BNSF-S			Skykom	ish (Fo	rmer	· Malone	y Cre	ek Wes	st)			
1011 SW Klickitat W	Vay, Suite 207			Project N	umber:	01140-2	204-0320						Report Create	ed:
Seattle, WA 98134				Project M	anager:	Halah V	/oges						09/25/08 16	:13
Semi	volatile Petroleum Pr	oducts by	NWTPH-D	x (w/o Ac	id/Silica G	el Cle	an-up) -	Labo	ratory	y Quality	y Cont	rol Re	sults	
				TestAme	rica Seattle									
QC Batch: 81110	058 Soil Pi	reparation N	Aethod: E	PA 3550B										
Analyte	Method	Result	MDL	* MRI	d Units	Dil	Source Result	Spike Amt	REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Blank (8111058-BLK1)							Ext	racted:	09/12/08 0	8:00			
Diesel Range Hydrocarbons	NWTPH-Dx	2.97	1,60	10.0	mg/kg wet	lx	~~						09/12/08 22:04	
Lube Oil Range Hydrocarbons		ND	3.19	25.0	и	0							11	
Surrogate(s): 2-FBP Octacosar	ne	Recovery:	82.5% 94.5%	1	imits: 54-1489 62-142	6 " % "							09/12/08 22:04 "	
LCS (8111058 BS1)								Eve		00/12/08 0	8.00			
Diesel Range Hydrocarbons	NWTPH-Dx	58.4	1.60	10.0	mø/ko wet	1x		66.7	87.7%	(78-129)			09/12/08 22:30	
Surrogate(s): 2-FRP		Recovery	87.6%	1010	imite: \$1.1.189	2 "				((0.125)			00/12/08 22:50	
Octacosar	ne	Accorety.	94.8%	1.	62-142	~ ~ "							"	
Duplicate (8111058-DU	J P1)			QC Sourc	e: BRI0171-0	1		Ext	racted:	09/12/08 08	8:00			
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		n	10.6				87.8%	, "	**	R4, J
Surrogate(s): 2-FBP		Recovery:	88.4%	I	imits: 54-1489	6 "							09/12/08 22:56	
Octacosar	1e		101%		62-142	% "							"	
Duplicate (8111058-DU	P2)			QC Sourc	e: BRI0171-0	7		Exti	acted:	09/12/08 08	3:00			
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	н	29.1	4.42	34.6	11	17	45.9				44.7%	"	11	R4, J
Surrogate(s): 2-FBP		Recovery:	86.1%	L	imits: 54-148%	6 "							09/12/08 23:22	
Octacosan	ie		98.8%		62-1429	% "							n	
Matrix Spike (8111058	-MS1)			QC Sourc	e: BRI0171-0	9		Exti	acted:	09/12/08 08	8:00			
Diesel Range Hydrocarbons	NWTPH-Dx	65.2	1.83	11.4	mg/kg dry	lx	10.9	76.1	71.4%	(46-155)			09/12/08 23:48	
Surrogate(s): 2-FBP		Recovery:	84.4%	L	imits: 54-148%	6 ⁿ							09/12/08 23:48	
Octacosan	ie -		94.1%		62-1429	% "							"	

TestAmerica Seattle

Kato Duug_ Kate Haney, Project Manager





ENSR Inte 1011 SW K Seattle, WA	ENSR International - Seattle 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134				Project Na Project Nu Project M	ame: umber: anager:	BNSF- 01140-2 Halah V	Skykom i 204-0320 7oges	ish (Fa	ormer	Malone	y Cree	ek Wes	t) Report Create 09/25/08 16:	d: 13
	Semivolatile P	etroleum Pro	ducts by I	WTPH-Dx	(w/o Ac TestAme	id/Silica G rica Seattle	el Cle:	an-up) -	Labo	ratory	/ Quality	Cont	rol Re	sults	
QC Bate	ch: 8111061	Soil Pre	eparation N	lethod: EP.	A 3550B										
Analyte		Method	Result	MÐL*	MRL	Junits	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Blank (81110	61-BLK1)								Ext	racted:	09/12/08 08	:03			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	łx							09/14/08 01:04	
Lube Oil Range Hy	drocarbons	n	3.76	3.19	25,0	n	u							11	
Surrogate(s):	2-FBP Octacosane		Recovery:	88.1% 98.2%	L	imits: 54-1489 62-142	6 " % "							09/14/08 01:04 "	
LCS (8111061	I-BS1)								Ext	racted:	09/12/08 08	:03			
Diesel Range Hydro	ocarbons	NWTPH-Dx	58.7	1.60	10.0	mg/kg wet	lx		66.7	88.0%	(78-129)			09/14/08 01:25	
Surrogate(s):	2-FBP Octacosane		Recovery:	84.3% 97.4%	L	imits: 54-1489 62-142	6 " % "							09/14/08 01:25 "	
Duplicate (81)	11061-DUP1)				QC Sourc	e: BRI0150-0	5		Ext	racted:	09/12/08 08	:03			
Diesel Range Hydro	ocarbons	NWTPH-Dx	7760	18.7	117	mg/kg dry	10x	7290				6.27%	(40)	09/14/08 01:46	
Surrogate(s):	2-FBP Octacosane		Recovery:	147% 195%	L	imits: 54-1489 62-142	6 " % "							09/14/08 01:46 "	 ZX
Duplicate (81	11061-DUP2)				QC Sourc	e: BRI0171-2	6		Ext	racted:	09/12/08 08	:03			
Diesel Range Hydro	carbons	NWTPH-Dx	80.9	3.04	19.0	mg/kg dry	lx	36.3				76.0%	(40)	09/14/08 02:08	R
Lube Oil Range Hyd	drocarbons	н	477	6.07	47.6	u	n	209				78.3%			R3
Surrogate(s):	2-FBP Octacosane		Recovery:	90.2% 93.6%	L	imits: 54-1489 62-142	6 " % "							09/14/08 02:08 "	
Duplicate (81	11061-DUP5)				QC Sourc	e: BR10150-0	5		Ext	racted:	09/12/08 08	:03			
Lube Oil Range Hyd	drocarbons	NWTPH-Dx	6200	186	1460	mg/kg dry	50x	6620				6.51%	(40)	09/14/08 22:58	
Surrogate(s):	2-FBP Octacosane		Recove	ry: NR NR	L	imits: 54-148% 62-1429	6 " 76 "							09/14/08 22:58 "	Z3 Z3
Matrix Spike	(8I11061-MS1)				QC Sourc	e: BR10150-0	1		Ext	racted:	09/12/08 08	:03			
Diesel Range Hydro	carbons	NWTPH-Dx	281	18.4	115	mg/kg dry	10x	230	76.5	66.2%	(46-155)			09/14/08 02:29	
Surrogate(s):	2-FBP Octacosane		Recovery:	90.2% 93.7%	L	imits: 54-1489 62-1429	6 " 6 "							09/14/08 02:29 "	

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ENSR Inte	rnational - Seattl	e			Project Na	ame:	BNSF-	Skykom	ish (Fo	rmer	Malone	y Cree	ek Wes	t)	
1011 SW K	lickitat Way, Suite 2	207			Project N	umber:	01140-2	204-0320						Report Create	d:
Seattle, WA	98134				Project M	anager:	Halah V	/oges						09/25/08 16:	13
	Semivolatile P	etroleum Pro	ducts by	NWTPH-D	x with Ac	cid/Silica (Gel Cle	an-up -	Labor	atory	[,] Quality	Cont	rol Res	ults	
QC Bate	h: 8111058	Soil Pro	eparation N	Aethod: EP	A 3550B										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)) Analyzed	Notes
Blank (81110:	58-BLK2)								Extr	acted:	09/12/08 08	3:00			
Diesel Range (SGC)	- U)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							09/16/08 20:35	
Lube Oil Range (SC	icu)	и	3.47	3.19	25.0	u	u							н	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	75.5% 89.0%	I	imits: 54-148 62-142	% " 196 "							09/16/08 20:35 "	
LCS (8111058	-BS2)								Extr	acted:	09/12/08 08	8:00			
Diesel Range (SGC)	U)	NWTPH-Dx	56.7	1.60	10.0	mg/kg wet	lx		66.7	85.1%	(78-129)			09/16/08 20:49	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	89.9% 90.0%	Ĺ	imits: 54-148 62-142	%"							09/16/08 20:49 "	
Dunlicate (81	(1058-DUP3)				QC Sourc	e: BRI0171-0)1		Extracted: 09/12/08 08:00						
Diesel Range (SGC	J)	NWTPH-Dx	ND	2.68	16.8	mg/kg dry	1x	ND				NR	(50)	09/16/08 21:19	
Lube Oil Range (SG	iCU)	и	ND	5.35	41.9		н	ND				NR	a	н	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	74.5% 82.9%	L	imits: 54-148 62-142	% " % "							09/16/08 21:19 "	
Duplicate (811	(1058-DUP4)				QC Sourc	e: BRI0171-0	97		Extr	acted:	09/12/08 08	6:00			
Diesel Range (SGC	J)	NWTPH-Dx	ND	2.22	13.8	mg/kg dry	1x	7.19					(50)	09/16/08 21:34	
Lube Oil Range (SG	CU)		7.76	4.42	34.6	н	н	15.5				66.2%	n	"	R4, J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	72.3% 83.6%	L	imits: 54-148 62-142	% " % "							09/16/08 21:34 "	
Matrix Spike	(8I11058-MS2)				QC Sourc	e: BRI0171-()9		Extr	acted:	09/12/08 08	:00			
Diesel Range (SGCU	J)	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	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	80.5% 79.2%	L	imits: 54-1489 62-142	% " % "							09/16/08 22:04 "	

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ENSR Inte	rnational - Seattle				Project Na	ame:	BNSF-	Skykom	ish (Fo	rmer	Malone	y Cre	ek Wes	t)	
1011 SW K	lickitat Way, Suite 2	07			Project N	umber:	01140-2	204-0320						Report Create	:d:
Seattle, WA	98134	<u></u>			Project M	anager:	Halah V	/oges						09/25/08 16	.13
	Semivolatile Pe	etroleum Pro	oducts by	NWTPH-D	x with Ac TestAme	c id/Silica C rica Seattle	Gel Cle	an-up -	Labor	atory	' Quality	[,] Cont	rol Res	sults	
QC Batc	h: 8I11061	Soil Pr	eparation N	fethod: EP	A 3550B										
Analyte		Method	Result	MDL,	* MRL	. Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits) Analyzed	Notes
Blank (811106	51-BLK2)								Exti	racted:	09/12/08 0	8:03			.,
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							09/14/08 05:18	
Lube Oil Range (SG	CU)	н	12.1	3.19	25.0	n	u							н	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	88.4% 98.6%	I	imits: 54-1489 62-1429	6 " 6 "							09/14/08 05:18 "	
LCS (8111061	-BS2)								Ext	racted:	09/12/08 0	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	57.5	1.60	10.0	mg/kg wet	1x		66.7	86.3%	(78-129)			09/14/08 05:39	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	84.6% 97.7%	L	imits: 54-1489 62-1429	6 " % "							09/14/08 05:39 "	
Duplicate (811	(1061-DUP3)				QC Sourc	e: BRI0150-0	5		Ext	racted:	09/12/08 08	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	3800	18.7	117	mg/kg dry	10x	3480				8.92%	6 (50)	09/14/08 06:00	
Lube Oil Range (SG	CU)	н	2680	37.3	292	н	41	2650				1.09%	ó "	II	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	142% 130%	L	imits: 54-148% 62-142	6 " % "							09/14/08 06:00 "	
Duplicate (811	1061-DUP4)				QC Sourc	e: BR10171-2	6		Exti	racted:	09/12/08 08	3:03			
Diesel Range (SGCU	J)	NWTPH-Dx	46.8	3.04	19.0	mg/kg dry	lx	20.2				79.2%	á (50)	09/14/08 06:21	R
Lube Oil Range (SG	CU)	u.	204	6.07	47.6	U		103				65.9%	ó "	11	R
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	77.2% 86.7%	L	imits: 54-1489 62-1429	6 " 76 "							09/14/08 06:21 "	
Matrix Spike	(8111061-MS2)				QC Sourc	e: BRI0150-0	1		Exti	racted:	09/12/08 08	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	179	1.84	11.5	mg/kg dry	١x	139	76.5	52.4%	(46-155)			09/14/08 06:42	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	57.8% 87.9%	L	imits: 54-148% 62-1429	6 " 6 "							09/14/08 06:42 "	

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1011 SW Klickitat Way, Suite 2	207		F	roject Num	iber:	01140-2	04-0320						Report Crea	ted:
Seattle, WA 98134			F	roject Man	ager:	Halah V	oges						09/25/08 1	5:13
n	hand a l Daman	4	DILA/ACTA	A/EDA N	T . 4). a d .	. laha			Car	tual Daa				
r	nysicai raran		T TATASIN	estAmeric	a Seattle	e - Labu	oratory (Juanty	Con	troi Kes				
QC Batch: 8112032	Soil Prep	aration Met	hod: Dry V	Weight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8112032-BLK1)								Exti	acted:	09/12/08 1	4:14			
Dry Weight	BSOPSPL00 3R08	99.8		1.00	%	lx						(09/13/08 00:00	
QC Batch: 8112033	Soil Prep	aration Met	hod: Dry V	Veight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8112033-BLK1)								Extr	acted:	09/12/08 14	1:18			
Dry Weight	BSOPSPL00 3R08	99.7		1.00	%	lx						(09/13/08 00:00	
QC Batch: 8117036	Soil Prep	aration Met	hod: Dry V	Veight									•	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8I17036-BLK1)								Extr	acted:	09/17/08 13	:44			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	1x						(09/18/08 00:00	

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und a

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Matrix Spike (112441S)

Extracted: 09/18/08 10:09

ENSR International - Seattle		Project Nan	ne:	BNSF-	Skykom	ish (Fo	rmer	Malon	ey Cre	eek West)			
1011 SW Klickitat Way, Suite 20	7			Project Nur	nber:	01140-2	204-0320						Report Cre	ated:
Seattle, WA 98134				Project Mai	nager:	Halah V	'oges						09/25/08	16:13
	Organic Carbon, To							trol R	enlts					
	iganic Carbo	TestAmerica Ta				anty Cor		Juito						
QC Batch: 36166	Soil Pr	eparation Met	hod: NA											
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits) % RPD	(Limits)	Analyzed	Notes

QC Source: BRI0171-25

Total Organic Carbon	9060 STD	61600	 2000	mg/Kg	lx	54000	9820	77%	(76-128)			09/18/08 10:09	4
Duplicate (112441X)			QC Source:	BR10171-2	25		Exti	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	53500	 2000	mg/Kg	1x	54000		••	**	1%	(20)	09/18/08 10:09	
Duplicate (112441XRE1)			QC Source:	BRI0171-2	25		Extr	acted:	09/18/08 10:	:09			
Total Organic Carbon	9060 STD	53600	 2000	mg/Kg	1x	54000				1%	(20)	09/18/08 10:09	
Blank (580-36166-1)			 QC Source:				Extr	acted:	09/18/08 10:	:09			
Total Organic Carbon	9060 STD	ND	 2000	mg/Kg	lx	••			**			09/18/08 10:09	
LCS (580-36166-2)			QC Source:				Extr	acted:	09/18/08 10:	:09			

Total Organic Carbon 9060 STD 4700 --- 2000 mg/Kg 1x -- 3400 138% (13-187) -- -- 09/18/08 10:09

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ENSR In	iteri	national - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek Wes	st)
1011 SW	/ Klie	skitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, V	ŴА	98134	Project Manager:	Halah Voges	09/25/08 16:13
		I	Notes and Definit	ions	с 9.
Depart 6		fie Netze			
Keport S	pec	Inc Notes:	• • • • •		
4	-	 MS, MSD: The analyte present in the original samp not applicable. 	ble is 4 times greater t	han the matrix spike concentration; therefore, control limi	ts are
J	-	 Estimated value. Analyte detected at a level less th (MDL). The user of this data should be aware that the s	an the Reporting Lim	it (RL) and greater than or equal to the Method Detection reliability.	Limit
Q12	-	 Detected hydrocarbons in the diesel range do not ha biogenic interference. 	ave a distinct diesel p	attern and may be due to heavily weathered diesel or possi	bly
Q13	-	 Detected hydrocarbons do not have pattern and ranginterference 	ge consistent with typ	ical petroleum products and may be due to biogenic	
Q3	_	The chromatographic pattern is not consistent with	diesel fuel.		
Q4	-	The hydrocarbons present are a complex mixture of	f diesel range and hea	vy oil range organics.	
Q6	-	Results in the diesel organics range are primarily du	ue to overlap from a h	eavy oil range product.	
R3	-	The RPD exceeded the acceptance limit due to sam	ple matrix effects.		
R4	-	Due to the low levels of analyte in the sample, the c	luplicate RPD calcula	tion 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 sample was reduced to a level where the recovery c	the sample matrix. B alculation does not pr	ecause of this dilution, the surrogate spike concentration in ovide useful information.	1 the
ZX	-	Due to sample matrix effects, the surrogate recover	y was outside the acco	eptance limits.	
Laborato	ry R	eporting Conventions:			
DET	-	Analyte DETECTED at or above the Reporting Limit	. Qualitative Analyse	es only.	
ND	- '	Analyte NOT DETECTED at or above the reporting l	imit (MDL or MRL, a	as appropriate).	
NR/NA	-	Not Reported / Not Available			
dry	-	Sample results reported on a Dry Weight Basis. Resu	Its and Reporting Lin	nits have been corrected for Percent Dry Weight.	
wet	-	Sample results and reporting limits reported on a Wet on a Wet Weight Basis.	Weight Basis (as reco	eived). Results with neither 'wet' nor 'dry' are reported	
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calcul	lated using Results, ne	ot 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, *MDLs are listed on the report only if the data has been as Estimated Results.	, or above, the statistic en evaluated below th	cally derived limit based on 40CFR, Part 136, Appendix B e MRL. Results between the MDL and MRL are reported	•
Dil	-	Dilutions are calculated based on deviations from the found on the analytical raw data.	standard dilution perf	ormed for an analysis, and may not represent the dilution	
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted base percent solids, where applicable.	d on variations in san	ple preparation amounts, analytical dilutions and	

TestAmerica Seattle

lund İά L Kate Haney, Project Manager





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

- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Electronic

Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

lund

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.



0171) # [] Standard (2 Weeks)	D RUSH Rush charges authorized by:	SAMPLE DISPOSAL	□ Return samples □ Will call with instructions	aquested	Notes	~47 C 10-	102 24hr	103 Det hor	- 2 FS 30-	145 34 hr	14200	14 to	-10% 24hr	-475 Jo-	+10 2thr	COMPANY DATE TIME	152 9/11/08 1632	EEA1 89/11/6 53		
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TAT:	Paperwork	to PM – Dat	e: <u>4/([.</u> Tim	e:1640	Non-Conformances?
Page Time & Initials:					Circle Y or N (If Y, see other side)
	TEST AMERICA	SAMPLE F		HECKLIST	-2.1
Received By: (applies to temp at receipt)	Logged-in By:	Unpacke	d/Labeled By	r: Cooler ID	390/374
Date: 9/11	Date.9/11_	Date:	1	Work Order No.	381037
Time: 1632	Time: 1454	Time:_ <b>[7</b>	10	Client:	
Initials:	Initials:	Initials:	nty	Project:	
Container Type:		Seals:		Packing Material	· · ·
Cooler	Ship Containe	er	_Sign By	Bubble Bags	Styrofoam
Box	On Bottles	<b></b>	_ Date	Foam Packs	
None/Other		None		None/Other _	
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#Containers match COC	C? () or N	Wa	ter VOAs: Hei	adspace? Y or N o	NA)
IDs/time/date match CC	0G? Y or 🕅	Cor	nments:		<u> </u>
Hold Times in hold?	Oor N				
PROJECT MANAGEMI	ENT				
Is the Chain of Custody	complete?			Y or N If N, circle th	e items that were incomplete
Comments,Problems					
				· · · · · · · · · · · · · · · · · · ·	
Total access set up? Has client been contacted reg	arding non-conformances?			Y or N Y or N If Y,	/
PM Initials:	Date:	Time:		Uar	

(rev 4, 01/24/07)

# NOTIFICATION OF DISCREPANCY

DATE: 9/4/68_ TIME: 1800 PM: _	Kate SC INITIALS:
Rush/Short Hold? Des DNo	
<ul> <li>Project Not Set Up in ELM</li> <li>Analysis Requested on COC – Not Listed for P</li> </ul>	nt
<ul> <li>PM To Add Analysis:</li></ul>	
<ul> <li>Received Extra Sample(s) Not Listed on COC:</li> <li>Sample Description(s) or Date/Time Sampled I Time on Sample # 08 Said 10:30;</li> <li>"3-B-24-0-2". Log-in accor</li> </ul>	: Do Not Match COC: id on sample # 13 said irding to COC
<ul> <li>Improper Preservative For method:</li> <li>Sample Received Broken:</li> <li>Insufficient Sample Volume:</li> <li>Sample preserved upon receipt:</li> </ul>	
<ul> <li>Temperature Outside recommended range (4°C</li> <li>Received on-ice within 4 hours of collection, acceptable.</li> <li>Other:</li> </ul>	'C±2°C): n, temperature between ambient to 2°C
PROJECT MANAGER RESOLUTION:	(Date & Time when returned to SC)
Approval By: D	Date: Time:



SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

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.

Work Order	Project	ProjectNumber
BRI0460	BNSF-Skykomish Remedial D	01140-204-0320

TestAmerica Seattle

Hung

Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:

Seattle, WA 98134

Project	Name:
Project	Number:
Project	Manager:

01140-204-0320 Renee Knecht

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

TestAmerica Seattle

Dung

Kate Haney, Project Manager





### ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number; Project Manager:

**BNSF-Skykomish Remedial Design Investigation** 01140-204-0320 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

Hund

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.





### ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

BNSF-Skykomish Remedial Design Investigation
r: 01140-204-0320 R
ar: Renee Knecht 10

Report Created: 10/02/08 16:05

	Semiv	olatile Petrol	eum Produ	i <b>cts by N</b> TestAm	WTPF erica Se	<b>I-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0460-01RE1	(1A-B-18C (8-10))		So	il		Sampl	ed: 09/2	29/08 13:27			
Diesel Range Hydi	rocarbons	NWTPH-Dx	3.07	1.68	10.5	mg/kg dry	lx	8130047	09/30/08 16:33	10/01/08 14:45	
Lube Oil Range H	ydrocarbons	u	13.2	3.34	26.2	u	н	u.	н	18	,
Surrogate(s):	2-FBP			88.6%		54 - 148 %	"			p	
	Octacosane			107%		62 - 142 %	"			"	
BRI0460-02RE1	(1A-B-18C (18-20))		Soi	il		Sampl	ed: 09/2	29/08 13:30			
Diesel Range Hydr	ocarbons	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 Hy	drocarbons	*1	ND	3.76	29.4	п		н	н	*	
Surrogate(s):	2-FBP			87.8%		54 - 148 %	"			"	
	Octacosane			96.4%		62 - 142 %	"			n	
BRI0460-03RE1	(1A-B-18C 20-22)		Soi	il		Sample	ed: 09/2	9/08 13:31			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons		NWTPH-Dx	ND	2.01	12.6	mg/kg dry	lx	8130047	09/30/08 16:33	10/01/08 15:30	
Lube Oil Range Hy	drocarbons	n	ND	4.01	31.4	0		0	п	**	
Surrogate(s): 2-FBP				84.0%		54 - 148 %	u	······································		u	
Surrogate(s): 2-FBP Octacosane				94.4%		62 - 142 %	"			n	
BRI0460-04RE1	(1A-B-8D (14-16))		Soi	1		Sample	ed: 09/2	9/08 15:29			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.74	10.9	mg/kg dry	lx	8130047	09/30/08 16:33	10/01/08 15:53	
Lube Oil Range Hy	ydrocarbons	D	5.92	3.46	27.1		н	**	u	н	J
Surrogate(s):	2-FBP			91.9%		54 - 148 %	"			11	
	Octacosane			101%		62 - 142 %	n			н	
BR10460-05RE1	(1A-B-8D (16-18))		Soi	1		Sample	ed: 09/2	9/08 15:31			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.64	10.3	mg/kg dry	lx	8130047	09/30/08 16:33	10/01/08 16:15	<u>,</u>
Lube Oil Range Hy	drocarbons		6.13	3.28	25.7	a	"	н	ę.		J
Surrogate(s):	2-FBP			89.2%		54 - 148 %	"			11	
	Octacosane			99.4%		62 - 142 %	"			и	
BRI0460-06RE1	(1A-B-8D (18-20))		Soi	I		Sample	ed: 09/2	9/08 15:33			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.65	10.3	mg/kg dry	łx	8130047	09/30/08 16:33	10/01/08 17:45	
Lube Oil Range Hy	drocarbons	n	10.8	3.28	25.7	н			II	м	J
Surrogate(s):	2-FBP			90.2%		54 - 148 %	"			n	
	Octacosane			101%		62 - 142 %	u			"	

TestAmerica Seattle

Kate Haney, Project Manager

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written appraval of the laboratory.

Page 4 of 15



ENSR Inter 1011 SW Kli Seattle, WA	national - Seattle ickitat Way, Suite 20' 98134	7		Project Na Project N Project M	ame: umber: anager:	BNSF-S 01140-20 Renee Kr	kykom 4-0320 necht	ish Remed	ial Design Inv	estigation Report 10/02/0	Created: 08 16:05
	Semi	volatile Petrol	eum Produ	i <b>cts by N</b> TestAm	WTPF erica Se	H-Dx (w/e	) Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BR10460-07RE1	(1A-B-8D (20-22)	)	So	il		Samp	led: 09/2	9/08 15:35			
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	2.02 4.03	12.6 31.6	mg/kg dry "	lx "	8130047	09/30/08 16:33 *	10/01/08 18:07	
Surrogate(s):	2-FBP Octacosane			87.8% 97.4%		54 - 148 % 62 - 142 %	н 11			u n	
BRI0460-08RE1	(1A-B-19C (12-14	-'))	So	il		Sampl	ed: 09/3	0/08 08:55			
Diesel Range Hydro Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	ND ND	1.78 3.54	11.1 27.8	mg/kg dry "	1x "	8I30047 "	09/30/08 16:33 "	10/01/08 18:29	
Surrogate(s):	2-FBP Octacosane			91.8% 101%		54 - 148 % 62 - 142 %	" "			11 11	
BRI0460-09RE1	(1A-B-19C (14-16	))	Soi	1		Sampl	ed: 09/3	0/08 08:57			
Diesel Range Hydro Lube Oil Range Hyd	ocarbons drocarbons	NWTPH-Dx "	ND ND	1.70 3.38	10.6 26.5	mg/kg dry "	lx "	8I30047 "	09/30/08 16:33 "	10/01/08 18:51	
Surrogate(s):	2-FBP Octacosane			87.0% 97.4%		54 - 148 % 62 - 142 %	"			11	
BRI0460-10RE1	(1A-B-19C (16-18)	))	Soi	1		Sampl	ed: 09/3	0/08 09:00			
Diesel Range Hydro Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND 5.67	2.18 4.34	13.6 34.0	mg/kg dry "	1x "	8Ĭ30047 "	09/30/08 16:33 "	10/01/08 19:13 "	
Surrogate(s):	2-FBP Octacosane			86.9% 97.2%		54 - 148 % 62 - 142 %	"			"	
BRI0460-11RE1	(2B-B-38D (0-2))		Soi	1	1	Sample	ed: 09/3	0/08 11:34			
Diesel Range Hydro Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	3.37 24.1	2.23 4.45	13.9 34.9	mg/kg dry "	1x "	8130047 "	09/30/08 16:33 "	10/01/08 19:36 "	ـــــــــــــــــــــــــــــــــــــ
Surrogate(s):	2-FBP Octacosane			92.0% 104%		54 - 148 % 62 - 142 %	0 11			"	
BRI0460-12RE1	(2B-B-38D (2-4)		Soil	I		Sample	ed: 09/36	)/08 11:35			
Diesel Range Hydro	ocarbons	NWTPH-Dx	3,09	2.31	14.4	mg/kg dry	lx	8130047	09/30/08 16:33	10/01/08 19:58	
Lube Oil Range Hy	drocarbons	u	16.2	4.60	36.1	"		11	n	ff	J
Surrogate(s):	2-FBP Octacosane			91.7% 101%		54 - 148 % 62 - 142 %	n H			17 17	

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ENSR Inter 1011 SW Kli Seattle, WA	national - Seattle ickitat Way, Suite 207 98134		1	Project N Project N Project M	ame: .imber: anager:	BNSF-S 01140-20 Renee Kn	kykom 4-0320 iecht	ish Remed	ial Design Inv	estigation Re 10,	port Created: /02/08 16:05
	Semiv	volatile Petrol	eum Produ	i <b>cts by N</b> TestAm	WTPH erica Se	<b>I-Dx (w/c</b> attle	) Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0460-13RE1	(2B-B-38D (4-6))		So	il		Sampl	led: 09/3	30/08 11:36			
Diesel Range Hydr Lube Oil Range H	ocarbons ydrocarbons	NWTPH-Dx "	ND 6.87	1.92 3.84	12.0 30.1	mg/kg dry "	lx ' "	8130047	09/30/08 16:33	10/01/08 20:2	1
Surrogate(s):	2-FBP Octacosane			86.6% 97.5%		54 - 148 % 62 - 142 %	"			ı, H	
BRI0460-14RE1	(2B-B-38D (6-8))		Soi	il		Sampl	ed: 09/3	60/08 11:37			
Diesel Range Hydro Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx	ND ND	1.79 3.57	11.2	mg/kg dry "	lx "	8I30047 "	09/30/08 16:33	10/01/08 20:43	3
Surrogate(s):	2-FBP Octacosane			81.8% 102%		54 - 148 % 62 - 142 %	. н н			u 	
BRI0460-15RE1	(2B-B-39B (2-4))		Soil			Sampl	ed: 09/3	0/08 12:00			
Diesel Range Hydro Lube Oil Range Hy	ocarbons ydrocarbons	NWTPH-Dx	ND 6.87	2.23 4.44	13.9 34.8	mg/kg dry "	lx "	8130047	09/30/08 16:33 "	10/01/08 21:05	; J
Surrogate(s):	2-FBP Octacosane			91.6% 99.5%		54 - 148 % 62 - 142 %	"			u U	<u> </u>
BRI0460-16RE1	(2B-B-39B (4-6))		Soi	I		Sample	ed: 09/3	0/08 12:01			
Diesel Range Hydro Lube Oil Range Hyd	ocarbons drocarbons	NWTPH-Dx "	ND ND	1.90 3.79	11.9 29.7	mg/kg dry "	lx "	8I30047	09/30/08 16:33 "	10/01/08 23:44 "	C
Surrogate(s):	2-FBP Octacosane			94.7% 103%		54 - 148 % 62 - 142 %	"			n 11	

BRI0460-17RE1	(2B-B-39B (6-8))		Soil			Sampl	ed: 09/3	0/08 12:02			
Diesel Range Hydr Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	ND ND	1.95 3.89	12.2 30.5	mg/kg dry "	lx "	8130047	09/30/08 16:33	10/02/08 00:06 "	с
Surrogate(s):	2-FBP			78.8%		54 - 148 %	u			11	
	Octacosane			94.1%		62 - 142 %	"			a	
RR10460-18RF1	(7B_B_39B (8, 10))		Soil			Sampl	.d. 00/2	0/08 17.02			

(0))	5011			Samp	led: 09/3	0/08 12:03			
NWTPH-Dx "	ND ND	2.11 4.20	13.2 32.9	mg/kg dry "	1x "	8130047	09/30/08 16:33	10/02/08 00:29 "	c
		92.1%		54 - 148 % 62 - 142 %	n 11			п	
	NWTPH-Dx "	NWTPH-Dx ND " ND	NWTPH-Dx ND 2.11 " ND 4.20 92.1% 101%	NWTPH-Dx         ND         2.11         13.2           "         ND         4.20         32.9           92.1%         101%	Soil         Samp           NWTPH-Dx         ND         2.11         13.2         mg/kg dry           "         ND         4.20         32.9         "           92.1%         54 - 148 %         101%         62 - 142 %	Soil         Sampled: 09/3           NWTPH-Dx         ND         2.11         13.2         mg/kg dry         1x           "         ND         4.20         32.9         "         "           92.1%         54 - 148 %         "         101%         62 - 142 %         "	NWTPH-Dx         ND         2.11         13.2         mg/kg dry         ix         8130047           "         ND         4.20         32.9         "         "         "           92.1%         54 - 148 %         "         101%         62 - 142 %         "	NWTPH-Dx         ND         2.11         13.2         mg/kg dry         1x         8130047         09/30/08 16:33           "         ND         4.20         32.9         "         "         "         "           92.1%         54 - 148 %         "         101%         62 - 142 %         "         "	(0))         Soil         Sampled: 09/30/08 12:03           NWTPH-Dx         ND         2.11         13.2         mg/kg dry         1x         8130047         09/30/08 16:33         10/02/08 00:29           "         ND         4.20         32.9         "         "         "         "           92.1%         54 - 148 %         "         "         "         "         "

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### **ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

BNSF-Skykomish Remedial Design Investigation 01140-204-0320 er: Renee Knecht

Report Created: 10/02/08 16:05

Se	emivolatile Petrole	eum Produ	<b>cts by N</b> TestAm	<b>WTPH</b> erica Sea	<b>I-Dx (w</b> /eattle	o Acid	/Silica G	el Clean-up	))	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0460-19RE1 (1A-B-19C (1	8-20))	So	il		Samp	led: 09/3	0/08 09:02			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	1.95 3.88	12.2 30.4	mg/kg dry "	lx "	8130047 "	09/30/08 16:33 "	10/02/08 00:52	C
Surrogate(s): 2-FBP Octacosane			88.1% 98.6%		54 - 148 % 62 - 142 %	"			n n	

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ENSR Inter 1011 SW KI Seattle, WA	mational - Seattle ickitat Way, Suite 207 98134			Project Na Project Nu Project Ma	ame: umber: anager:	<b>BNSF-S</b> 01140-20 Renee Kr	kykom 4-0320 necht	ish Remed	ial Design Inv	estigation Report 10/02/0	Created: 08 16:05	
	Semi	volatile Petrol	eum Produ	<b>icts by N</b> TestAm	WTPI erica Se	<b>I-Dx wit</b> attle	h Acio	l/Silica G	el Clean-uj	)		
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRI0460-11	(2B-B-38D (0-2))		Soi	il		Samp	led: 09/3	30/08 11:34				
Diesel Range (SGC Lube Oil Range (S	CU) SGCU)	NWTPH-Dx	ND 9.59	2.23 4.45	13.9 34.9	mg/kg dry "	lx "	8130047	09/30/08 16:33	10/01/08 00:10 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			80.7% 88.8%		54 - 148 % 62 - 142 %	n n			n		
BRI0460-12	(2B-B-38D (2-4)		Soi	I		Sampl	pled: 09/30/08 11:35					
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	2.31 4.60	14.4 36.1	mg/kg dry "	lx "	8I30047 "	09/30/08 16:33 "	10/01/08 00:33 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			78.1% 86.6%		54 - 148 % 62 - 142 %	11 11			"		
BRI0460-13	(2B-B-38D (4-6))		Soi	1		Sampl	ed: 09/3	0/08 11:36				
Diesel Range (SGC Lube Oil Range (SG	CU) GCU)	NWTPH-Dx "	ND ND	1.92 3.84	12.0 30.1	mg/kg dry "	lx "	8130047	09/30/08 16:33 "	10/01/08 00:56 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			77.1% 88.9%		54 - 148 % 62 - 142 %	11 11			u N		
BRI0460-14	(2B-B-38D (6-8))		Soil	I		Sampl	ed: 09/3	0/08 11:37				
Diesel Range (SGC Lube Oil Range (SG	EU) GCU)	NWTPH-Dx "	ND ND	1.79 3.57	11.2 28.0	mg/kg dry "	1x "	8130047	09/30/08 16:33 "	10/01/08 01:20 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			76.8% 98.3%		54 - 148 % 62 - 142 %	n n			"		
BRI0460-15 (	(2B-B-39B (2-4))		Soil			Sample	ed: 09/3	0/08 12:00				
Diesel Range (SGC Lube Oil Range (SC	U) GCU)	NWTPH-Dx "	ND ND	2.23 4.44	13.9 34.8	mg/kg dry "	lx "	8130047 "	09/30/08 16:33 "	10/01/08 02:53		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			79.5% 87.5%		54 - 148 % 62 - 142 %	11 11			II II		
BR10460-16 (	2B-B-39B (4-6))		Soil			Sample	ed: 09/3	0/08 12:01				
Diesel Range (SGC Lube Oil Range (SC	U) GCU)	NWTPH-Dx "	ND ND	1.90 3.79	11.9 29.7	mg/kg dry "	lx "	8130047	09/30/08 16:33	10/01/08 03:16 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			93.0% 103%		54 - 148 % 62 - 142 %	U U			u		

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### ENSR International - Seattle Project Name:

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

 BNSF-Skykomish Remedial Design Investigation

 01140-204-0320
 Report Created:

 Renee Knecht
 10/02/08 16:05

### 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 BRI0460-17 Soil Sampled: 09/30/08 12:02 (2B-B-39B (6-8)) Diesel Range (SGCU) NWTPH-Dx ND 1.95 12.2 mg/kg dry lx 8130047 09/30/08 16:33 10/01/08 03:39 Lube Oil Range (SGCU) ... ND 3.89 30.5 11 ... n н Surrogate(s): 2-FBP (SGCU) 76.1% 54 - 148 % ... ,, " Octacosane (SGCU) 93.6% 62 - 142 % ... BRI0460-18 (2B-B-39B (8-10)) Soil Sampled: 09/30/08 12:03 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 ... ... 0 п Surrogate(s): 2-FBP (SGCU) 88.7% 54 - 148 % 15 " ... Octacosane (SGCU) 98.5% 62 - 142 % ,,

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### ENSR International - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134 Project Name: Project Number: Project Manager:

ect Number: 01140-204-0320 ect Manager: Renee Knecht

BNSF-Skykomish Remedial Design Investigation 01140-204-0320 Renee Knecht

Report Created: 10/02/08 16:05

		Physic	cal Paramet	ers by A TestAm	<b>APHA</b> / erica Sea	ASTM/	/EPA N	lethods			
Analyte	·	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BR10460-01	(1A-B-18C (8-10))		Soil			Sam	pled: 09/2	29/08 13:27			
Dry Weight		BSOPSPL003R0 8	94.5		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
BR10460-02	(1A-B-18C (18-20))		Soil			Sam	pled: 09/2	29/08 13:30			
Dry Weight		BSOPSPL003R0 8	83.5		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-03	(1A-B-18C 20-22)		Soil			Sam	pled: 09/2	9/08 13:31			
Dry Weight		BSOPSPL003R0 8	78.3		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-04	(1A-B-8D (14-16))		Soil			Samj	pled: 09/2	9/08 15:29			
Dry Weight		BSOPSPL003R0 8	92.1		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
BR10460-05	(1A-B-8D (16-18))		Soil			Samj	pled: 09/2	9/08 15:31			
Dry Weight		BSOPSPL003R0 8	96.6		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-06	(1A-B-8D (18-20))		Soil			Sam	pled: 09/2	9/08 15:33			
Dry Weight		BSOPSPL003R0 8	96.6		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-07	(1A-B-8D (20-22))		Soil			Samp	pled: 09/2	9/08 15:35			
Dry Weight		BSOPSPL003R0 8	78.6		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-08	(1A-B-19C (12-14'))		Soil			Samp	oled: 09/3	0/08 08:55			
Dry Weight		BSOPSPL003R0 8	89.7		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-09	(1A-B-19C (14-16))		Soil			Samp	oled: 09/3	0/08 08:57			
Dry Weight		BSOPSPL003R0 8	94.0		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	** ****
BRI0460-10	(1A-B-19C (16-18))		Soil			Samp	oled: 09/3	0/08 09:00			
Dry Weight		BSOPSPL003R0 8	72.7		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
BRI0460-11	(2B-B-38D (0-2))		Soil			Samp	oled: 09/30	0/08 11:34			
			<b>`</b>								

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ENSR Int	ternational - Seattle			Project Na	me:	BNSF-	Skykomi	sh Remed	ial Design Inv	estigation	
1011 SW	Klickitat Way, Suite 20	7		Project Nu	unber:	01140-2	204-0320			Report	Created:
Seattle, W	A 98134			Project Ma	anager:	Renee F	Knecht			10/02/	08 16:05
L										·····	
		Physic	al Paramet	ters by A	APHA/	ASTM	/EPA M	lethods			
		•		TestAm	erica Sea	attle					
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0460-11	(2B-B-38D (0-2))		Soil			Sam	pled: 09/3	0/08 11:34			
Dry Weight		BSOPSPL003R0	71.0		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
		8									
BRI0460-12	(2B-B-38D (2-4)		Soil			Sam	pled: 09/3	0/08 11:35			
Dry Weight		BSOPSPL003R0	68,4		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
		8									
BRI0460-13	(2B-B-38D (4-6))		Soil			Sam	pled: 09/3	0/08 11:36			
Dry Weight		BSOPSPL003R0	82.3		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
		8									
BRI0460-14	(2B-B-38D (6-8))		Soil			Sam	pled: 09/3	0/08 11:37			
Dry Weight		BSOPSPL003R0	87.8		1.00	%	lx	8130051	09/30/08 17:28	10/01/08 00:00	
		8									
BRI0460-15	(2B-B-39B (2-4))		Soil			Sam	pled: 09/3	0/08 12:00			
Dry Weight		BSOPSPL003R0	71.3		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	
		8									
BRI0460-16	(2B-B-39B (4-6))		Soil			Sam	pled: 09/3	0/08 12:01			
Dry Weight		BSOPSPL003R0	84.1		1.00	%	1x	8130051	09/30/08 17:28	10/01/08 00:00	

1.00

1.00

1.00

%

%

%

Sampled: 09/30/08 12:02

Sampled: 09/30/08 12:03

Sampled: 09/30/08 09:02

8130051

8130051

8130051

1x

1x

1x

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Kate Haney, Project Manager

BRI0460-17

Dry Weight

BRI0460-18

Dry Weight

BRI0460-19

Dry Weight

(2B-B-39B (6-8))

(2B-B-39B (8-10))

(1A-B-19C (18-20))

BSOPSPL003R0

8

BSOPSPL003R0

8

BSOPSPL003R0

8

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09/30/08 17:28

09/30/08 17:28

09/30/08 17:28

10/01/08 00:00

10/01/08 00:00

10/01/08 00:00



Soil

Soil

Soil

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80.7

74.7

81.4



ENSR International - Seat	tle			Project N	ame:	BNSF	-Skykom	ish Re	media	al Desigr	n Inve	stigatio	n	
1011 SW Klickitat Way, Suite	e 207			Project N	umber:	01140-2	204-0320						Report Creat	ed:
Seattle, WA 98134				Project M	anager:	Renee I	Knecht						10/02/08 16	:05
Semivolatile	Petroleum Pro	ducts by	NWTPH_F	x (xylo A o	id/Silion C	al Cla	on un)	Laba					1.	
		Juices by		TestAme	rica Seattle	CI CIC	an-up) -	LADU	ratory	y Quanty	y Con	Irol Res	suits	
QC Batch: 8130047	Soil Pr	eparation N	Aethod: E	PA 3550B										
Analyte	Method	Result	MDL	.* MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (8130047-BLK3)								Ext	racted:	09/30/08 1	5;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									n	
Surrogate(s): 2-FBP		Recovery:	92.6%	L	imits: 54-148%	5 "							10/01/08 12:54	
Octacosane			99.6%		62-1429	6 "							"	
LCS (8I30047-BS3)								Ext	racted:	09/30/08 16	5:33			
Diesel Range Hydrocarbons	NWTPH-Dx	63.3	1.60	10.0	mg/kg wet	lx		66.7	95.0%	(78-129)			10/01/08 13:16	
Surrogate(s): 2-FBP		Recovery:	92.0%	L	imits: 54-148%	, "							10/01/08 13:16	
Octacosane			98.4%		62-1429	6 "							"	
Duplicate (8I30047-DUP5)				QC Source	e: BR10460-13	ł		Ext	racted:	09/30/08 16	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	lx	ND				NR	(40)	10/01/08 13:38	
Lube Oil Range Hydrocarbons	"	6.43	3.84	30.1	51	"	6.87				6.69%		н	
Surrogate(s): 2-FBP		Recovery:	87.9%	Li	imits: 54-148%	н							10/01/08 13:38	
Octacosane			97.7%		62-142%	ó "							"	
Duplicate (8130047-DUP6)				QC Source	: BRI0460-17			Extr	acted:	09/30/08 16	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.96	12.3	mg/kg dry	1x	ND				NR	(40)	10/01/08 14:01	
Lube Oil Range Hydrocarbons	и	ND	3.91	30.7	u		ND				NR	н	11	
Surrogate(s): 2-FBP		Recovery:	86.3%	Li	mits: 54-148%	,,							10/01/08 14:01	
Octacosane			95.5%		62-142%	; "							"	
Matrix Spike (8I30047-MS3)				QC Source	: BRI0460-13			Extr	acted:	09/30/08 16	:33			
Diesel Range Hydrocarbons	NWTPH-Dx	75.1	1.92	12.0	mg/kg dry	lx	ND	80.2	93.7%	(46-155)			0/01/08 14:23	
Surrogate(s): 2-FBP		Recovery:	90.2%	Li	mits: 54-148%	n							10/01/08 14:23	
Octacosane			98.2%		62-1.12%	"								

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Kate Haney, Project Manager

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<b>ENSR Inte</b> 1011 SW K	ENSR International - Seattle 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134				Project Na Project Ni	ume: imber:	BNSF-	<b>Skykom</b> 204-0320	ish Ren	nedia	l Design	Inve	stigatio	n Report Creat	ed:
Seattle, WA	98134				Project M	anager:	Renee k	Cnecht						10/02/08 16	:05
	Semivolatile P	etroleum Pro	ducts by	NWTPH-D	x with Ac	id/Silica	Gel Cle	an-up -	Labor	atory	Quality	Con	trol Res	ults	
					TestAme	rica Seattl	e								
QC Bate	h: 8130047	Soil Pre	eparation N	Aethod: EP	A 3550B										
Analyte	-	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	%. REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (813004	7-BLK2)								Extr	acted:	09/30/08 16	i:33			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1×		~•					09/30/08 21:52	
Lube Oil Range (SG	CU)	D	ND	3.19	25.0		н							u	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	91.6% 97.9%	L	imits: 54-14 62-1-	8% " 12% "							09/30/08 21:52 "	
Duplicate (813	0047-DUP3)				QC Sourc	e: BRI0460	-13		Extr	acted:	09/30/08 16	;33			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.92	12.0	mg/kg dry	lx	ND				NR	(50)	09/30/08 22:39	
Lube Oil Range (SG	CU)	u	ND	3.84	30.1	"		ND				NR	n	B.	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	80.8% 86.9%	L	imits: 54-14 62-14	8% " 12% "							09/30/08 22:39 "	
Duplicate (813	0047-DUP4)				QC Sourc	e: BRI0460	-17		Extr	acted:	09/30/08 16	:33			
Diesel Range (SGCL	J)	NWTPH-Dx	ND	1.96	12.3	mg/kg dry	1x	ND				NR	(50)	09/30/08 23:02	
Lube Oil Range (SG	CU)		ND	3.91	30.7	н		ND				NR	11	n	
Surrogate(s):	Octacosane (SGCU)  plicate (8130047-DUP4) sel Range (SGCU) Po Oil Range (SGCU) Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)		Recovery:	79.8% 90.7%	L	imits: 54-14 62-14	8% " 12% "							09/30/08 23:02 "	····

Matrix Spike	(8I30047-MS2)			QC Source: BRI0460-13 Extracted: 09/30/08 16:33							33		
Diesel Range (SGCU	J)	NWTPH-Dx	52.4	1.92	12.0	mg/kg dry	lx	ND	80.2	65.4%	(46-155)		 09/30/08 23:25
Surrogate(s):	2-FBP (SGCU)		Recovery:	78.9%	L	imits: 54-148%	"						 09/30/08 23:25
	Octacosane (SGCU)			85.1%		62-1429	6 "						"

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to hund â Kate Haney, Project Manager

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

TestAi	merica	Seattle	

QC Batch: 8130051	Soil Pre	paration Met	hod: Dry V	Veight									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % Amt RE(	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8130051-BLK1)								Extracted	: 09/30/08 1	7:28			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	lx	~-				1	0/01/08 00:00	

TestAmerica Seattle

Kato Dung	restAmenca Scattic
	Kato Dung

Kate Haney, Project Manager





ENSR Intern	national - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	on	
1011 SW Klic	skitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:	
Seattle, WA	98134	Project Manager:	Renee Knecht	10/02/08 16:05	
	w · · · · · · · · · · · · · · · · · · ·				
	Ĩ	Notes and Definit	ions		
Report Speci	fic Notes:				
с -	Calibration Verification recovery was above the me	ethod 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 calcu	lated using Results, n	ot 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 *MDLs are listed on the report only if the data has be as Estimated Results.	, or above, the statisti en evaluated below th	cally derived limit based on 40CFR, Part 136, Appendix E the MRL. Results between the MDL and MRL are reported	<b>3</b> . đ	
Dil -	Dilutions are calculated based on deviations from the found on the analytical raw data.	standard dilution per	formed for an analysis, and may not represent the dilution		
Reporting - Limits	Reporting limits (MDLs and MRLs) are adjusted base percent solids, where applicable.	ed on variations in sar	nple preparation amounts, analytical dilutions and		

 Electronic
 - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*.

 Signature
 Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.

 Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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hund Kate Haney, Project Manager

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**FestAmerica** 

THE LEADER IN ENVIRONMENTAL TESTING

425420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 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

.

		HAIN OF CUSTO	DY REPORT	Work Order #:	BRIDHL	Q
CLIENT ENSE FOR BUSE		INVOICE TO: BRUCE	SHEPARD/BNSF	TURNAR	OUND REQUEST	
REPORT TO: KEN EE KNECH T ADDRESS.			, ` +	in B	usiness Days *	
		SARA	ABLANU/ENUR		norganic Analyses	[
PHONE: 206 624 - 9349 FAX:		P.O. NUMBER:		STD. Petroleun H	4     5     2     1       Ivdrocarbon Analyses	7
PROJECT NAME: SKYKOMISH - ROI		PRESER	VATIVE	5 4		
PROJECT NUMBER:	NONI			] ] <u>ä</u> s	] ] ]	
0/1/0-304-8 340		REQUESTED	ANALYSES	OTHER	pecify:	
THURLED DI: J WARNING + K KNICHT	74			* Turnaround Requests less	than standard may incur Rus	h Charges.
CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	THL: CVIN			MATRIX # OF (W, S, 0) CONT.	LOCATION/ COMMENTS	AT CII OW
11-B-15((5-10) 9/29/08 1327	×			- _		
14-6-18C (18-30) 9/29/08 1230	×			~ 		SG
14-B-180 20-27-9/28/08 1331	~			2		63
10-8-80 (14-16) 9/39/08 1539	,X			-		Ę
+ IA-B-80(16-18) 9/09/08 1531	X			- 1		5
"IA-B-80/18-30 9 (09/08 1533	X			- 5		þ
1A-R-80(30.33) 9(37/28 1535	×			5		5
* 1A-B-19C (12-14') 9/30/08 855	×			~		50
* 1A-B-AC(14-16) + 30 08 857	×			1 2		S
"IA-B-AC (16-18) 9/20/08 900	×			- S		0
RELEASED BY: K K K K K	le O	DATE: 9/30/0 \$	RECEIVED BY. (Blutte Wuldule		DATE:09	So Q
PARTY I NAVALE: KEN KNEUNT FIRM. EN	4	TME 1430	PRINT NAME: COLOTTO WEQUED	FIRM: TAC S	seattle the 16	Ø
		DATE:	RECEIVED BY:		DATE:	
FAKUN I NAMAE: ADDITTONAL REMARKS:		TIME:	PRINT NAME:	FIRM:	TIME:	
					RIGE NO	୶

TAL-1000(0408)

**TestAmerica** 

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THE LEADER IN ENVIRONMENTAL TESTING

425-420-9200 FAX 420-9210 509-924-9200 FAX 924-9290 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 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 AI0, Anchorage, AK 99502-1119

# CHAIN OF CUSTODY PEPOPT

		CHAIN OF CUSTOI	DY REPORT	Work Order # BEENHOD
CLIENT: ENSR FOR BNSF		INVOICE TO: BRUCE	SHEPARD / BUSE	TURNAROUND REQUEST
REPORT TO: RENEE KNECHT				in Business Days *
ADDRESS:		SARA	ABLANO/ENSR	Organic & Inorganic Analyses
PHONE: 206 -624-4344 FAX:		P.O. NUMBER:		<i>STD</i> . Petroleum Hydrocarbon Analyses
PROJECT NAME: SKYKOMISH - RDI		PRESER	VATIVE	5 4 3 2 X <1
PROJECT NUMBER:				
0/140-304-6340 SAMPERTRY 11/2012 + 1/1/2017	X	REQUESTED	ANALYSES	OTHER Specify:
WARNIN 2 1 XNECHI	а-			* Turnaround Requests less than standard may incur Rush Charges
CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	95 /m Hal			MATRIX # OF LOCATION TA (W, S, O) CONT. COMMENTS WO ID
138-B-38D(0-9) 9/30/08 1134	×			
238-B-380 2-4 1135	××			5 1 -12
3-B-B - 38D (4-6) 1136	$\times$			5 1 2
tE11 1 (8-9) 280(-8)	$\times$	· · ·		-
53B-B - 39B (2-4) 1200	×			S / -15
2B-B-34B (4-6) POU	$\times$			31-10
200 10 10 10 10 10 10 10 10 10 10 10 10 1	$\times$			L- 1 2
8001 × (01-3) 81 - 1003	$\times$			1 2
3 12-B-AC (18-20) 09-30-08 0902	×			S 1 -19
10				
RELEASED BY: THE RELEASED BY: FIRME F. NO.	52	DATE: 9/30/68	RECEIVED BY: COLUCTU WULDUNC	DATE OF 30.08
RELEASED BY:		DATE	RECEIVED BY:	DATE: DATE:
PRINT NAME: FIRM:		TIME:	PRINT NAME:	FIRM: TIME:
AUDITIONAL REMARKS:				TEMP: PACE OF

TAL-1000(0408)

TAT: <u> </u>	Paperwork t	:o PM – Date: T	ime:	Non-Conformances? Circle Y or N
	TEST AMERICA S	AMPLE RECEIPT	CHECKLIST	(If Y, see other side)
Received By: (applies to temp at receipt)	Logged-in By:	Unpacked/Labeled	By: Cooler ID.	
Date: <u>09-30-0</u> 8 Time: <u>1610</u> Initials: <u>CW</u>	Date: <u>04-30</u> Time: <u>16-2</u> -2 Initials: <u>CW</u>	Date: <u>09-30</u> Time: <u>1015</u> Initials: <u>CW</u>	Work Order No. <u> </u> Client: <u>ENSP</u> Project:	3RIO460 International - Seattle
<u>Container Type:</u> Cooler Box None/Other	<u>COC S</u> Ship Container On Bottles	<u>Seals:</u> Sign By 0 <u>4:30:08</u> Date Jone	Packing Material Bubble Bags Foam Packs	Styrofoam bags
Refrigerant:        Gel Ice Pack        Loose Ice        None/Other        None/Other	2): <u>89</u> °C Plastic Ga (circle one) °C or NA perature monitoring every	(Frozen filters, Teo 15 minutes:	Received Via: Bill# Fed Ex UPS DHL GS dlars and aqueous Me Trip Blank	Client TA Courier Mid Valley TDP Other_ <u>ENA Courier</u> tals exempt)
Sample Containers: Intact? Provided by TA? Correct Type? #Containers match COC IDs/time/date match COC Hold Times in hold?	$\begin{array}{c c} & & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ &$	Metals Preserve Client QAPP Pre Adequate Volum (for tests requested) Water VOAs: He Comments:	d? Y or N or eserved? Y or N or e? Ør N eadspace? Y or N or	
PROJECT MANAGEME	NT complete?		Y or N If N, circle the	items that were incomplete
Total access set up? Has client been contacted rega	rding non-conformances?		YorN YorN IfY,/	
PM Initials:	Date: Tir	ne:	Date	lime

## NOTIFICATION OF DISCREPANCY

DATE: 07.30.08 TIME: 1436 P.	M: Kate Haney SC INITI	ALS: <u>CW</u>
Rush Short Hold? XYes DNo		
<ul> <li>Project Not Set Up in ELM</li> <li>Analysis Requested on COC – Not Listed by</li> </ul>	Client	eived ON HOLD
<ul> <li>PM To Add Analysis:</li> <li>Clarification of Analysis:</li> <li>Hold Time Expired: (Analysis)</li> <li>Turnaround Time Not Checked:</li> <li>Did Not Receive Sample(s) Listed on COC</li> </ul>	•	
Received Extra Sample(s) Not Listed on C <u>AAAA +Dy COC</u> With the I Sample Description(s) or Date/Time Samp	OC: <u> A-B-19C (18-20</u> <u>&gt;X Aralysisper Per</u> led Do Not Match COC:	)@ 0902 Fate.
<ul> <li>Improper Preservative For method:</li> <li>Sample Received Broken:</li> <li>Insufficient Sample Volume:</li> <li>Sample preserved upon receipt:</li> </ul>		
<ul> <li>Temperature Outside recommended range</li> <li>Received on-ice within 4 hours of collec</li> <li>acceptable.</li> <li>Other:</li> </ul>	(4°C±2°C): <u>8,9</u> に tion, temperature between a	mbient to 2°C
PROJECT MANAGER RESOLUTION:	(Date & Time when	returned to SC)
Approval By:	Date: Tim	e:


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.

Work Order	Project	ProjectNumber
BRI0171	BNSF-Skykomish (Former Ma	01140-204-0320

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney C	reek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

#### 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

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

# 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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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Malone	y Creek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	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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Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

TestAmerica Seattle										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-01 (2B-B-35 (4-6))		Soi	il		Sampl	ed: 09/3	0/08 12:20			
Diesel Range Hydrocarbons	NWTPH-Dx	8.88	2.70	16.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 00:14	J
Lube Oil Range Hydrocarbons	u	10.6	5.38	42.2	U.	и	11	н	и	J
Surrogate(s): 2-FBP			85.8%		54 - 148 %	"			n	
Octacosane			95.6%		62 - 142 %	n			"	
BRI0171-02 (2B-B-36 (0-2))		Soi	il		Sampl	ed: 09/1	0/08 13:11			
Diesel Range Hydrocarbons	NWTPH-Dx	2010	329	2050	mg/kg dry	50x	8111058	09/12/08 08:00	09/13/08 00:40	J, Q6, RL1
Lube Oil Range Hydrocarbons	н	7040	655	5130		"	u	11	88	
Surrogate(s): 2-FBP		,	970%		54 - 148 %	n			'n	Z3
Octacosane			675%		62 - 142 %	и			"	Z3
BRI0171-03 (2B-B-36 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 13:12			
Diesel Range Hydrocarbons	NWTPH-Dx	28.4	2.05	12.8	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 01:06	Q6
Lube Oil Range Hydrocarbons	11	109	4.10	32.1	н	u	H	u	11	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"			"	
Octacosane			99.6%		62 - 142 %	"			"	
BRI0171-04 (2B-B-37 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 14:39			
Diesel Range Hydrocarbons	NWTPH-Dx	112	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/13/08 01:32	Q3
Lube Oil Range Hydrocarbons		474	4.85	38.0		"	te	11	"	
Surrogate(s): 2-FBP			88.4%		54 - 148 %	u			"	
Octacosane			93.8%		62 - 142 %	"			"	
BRI0171-05 (2B-B-37 (2-4))		Soi	1		Sample	ed: 09/1	0/08 14:40			
Diesel Range Hydrocarbons	NWTPH-Dx	263	11.3	70.5	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 01:58	Q6
Lube Oil Range Hydrocarbons	11	1340	22.5	176	"		11	и	н	
Surrogate(s): 2-FBP			113%		54 - 148 %	"			"	
Octacosane			111%		62 - 142 %	"			п	
BRI0171-06 (2B-B-37 (4-5))		Soi	1		Sample	ed: 09/1	0/08 14:41			
Diesel Range Hydrocarbons	NWTPH-Dx	120	9.87	61.7	mg/kg dry	5x	8111058	09/12/08 08:00	09/13/08 03:42	Q6
Lube Oil Range Hydrocarbons	u	496	19.7	154	*	"	"	п	0	
Surrogate(s): 2-FBP			112%		54 - 148 %	"			11	
Octacosane			111%		62 - 142 %	н			п	

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ENSR International - Seattle	Project Name:	oject Name: BNSF-Skykomish (Former Maloney Creek We		
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:	
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39	

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
BRI0171-07 (2B-B-38 (0-2))		So	il		Samp	led: 09/1	10/08 16:20			
Diesel Range Hydrocarbons	NWTPH-Dx	23.7	2.23	13.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 04:08	Q12
Lube Oil Range Hydrocarbons	n	45.9	4.45	34.8	н		н	п	н	
Surrogate(s): 2-FBP			84.1%		54 - 148 %	"	1 1 1		II	
Octacosane			97.5%		62 - 142 %	"			и	
BRI0171-08 (2B-B-38 (3-5))		Soi	il		Sampl	ed: 09/1	10/08 16:35			
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	u	4.10	3.55	27.9	44	H		14	11	J
Surrogate(s): 2-FBP			89.3%		54 - 148 %	n			"	·······
Octacosane			101%		62 - 142 %	"			"	
BRI0171-09 (2B-B-39 (0.5-3))		Soi	il		Sampl	ed: 09/1	0/08 16:45			
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	
Lube Oil Range Hydrocarbons	11	41.4	3.62	28.3	v	"	"	tr	н	
Surrogate(s): 2-FBP			81.1%		54 - 148 %	n			u	
Octacosane			98.1%		62 - 142 %	"			"	
BRI0171-10 (2B-B-40B (0.5-3))		Soi	1		Sampl	ed: 09/1	0/08 17:46			
Diesel Range Hydrocarbons	NWTPH-Dx	6.43	2.38	14.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 05:26	J
Lube Oil Range Hydrocarbons	n	14.5	4.75	37.2	"	"	11		u	J
Surrogate(s): 2-FBP			81.8%		54 - 148 %	0			n	
Octacosane			93.5%		62 - 142 %	u			n	
BRI0171-16 (2B-B-34 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 11:25			
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	u	4660	96.7	758	н	u	н	н	п	
Surrogate(s): 2-FBP			217%		54 - 148 %	"			ŋ	ZX
Octacosane			196%		62 - 142 %	"			"	ZX
BRI0171-17 (2B-B-34 (2-4))		Soi	I		Sampl	ed: 09/1	0/08 11:30			
Diesel Range Hydrocarbons	NWTPH-Dx	7.76	2.20	13.8	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 06:18	J
Lube Oil Range Hydrocarbons	u	23.5	4.40	34.5			"	0		J
Surrogate(s): 2-FBP			78.8%		54 - 148 %				"	
Octacosane			96.2%		62 - 142 %	"			п	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)	i i
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

Semi	volatile Petrol	eum Produ	cts by N TestAm	WTPH erica Se	<b>I-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-18 (2B-B-34 (4-6))	<u></u>	Soi	1		Sampl	ed: 09/1	0/08 11:35			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	33.5 130	2.43 4.85	15.2 38.0	mg/kg dry "	lx "	8I11058 "	09/12/08 08:00	09/13/08 06:44 "	Qe
Surrogate(s): 2-FBP Octacosane		44.792-97-7	89.9% 98.1%	, , , , , , , , , , , , , , , , , , , ,	54 - 148 % 62 - 142 %	9 11			u H	
BRI0171-19 (2B-B-35 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 12:10			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	19.3 84.7	2.64 5.26	16.5 41.2	mg/kg dry "	lx "	8111058	09/12/08 08:00	09/13/08 07:10 "	Qe
Surrogate(s): 2-FBP Octacosane			89.4% 99.3%		54 - 148 % 62 - 142 %	N U			11 17	
BRI0171-20 (2B-B-35 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 12:15			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	16.5 46.2	2.91 5.80	18.2 45.4	mg/kg dry "	1x "	8111058 "	09/12/08 08:00 "	09/13/08 07:36 "	J
Surrogate(s): 2-FBP Octacosane			87.5% 100%		54 - 148 % 62 - 142 %	11 11			n H	
BRI0171-21 (2B-B-40B (3-5))		Soi	1		Sampl	ed: 09/1	10/08 17:49			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	6.19 18.2	2.25 4.49	14.1 35.2	mg/kg dry "	lx "	8111058	09/12/08 08:00 "	09/13/08 09:20 "	
Surrogate(s): 2-I ⁻ BP Octacosane			87.8% 98.7%		54 - 148 % 62 - 142 %	"			"	
BRI0171-22 (2B-B-41 (0-2))		Soi	1		Sampl	ed: 09/1	10/08 08:25			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	192 713	10.5 21.0	65.8 164	mg/kg dry	5x "	8111058	09/12/08 08:00 "	09/13/08 09:46 "	Qe
Surrogate(s): 2-FBP Octacosane			115% 112%		54 - 148 % 62 - 142 %	n n			n u	
BRI0171-23 (2B-B-41 (2-4))		Soi	I		Sampl	ed: 09/1	10/08 08:30			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	74.2 224	2.24 4.47	14.0 35.0	mg/kg dry "	1x "	8111058	09/12/08 08:00	09/13/08 10:12	Qe
Surrogate(s): 2-FBP Octacosane			85.8% 97.6%		54 - 148 % 62 - 142 %	"			0	

Octacosane

TestAmerica Seattle

Kate Haney, Project Manager

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Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

Sem	ivolatile Petrol	eum Produ	<b>cts by N</b> TestAm	WTPH erica Se	H-Dx (w/c attle	Acid	/Silica G	el Clean-up	)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-24 (2B-B-41 (4-6))		So	il		Sampl	ed: 09/1	0/08 08:35			
Diesel Range Hydrocarbons	NWTPH-Dx	24.1	2.19	13,7	mg/kg dry	lx	8111058	09/12/08 08:00	09/13/08 10:38	Q
Lube Oil Range Hydrocarbons	u	76.3	4.37	34.3	"			u	IJ	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	n			U U	
Octacosane			97.8%		62 - 142 %	"				
BRI0171-25 (3-B-26 (0-2))		Soi	il		Sampl	ed: 09/1	1/08 10:35			
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	п	86.7	5.50	43.1	н	и	11		н	Q13
Surrogate(s): 2-FBP		_,	92.5%		54 - 148 %	u			11	
Octacosane			103%		62 - 142 %	u			"	
BRI0171-26 (3-B-26 (2-4))		Soi	Soil Sampled: 09/11/08 10:35							
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	Qé
Lube Oil Range Hydrocarbons	51	209	6.13	48.0		н	u	п	33	
Surrogate(s): 2-FBP			92.4%		54 - 148 %	"			n.	
Octacosane			135%		62 - 142 %	u			н	
BRI0171-27 (3-B-26 (4-6))		Soi	I		Sampl	ed: 09/1	1/08 10:40			
Diesel Range Hydrocarbons	NWTPH-Dx	21.5	2.26	14.1	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 03:33	Qe
Lube Oil Range Hydrocarbons	11	149	4.50	35,3			и	11	н	
Surrogate(s): 2-FBP			88.1%		54 - 148 %	"			n	
Octacosane			102%		62 - 142 %	"			"	
BRI0171-28 (3-B-27 (0-2))		Soi	1		Sampl	ed: 09/1	1/08 11:35			
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	n	729	29.8	234	п	n	11	u	"	Q4
Surrogate(s): 2-FBP			91.2%		54 - 148 %	"			11	
Octacosane			94.4%		62 - 142 %	"			"	
BRI0171-29 (3-B-27 (2-4))		Soi	1		Sampl	ed: 09/1	1/08 11:40			
Diesel Range Hydrocarbons	NWTPH-Dx	53.1	2.25	14.0	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 04:15	Q6
Lube Oil Range Hydrocarbons	п	240	4.48	35.1	н	ŧr	*1		89	
Surrogate(s): 2-FBP			89.9%		54 - 148 %	н			"	
Octacosane			97.4%		62 - 142 %	н			"	

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1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

			IestAm	erica Se						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-30 (3-B-27 (4-6))		Soi	il		Sampl	ed: 09/1	11/08 11:45			
Diesel Range Hydrocarbons	NWTPH-Dx	288	12.1	75.9	mg/kg dry	5x	8111061	09/12/08 08:03	09/14/08 07:04	Q
Lube Oil Range Hydrocarbons	u	1200	24.2	190	n	"	u	n 	н	
Surrogate(s): 2-FBP			94.7%		54 - 148 %	"			"	
Octacosane			99.7%		62 - 142 %	"			"	
BRI0171-31 (2B-B-36 (0-2) (SI	PLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 13:11			H3, N1
Diesel Range Hydrocarbons	NWTPH-Dx	0.384	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		1.64	0.189	1.05	н				п	
Surrogate(s): 2-FBP			103%		53 - 125 %	"			u	
Octacosane			107%		68 - 125 %	"			"	
BRI0171-32 (2B-B-36 (2-4) (SPLP Extract))		SP		Sampled: 09/10/08 13:12					H3, N1	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0,263	mg/l	lx	8J17021	10/20/08 13:19	10/21/08 14:10	
Lube Oil Range Hydrocarbons	n	0.162	0.0947	0.526		11	11	11	16	J
Surrogate(s): 2-FBP			99. <b>3</b> %		53 - 125 %	"			"	
Octacosane			106%		68 - 125 %	"			u.	
BRI0171-33 (2B-B-37 (0-2) (SI	PLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 14:39			H3, N1
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	1x	8J17021	10/20/08 13:19	10/21/08 14:32	
Lube Oil Range Hydrocarbons	н	0.140	0.0947	0.526	**		н		n	
Surrogate(s): 2-FBP			102%		53 - 125 %	"			и	
Octacosane			107%		68 - 125 %	"			u	
BRI0171-34 (2B-B-37 (2-4) (SI	PLP Extract))	SP	LP		Sampl	ed: 09/2	10/08 14:40			H3, N1
Diesel Range Hydrocarbons	NWTPH-Dx	0,606	0.0842	0.526	mg/l	2x	8 <b>J17</b> 021	10/20/08 13:19	10/21/08 14:54	Qé
Lube Oil Range Hydrocarbons	IT	2.89	0.189	1.05		н	u	"	и	
Surrogate(s): 2-FBP			103%		53 - 125 %	u			"	
Octacosane			104%		68 - 125 %	u	£.		"	
BRI0171-35 (2B-B-37 (4-5) (S	PLP Extract))	SP	LP		Sampl	ed: 09/	10/08 14:41			H3, N1
Diesel Range Hydrocarbons	NWTPH-Dx	0.146	0.0889	0.556	mg/l	lx	8J17021	10/20/08 13:19	10/21/08 15:16	J
Lube Oil Range Hydrocarbons	н	0.731	0.200	1.11	п	**		n	"	j
Surrogate(s): 2-FBP			101%		53 - 125 %	"			rr	
Octacosane			107%		68 - 125 %	"			"	

Kate Haney, Project Manager

TestAmerica Seattle hung

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

	Se	mivolatile Petrol	eum Produ	cts by N TestAm	WTPH erica Sea	I-Dx (w/o attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-36 (2	2B-B-38 (0-2) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 16:20			H3, N1
Diesel Range Hydro Lube Oil Range Hyd	carbons Irocarbons	NWTPH-Dx "	ND ND	0.0889 0.200	0,556 1.11	mg/l "	lx °	8J17021 "	10/20/08 13:19 *	10/21/08 15:39 "	
Surrogate(s):	2-FBP Octacosane		- 1. 1.1.1.1.2.1.997494	96.6% 97.5%		53 - 125 % 68 - 125 %	11 17			n U	
BRI0171-37 (2	2B-B-39 (0.5-3)	(SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 16:45			H3, N1
Diesel Range Hydro Lube Oil Range Hyd	carbons Irocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	lx "	8J17021 "	10/20/08 13:19 "	10/21/08 17:08 "	
Surrogate(s):	2-FBP Octacosane			86.4% 91.0%		53 - 125 % 68 - 125 %	"			u u	
BRI0171-38 (2	2B-B-40B (3-5)	(SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 17:49			H3, N1
Diesel Range Hydro Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	0.413 1.59	0.0842 0.189	0.526 1.05	mg/l "	2x "	8J17021 "	10/20/08 13:19 "	10/21/08 17:30 "	RL1, Q6, J
Surrogate(s):	2-FBP Octacosane			104% 109%		53 - 125 % 68 - 125 %	11 11			u u	
BRI0171-39 (2	2B-B-41 (0-2) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 08:25			H3, N1
Diesel Range Hydro Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	0.128 0.159	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17021 "	10/20/08 13:19 "	10/21/08 17:52 "	J
Surrogate(s):	2-FBP Octacosane			91.9% 98.4%		53 - 125 % 68 - 125 %	u u			u 1/	
BRI0171-40 (2	2B-B-41 (2-4) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 08:30			H3, N1
Diesel Range Hydro Lube Oil Range Hyd	ocarbons drocarbons	NWTPH-Dx "	0.0531 0.189	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17021 "	10/20/08 13:19 "	10/21/08 18:14 "	r C
Surrogate(s):	2-FBP Octacosane			97.3% 104%		53 - 125 % 68 - 125 %	u U			"	
BRI0171-41 (2	2B-B-41 (4-6) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	10/08 08:35			H3, N1
Diesel Range Hydrod Lube Oil Range Hyd	carbons Irocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17021	10/20/08 13:19 "	10/21/08 18:36 "	
Surrogate(s):	2-FBP Octacosane			95.7% 104%		53 - 125 % 68 - 125 %	"			<i>u</i> u	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney C	reek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

	Se	emivolatile Petroleu	m Produ	cts by N TestAm	WTPH erica Se	<b>l-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	))	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-42	(2B-B-34 (0-2) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/2	10/08 11:25			H3, N1
Diesel Range Hydr Lube Oil Range Hydr	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17021 "	10/20/08 13:19	10/21/08 18:59	
Surrogate(s):	2-FBP Octacosane			67.5% 75.4%		53 - 125 % 68 - 125 %	"			11	THE REPORT OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE
BRI0171-43	(2B-B-34 (2-4) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	0/08 11:30			H3, N1
Diesel Range Hydr Lube Oil Range Hy Surrogate(s):	rocarbons ydrocarbons 2-FBP Octacosane	NWTPH-Dx "	ND ND	0.0421 0.0947 87.1% 90.9%	0.263	mg/l " 53 - 125 % 68 - 125 %	1× "	8J17021 "	10/20/08 13:19 "	10/21/08 19:21 " "	
BRI0171-44 (2B-B-34 (4-6) (SPLP Extract))		SPLP Extract))	SPLP		Sampled: 09/10/08 11:35					H3, N1	
Diesel Range Hyd Lube Oil Range H	rocarbons lydrocarbons	NWTPH-Dx "	0.549 2.16	0.0842 0.189	0.526 1.05	mg/l "	2x "	8J17021 "	10/20/08 13:19	10/21/08 19:43 "	Q6
Surrogate(s):	2-FBP Octacosane			101% 105%		53 - 125 % 68 - 125 %	n			u u	
BRI0171-45	(2B-B-35 (0-2) (S	SPLP Extract))	SP	LP		Sampl	ed: 09/1	0/08 12:10			H3, N1
Diesel Range Hyd Lube Oil Range H Surrogate(s):	rocarbons (ydrocarbons 2-FBP	NWTPH-Dx "	0.171 0.565	0.0421 0.0947 100%	0.263	mg/l " 53 - 125 %	1x "	8J17021 "	10/20/08 13:19 "	10/21/08 20:06 "	3
BR10171-46	Octacosane (2B-B-35 (2-4) (5	SPLP Extract))	SP	103% LP		68 - 125 % Sampl	" ed: 09/1	0/08 12:15		u	H3, N1
Diesel Range Hydr Lube Oil Range H	ocarbons ydrocarbons	NWTPH-Dx "	ND 0.162	0.0421 0.0947	0.263 0.526	mg/l	ix "	8J17021 "	10/20/08 13:19 "	10/21/08 20:28	J
Surrogate(s):	2-FBP Octacosane			105% 110%		53 - 125 % 68 - 125 %				n	
BRI0171-47	(2B-B-36 (0-2) (S	SPLP Extract-Filtered))	SP	LP		Sample	ed: 09/1	0/08 13:11			H3, N1
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l	lx "	8J17022 "	10/20/08 13:20	10/21/08 13:48 "	
Surrogate(s):	2-FBP Octacosane			91.5% 100%		53 - 125 % 68 - 125 %	n n			n N	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Cr	reek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

	Se	mivolatile Petroleu	m Produ	cts by N TestAm	WTPH erica Sea	<b>-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-48	(2B-B-36 (2-4) (S	PLP Extract-Filtered))	SP	LP	Sampled: 09/10/08 13:12						H3, N
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17022 "	10/20/08 13:20 "	10/21/08 14:10	
Surrogate(s):	2-FBP Octacosane			92.7% 104%		53 - 125 % 68 - 125 %	n n			u U	
BRI0171-49	(2B-B-37 (0-2) (S	PLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 14:39			H3, N1
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17022 "	10/20/08 13:20 "	10/21/08 14:32 "	
Surrogate(s):	2-FBP Octacosane			90.7% 100%		53 - 125 % 68 - 125 %	и И			u u	
BRI0171-50	(2B-B-37 (2-4) (S	PLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 14:40			<b>H3, N</b> 1
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17022 "	10/20/08 13:20	10/21/08 14:54 "	
Surrogate(s):	2-FBP Octacosane			88.5% 92.5%		53 - 125 % 68 - 125 %	"			0 11	
BRI0171-51	(2B-B-37 (4-5) (S	PLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 14:41			H3, N1
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0889 0.200	0.556 1.11	mg/l "	1x "	8J17022 "	10/20/08 13:20	10/21/08 15:16 "	
Surrogate(s):	2-FBP Octacosane			91.5% 97.3%		53 - 125 % 68 - 125 %	u n			u v	
BRI0171-52	(2B-B-38 (0-2) (S	PLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 16:20			N1, H3
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0889 0.200	0.556	mg/l	lx "	8J17022 "	10/20/08 13:20	10/21/08 15:39 "	
Surrogate(s):	2-FBP Octacosane			95.4% 102%		53 - 125 % 68 - 125 %	n n			<i>n</i> <i>u</i>	
BRI0171-53	(2B-B-39 (0.5-3)	(SPLP	SP	LP		Sampl	ed: 09/1	10/08 16:45			H3, N1
Extract-Filtered Diesel Range Hydr Lube Oil Range Hy	l)) rocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	lx "	8J17022 "	10/20/08 13:20 "	10/21/08 17:08 "	
Surrogate(s):	2-FBP Octacosane			91.4% 98.8%		53 - 125 % 68 - 125 %	н И			<i>11</i>	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney (	Creek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

	Se	mivolatile Petroleu	m Produ	cts by N TestAm	WTPH erica Se	<b>-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-54	(2B-B-40B (3-5)	(SPLP	SP	LP		Sampl	ed: 09/1	10/08 17:49			H3, N
Extract-Filtered Diesel Range Hydr Lube Oil Range Hy	)) ocarbons vdrocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	1x "	8J17022 "	10/20/08 13:20 "	10/21/08 17:30 "	
Surrogate(s):	2-FBP Octacosane			90.5% 95.5%		53 - 125 % 68 - 125 %	0 11			n	
BRI0171-55	(2B-B-41 (0-2) (S	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 08:25			H3, N
Diesel Range Hydro Lube Oil Range Hy Surrogate(s):	ocarbons edrocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947 95.0%	0.263 0.526	mg/l " 53 - 125 %	1x "	8J17022 "	10/20/08 13:20	10/21/08 17:52 "	
Sin ( Sand C)	Octacosane			99.9%		68 - 125 %	"			n	
BRI0171-56	(2B-B-41 (2-4) (S	SPLP Extract-Filtered))	SP			Sampl	ed: 09/1	10/08 08:30			H3, N1
Diesel Range Hydr Lube Oil Range Hy	ocarbons drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	lx "	8J17022 "	10/20/08 13:20	10/21/08 18:14	
Surrogate(s):	2-FBP Octacosane			90.3% 100%		53 - 125 % 68 - 125 %	D H			u u	
BRI0171-57	(2B-B-41 (4-6) (S	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 08:35			H3, N1
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l	lx "	8J17022 "	10/20/08 13:20	10/21/08 18:36 "	
Surrogate(s):	2-FBP Octacosane			92.4% 102%		53 - 125 % 68 - 125 %	u u			17	
BRI0171-58	(2B-B-34 (0-2) (S	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	0/08 11:25			H3, N1
Diesel Range Hydr Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l	lx "	8J17022 "	10/20/08 13:20 "	10/21/08 18:59	
Surrogate(s):	2-FBP Octacosane			90.5% 96.5%		53 - 125 % 68 - 125 %	"			n n	
BRI0171-59	(2B-B-34 (2-4) (S	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	10/08 11:30			<b>H3, N</b> 1
Diesel Range Hydro Lube Oil Range Hy	ocarbons /drocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0,263 0.526	mg/l	1x "	8J17022 "	10/20/08 13:20	10/21/08 19:21 "	
Surrogate(s):	2-FBP Octacosane			93.6% 99.3%		53 - 125 % 68 - 125 %	n n			u u	

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) TestAmerica Seattle											
Analyte		Method	Result	MÐL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-60	(2B-B-34 (4-6) (	(SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	0/08 11:35			H3, N1
Diesel Range Hy Lube Oil Range I	drocarbons Hydrocarbons	NWTPH-Dx	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	lx "	8J17022	10/20/08 13:20	10/21/08 19:43	
Surrogate(s)	: 2-FBP Octacosane			93.7% 103%		53 - 125 % 68 - 125 %	n			u n	
BRI0171-61	(2B-B-35 (0-2) (	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	0/08 12:10			H3, N1
Diesel Range Hy Lube Oil Range H	drocarbons Hydrocarbons	NWTPH-Dx	ND ND	0.0421 0.0947	0.263 0.526	mg/l "	lx "	8J17022 "	10/20/08 13:20	10/21/08 20:06	an ai
Surrogate(s)	: 2-FBP Octacosane			93.4% 101%		53 - 125 % 68 - 125 %	11 11			11 11	
BRI0171-62	(2B-B-35 (2-4) (	SPLP Extract-Filtered))	SP	LP		Sampl	ed: 09/1	0/08 12:15			H3, N1
Diesel Range Hyd Lube Oil Range H	lrocarbons Iydrocarbons	NWTPH-Dx "	ND ND	0.0421 0.0947	0.263 0.526	mg/l	1x "	8J17022 "	10/20/08 13:20	10/21/08 20:28	
Surrogate(s)	: 2-FBP Octacosane			92.3% 98.6%		53 - 125 % 68 - 125 %	n H			u v	

TestAmerica Seattle

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

Sen	nivolatile Petrol	eum Produ	cts by N TestAm	WTPI erica Se	H-Dx with attle	n Acid	l/Silica G	el Clean-ur	) 	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-01 (2B-B-35 (4-6))		Soi	1		Sampl	ed: 09/1	0/08 12:20		u,	
Diesel Range (SGCU) Lube Oil Range (SGCU)	NWTPH-Dx "	ND ND	2.70 5.38	16.9 42.2	mg/kg d <b>r</b> y "	lx "	8111058 "	09/12/08 08:00 "	09/16/08 22:34 "	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		70.6% 80.0%		54 - 148 % 62 - 142 %	n			a u	
BRI0171-02 (2B-B-36 (0-2))		Soi	ł		Sampl	ed: 09/1	0/08 13:11		<u> </u>	
Diesel Range (SGCU)	NWTPH-Dx	832	6.57	41.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/16/08 22:48	Qe
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		72.6% 88.4%		54 - 148 % 62 - 142 %	11 11			u u	
BRI0171-02RE1 (2B-B-36 (0-2))		Soi	I		Sampl	ed: 09/1	0/08 13:11			
Lube Oil Range (SGCU)	NWTPH-Dx	1890	65.5	513	mg/kg dry	5x	8111058	09/12/08 08:00	09/17/08 16:23	Q4
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		71.0% 98.0%		54 - 148 % 62 - 142 %	n N			u u	
BRI0171-03 (2B-B-36 (2-4))		Soi	I		Sampl	ed: 09/1	0/08 13:12			
Diesel Range (SGCU)	NWTPH-Dx	15.6	2.05	12.8	mg/kg dry	lx	8111058	09/12/08 08:00	09/16/08 23:18	Q6
Lube Oil Range (SGCU)	IJ	53.4	4.10	32.1	"	n	n	u	0	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		70.9% 83.2%		54 - 148 % 62 - 142 %	n n			и	
BRI0171-04 (2B-B-37 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 14:39			
Diesel Range (SGCU)	NWTPH-Dx	44.2	2.43	15.2	mg/kg dry	lx	8111058	09/12/08 08:00	09/16/08 23:48	Q3
Lube Oil Range (SGCU)	u	222	4.85	38.0			н	"	п	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		70.6% 81.0%		54 - 148 % 62 - 142 %	п П			U U	
BRI0171-05 (2B-B-37 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 14:40			
Diesel Range (SGCU)	NWTPH-Dx	120	2.25	14.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 00:18	Qé
Lube Oil Range (SGCU)	u	431	4.50	35.2	"		n	n	**	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU	)		62.2% 70.8%		54 - 148 % 62 - 142 %	"			n	

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)				
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:			
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39			

	Semiv	volatile Petrol	eum Produ	tets by N TestAm	WTPH erica Se	H-Dx with attle	n Acid	I/Silica G	el Clean-ur	•	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-06 (2)	B-B-37 (4-5))		Soi	il		Sampl	ed: 09/1	0/08 14:41			
Diesel Range (SGCU	() 	NWTPH-Dx	53.8	1.97	12.3	mg/kg dry "	1x "	8111058	09/12/08 08:00	09/17/08 01:47	Qe
Lube Oil Range (SG	CU)		180		30.8						
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			65.5% 78.9%		54 - 148 % 62 - 142 %	"			"	
BRI0171-07 (2)	B-B-38 (0-2))		Soi	I		Sampl	ed: 09/1	0/08 16:20			
Diesel Range (SGCU	)	NWTPH-Dx	7.19	2.23	13.9	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 02:17	
Lube Oil Range (SG	CU)	n	15.5	4.45	34.8			11	n		J
Surrogate(s):	2-FBP (SGCU)			68.1%		54 - 148 %	"			n	
	Octacosane (SGCU)			78.2%		62 - 142 %	"			"	
BRI0171-08 (2)	B-B-38 (3-5))		Soi	1		Sampl	ed: 09/1	0/08 16:35			
Diesel Range (SGCU)	)	NWTPH-Dx	ND	1.78	11.1	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 02:47	
Lube Oil Range (SGC	CU)	*1	ND	3.55	27.9		0	v	19	U.	
Surrogate(s):	2-FBP (SGCU)			76.6%		54 - 148 %	n			"	
	Octacosane (SGCU)			87.2%		62 - 142 %	"			"	
BRI0171-09 (21	B-B-39 (0.5-3))		Soi	1		Sampl	ed: 09/1	0/08 16:45			
Diesel Range (SGCU	)	NWTPH-Dx	3.13	1.81	11.3	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 10:40	J
Lube Oil Range (SG	CU)	н	14.4	3.62	28.3			u	н		J
Surrogate(s):	2-FBP (SGCU)			72.2%		54 - 148 %	"			"	
(	Octacosane (SGCU)			87.3%		62 - 142 %	"			n	
BRI0171-10 (21	B-B-40B (0.5-3))		Soi	1		Sampl	ed: 09/1	0/08 17:46			
Diesel Range (SGCU)	)	NWTPH-Dx	ND	2.38	14,9	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 11:10	
Lube Oil Range (SGC	CU)	11	ND	4.75	37.2		**	n		н	
Surrogate(s):	2-FBP (SGCU)			68.8%		54 - 148 %	n			"	
	Octacosane (SGCU)			80.7%		62 - 142 %	"			н	
BRI0171-16 (21	B-B-34 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 11:25			
Diesel Range (SGCU)	)	NWTPH-Dx	562	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 %	n.			"	

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**TestAmerica** 

ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

			TestAm	erica Se						
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-16RE1 (2B-B-34 (0-2))		Soi	il		Sampl	ed: 09/1	10/08 11:25			
Lube Oil Range (SGCU)	NWTPH-Dx	1210	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 %	n			"	
Octacosane (SGCU)			77.6%		62 - 142 %	"			11	
BRI0171-17 (2B-B-34 (2-4))		Soi	il		Sampl	ed: 09/1	0/08 11:30			
Diesel Range (SGCU)	NWTPH-Dx	2.73	2.20	13,8	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 11:55	
Lube Oil Range (SGCU)	н	25.3	4.40	34.5	н	u	"	n	n	
Surrogate(s): 2-FBP (SGCU)			63.6%		54 - 148 %	u			n	
Octacosane (SGCU)			81.7%		62 - 142 %	"			n	
BRI0171-18 (2B-B-34 (4-6))		Soi	1		Sampl	ed: 09/1	10/08 11:35			
Diesel Range (SGCU)	NWTPH-Dx	18.1	2.43	15.2	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:25	Qé
Lube Oil Range (SGCU)	U.	53.6	4.85	38.0	11	n	n 	**	n	
Surrogate(s): 2-FBP (SGCU)			77.0%		54 - 148 %	**			u	
Octacosane (SGCU)			87.0%		62 - 142 %	"			"	
BRI0171-19 (2B-B-35 (0-2))		Soi	1		Sampl	ed: 09/1	0/08 12:10			
Diesel Range (SGCU)	NWTPH-Dx	6.58	2.64	16.5	mg/kg dry	1x	8111058	09/12/08 08:00	09/17/08 12:39	j
Lube Oil Range (SGCU)	n 	36.6	5.26	41.2		"	tr			J
Surrogate(s): 2-FBP (SGCU)			76.5%		54 - 148 %	н			v	
Octacosane (SGCU)			90.8%		62 - 142 %	и			u	
BRI0171-20 (2B-B-35 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 12:15			
Diesel Range (SGCU)	NWTPH-Dx	ND	2.91	18.2	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 13:09	
Lube Oil Range (SGCU)	"	12.4	5.80	45.4			u	"	"	J
Surrogate(s): 2-FBP (SGCU)			75.5%		54 - 148 %	"			u	
Octacosone (SGCU)			87.8%		62 - 142 %	"			u	
BRI0171-21 (2B-B-40B (3-5))		Soi	I		Sampl	ed: 09/1	0/08 17:49			
Diesel Range (SGCU)	NWTPH-Dx	ND	2.25	14.1	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 13:39	
Lube Oil Range (SGCU)	u	ND	4.49	35.2	n	"		a		
Surrogate(s): 2-FBP (SGCU)			73.3%		54 - 148 %	"			u	

Octacosane (SGCU)

TestAmerica Seattle

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84.5%

62 - 142 % "



ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney	Creek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

	Semi	volatile Petrol	eum Produ	i <b>cts by N</b> TestAm	WTPI erica Se	H-Dx with	h Acid	l/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-22 (21	B-B-41 (0-2))		Soi	il		Sampl	ed: 09/1	10/08 08:25			
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	Q
Lube Oil Range (SGC	CU)	и	240	4.20	32.9	"	w	н	п	.,	Q4
Surrogate(s):	2-FBP (SGCU)			69.4%		54 - 148 %	и			U.	
(	Octacosane (SGCU)			82.0%		62 - 1-12 %	0			"	
BRI0171-23 (21	B-B-41 (2-4))		Soi	1		Sampl	ed: 09/1	0/08 08:30			
Diesel Range (SGCU)	)	NWTPH-Dx	43.9	2.24	14.0	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 14:24	Q6
Lube Oil Range (SGC	CU)	19	83.6	4.47	35.0	W	IF.	۰.	н	"	Q4
Surrogate(s): 2	2-FBP (SGCU)			67.4%		54 - 148 %	"			"	
C	Octacosane (SGCU)			82.1%		62 - 142 %	n			"	
BRI0171-24 (2E	B-B-41 (4-6))		Soi	1		Sampl	ed: 09/1	0/08 08:35			
Diesel Range (SGCU)	)	NWTPH-Dx	8.05	2.19	13.7	mg/kg dry	lx	8111058	09/12/08 08:00	09/17/08 16:08	J
Lube Oil Range (SGC	CU)	BF	23.7	4.37	34,3	"	н	u	H	н	J
Surrogate(s): 2	P-FBP (SGCU)			76.1%		54 - 148 %	"			"	
C	Octacosane (SGCU)			86.0%		62 - 142 %	"			"	
BRI0171-25 (3-)	B-26 (0-2))		Soi	I		Sample	ed: 09/1	1/08 10:35			
Diesel Range (SGCU)		NWTPH-Dx	ND	2.76	17.2	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 07:25	
Lube Oil Range (SGC	CU)		24.3	5.50	43.1	"	и		H.	u	J
Surrogate(s): 2	P-FBP (SGCU)			80.6%		54 - 148 %	"			"	
C	)ctacosane (SGCU)			92.2%		62 - 142 %	"			"	
BRI0171-26 (3-)	B-26 (2-4))		Soil	l		Sample	ed: 09/1	1/08 10:35			
Diesel Range (SGCU)		NWTPH-Dx	20.2	3.07	19.2	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 07:46	Q6
Lube Oil Range (SGC	CU)	41	103	6.13	48.0	0	"	"	11	п	
Surrogate(s): 2	-FBP (SGCU)			82.7%		54 - 148 %	"			n	THE CONTRACTOR
C	)ctacosane (SGCU)			93.5%		62 - 142 %	"			"	
BRI0171-27 (3-I	B-26 (4-6))		Soil			Sample	ed: 09/1	1/08 10:40			
Diesel Range (SGCU)		NWTPH-Dx	6.04	2.26	14.1	mg/kg dry	łx	8111061	09/12/08 08:03	09/14/08 08:07	J
Lube Oil Range (SGC	U)	IJ	34.5	4.50	35.3	n			н	v	J
Surrogate(s): 2	-FBP (SGCU)			73.2%		54 - 148 %	"			u	
G	ctacosane (SGCU)			85.6%		62 - 142 %	"			"	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney (	Creek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

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
BRI0171-28 (3-B-27 (0-2))		So	il		Sampl	ed: 09/1	1/08 11:35			
Diesel Range (SGCU)	NWTPH-Dx	538	2.99	18.7	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 08:28	Q4
Lube Oil Range (SGCU)	n	249	5.97	46.8		*	п	ii	в	Q4
Surrogate(s): 2-FBP (SGCU)			77.7%		54 - 148 %	"			"	
Octacosane (SGCU)			84.9%		62 - 142 %	"			U	
BRI0171-29 (3-B-27 (2-4))		So	il		Sampl	ed: 09/1	1/08 11:40			
Diesel Range (SGCU)	NWTPH-Dx	31.0	2.25	14.0	mg/kg dry	łx	8111061	09/12/08 08:03	09/14/08 09:53	Q6
Lube Oil Range (SGCU)	đ	69.4	4.48	35.1		4	11	н	11	
Surrogate(s): 2-FBP (SGCU)			78.5%		54 - 148 %	u			8	
Octacosane (SGCU)			90.9%		62 - 142 %	u			u	
BRI0171-30 (3-B-27 (4-6))		So	il		Sampl	ed: 09/1	1/08 11:45			
Diesel Range (SGCU)	NWTPH-Dx	179	2.43	15.2	mg/kg dry	lx	8111061	09/12/08 08:03	09/14/08 10:15	Q6
Lube Oil Range (SGCU)	*1	456	4.84	38.0	U*	в	u	п	11	
Surrogate(s): 2-FBP (SGCU)			80.4%		54 - 148 %	н			n	
Octacosane (SGCU)			90.5%		62 - 142 %	"			11	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek Wes		
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:	
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39	

	Physical Parameters by APHA/ASTM/EPA Methods TestAmerica Seattle													
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes			
BRI0171-01	(2B-B-35 (4-6))		Soil			Sam	pled: 09/1	0/08 12:20						
Dry Weight		BSOPSPL003R0 8	58.9		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-02	(2B-B-36 (0-2))		Soil			Sam	pled: 09/1	0/08 13:11						
Dry Weight		BSOPSPL003R0 8	60.9		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-03	(2B-B-36 (2-4))		Soil			Samj	pled: 09/1	0/08 13:12						
Dry Weight		BSOPSPL003R0 8	77.9		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-04	(2B-B-37 (0-2))		Soil			Samj	pled: 09/1	0/08 14:39						
Dry Weight		BSOPSPL003R0 8	65.3		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-05	(2B-B-37 (2-4))		Soil Sampled: 09/10/08 14:40											
Dry Weight		BSOPSPL003R0 8	71.0		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-06	(2B-B-37 (4-5))		Soil			Samp	oled: 09/1	0/08 14:41						
Dry Weight		BSOPSPL003R0 8	80.3		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-07	(2B-B-38 (0-2))		Soil			Samp	pled: 09/1	0/08 16:20						
Dry Weight		BSOPSPL003R0 8	71.5		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-08	(2B-B-38 (3-5))		Soil			Samp	oled: 09/1	0/08 16:35						
Dry Weight		BSOPSPL003R0 8	88.8		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-09	(2B-B-39 (0.5-3))	×	Soil			Samp	oled: 09/1	0/08 16:45						
Dry Weight		BSOPSPL003R0 8	87.6		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-10	(2B-B-40B (0.5-3))		Soil			Samp	oled: 09/1	0/08 17:46						
Dry Weight		BSOPSPL003R0 8	67.0		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00				
BRI0171-16	(2B-B-34 (0-2))		Soil			Samp	oled: 09/1	0/08 11:25		······				

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West	)		
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:		
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39		

		Physic	cal Paramet	ers by A TestAme	<b>PHA</b> /	ASTM/ attle	EPA N	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRI0171-16	(2B-B-34 (0-2))		Soil			Sam	pled: 09/1	0/08 11:25			
Dry Weight		BSOPSPL003R0 8	66.0		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-17	(2B-B-34 (2-4))		Soil			Sam	pled: 09/1	0/08 11:30			
Dry Weight		BSOPSPL003R0 8	72.3		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-18	(2B-B-34 (4-6))		Soil			Sam	pled: 09/1	0/08 11:35			
Dry Weight		BSOPSPL003R0 8	64.9		1.00	%	İx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-19	(2B-B-35 (0-2))		Soil			Sam	pled: 09/1	0/08 12:10			
Dry Weight		BSOPSPL003R0 8	60.6		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-20	(2B-B-35 (2-4))		Soil			Sam	pled: 09/1	0/08 12:15			
Dry Weight		BSOPSPL003R0 8	54.7		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-21	(2B-B-40B (3-5))		Soil			Samj	pled: 09/1	0/08 17:49			
Dry Weight		BSOPSPL003R0 8	70.6		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-22	(2B-B-41 (0-2))		Soil			Sam	pled: 09/1	0/08 08:25			
Dry Weight		BSOPSPL003R0 8	75.5		1.00	%	1x	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-23	(2B-B-41 (2-4))		Soil			Samj	pled: 09/1	0/08 08:30			
Dry Weight		BSOPSPL003R0 8	71.2		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-24	(2B-B-41 (4-6))		Soil			Samj	pled: 09/1	0/08 08:35			
Dry Weight		BSOPSPL003R0 8 ,	72.2		1.00	%	lx	8112032	09/12/08 14:14	09/13/08 00:00	
BRI0171-25	(3-B-26 (0-2))		Soil			Samj	pled: 09/1	1/08 10:35			
Dry Weight		BSOPSPL003R0 8	57.4		1.00	%	lx	8117036	09/17/08 13:44	09/18/08 00:00	
BRI0171-26	(3-B-26 (2-4))		Soil			Samj	pled: 09/1	1/08 10:35			

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)						
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:					
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39					

	Physical Parameters by APHA/ASTM/EPA Methods TestAmerica Seattle												
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes		
BRI0171-26	(3-B-26 (2-4))		Soil			Sam	pled: 09/1	1/08 10:35					
Dry Weight		BSOPSPL003R0 8	51.9		1.00	%	lx	8112033	09/12/08 14:18	09/13/08 00:00			
BRI0171-27	(3-B-26 (4-6))		Soil			Sam	pled: 09/1	1/08 10:40					
Dry Weight		BSOPSPL003R0 8	69.9		1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00			
BRI0171-28	(3-B-27 (0-2))		Soil			Sam	pled: 09/1	1/08 11:35					
Dry Weight		BSOPSPL003R0 8	52.7		1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00			
BRI0171-29	( <b>3-B-27</b> ( <b>2-4</b> ))		Soil			Sam	pled: 09/1	1/08 11:40					
Dry Weight		BSOPSPL003R0 8	71.2		1.00	%	lx	8112033	09/12/08 14:18	09/13/08 00:00			
BRI0171-30	( <b>3-B-27</b> ( <b>4-6</b> ))		Soil			Samj	pled: 09/1	1/08 11:45					
Dry Weight	······	BSOPSPL003R0	65.2		1.00	%	1x	8112033	09/12/08 14:18	09/13/08 00:00			

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Mal	oney Creek West)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

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

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ENSR International - Seatt		Project Na	ame:	BNSF-	Skykomi	ish (Fo	rmer	Malone	y Cree	ek Wes	t)			
1011 SW Klickitat Way, Suite	207			Project N	amber:	01140-2	204-0320						Report Created:	
Seattle, WA 98134				Project M	anager:	Halah V	/oges						10/22/08 14:39	
Semivolatile I	etroleum Pro	ducts by I	NWTPH-Dx	t <b>(w/o Ac</b> TestAme	id/Silica G rica Seattle	el Cle:	an-up) -	Labor	atory	/ Quality	y Cont	rol Re	sults	
QC Batch: 8I11058	Soil Pre	eparation N	Aethod: EP	A 3550B										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (8111058-BLK1)								Exti	acted:	09/12/08 08	3:00			
Diesel Range Hydrocarbons	NWTPH-Dx	2.97	1.60	10.0	mg/kg wet	łx							09/12/08 22:04	J
Lube Oil Range Hydrocarbons	п	ND	3.19	25.0		0							*1	
Surrogate(s): 2-FBP Octacosane		Recovery:	82.5% 94.5%	L	imits: 54-1489 62-142	% " % "							09/12/08 22:04 "	
LCS (8111058-BS1)								Extr	acted:	09/12/08 08	8:00			
Diesel Range Hydrocarbons	NWTPH-Dx	58.4	1.60	10.0	mg/kg wet	lx		66.7	87.7%	(78-129)			09/12/08 22:30	
Surrogate(s): 2-FBP		Recovery:	87.6%	L	imits: 54-1489	6 "							09/12/08 22:30	
Octacosane			94.8%		62-142	% "							"	
Duplicate (8I11058-DUP1)				QC Sourc	e: BRI0171-0	1		Extr	acted:	09/12/08 08	8:00			
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	31	27.2	5.35	41.9	4	н	10.6				87.8%	ч	u	R4, J
Surrogate(s): 2-FBP		Recovery:	88.4%	L	imits: 54-1489	6 "							09/12/08 22:56	
Octacosane			101%		62-142	% "							"	
Duplicate (8111058-DUP2)				QC Sourc	e: BRI0171-0	7		Extr	acted:	09/12/08 08	:00			
Diesel Range Hydrocarbons	NWTPH-Dx	9,35	2.22	13,8	mg/kg dry	lx	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%	"	н	R4, J
Surrogate(s): 2-FBP Octacosane		Recovery:	86.1% 98.8%	L	imits: 54-1489 62-142	6 " 76 "							09/12/08 23:22 "	
Matrix Spike (8I11058-MS1)				QC Source	e: BRI0171-0	9		Extr	acted:	09/12/08 08	:00			
Diesel Range Hydrocarbons	NWTPH-Dx	65.2	1.83	11.4	mg/kg dry	lx	10.9	76.1	71.4%	(46-155)			09/12/08 23:48	
Surrogate(s): 2-FBP		Recovery:	84.4%	L	imits: 54-1489	6 "							09/12/08 23:48	
Octacosane			94.1%		62-142	6 "							"	

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ENSR Inte	ENSR International - Seattle						Project Name: BNSF-Skykomish (Former Maloney Creek West)						st)		
1011 SW K	lickitat Way, Suite 2	207			Project N	umber:	01140-2	204-0320						Report Create	d:
Seattle, WA	A 98134				Project M	anager:	Halah V	/oges						10/22/08 14:	39
	Semivolatile P	etroleum Pro	ducts by N	NWTPH-Dx	(w/o Ac	id/Silica	Gel Cle	an-up) -	Labor	atory	Quality	/ Cont	rol Re	sults	
				·····	TestAme	rica Seattle	2								
QC Bate	h: 8111061	Soil Pre	eparation N	fethod: EP.	A 3550B										
Analyte		Method	Result	MDL*	MRL	. Units	Dil	Source Result	Spike Amt	%. REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
Blank (811100	61-BLK1)								Extr	acted:	09/12/08 08	3:03			
Diesel Range Hydro	ocarbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x		••					09/14/08 01:04	
Lube Oil Range Hyd	drocarbons	11	3.76	3.19	25.0									31	J
Surrogate(s):	2-FBP Octacosane		Recovery:	88.1% 98.2%	I	imits: 54-148, 62-14	3% " 2% "							09/14/08 01:04 "	
LCS (8111061	-BS1)								Extr	acted:	09/12/08 08	8:03			
Diesel Range Hydro	carbons	NWTPH-Dx	58.7	1.60	10.0	mg/kg wet	1x		66.7	88.0%	(78-129)			09/14/08 01:25	
Surrogate(s):	2-FBP Octacosane		Recovery:	84.3% 97.4%	Ι	Limits: 54-148 62-14	3% " 2% "							09/14/08 01:25 "	
Duplicate (81)	11061-DUP1)				QC Sourc	e: BRI0150-	05		Extr	acted:	09/12/08 08	8:03			
Diesel Range Hydro	carbons	NWTPH-Dx	7760	18.7	117	mg/kg dry	10x	7290				6.27%	(40)	09/14/08 01:46	
Surrogate(s):	2-FBP		Recovery:	147%	I		8% "							09/14/08 01:46	
	Octacosane			195%		62-14	2% "							n	ZX
Duplicate (81	11061-DUP2)				QC Sourc	e: BRI0171-	26		Extr	acted:	09/12/08 08	8:03			
Diesel Range Hydro	carbons	NWTPH-Dx	80.9	3.04	19.0	mg/kg dry	lx	36.3				76.0%	(40)	09/14/08 02:08	R3
Lube Oil Range Hyd	irocarbons	11	477	6.07	47.6	н	н	209				78.3%	, u	u	R3
Surrogate(s):	2-FBP		Recovery:	90.2%	I	imits: 54-148	1% "							09/14/08 02:08	
	Octacosane			93.6%		62-14	2% "							0	
Duplicate (81	11061-DUP5)				QC Sourc	e: BRI0150-	05		Extr	acted:	09/12/08 08	8:03		i	
Lube Oil Range Hyc	drocarbons	NWTPH-Dx	6200	186	1460	mg/kg dry	50x	6620				6.51%	(40)	09/14/08 22:58	
Surrogate(s):	2-FBP		Recove	ery: NR	I	imits: 54-148	3% "							09/14/08 22:58	Z3
	Octacosane			NR		62-14	2% "							u	Z3
Matrix Spike	(8I11061-MS1)				QC Sourc	e: BR10150-	01		Extr	acted:	09/12/08 08	8:03			
Diesel Range Hydro	carbons	NWTPH-Dx	281	18.4	115	mg/kg dry	10x	230	76.5	66.2%	(46-155)			09/14/08 02:29	
Surrogate(s):	2-FBP		Recovery:	90.2%	I	imits: 54-148	1% "							09/14/08 02:29	
	Octacosane			93.7%		62-14	2% "							"	

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)					
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:				
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39				

Semivolatile	retroleum Pro	ducts by f	NW IPH-D	TestAmer	ica Seattle		an-up) -	Ladoi	atory	Quanty	Con	urol Ke	suits	
QC Batch: 8J17021	Water I	Preparation	n Method:	EPA 35200	2									
Analyte	Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (8J17021-BLK1)								Extr	acted:	10/20/08 13	3:19			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0,0400	0.250	mg/l	lx							10/21/08 12:19	
Lube Oil Range Hydrocarbons	**	ND	0.0900	0,500								••		
Surrogate(s): 2-FBP Octacosane		Recovery:	98.9% 98.7%	Lii	mits: 53-125% 68-125%	<i>n</i> 6 "							10/21/08 12:19 "	
Blank (8J17021-BLK2)								Exti	acted:	10/20/08 13	3:19			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0.263	mg/l	lx							10/21/08 12:41	
Lube Oil Range Hydrocarbons	н	ND	0.0947	0.526	н								24	
Surrogate(s): 2-FBP Octacosane		Recovery:	94.5% 97.5%	Lù	mits: 53-125% 68-125%	и 6 и							10/21/08 12:41 "	
LCS (8J17021-BS1)								Exti	acted:	10/20/08 13	3:19			
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	
Surrogate(s): 2-FBP Octacosane		Recovery:	102% 100%	Lii	mits: 53-125% 68-125%	" 2 "							10/21/08 13:03 "	
LCS Dup (8J17021-BSD1)								Exti	acted:	10/20/08 13	3:19			
Diesel Range Hydrocarbons	NWTPH-Dx	1.99	0.0400	0.250	mg/l	lx		2.00	99.6%	(61-132)	6.04%	% (40)	10/21/08 13:25	
Surrogate(s): 2-FBP Octacosane		Recovery:	101% 107%	Lii	mits: 53-125% 68-125%	"							10/21/08 13:25 "	

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ENSR International - Seattle			F	Project Name:	BNSF-Skykomish (Former Maloney Creek West)							
1011 SW Klickitat Way, Suit	e 207		F	Project Number	0114	0-204-0320				Report Created		
Seattle, WA 98134			F	Project Manage	r: Hala	Halah Voges					10/22/08 14:39	
Semivolatile	Petroleum Pro	ducts by NW	/ <b>TPH-Dx (</b> T	w/o Acid/Si `estAmerica S	lica Gel C eattle	lean-up) -	Labora	tory Qualit	iy Con	trol Resu	ults	
QC Batch: 8J17022	Water	Preparation M	lethod: EF	PA 3520C								
Analyte	Method	Result	MDL*	MRL U	nits D	il Source Result	Spike Amt l	% (Limits) REC	) % RPD	(Limits)	Analyzed	Notes

Blank (8J17022-BLK1)							Ext	racted:	10/20/08 13	:20	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0400	0.250	mg/l	lx	 				- 10/21/08 12:19
Lube Oil Range Hydrocarbons	"	ND	0.0900	0.500	u	н	 				I
Surrogate(s): 2-FBP		Recovery:	89.6%	Lii	mits: 53-125%	6 "					10/21/08 12:19
Octacosane			95.6%		68-125	% "					n
Blank (8J17022-BLK2)							 Ext	racted:	10/20/08 13	:20	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0421	0,263	mg/l	lx	 				10/21/08 12:41
Lube Oil Range Hydrocarbons	н	ND	0.0947	0.526	"	"	 				10
Surrogate(s): 2-FBP		Recovery:	89.1%	Lii	mits: 53-125%	ó "			_		10/21/08 12:41
Octacosane			93.5%		68-125	% "					11
LCS (8J17022-BS1)							Ext	racted:	10/20/08 13	:20	
Diesel Range Hydrocarbons	NWTPH-Dx	1.92	0.0400	0.250	mg/l	lx	 2.00	96.0%	(61-132)		10/21/08 13:03
Surrogate(s): 2-FBP		Recovery:	99.5%	Lii	mits: 53-125%	ó "					10/21/08 13:03
Octacosane			107%		68-125	% "					n
LCS Dup (8J17022-BSD1)							Ext	racted:	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
Sumogete(s): 2 EBP		Recovery	98.0%	Lii	mits: 53-1759	<i></i>					10/21/08 13:25

 Surrogate(s):
 2-FBP
 Recovery:
 98.0%
 Limits:
 53-125%
 "
 10/21/08 13:25

 Octacosane
 106%
 68-125%
 "
 "

TestAmerica Seattle

hund Kate Haney, Project Manager

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ENSR Inte	rnational - Seattl	e			Project Na	ame:	BNSF-	Skykom	ish (Fo	rmer	Malone	y Cree	ek West	t)	
1011 SW K	lickitat Way, Suite	207			Project Nu	imber:	01140-2	204-0320						Report Create	ed:
Seattle, WA	98134				Project M	anager:	Halah V	/oges						10/22/08 14:	39
	Semivolatile P	etroleum Pro	oducts by	NWTPH-D	x with Ac TestAme	id/Silica C	Gel Cle	an-up -	Labor	atory	⁷ Quality	' Cont	rol Res	ults	
QC Bate	h: 8111058	Soil Pre	eparation N	lethod: EP	A 3550B										
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (811105	58-BLK2)								Extr	acted:	09/12/08 08	3:00			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							09/16/08 20:35	
Lube Oil Range (SG	CU)	a	3.47	3.19	25.0	U	"								J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	75.5% 89.0%	L	imits: 54-1489 62-142	6 " 36 "							09/16/08 20:35 "	
LCS (8111058	-BS2)								Extr	acted:	09/12/08 08	3:00			
Diesel Range (SGCU	J)	NWTPH-Dx	56.7	1.60	10.0	mg/kg wet	lx		66.7	85.1%	(78-129)			09/16/08 20:49	
Surrogate(s):	2-FBP (SGCU)		Recovery:	89.9%	L	imits: 54-148%	6 "							09/16/08 20:49	
	Octacosane (SGCU)			90.0%		62-142	% "							"	
Duplicate (811	1058-DUP3)				QC Sourc	e: BRI0171-0	1		Extr	acted:	09/12/08 08	8:00			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	2.68	16.8	mg/kg dry	1x	ND				NR	(50)	09/16/08 21:19	
Lube Oil Range (SG	CU)	11	ND	5.35	41.9		0	ND				NR	li	n	
Surrogate(s):	2-FBP (SGCU)		Recovery:	74.5%	L	imits: 54-1489	6 "							09/16/08 21:19	
	Octacosane (SGCU)			82.9%		62-142	% "							u	
Duplicate (811	1058-DUP4)				QC Sourc	e: BRI0171-0	7		Extr	acted:	09/12/08 08	8:00			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	2.22	13.8	mg/kg dry	lx	7.19					(50)	09/16/08 21:34	
Lube Oil Range (SG	CU)	п	7.76	4.42	34.6		8	15.5				66.2%	ų	и	R4, J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	72.3% 83.6%	L	imits: 54-148% 62-142	6 " 6 "		·					09/16/08 21:34 "	
Matrix Spike	(8I11058-MS2)				QC Sourc	e: BRI0171-0	9		Extr	acted:	09/12/08 08	8:00			
Diesel Range (SGCU	J)	NWTPH-Dx	49.1	1.83	11.4	mg/kg dry	lx	3.13	76,1	60,4%	(46-155)			09/16/08 22:04	
Surrogate(s):	2-FBP (SGCU)		Recovery:	80.5%	L	imits: 54-148%	6 "							09/16/08 22:04	

62-142% "

TestAmerica Seattle

Kate Haney, Project Manager

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Octacosane (SGCU)

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79.2%



ENSR Inter	rnational - Seattl	e			Project Na	ame:	BNSF-	Skykomi	ish (Fo	rmer	Malone	y Cree	ek Wes	t) .	
1011 SW K	lickitat Way, Suite 2	207			Project Nu	umber:	01140-2	204-0320						Report Create	d:
Seattle, WA	98134				Project M	anager:	Halah V	oges /						10/22/08 14:	39
L															
	Semivolatile P	etroleum Pro	ducts by l	NWTPH-D	x with Ac TestAme	eid/Silica C	Gel Cle	an-up -	Labor	atory	Quality	Cont	rol Res	sults	
OC Patal		Soil Dra	paration N	lethod: FP	A 3550B										
QC Bate		500110		ietiiou. Ei	A 5550B										
Analyte		Method	Result	MDL*	MRL	. Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (811106	1-BLK2)								Extr	acted:	09/12/08 08	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1x							09/14/08 05:18	
Lube Oil Range (SG	CU)	н	12.1	3.19	25.0	u	"							u	J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	88.4% 98.6%	Ι	imits: 54-1489 62-142	6 " % "							09/14/08 05:18 "	
LCS (8111061-	-BS2)								Extr	acted:	09/12/08 08	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	57.5	1.60	10.0	mg/kg wet	1 x		66.7	86.3%	(78-129)			09/14/08 05:39	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	84.6% 97.7%	I	imits: 54-1489 62-142	6 " 76 "							09/14/08 05:39 "	
Dunlicata (811	1061-DUP3)				QC Sourc	e: BRI0150-0	5		Extr	acted:	09/12/08 08	8:03			
Diesel Range (SGCU	D)	NWTPH-Dx	3800	18.7	117	mg/kg dry	10x	3480				8.92%	(50)	09/14/08 06:00	
Lube Oil Range (SG	CU)	n	2680	37.3	292	н	"	2650				1.09%	. "	и	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	142% 130%	Ĭ	imits: 54-1489 62-142	% " % "							09/14/08 06:00 "	
Duplicate (811	1061-DUP4)				QC Sourc	e: BRI0171-2	6		Extr	acted:	09/12/08 08	8:03			
Diesel Range (SGCU	J)	NWTPH-Dx	46.8	3.04	19.0	mg/kg dry	lx	20.2				79.2%	(50)	09/14/08 06:21	R3
Lube Oil Range (SG	CU)		204	6.07	47.6	п	н	103				65.9%	•	u	R3
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	77.2% 86.7%	I	imits: 54-1489 62-142	% " % "							09/14/08 06:21 "	
Matrix Spike	(8I11061-MS2)				QC Sourc	e: BRI0150-0	1		Extr	acted:	09/12/08 08	8:03			
Diesel Range (SGCL	J)	NWTPH-Dx	179	1.84	11.5	mg/kg dry	lx	139	76.5	52.4%	(46-155)			09/14/08 06:42	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	57.8% 87.9%	1	ámits: 54-1489 62-142	% " % "							09/14/08 06:42 "	—

TestAmerica Seattle

Kate Haney, Project Manager

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory

Page 29 of 34



ENSR International - Seatt	le		]	Project Nan	ne:	BNSF-	Skykom	ish (Fo	rmer	Malone	y Cro	ek West	t)	**************************************
1011 SW Klickitat Way, Suite	207		1	Project Nun	nber:	01140-2	204-0320						Report Cre	ated:
Seattle, WA 98134			]	Project Mar	ager:	Halah V	oges						10/22/08 1	4:39
	Physical Paran	neters by A	PHA/ASTI T	M/EPA N TestAmerio	a Seattle	s - Labo e	oratory (	Quality	⁄ Con	trol Res	ults			
QC Batch: 8112032	Soil Prej	paration Met	thod: Dry	Weight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8112032-BLK1)								Exti	acted:	09/12/08 14	4:14			
Dry Weight	BSOPSPL00 3R08	99.8		1.00	%	lx						(	09/13/08 00:00	
QC Batch: 8112033	Soil Prep	aration Met	hod: Dry	Weight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8I12033-BLK1)								Extr	acted:	09/12/08 14	1:18			
Dry Weight	BSOPSPL00 3R08	99.7		1.00	%	lx				**		0	09/13/08 00:00	
QC Batch: 8I17036	Soil Prep	aration Met	hod: Dry V	Veight			,							
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8117036-BLK1)								Extr	acted:	09/17/08 13	:44			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	lx						0	99/18/08 00:00	

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## **ENSR International - Seattle**

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134

Project Name: Project Number: Project Manager:

BNSF-Skykomish (Former Maloney Creek West) 01140-204-0320 Report Created: Halah Voges

10/22/08 14:39

	Or	ganic Carbo	n, Total (	TOC) - (	Laborato ca Tacoma	ory Qu	ality Con	itrol R	esults					
QC Batch: 36166	Soil Pre	paration Met	hod: NA											
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limit	s) Analyzed	Notes
Matrix Spike (112441S)				QC Source:	BRI0171-2	5		Exti	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	61600		2000	mg/Kg	lx	54000	9820	77%	(76-128)			09/18/08 10:09	4
Duplicate (112441X)				QC Source:	BRI0171-2	5		Exti	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	53500		2000	mg/Kg	lx	54000			**	1%	(20)	09/18/08 10:09	
Duplicate (112441XRE1)				QC Source:	BRI0171-2	5		Exte	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	53600		2000	mg/Kg	lx	54000				1%	(20)	09/18/08 10:09	
Blank (580-36166-1)				QC Source:				Exti	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	ND		2000	mg/Kg	1x		,					09/18/08 10:09	
LCS (580-36166-2)				QC Source:				Extr	acted:	09/18/08 10	:09			
Total Organic Carbon	9060 STD	4700		2000	mg/Kg	lx		3400	138%	(13-187)			09/18/08 10:09	

TestAmerica Seattle

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Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

#### **CERTIFICATION SUMMARY**

## **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
BSOPSPL003R08	Soil				
EPA 1312	Soil	Х	N/A		
NWTPH-Dx	Soil		Х		
NWTPH-Dx	Water		Х		

#### 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.TestAmericalnc.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: Project Number: Project Manager:

BNSF-Skykomish (Former Maloney Creek West) r: 01140-204-0320

Halah Voges

Report Created: 10/22/08 14:39

# Notes and Definitions

# Report Specific Notes:

<u>Report o</u>	peer	ne roles.
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.
<b>N</b> 1	-	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.
<u>Laborato</u>	ry R	eporting Conventions:
DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

- wet Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B.
   *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

TestAmerica Seattle

HUUN Kate Haney, Project Manager

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11720 NORTH CREEK PKWY N, SUITE 400 SEATTLE, WA BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

ENSR International - Seattle	Project Name:	BNSF-Skykomish (Former Maloney Creek West)	)
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	10/22/08 14:39

- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Electronic Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature

Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

und Kate Haney, Project Manager

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Cooler Temperature ( Temperature Blank?	( <u>IR):</u> <u>4.9</u> °C Plastic (a (circle one) C or NA	ass) (Frozen filters, Te	dlars and aqueous M	Other 1etals exempt) nk? Y or N or NA
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Cooler Temperature ( Temperature Blank? BP, OPLC,ARCO-Ten (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match CC IDs/time/date match CC Hold Times in hold? PROJECT MANAGEN Is the Chain of Custoo Comments,Problems_	( <u>IR</u> ): <b>U</b> . <b>9</b> °C Plastic (a (circle one) "C or NA mperature monitoring every (Y) or N Y) or N OC? (P) or N OC? (P) or N OC? Y or N OC? Y or N OC? Y or N MENT dy complete?	Ass (Frozen filters, Ter y 15 minutes: Metals Preserve Client QAPP Pre Adequate Volum (for tests requested) Water VOAs: He Comments:	GSGS dlars and aqueous M Trip Bla ed? Y or N eserved? Y or N he? Y or N eadspace? Y or N eadspace? Y or N	Other Metals exempt) Ink? Y or N or NA ID ONA ONA ONA ONA NA D ONA ONA ONA D ONA ONA ONA D ONA ONA ONA ONA ONA ONA ONA ONA
Cooler Temperature ( Temperature Blank? BP, OPLC,ARCO-Ter (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match CC IDs/time/date match CC Hold Times in hold? PROJECT MANAGEN Is the Chain of Custor Comments,Problems	( <u>IR</u> ): <b>U</b> . <b>9</b> °C Plastic (circle one) (circle	Ass (Frozen filters, Ter	GSGS dlars and aqueous M Trip Bla ed? Y or N eserved? Y or N he? Y or N eadspace? Y or N Y or N If N, circle th	Other Metals exempt) Ink? Y or N or NA ID ONA ONA ONA NA NA NA NA NA NA NA NA NA
Cooler Temperature ( Temperature Blank? BP, OPLC,ARCO-Ter (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match CC IDs/time/date match CC Hold Times in hold? PROJECT MANAGEI Is the Chain of Custor Comments,Problems	( <u>IR</u> ): <b>U</b> <u>9</u> °C Plastic (ircle one) (circle one) (circle one) °C or NA mperature monitoring every U (Y) or N (Y) or N	(Frozen filters, Ter	GSGS dlars and aqueous M Trip Bla ed? Y or N eserved? Y or N he? Y or N eadspace? Y or N Y or N If N, circle th	Other Metals exempt) Ink? Y or N or NA ID ONA ONA ONA NA NA NA NA NA NA NA NA NA
Cooler Temperature ( Temperature Blank? BP, OPLC,ARCO-Ter (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match CC IDs/time/date match CC Hold Times in hold? PROJECT MANAGEI Is the Chain of Custor Comments,Problems Total access set up? Has client been contacted ref	(IR): U.9_°C Plastic (a (circle one) "C or NA mperature monitoring every y or N Y or N OC? Or N OC? Or N OC? Y or N OC? Y or N Or N MENT dy complete?	(Frozen filters, Ter	GSGS dlars and aqueous M Trip Bla ed? Y or N eserved? Y or N he? Y or N eadspace? Y or N Y or N If N, circle th Y or N If Y,	Other Metals exempt) Ink? Y or N or NA ID ONA ONA ONA NA NA NA NA NA NA NA NA NA

.

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.

Work Order BRJ0052 Project BNSF-Skykomish Remedial D ProjectNumber 01140-204-0320

TestAmerica Seattle

Kato Dung

Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	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

Kato Dung





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	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

1

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





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58

Sem	ivolatile Petrol	eum Produ	cts by N TestAme	WTPH erica Se	H-Dx (w/o attle	Acid	/Silica G	el Clean-up	)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-01 (2B-B-42 (0-2))		Soi	1		Sampl	ed: 10/0	3/08 10:15			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND 9.08	1.78 3.54	11.1 27.8	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47	10/04/08 05:29 "	J
Surrogate(s): 2-FBP Octacosane			94.8% 98.8%		54 - 148 % 62 - 142 %	n u			11	
BRJ0052-02 (2B-B-42 (2-4))		Soi	I		Sampl	ed: 10/0	3/08 10:28			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND 3.54	1.69 3.37	10.6 26.4	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	10/04/08 06:15 "	J
Surrogate(s): 2-FBP Octacosane			93.2% 102%		54 - 148 % 62 - 142 %	0 11			U V	
BRJ0052-03 (2B-B-42 (4-6))		Soi	1		Sample	ed: 10/0	3/08 10:20			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx "	ND ND	1.75 3.48	10.9 27.3	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47 "	10/04/08 07:00 "	
Surrogate(s): 2-FBP Octacosane			89.5% 101%		54 - 148 % 62 - 142 %	11 11			11	
BRJ0052-04 (2B-B-42 (6-8))		Soi	1		Sample	ed: 10/0	3/08 10:30			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	ND ND	1.79 3.57	11.2 28.0	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47	10/04/08 07:47 "	
Surrogate(s): 2-FBP Octacosane			91.7% 101%		54 - 148 % 62 - 142 %	"			n * a	
BRJ0052-05 (2B-B-43 (0-2))		Soi	I		Sample	ed: 10/0	3/08 10:40			
Diesel Range Hydrocarbons Lube Oil Range Hydrocarbons	NWTPH-Dx	ND 7.17	1.71 3.42	10.7 26.8	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47	10/04/08 08:32 "	J
Surrogate(s): 2-FBP Octacosane			95.5% 102%	· · ·	54 - 148 % 62 - 142 %	n			11 11	
BRJ0052-06 (2B-B-43 (2-4))		Soi	l		Sample	ed: 10/0	3/08 10:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.72	10.8	mg/kg dry	1 x	8J03038	10/03/08 15:47	10/04/08 10:27	
Lube Oil Range Hydrocarbons	u	6.82	3.43	26.9	"		п	n	u	J
Surrogate(s): 2-FBP Octacosane			96.3% 100%		54 - 148 % 62 - 142 %	n n			n	

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58
Semivolatile Petroleum Produc	<b>ts by NWTPH</b> TestAmerica Se	<b>I-Dx (w/o Acid/Silica Gel Clean-up)</b> attle	9

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-07 (2B-B-43 (4-6))		Soi			Sampl	ed: 10/	03/08 10:50			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.74	10.8	mg/kg dry	١x	8J03038	10/03/08 15:47	10/04/08 11:12	
Lube Oil Range Hydrocarbons	u	5.64	3.46	27.1	н			н	и	J
Surrogate(s): 2-FBP			98.2%		54 - 148 %	"			v	
Octacosane			108%		62 - 142 %	"			"	
BRJ0052-08 (2B-B-43 (6-8))		Soi			Sampl	ed: 10/0	03/08 10:55			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.72	10.7	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 11:58	
Lube Oil Range Hydrocarbons		ND	3.42	26.8			н	н	**	
Surrogate(s): 2-FBP			89.0%		54 - 148 %	"		· · · · · · · · ·	"	
Octacosane			101%		62 - 142 %	"			"	
BRJ0052-09 (2B-B-43 (10-12))		Soil			Sampl	ed: 10/(	03/08 11:00			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.70	10.6	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 12:44	
Lube Oil Range Hydrocarbons	a	ND	3.39	26.6	н	n		**	н	
Surrogate(s): 2-FBP			94.5%		54 - 148 %	н			"	
Octacosane			101%		62 - 142 %	"			"	
BRJ0052-10 (2B-B-44 (0-2))		Soil			Sampl	ed: 10/(	)3/08 11:30			
Diesel Range Hydrocarbons	NWTPH-Dx	43.0	1.75	10.9	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 13:29	Q4
Lube Oil Range Hydrocarbons	n	146	3.49	27.4	п	"		н	n	
Surrogate(s): 2-FBP			98.3%		54 - 148 %	"		· · · · · · · · · · ·	И	
Octacosane			106%		62 - 142 %	"			"	
BRJ0052-11 (2B-B-44 (2-4))		Soil			Sampl	ed: 10/(	)3/08 11:35			
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	н				н	Q4
Surrogate(s): 2-FBP			92.7%		54 - 148 %	н	· · · · ·		11	
Octacosane			109%		62 - 142 %	"			a	
BRJ0052-12 (2B-B-44 (4-6))		Soil			Sampl	ed: 10/(	)3/08 11:40			
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	"	п		н	59	
Surrogate(s): 2-FBP	· · ·		93.3%		54 - 148 %	"		,	"	
Octacosane			102%		62 - 142 %	u.			"	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58

Sem	ivolatile Petrol	eum Produ	cts by N TestAm	WTPF erica Se	<b>I-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-13 (2B-B-44 (6-8))		Soi	il		Sampl	ed: 10/0	03/08 11:45			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	1.78	11,1	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 16:54	
Lube Oil Range Hydrocarbons	"	3.75	3.54	27,8	41	п	"	"	11	J
Surrogate(s): 2-FBP			98.7%		54 - 148 %	"			n	
Octacosane			104%		62 - 142 %	"			"	
BRJ0052-14 (DUP01-100308)		Soi	il		Sampl	ed: 10/(	)3/08 10:40			
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	0	u	u	U	н	Q4
Surrogate(s): 2-FBP			96.4%		54 - 148 %	п			"	
Octacosane			109%		62 - 142 %	п			"	

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58

	Semiv	volatile Petrol	eum Produ	cts by N TestAme	WTPI erica Se	I-Dx with attle	1 Acid	l/Silica G	el Clean-uj	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-01	(2B-B-42 (0-2))		Soi			Sampl	ed: 10/0	3/08 10:15			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.78 3.54	11.1 27.8	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	10/04/08 05:52	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			83.8% 90.7%		54 - 148 % 62 - 142 %	"			U U	<u> </u>
BRJ0052-02	(2B-B-42 (2-4))		Soi	I		Sampl	ed: 10/0	3/08 10:28			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.69 3.37	10.6 26,4	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	10/04/08 06:37	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			88.3% 98.3%		54 - 148 % 62 - 142 %	"			H H	
BRJ0052-03	(2B-B-42 (4-6))		Soil	l		Sampl	ed: 10/0	3/08 10:20			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.75 3.48	10.9 27.3	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47	10/04/08 07:24 "	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			84.4% 98.0%		54 - 148 % 62 - 142 %	"			и	
BRJ0052-04	(2B-B-42 (6-8))		Soil	l		Sampl	ed: 10/0	3/08 10:30			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx	ND ND	1.79 3.57	11.2 28.0	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	-10/04/08 08:09 "	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			84.2% 95.1%		54 - 148 % 62 - 142 %	<i>u</i> 11			"	
BRJ0052-05	(2B-B-43 (0-2))		Soil	l		Sample	ed: 10/0	3/08 10:40			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.71 3.42	10.7 26.8	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47 "	10/04/08 08:56 "	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			80.7% 89.4%		54 - 148 % 62 - 142 %	11 11			n 1	
BRJ0052-06	(2B-B-43 (2-4))		Soil			Sampl	ed: 10/0	3/08 10:45			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.72 3.43	10.8 26.9	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47	10/04/08 10:50	, <u>, , , , , , , , , , , , , , , , , , </u>
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			86.8% 92.8%		54 - 148 % 62 - 142 %	11 11			n 11	

Kate Haney, Project Manager

Kato Dung





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58

	Semiv	volatile Petrol	eum Produ	cts by N TestAm	WTPI erica Se	I-Dx witl	1 Acio	l/Silica G	el Clean-uj	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-07	(2B-B-43 (4-6))		Soi	1		Sampl	ed: 10/(	03/08 10:50			
Diesel Range (SG Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.74 3.46	10.8 27.1	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	10/04/08 11:35 "	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			83.2% 96.6%		54 - 148 % 62 - 142 %	n			и	
BRJ0052-08	(2B-B-43 (6-8))		Soi	1		Sampl	ed: 10/(	3/08 10:55			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.72 3.42	10.7 26.8	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47	10/04/08 12:22 "	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			79.3% 95.1%		54 - 148 % 62 - 142 %	"			n	
BRJ0052-09	(2B-B-43 (10-12))		Soi	1		Sampl	ed: 10/(	)3/08 11:00			
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.70 3.39	10.6 26.6	mg/kg dry "	1x "	8J03038 "	10/03/08 15:47	10/04/08 13:06	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			88.1% 95.7%		54 - 148 % 62 - 142 %	"			"	
BRJ0052-10	(2B-B-44 (0-2))		Soi	1		Sampl	ed: 10/0	3/08 11:30			
Diesel Range (SGO Lube Oil Range (S	CU) SGCU)	NWTPH-Dx "	24.9 61.3	1.75 3.49	10.9 27.4	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47	10/04/08 13:53 "	Q4
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			79.8% 91.0%		54 - 148 % 62 - 142 %	u u			ı) H	,
BRJ0052-11	(2B-B-44 (2-4))		Soi	I		Sampl	ed: 10/0	3/08 11:35			
Diesel Range (SGC Lube Oil Range (S	CU) SGCU)	NWTPH-Dx "	165 325	2.07 4.13	12.9 32.4	mg/kg dry "	lx "	8J03038 "	10/03/08 15:47 "	10/04/08 15:47 "	Q4 Q4
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			40.4% 70.6%		54 - 148 % 62 - 142 %				n	Z
BRJ0052-12	(2B-B-44 (4-6))		Soi	l		Sample	ed: 10/0	3/08 11:40			
Diesel Range (SGG	CU)	NWTPH-Dx	3.69	1.86	11.6	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 16:31	Ţ
Lube Oil Range (S	GCU)	µ	16.2	3.71	29.1	u	"	U	8	11	J
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			95.0% 111%		54 - 148 % 62 - 142 %	"			n	

Kate Haney, Project Manager

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ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	1
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Renee Knecht	10/06/08 15:58

	Semiv	volatile Petrol	leum Produ	<b>icts by N</b> TestAm	WTPI erica Se	H-Dx witl attle	n Acid	l/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-13	(2B-B-44 (6-8))		Soi	il		Sampl	ed: 10/(	03/08 11:45			
Diesel Range (SGC	CU)	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 (S	GCU)	U	ND	3.54	27.8	н			U	u	
Surrogate(s):	2-FBP (SGCU)			92.1%		54 - 148 %	"			n	
	Octacosane (SGCU)			99.1%		62 - 142 %	п			n	
BRJ0052-14	(DUP01-100308)		Soi	il		Sampl	ed: 10/(	)3/08 10:40			
Diesel Range (SGC	CU)	NWTPH-Dx	68.3	1.84	11.5	mg/kg dry	lx	8J03038	10/03/08 15:47	10/04/08 18:03	Q4
Lube Oil Range (S	SGCU)		148	3.67	28.8	н	"	0	"	n	Q4
Surrogate(s):	2-FBP (SGCU)			42.0%		54 - 148 %	ri			"	Z
	Octacosane (SGCU)			70.7%		62 - 142 %	n			"	

TestAmerica Seattle

Kate Haney, Project Manager

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ENSR Inte 1011 SW F Seattle, WA	ernational - Seattle Klickitat Way, Suite 207 A 98134	7		Project Na Project Nu Project Ma	ime: imber: anager:	BNSF- 01140-2 Renee K	BNSF-Skykomish Remedial Design Investigation       801140-204-0320       Report 0         Renee Knecht       10/06/0				
		Physic	cal Paramet	<b>ers by</b> A TestAm	APHA/ erica Sea	ASTM/ attle	'EPA N	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-01	(2B-B-42 (0-2))		Soil			Sam	pled: 10/0	3/08 10:15			
Dry Weight		BSOPSPL003R0 8	90.4		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-02	(2B-B-42 (2-4))		Soil			Sam	pled: 10/0	3/08 10:28			
Dry Weight		BSOPSPL003R0 8	95.1		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-03	(2B-B-42 (4-6))		Soil			Sam	pled: 10/0	3/08 10:20			
Dry Weight		BSOPSPL003R0 8	91.6		1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-04	(2B-B-42 (6-8))		Soil			Sam	pled: 10/0	3/08 10:30			
Dry Weight		BSOPSPL003R0 8	89.3		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-05	(2B-B-43 (0-2))		Soil			Sam	pled: 10/0	3/08 10:40			
Dry Weight		BSOPSPL003R0 8	93.3		1.00	%	lx	<b>8J</b> 03046	10/03/08 18:54	10/04/08 00:00	
BR 10052-06	$(2B_{B_{A}}, B_{A_{A}}, (2, 4))$		Soil			Sam	pled: 10/0	3/08 10:45			
Dry Weight		BSOPSPL003R0 8	92.7		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BR 10052-07	(2B-B-43 (4-6))		Soil			Sam	pled: 10/0	3/08 10:50			
Dry Weight	(20-0-43 (4-0))	BSOPSPL003R0 8	91.3		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	***************************************
BR 10052-08	(2B-B-43 (6-8))		Soil			Sam	pled: 10/0	3/08 10:55			
Dry Weight		BSOPSPL003R0 8	94.1		1,00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BR.10052-09	(2B-B-43 (10-12))		Soil			Sam	pled: 10/0	3/08 11:00			
Dry Weight		BSOPSPL003R0 8	94.4		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-10	(2B-B-44 (0-2))		Soil			Sam	pled: 10/0	3/08 11:30			
Dry Weight	× × - //	BSOPSPL003R0 8	90.1		1.00	%	1x	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-11	(2B-B-44 (2-4))		Soil			Sam	pled: 10/0	3/08 11:35			

BRJ0052-11

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(2B-B-44 (2-4))

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## **ENSR International - Seattle**

Project Name: 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134.

Project Number: 01140-204-0320 Project Manager: Renee Knecht

**BNSF-Skykomish Remedial Design Investigation** 

Report Created: 10/06/08 15:58

		Physic	cal Paramet	t <b>ers by</b> A TestAm	APHA/ erica Sea	ASTM.	/EPA N	lethods			
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRJ0052-11	(2B-B-44 (2-4))		Soil			Sam	pled: 10/0	3/08 11:35			
Dry Weight		BSOPSPL003R0 8	76.0		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-12	(2B-B-44 (4-6))		Soil			Sam	pled: 10/0	3/08 11:40			
Dry Weight		BSOPSPL003R0 8	85.6		1.00	%	lx	8J03046	10/03/08 18:54	10/04/08 00:00	
BRJ0052-13	( <b>2B-B-44</b> (6-8))		Soil			Sam	pled: 10/0	3/08 11:45			
Dry Weight		BSOPSPL003R0 8	90.3		1.00	%	lx	8J03047	10/03/08 18:54	10/04/08 00:00	
BRJ0052-14	(DUP01-100308)		Soil			Sam	pled: 10/0	3/08 10:40			
Dry Weight		BSOPSPL003R0 8	86.9		1.00	%	lx	8J03047	10/03/08 18:54	10/04/08 00:00	

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ENSR Inte	ernational - Seatt	le			Project Na	Name: BNSF-Skykomish Remedial Design Investigation									
1011 SW K	lickitat Way, Suite	207			Project N	umber:	01140-2	204-0320						Report Create	ed:
Seattle, WA	A 98134				Project M	anager:	Renee I	Knecht						10/06/08 15:	:58
	Semivolatile P	etroleum Pro	ducts by l	NWTPH-D	<b>x (w/o Ac</b> TestAme	id/Silica G rica Seattle	el Cle:	an-up) -	Labo	ratory	/ Quality	y Cont	rol Res	sults	
QC Bate	h: 8J03038	Soil Pre	eparation N	1ethod: EF	PA 3550B										
Analyte		Method	Result	MDL	* MRL	Units	Dil	Source Result	Spike Amt	REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (8J030	38-BLK1)								Ext	racted:	10/03/08 15	5:47			
Diesel Range Hydro	carbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							10/04/08 00:30	
Lube Oil Range Hyd	drocarbons		ND	3.19	25,0	"	"							н	
Surrogate(s):	2-FBP Octacosane		Recovery:	97.2% 103%	L	imits: 54-1489 62-142	6 " % "							10/04/08 00:30 "	
LCS (8J03038	3-BS1)								Exti	racted:	10/03/08 15	5:47			
Diesel Range Hydro	carbons	NWTPH-Dx	64.1	1.60	10.0	mg/kg wet	lx		66.7	96.1%	(78-129)			10/04/08 01:16	
Surrogate(s):	2-FBP		Recovery:	94.2%	L	imits: 54-1489	6 "							10/04/08 01:16	
	Octacosane			101%		62-142	% "							n	
Duplicate (8J	03038-DUP1)				QC Sourc	e: BRJ0052-0	2		Exti	racted:	10/03/08 15	:47			
Diesel Range Hydro	carbons	NWTPH-Dx	ND	1,66	10.3	mg/kg dry	lx	ND				NR	(40)	10/04/08 02:02	
Lube Oil Range Hyd	Irocarbons	11	ND	3.30	25,9	"	0	3,54					n	н	
Surrogate(s):	2-FBP		Recovery:	97.2%	L	imits: 54-148%	6 "							10/04/08 02:02	
	Octacosane			99.6%		62-142	% "							"	
Duplicate (8J	03038-DUP2)				QC Source	e: BRJ0052-1	0		Extr	acted:	10/03/08 15	:47			
Diesel Range Hydro	carbons	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 Hyd	lrocarbons		140	3.50	27.5	0		146			••	4.26%	9	u	
Surrogate(s):	2-FBP		Recovery:	97.8%	L	imits: 54-148%	6 "							10/04/08 02:48	
	Octacosane			104%		62-1429	% "							"	
Matrix Spike	(8J03038-MS1)				QC Source	e: BRJ0052-0	2		Extr	acted:	10/03/08 15	:47			
Diesel Range Hydro	carbons	NWTPH-Dx	64.9	1.67	10.4	mg/kg dry	lx	ND	69.4	93.4%	(46-155)			10/04/08 03:35	
Surrogate(s):	2-FBP		Recovery:	92.7%	L	imits: 54-148%	6 "							10/04/08 03:35	
	Octacosane			104%		62-1429	% "							"	

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ENSR Interi	national - Seattle	e			Project Na	ame:	BNSF-	Skykomi	ish Rei	nedia	l Design	Inves	tigation	1	
1011 SW Klie	ckitat Way, Suite 2	207			Project N	umber:	01140-2	204-0320						Report Create	ed:
Seattle, WA	98134				Project M	anager:	Renee k	Knecht						10/06/08 15	:58
	Semivolatile P	etroleum Pro	oducts by	NWTPH-D	x with Ac TestAme	cid/Silica ( rica Seattle	Gel Cle	an-up -	Labor	atory	Quality	Conti	rol Res	ults	
QC Batch:	: 8J03038	Soil Pro	eparation N	Aethod: EP	A 3550B										
Analyte		Method	Result	MDL*	MRL	. Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J03038	-BLK2)								Exti	acted:	10/03/08 15	5:47			
Diesel Range (SGCU)		NWTPH-Dx	ND	1.60	10.0	mg/kg wet	1 <b>x</b>							10/04/08 00:53	
Lube Oil Range (SGCU	U)	11	ND	3.19	25.0	"	μ							u .	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	95.5% 101%	L	imits: 54-1489. 62-142	%" %"							10/04/08 00:53 "	
LCS (8J03038-1	BS2)								Exti	acted:	10/03/08 15	i:47			
Diesel Range (SGCU)		NWTPH-Dx	63.7	1.60	10.0	mg/kg wet	lx		66.7	95.6%	(58-140)			10/04/08 01:39	
Surrogate(s):	2-FBP (SGCU)		Recovery:	94.5%	L	imits: 54-1489	6 "							10/04/08 01:39	
(	Octacosane (SGCU)			101%		62-142	% "							"	
Duplicate (8J03	038-DUP3)				QC Sourc	e: BRJ0052-0	12		Extr	acted:	10/03/08 15	5:47			
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	. (t		ND	3.30	25.9	u .		ND				NR	*1	н	
Surrogate(s): 2	2-FBP (SGCU)		Recovery:	90.6%	L	imits: 54-1489	6 "							10/04/08 02:25	
(	Octacosane (SGCU)			94.3%		62-142	% "							u	
Duplicate (8J03	038-DUP4)				QC Sourc	e: BRJ0052-1	0		Extr	acted:	10/03/08 15	:47			
Diesel Range (SGCU)		NWTPH-Dx	23.7	1.76	11.0	mg/kg dry	lx	24.9				4.94%	(50)	10/04/08 03:11	
Lube Oil Range (SGCU	J)	**	59.2	3.50	27.5			61.3				3.53%	"	8	
Surrogate(s): 2	P-FBP (SGCU)		Recovery:	79.1%	L	imits: 54-1489	6 "							10/04/08 03:11	
C	Octacosane (SGCU)			89.9%		62-142	% "							"	
Matrix Spike (8	J03038-MS2)				QC Sourc	e: BRJ0052-0	2	1.1.10	Extr	acted:	10/03/08 15	:47			
Diesel Range (SGCU)		NWTPH-Dx	61.4	1.67	10.4	mg/kg dry	lx	ND	69.4	88.5%	(46-155)			10/04/08 03:58	
Surrogate(s): 2	P-FBP (SGCU)		Recovery:	85.7%	L	imits: 54-148%	6 "							10/04/08 03:58	

62-142% "

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Kate Haney, Project Manager

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Octacosane (SGCU)

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97.5%



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ENSR International - Seattle Project Name: BNSF-Skykomish Reme						lial Desig	n Inve	stigation	1				
1011 SW Klickitat Way, Sui	ite 207			Project Nun	nber:	01140-2	204-0320					Report Crea	ted:
Seattle, WA 98134				Project Man	ager:	Renee K	Cnecht					10/06/08 1	5:58
	Physical Parar	neters by A	PHA/AST	M/EPA N	1ethod:	s - Lab	oratory	Quality Co	ontrol Res	ults			
			•	TestAmerio	ca Seattl	e							
QC Batch: 8J03046	Soil Pre	paration Met	hod: Dry	Weight									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % Amt RH	C (Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J03046-BLK1)								Extracte	d: 10/03/08 1	8:54			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	lx						10/04/08 00:00	
QC Batch: 8J03047	Soil Pre	paration Met	hod: Dry	Weight									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike % Amt RF	, C (Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8J03047-BLK1)								Extracte	I: 10/03/08 1	8:54			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	1 <b>x</b>						10/04/08 00:00	

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Kate Haney, Project Manager





ENSR Int	VSR International - Seattle			BNSF-Skykomish Remedial Design Inves	tigation			
1011 SW	Klic	kitat Way, Suite 207 P.	roject Number:	01140-204-0320	Report Created:			
Seattle, W	A 9	P8134 P.	roject Manager:	Renee Knecht	10/06/08 15:58			
		Note	es and Defini	tions				
<u>Report Sp</u>	beci:	fic Notes:						
J	-	Estimated value. Analyte detected at a level less than the (MDL). The user of this data should be aware that this d	e Reporting Lin lata is of limited	nit (RL) and greater than or equal to the Method De reliability.	tection Limit			
Q4	-	The hydrocarbons present are a complex mixture of dies	sel range and hea	avy oil range organics.				
Z	-	Due to sample matrix effects, the surrogate recovery wa	s below the acce	ptance limits.				
Laborator	y R	eporting Conventions:						
DET	-	Analyte DETECTED at or above the Reporting Limit. Qu	alitative Analys	es only.				
ND	-	Analyte NOT DETECTED at or above the reporting limit	as appropriate).					
NR/NA	-	Not Reported / Not Available						
dry	-	Sample results reported on a Dry Weight Basis. Results a	nd Reporting Li	mits have been corrected for Percent Dry Weight.				
wet	-	Sample results and reporting limits reported on a Wet Wei on a Wet Weight Basis.	ight Basis (as rec	ceived). Results with neither 'wet' nor 'dry' are repo	rted			
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated	l using Results, r	not Percent Recoveries).				
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or a	above, the lowes	t level standard of the Calibration Table.				
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or a *MDLs are listed on the report only if the data has been ev as Estimated Results.	above, the statist valuated below t	ically derived limit based on 40CFR, Part 136, App he MRL. Results between the MDL and MRL are n	endix B. reported			
Dil	-	Dilutions are calculated based on deviations from the stan- found on the analytical raw data.	dard dilution per	formed for an analysis, and may not represent the c	lilution			
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based or percent solids, where applicable.	n variations in sa	mple preparation amounts, analytical dilutions and				
Electronic Signature	-	Electronic Signature added in accordance with TestAmeri Application of electronic signature indicates that the report	ca's <i>Electronic R</i> t has been revie	Reporting and Electronic Signatures Policy. wed and approved for release by the laboratory.				

TestAmerica Seattle

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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 907-563-9200 FAX 563-9210

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CLIENT: RNSF/ENSE		INVOICE TO: Bruce Shepp	and / BNST	TURNARO in Bu	UND REQUEST iness Days *	
ADDRESS: 101 SW KINCKIT A WOW		Sand-Allbau	w/ENBR	Organic & Ino 10 7 5 4	rganic Analyses	
PHONE: 201, US 4, 9349 FAX:		P.O. NUMBER:		STD. Petroleum Hy	drocarbon Analyses	,
PROJECT NAME: S KUKON IS > ROL		PRESERVA	JIVE	5 4 3	I> X ≤I	
PROPERT NIMBER: A 1 AACOAL OSOD				stb.	-	
		REQUESTED AI	NALYSES	OTHER Spe	cify:	
SAMPLED BY: RENGE FULLT	4 420			* Turnaround Requests less th	an standard may incur Rush Chan	r8es.
CLIENT SAMPLE SAMPLING IDENTIFICATION DATE/TIME	SVHIM HULMIN SOA			MATRIX # OF (W, S, O) CONT.	LOCATION/ TA COMMENTS WO	A
20-0-43 (2-0) 4015	X X			- 5	0	
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2B-B-43(4-6) 6/3/08 1050	XX				.0 -	2
20- 0-43 (6-8) 10/3/08 1055	XX			-	2-	20
,26-B-43(10-12)/2/08/08 1100	××			- 2	2	12
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(rev 4, 01/24/07)

# NOTIFICATION OF DISCREPANCY

DATE: 10.03.08 TIME: 1445	PM: Kate Haney SC INITIALS: CW
Rush/Short Hold? Yes DNo	
<ul> <li>Project Not Set Up in ELM</li> <li>Analysis Requested on COC – Not Liste</li> </ul>	w Client I COC Received ON HOLD ed for Project in ELM
<ul> <li>PM To Add Analysis:</li> <li>Clarification of Analysis:</li> <li>Hold Time Expired: (Analysis)</li> <li>Turnaround Time Not Checked:</li> <li>Did Not Receive Sample(s) Listed on Complementary</li> </ul>	OC:
□ Received Extra Sample(s) Not Listed on	n COC:
□ Sample Description(s) or Date/Time Sa	mpled Do Not Match COC:
<ul> <li>Improper Preservative For method:</li> <li>Sample Received Broken:</li> <li>Insufficient Sample Volume:</li> <li>Sample preserved upon receipt:</li> <li>Temperature Outside recommended ra</li> <li>Received on-ice within 4 hours of coaceptable.</li> <li>Other:</li> </ul>	ange (4°C±2°C): <u>9.5%</u> pollection, temperature between ambient to 2°C
PROJECT MANAGER RESOLUTION:	(Date & Time when returned to SC)
Approval By:	Date: Time:

Attachment 4 – Fiber Optic Cable Laboratory Reports

A Trusted Global Environmental, Health and Safety Partner



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.

Work Order BRK0122 Project BNSF-Skykomish Remedial D ProjectNumber 01140-204-0320

TestAmerica Seattle

Katobung

Kate Haney, Project Manager





ENSR International - Seattle Project		BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	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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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.

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www.testamericainc.com



ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	l
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	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

ww 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.



www.testamericainc.com



ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10

	Semiv	volatile Petrol	eum Produ	cts by N TestAm	WTPF erica Se	<b>i-Dx (w/o</b> attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRK0122-01	(2-B-W-45 (10-12))		Soi	l		Sampl	ed: 11/	1/08 09:30			
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	1.79 3.57	11.2 28.0	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00 "	11/11/08 21:25	
Surrogate(s):	2-FBP Octacosane			88.9% 96.7%		54 - 148 % 62 - 142 %	"			u D	
BRK0122-02	(2B-W-45 (12-14))		Soi	1		Sampl	ed: 11/1	1/08 09:35			
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	1.76 3.50	11.0 27.5	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00	11/11/08 21:48 "	
Surrogate(s):	2-FBP Octacosane			78.3% 88.1%		54 - 148 % 62 - 142 %	11 11			п	
BRK0122-03	(2B-W-45 (14-16))		Soi	1		Sampl	ed: 11/1	1/08 09:40			
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	1.73 3.44	10.8 27.0	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00 "	11/11/08 22:11	
Surrogate(s):	2-FBP Octacosane			88.8% 98.9%		54 - 148 % 62 - 142 %	н 17			" "	<u></u>
BRK0122-04	(2B-W-45 (16-18))		Soi	1		Sampl	ed: 11/1	1/08 09:50			
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx	ND ND	1.71 3.42	10.7 26.8	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00 "	11/11/08 22:34	
Surrogate(s):	2-FBP Octacosane			82.8% 92.9%		54 - 148 % 62 - 142 %				n	
BRK0122-05	(2B-W-46 (10-12))		Soi	l		Sample	ed: 11/1	1/08 12:30			
Diesel Range Hydr Lube Oil Range Hy	rocarbons ydrocarbons	NWTPH-Dx "	ND ND	1.78 3.55	11.1 27.8	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00 "	11/11/08 22:57	
Surrogate(s):	2-FBP Octacosane			77.2% 82.6%		54 - 148 % 62 - 142 %	"			"	
BRK0122-06	(2B-W-46 (12-14))		Soil	l		Sample	ed: 11/1	1/08 12:40			
Diesel Range Hydi	rocarbons	NWTPH-Dx	6,05	1.80	11.3	mg/kg dry	lx	8K11039	11/11/08 17:00	11/11/08 23:20	J
Lube Oil Range H	ydrocarbons	n 	35.0	3.59	28.2	n	н	"	u	1)	
Surrogate(s):	2-FBP Octacosane			85.8% 99.3%		54 - 148 % 62 - 142 %	n n			u u	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Page 4 of 13

Kate Haney, Project Manager



ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	I
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10

	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		
BRK0122-07	(2B-W-46 (14-16))		Soil Sampled: 11/11/08 12:50										
Diesel Range Hydr	rocarbons	NWTPH-Dx	ND	1.76	11.0	mg/kg dry	lx	8K11039	11/11/08 17:00	11/12/08 00:51			
Lube Oil Range Hy	/drocarbons	11	ND	3.50	27.4		u	H	н	н			
Surrogate(s):	2-FBP			83.2%		54 - 148 %	n			n			
	Octacosane			92.1%		62 - 142 %	"			"			
BRK0122-08	(2B-W-46 (16-18))		Soi	I		Sampl	ed: 11/1	1/08 13:00					
Diesel Range Hydr	ocarbons	NWTPH-Dx	ND	1.75	10.9	mg/kg dry	lx	8K11039	11/11/08 17:00	11/12/08 01:14			
Lube Oil Range Hy	/drocarbons	u	ND	3.49	27.4	н			"	п			
Surrogate(s):	2-FBP			90.6%		54 - 148 %	"			n	· · · · · · · · · · · · · · · · · · ·		
0 17	Octacosane			95.3%		62 - 142 %	"			"			

lund Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation						
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:					
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10					

	Semiv	volatile Petrol	leum Produ	testAme	WTPF erica Se	I-Dx with attle	1 Acio	I/Silica G	el Clean-u	)				
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes			
BRK0122-01	(2-B-W-45 (10-12))		Soi	il		Sampl	ed: 11/	11/08 09:30						
Diesel Range (SG Lube Oil Range (S	CU) GGCU)	NWTPH-Dx "	ND ND	1.79 3.57	11.2 28.0	mg/kg dry "	1x "	8K11039 "	11/11/08 17:00 "	11/11/08 21:25				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			76.5% 85.3%		54 - 148 % 62 - 142 %	"			H H				
BRK0122-02	(2B-W-45 (12-14))		Soi	I		Sampl	ed: 11/1	1/08 09:35						
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.76 3.50	11.0 27.5	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00	11/11/08 21:48				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			69.5% 80.6%		54 - 148 % 62 - 142 %	"							
BRK0122-03	(2B-W-45 (14-16))		Soi	1	Sampled: 11/11/08 09:40									
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.73 3.44	10.8 27.0	mg/kg dry "	1x "	8K11039 "	11/11/08 17:00	11/11/08 22:11				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			73.3% 84.5%		54 - 148 % 62 - 142 %	n n			u u				
BRK0122-04	(2B-W-45 (16-18))		Soi	1		Sample	ed: 11/1	1/08 09:50						
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.71 3.42	10.7 26.8	mg/kg dry "	1x "	8K11039 "	11/11/08 17:00	11/11/08 22:34 "				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			70.8% 81.4%		54 - 148 % 62 - 142 %	"			11 11				
BRK0122-05	(2B-W-46 (10-12))		Soi	1	Sampled: 11/11/08 12:30									
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.78 3.55	11.1 27.8	mg/kg dry "	1x "	8K11039 "	11/11/08 17:00	11/11/08 22:57 "				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			66.6% 72.0%		54 - 148 % 62 - 142 %	11 11			U U				
BRK0122-06	(2B-W-46 (12-14))		Soi	1	Sampled: 11/11/08 12:40									
Diesel Range (SGG	CU)	NWTPH-Dx	3.78	1.80	11.3	mg/kg dry	1x	8K11039	11/11/08 17:00	11/11/08 23:20	J			
Lube Oil Range (S	SGCU)	"	21.1	3.59	28.2	n		"		14	.j			
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			70.3% 82.8%		54 - 148 % 62 - 142 %	и н			"				

Kate Haney, Project Manager

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Octacosane (SGCU)





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	l
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10

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	
BRK0122-07	(2B-W-46 (14-16))		Soil Sampled: 11/11/08 12:50									
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx	ND ND	1.76 3.50	11.0 27.4	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00 "	11/12/08 00:51 "		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			73.2% 83.6%		54 - 148 % 62 - 142 %	11 11			n H		
BRK0122-08	(2B-W-46 (16-18))		Soil Sampled: 11/11/08 13:00									
Diesel Range (SGC Lube Oil Range (S	CU) GCU)	NWTPH-Dx "	ND ND	1.75 3.49	10.9 27.4	mg/kg dry "	lx "	8K11039 "	11/11/08 17:00	11/12/08 01:14		
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)			74.2% 80.0%		54 - 148 % 62 - 142 %	"			n N		

und

Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation					
1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project Number: Project Manager:	01140-204-0320 Jennifer Wald	Report Created: 11/12/08 12:10				
Phys	ical Parameters by APHA	ASTM/EPA Methods					

	TestAmerica Seattle											
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BRK0122-01	(2-B-W-45 (10-12))		Soil			Sam	pled: 11/1	1/08 09:30				
Dry Weight		BSOPSPL003R0 8	88.7		1.00	%	lx	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-02	(2B-W-45 (12-14))		Soil			Sam	pled: 11/1	1/08 09:35				
Dry Weight		BSOPSPL003R0 8	90.5		1.00	%	lx	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-03	(2B-W-45 (14-16))		Soil			Samj	pled: 11/1	1/08 09:40				
Dry Weight		BSOPSPL003R0 8	91.8		1.00	%	lx	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-04	(2B-W-45 (16-18))		Soil Sampled: 11/11/08 09:50									
Dry Weight		BSOPSPL003R0 8	91.8		1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-05	(2B-W-46 (10-12))		Soil			Samj	pled: 11/1	1/08 12:30				
Dry Weight		BSOPSPL003R0 8	89.0		1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-06	(2B-W-46 (12-14))		Soil			Samj	pled: 11/1	1/08 12:40				
Dry Weight		BSOPSPL003R0 8	88.5		1.00	%	łx	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-07	(2B-W-46 (14-16))		Soil			Samı	pled: 11/1	1/08 12:50				
Dry Weight		BSOPSPL003R0 8	91.1		1.00	%	lx	8K11029	11/11/08 13:48	11/12/08 00:00		
BRK0122-08	(2B-W-46 (16-18))		Soil			Samp	pled: 11/1	1/08 13:00				
Dry Weight		BSOPSPL003R0 8	91.4		1.00	%	1x	8K11029	11/11/08 13:48	11/12/08 00:00		

Kato Duug 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.

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ENSR Inte	rnational - Seattl	e			Project N	ame: I	BNSF-	Skykomi	ish Rei	nedia	l Design	Inves	stigatio	n	
1011 SW K	lickitat Way, Suite 2	207			Project N	lumber: (	01140-2	204-0320						Report Create	ed:
Seattle, WA	98134				Project N	fanager: J	ennifer	Wald						11/12/08 12	:10
	Semivolatile Po	etroleum Pro	ducts by I	NWTPH-I	<b>Dx (w/o Ac</b> TestAme	cid/Silica G	el Clea	an-up) -	Labor	atory	Quality	Con	trol Res	sults	
QC Batc	h: 8K11039	Soil Pro	eparation N	lethod: E	PA 3550B									········	
Analyte		Method	Result	MDI	.* MRI	L Units	Dil	Source Result	Spike Amt	⁰‰ REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (8K110	39-BLK2)								Extr	acted:	11/11/08 17	;00			
Diesel Range Hydro	carbons	NWTPH-Dx	ND	1.60	10.0	mg/kg wet	lx							11/11/08 19:54	
Lube Oil Range Hyd	lrocarbons	u	ND	3.19	25.0		u							u	
Surrogate(s):	2-FBP Octacosane		Recovery:	84.6% 93.7%	I	Limits: 54-148% 62-1429	6 "							11/11/08 19:54 "	
LCS (8K1103	9-BS2)								Extr	acted:	11/11/08 17	:00			
Diesel Range Hydro	carbons	NWTPH-Dx	62.3	1.60	10.0	mg/kg wet	1x		66,7	93.5%	(78-129)			11/11/08 20:16	
Surrogate(s):	2-FBP Octacosane		Recovery:	82.9% 90.7%	1	Limits: 54-148% 62-142%	" 6 "							11/11/08 20:16 "	
Matrix Spike	(8K11039-MS2)			-	QC Sourc	ce: BRK0122-0	6		Extr	acted:	11/11/08 17	:00			
Diesel Range Hydrod	carbons	NWTPH-Dx	72.8	1.78	11.1	mg/kg dry	1 <b>x</b>	6.05	74.1	90.1%	(46-155)			11/11/08 20:39	
Surrogate(s):	2-FBP Octacosane		Recovery:	85.1% 97.3%	1	Limits: 54-148% 62-142%	, " 6 "							11/11/08 20:39 "	
Matrix Spike D	up (8K11039-MS	D2)			QC Sourc	ce: BRK0122-0	6		Extr	acted:	11/11/08 17	:00			
Diesel Range Hydrod	carbons	NWTPH-Dx	75.4	1.80	11.2	mg/kg dry	1x	6.05	74.9	92.6%	(46-155)	3.45%	6 (40)	11/11/08 21:02	
Surrogate(s):	2-FBP Octacosane		Recovery:	88.7% 103%	1	Limits: 54-148% 62-142%	" 5 "						· · · · · · · · · · · · · · · · · · ·	11/11/08 21:02 "	

TestAmerica Seattle

Kato Duurg_ Kate Haney, Project Manager





ENSR International - Seattle					Project Name:		Skykomi	ish Remedia	l Design I	Invest	igation		
1011 SW K	lickitat Way, Suite 2	207			Project Number:	01140-2	204-0320					Report Create	ed:
Seattle, WA	98134				Project Manager:	Jennifer	Wald					11/12/08 12:	10
	Semivolatile P	etroleum Pro	ducts by ]	NWTPH-Dx	with Acid/Silica	Gel Cle	an-up -	Laboratory	Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Quality Qualit	Contr	ol Resu	ılts	
					TestAmerica Seattl	e							
QC Bate	h: 8K11039	Soil Pre	eparation N	lethod: EPA	3550B								
Analyte		Method	Result	MDL*	MRL Units	Dil	Source Result	Spike % Amt REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8K110	39-BLK1)							Extracted:	11/11/08 17:0	)0			
Diesel Range (SGCU	J)	NWTPH-Dx	ND	1.60	10.0 mg/kg wet	lx					1	1/11/08 19:54	
Lube Oil Range (SG	CU)	н	ND	3.19	25.0 "	н		••				W	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	73.8% 86.2%	Limits: 54-14 62-14	8% " (2% "				<u> </u>		11/11/08 19:54 "	
LCS (8K1103	9-BS1)							Extracted:	11/11/08 17:0	0			
Diesel Range (SGCU	J)	NWTPH-Dx	53,6	1.60	10.0 mg/kg wet	lx		66.7 80.4%	(58-140)		1	1/11/08 20:16	
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	79.2% 81.9%	Limits: 54-14 62-14	3% " 12% "						11/11/08 20:16 "	
Matrix Snike	(8K11039-MS1)				OC Source: BRK012	2-06		Extracted:	11/11/08 17:0	0			

Diesel Range (SGCU	J)	NWTPH-Dx	53.7	1.78	11.1 mg/kg dry	lx	3.78	74.1	67.3%	(46-155)		- 11/11/08 20:39
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	72.4% 76.6%	Limits: 54-148% 62-142%	"						11/11/08 20:39 "
Matrix Spike D	up (8K11039-MS	D1)			QC Source: BRK0122-00	5		Extra	acted:	11/11/08 17	:00	
Diesel Range (SGCU	J)	NWTPH-Dx	56.6	1.80	11.2 mg/kg dry	lx	3.78	74.9	70.6%	(46-155)	5.34% (5	0) 11/11/08 21:02
Surrogate(s):	2-FBP (SGCU)		Recovery:	78.5%	Limits: 54-148%	u						11/11/08 21:02
	Octacosane (SGCU)			83.4%	62-142%	"						n

TestAmerica Seattle

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.

Kate Haney, Project Manager

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<b>ENSR International - Seattle</b>	Project Name:	BNSF-Skykomish Remedial Design Investig	ation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10
		······································	

Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results TestAmerica Seattle														
QC Batch: 8K11029	Soil Prej	paration Met	hod: Dry V	Weight										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8K11029-BLK1)								Extr	acted:	11/11/08 13	:48			
Dry Weight	BSOPSPL00	100		1.00	%	1 <b>x</b>	~*						1/12/08 00:00	

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TestAmerica Seattle

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Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	11/12/08 12:10

#### CERTIFICATION SUMMARY

## **TestAmerica Seattle**

Method	Matrix	Nelac	Washington		
BSOPSPL003R08	Soil				
NWTPH-Dx	Soil		Х		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

WW Kate Haney, Project Manager





ENSR International - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0320	Report Created:
Seattle, WA 98134	Project Manager:	Jennifer Wald	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.
F L	Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic- Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy.SignatureApplication of electronic signature indicates that the report has been reviewed and approved for release by the laboratory.<br/>Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Kato Dung_ Kate Haney, Project Manager


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 11720 North Creek Pkwy N Suite 400, Bodhell, WA 98011-8244
 425-420-9200
 FAX 420-9210

 11922 E. Fust Ave, Spokane, WA 99206-5302
 509-924-9200
 FAX 924-9290

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 503-906-9200
 FAX 906-9210

 W International Airport Rd Ste Alo, Anchorage, AK 99502-1119
 907-563-9200
 FAX 563-9210

Work Order #: DUL DIZZ	TURNAROUND REQUEST	in Business Days * Organic & Inorganic Analyses 10 7 5 4 3 2 4 <	STD. Petroleum Hydrocarbon Analyses			• Turnaround Requests less than standard may incur Rush Charges.	MATRIX # 0F LOCATION/ TA (W, S, O) CONT. COMMENTS WO ID	5 1 0	5 - 23	5 1 03	5 5	SO 1 SO	5	5 - 5	5 1		PAL THE THE PART IN	FIRM: DATE: 6 4 10000000000000000000000000000000000
HAIN OF CUSTODY REPORT	INVOICE TO: SARA ABLANC / END	Bruce Sheppard/BNSF	P.O. NUMBER:	PRESERVATIVE		REQUESTED ANALYSES											DATE: 11/11/08 RECEIVED TO THE TAGE	DATE: RECEIVED BY: TIME: PRUNT NAME:
THE LEADER IN ENVIRONMENTAL TESTING CE	BUSE	REPORT TO: RENEL KNECH I ADDRESS: ENSR SEATTLE, WA	HAX: FAX:	PROIECT NAME: MICH COLV CIRCLE LEVER	Ademinin 2DI - Sky Komish	01/40 - 204 - 6320	CLERYTSAMPLE SAMPLING THE SAMPLING THE SAMPLING DATESTIME	$X \times C $ are solution (cruit shourd of	X X 220 / (nr.cl) 20 - 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	$\mathbf{x} \times \mathbf{x}$ $\mathbf{y}_{c}$	SRAin-Wellix-18) C G CO X X	$X \times X$ (3.30) $X \times$	$X \times OPE (M/G) = (M/G) + (M/G)$	$\mathbf{x} \mathbf{x}$ $\mathbf{x}$ $\mathbf{x}$ $\mathbf{x}$ $\mathbf{x}$	$\lambda = \omega - \psi(k \cdot k) \sqrt{1300} \times \lambda$	6	RELEASED BY: RELEASED BY: FIRM: F.A. R.R. FURM: FURM: F.A. R.R.	RELEASED BY: PRUTI NAME: ADDITIONAL REMARKS:

.

TAT:	Paperwork	to PM – Date: Time:	Non-Conformances?
Page Time & Initials			Circle Y or N
rage rine à milais			(If Y, see other side)
	TEST AMERICA	SAMPLE RECEIPT CHEC	KLIST
Received By:	Logged-in By:	Unpacked/Labeled By:	Cooler ID:
(applies to temp it receipt)	جان (ا	11/1/a	BOV DI22

Date: Date: Date: Date:		work Urder No	
Time: 1650 Time: 1650 Tin	ne:	Client:	
Initials:	itials:	Project:	
Container Type: COC Seals	<u></u>	Packing Material	<u></u>
Cooler Ship Container	Sign By	Bubble Bags	Styrofoam
BoxOn Bottles	Date	Foam Packs	
None/Other None		None/Other	
Refrigerant:		Received Via: Bill#	t Client
			Mid Valley
None/Other			
3			Other
d 200	(Eronon filters Teal)		letals exempt)
Cooler Temperature (IR).7 °C Plastic Glass (circle one)	(Frozen filters, led	ars and aqueous M	
Temperature Blank?°C or NA		Trip Bla	nk? Y ON BY NA
BP, OPLC,ARCO-Temperature monitoring every 15 (initial/date/time): Comments:	i minutes:		
Sample Containers: ID			P
Intact? Y of N	_ Metals Preserved	1? Y or N	(NA)
Provided by TA?	Client QAPP Pre	served? Y or N	grand and a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco
Correct Type? Yr N	_ Adequate Volum	e? (Y⊅r N	
#Containers match COC? A N	_ Water VOAs: He	adspace? Y or N	or NA
IDs/time/date match COCY or N	_ Comments:		<u> </u>
Hold Times in hold?			,
PROJECT MANAGEMENT			
Is the Chain of Custody complete?		Y or N If N, circle t	he 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,	_/ ate Time
PM Initials: Date: Time	):		



SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

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.

Work Order BRL0202

Project BNSF-Skykomish Remedial D ProjectNumber 01140-204-0340

TestAmerica Seattle

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### **AECOM** - Seattle

1011 SW Klickitat Way, Suite 207 Seattle, WA 98134

Project Name: Project Number: Project Manager:

01140-204-0340 Halah Voges

**BNSF-Skykomish Remedial Design Investigation** 

Report Created: 12/19/08 11:16

# 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

und

Kate Haney, Project Manager

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AECOM - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	I
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0340	Report Created:
Seattle, WA 98134	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

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Kate Haney, Project Manager



AECOM - Seattle	Project Name:	BNSF-Skykomish Remedial Desi	gn Investigation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0340	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	12/19/08 11:16

	Sem	ivolatile Petrol	eum Produ	<b>cts by N</b> TestAm	WTPH erica Sea	I-Dx (w/o attle	Acid	/Silica G	el Clean-up	)	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0202-01	(5-W-45-1208)		Wa	ater		Sampl	ed: 12/1	7/08 08:10			
Diesel Range Hydr	ocarbons	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 00:28	
Lube Oil Range Hy	drocarbons	н	ND	0.0849	0.472	u		н	н	0	
Surrogate(s):	2-FBP			89.5%		53 - 125 %	н			"	
0 ()	Octacosane			102%		68 - 125 %	"			"	
BRL0202-02	(5-W-46-1208)		Wa	iter		Sampl	ed: 12/1	7/08 08:55			
Diesel Range Hydr	ocarbons	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 00:49	
Lube Oil Range Hy	drocarbons	IT	ND	0.0849	0.472		u	n	н	u	
Surrogate(s):	2-FBP			85.8%		53 - 125 %	"			n	
0 (7	Octacosane			99.6%		68 - 125 %	"			"	

TestAmerica Seattle

Kate Haney, Project Manager

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	roject Name.	DIVOT-ONYROMISH REMEUTAT DESIGN LUVESUgation	
1011 SW Klickitat Way, Suite 207 P	roject Number:	01140-204-0340	Report Created:
Seattle, WA 98134 P	roject Manager:	Halah Voges	12/19/08 11:16

	Semiv	olatile Petrol	eum Produ	icts by N TestAm	WTPH erica Sea	I-Dx with attle	n Acić	l/Silica G	el Clean-uj	p	
Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BRL0202-01	(5-W-45-1208)		Wa	ater		Sampl	ed: 12/1	7/08 08:10			
Diesel Range (SGC	CU)	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 02:57	
Lube Oil Range (S	GCU)	н	ND	0.151	0.472		"	11	u	н	
Surrogate(s):	2-FBP (SGCU)			79.3%		53 - 125 %	n			"	
	Octacosane (SGCU)			92.5%		68 - 125 %	"			II.	
BRL0202-02	(5-W-46-1208)		Wa	ater		Sample	ed: 12/1	7/08 08:55			
Diesel Range (SGC	CU)	NWTPH-Dx	ND	0.0377	0.236	mg/l	1x	8L18024	12/18/08 14:33	12/19/08 03:18	
Lube Oil Range (S	GCU)	н	ND	0.151	0.472	н		"	u	п	
Surrogate(s):	2-FBP (SGCU)			66.4%		53 - 125 %	"			"	
	Octacosane (SGCU)			78.7%		68 - 125 %	"			"	

TestAmerica Seattle

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Kate Haney, Project Manager

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# AECOM - SeattleProject Name:BNSF-Skykomish Remedial Design Investigation1011 SW Klickitat Way, Suite 207Project Number:01140-204-0340Report Created:Seattle, WA 98134Project Manager:Halah Voges12/19/08 11:16

Semivolatile	Petroleum Pro	ducts by I	NWTPH-D	<b>x (w/o Aci</b> TestAmer	<b>d/Silica G</b> ica Seattle	el Cle	an-up) -	Labo	ratory	⁷ Quality	y Con	trol Res	ults	
QC Batch: 8L18024	Water 1	Preparatio	n Method:	EPA 3510C	2									
Analyte	Method	Result	MDL [,]	* MRL	Units	Dil	Source Result	Spike Amt	e % REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8L18024-BLK1)								Ext	racted:	12/18/08 14	4:33			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	0.0400	0.250	mg/l	lx							12/18/08 22:19	
Lube Oil Range Hydrocarbons	п	ND	0.0900	0.500									н	
Surrogate(s): 2-FBP		Recovery:	93.9%	Lii	nits: 53-1259	6 "							12/18/08 22:19	
Octacosane			97.3%		68-125	% "							"	
LCS (8L18024-BS1)								Ext	racted:	12/18/08 14	1:33			
Diesel Range Hydrocarbons	NWTPH-Dx	1.95	0.0400	0.250	mg/l	1x		2.00	97.4%	(61-132)			12/18/08 22:41	
Lube Oil Range Hydrocarbons	н	2.07	0.0900	0.500	n	н		н	103%	(60-125)			n	
Surrogate(s): 2-FBP		Recovery:	98.3%	Lin	nits: 53-125%	<i>6 "</i>							12/18/08 22:41	<u> </u>
Octacosane			101%		68-125	% "							"	
LCS Dup (8L18024-BSD1)								Ext	racted:	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	u	2.08	0,0900	0.500	u	и			104%	(60-125)	0.617%	6 "	н	
Surrogate(s): 2-FBP		Recovery:	100%	Lin	nits: 53-1259	<i>6 "</i>							12/18/08 23:02	
Octacosane			100%		68-1259	6 "							"	

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AECOM - Seattle	Project Name:	<b>BNSF-Skykomish Remedial Desi</b>	gn Investigation
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0340	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	12/19/08 11:16

		000-000 11 11			TestAmer	ica Seattle									
QC Bate	h: 8L18024	Water	Preparatio	n Method: 1	EPA 35100	2									
Analyte		Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	, % REC	(Limits)	% RPD	(Limits)	) Analyzed	Notes
Blank (8L180	24-BLK1)								Ext	racted:	12/18/08 1	1:33			
Diesel Range (SGC	J)	NWTPH-Dx	ND	0.0400	0,250	mg/l	1x							12/19/08 01:53	
Lube Oil Range (SG	iCU)	14	ND	0.160	0.500	"	в						••	u	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)			Recovery:	95.2% 98.6%	Li	mits: 53-125 68-12.	5% " 5% "							12/19/08 01:53 "	
LCS (8L1802	4-BS1)								Exti	racted:	12/18/08 14	:33			
Diesel Range (SGCU	J)	NWTPH-Dx	1.98	0.0400	0.250	mg/l	lx		2.00	98.9%	(61-132)			12/19/08 02:15	
Lube Oil Range (SG	CU)	"	2.10	0.160	0.500	н	n		4.00	52.5%	(50-150)				
Surrogate(s):	2-FBP (SGCU) Octacosane (SGCU)		Recovery:	96.6% 100%	Lii	nits: 53-125 68-12:	% " 5% "							12/19/08 02:15 "	
LCS Dup (8L	18024-BSD1)								Exti	acted:	12/18/08 14	:33			
Diesel Range (SGCU	J)	NWTPH-Dx	2.04	0.0400	0.250	mg/l	lx		2.00	102%	(61-132)	3.17%	6 (35)	12/19/08 02:36	
Lube Oil Range (SG	CU)	u	2,10	0,160	0.500		н		4.00	52.5%	(50-150)	0.0826	% (50)	n	
Surrogate(s): 2-FBP (SGCU) Octacosane (SGCU)		1	Recovery:	99.9% 101%	Lù	nits: 53-125 68-12:	% " 5% "							12/19/08 02:36 "	

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wird Va. Kate Haney, Project Manager

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AECOM - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0340	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	12/19/08 11:16

#### CERTIFICATION SUMMARY

#### **TestAmerica Seattle**

Method	Matrix	Nelac	Washington	
NWTPH-Dx	Water		Х	

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Temperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC).

TestAmerica Seattle

Kate Haney, Project Manager

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AECOM - Seattle	Project Name:	BNSF-Skykomish Remedial Design Investigation	
1011 SW Klickitat Way, Suite 207	Project Number:	01140-204-0340	Report Created:
Seattle, WA 98134	Project Manager:	Halah Voges	12/19/08 11:16

#### **Notes and Definitions**

#### Report Specific Notes:

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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.
		······································		<b>`</b>

- Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate). ND
- NR/NA Not Reported / Not Available
- Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight. dry _
- Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported wet on a Wet Weight Basis.
- RPD RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries). _
- MRL METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results
- Dil Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting -Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and Limits percent solids, where applicable.
- Electronic - Electronic Signature added in accordance with TestAmerica's Electronic Reporting and Electronic Signatures Policy. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Signature Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Kate Haney, Project Manager

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8		LABORATORY	INFORMATION		LAB WORK ORDER:	
	Laboratory Trost	America	Project Manager:		SHIPMENT INFORMATION	
RAILWAY	APAN 0241	Crar Prin S	the 4 W	425/420-92	Shipment Method:	
CHAIN OF CUSTODY	Caylor Botholl	WA Schil	Fax:	)	Tracking Number:	
BNSF PROJECT INFORMATION	Project State of Ordin		CONSULTANT	VFORMATION	Project Number 01140-204 - 172A	
ansF Project Number.	Project City.	Company:	AECON		Project Manager Halch Van C	
ANSF Project Name: Sku LOMISh		Address: 10	II SW KIICH	cheet huy sterze	Emait:	
ANSF CONTACT Sheppered	ENSF WORK ONDER NO. 100 -	-HDS CINSIADER	HR- WH	78134	1-429 (202) - 3349 - 93 (200) (200)	AN M
	DELIVERABLES	Other Deliverables?		METHODS FOR ANALYS	5	
1-day Rush	BNSF Standard (Level II)					
2-day Rush		EDD Req. Format?	<u>70</u> 7(			
3-day Rush		- रहाज	Surr Tx	v		
SAM	IPLE INFORMATION		10 77 40			
	Sample	e Collection	14			
Same ple identification	Containers	Time Sampler YN Gr			COMMENTS	
5-1-45-1208	m/4/11/4/20	N AND DING.	XX			Į
5-12-46-1700	<b>マー///</b>	NXXC DWLN	Х Х З			
						T
						T
5						
10						
11						
12						
13						
14 55						
Rolitziand By X	Date/Time / AV/ In Ce	Chinese Hace		Date Time: 12-18-102 Co	mments and Special Analytical Requirements:	Γ
Relinquisted By:	DarkTime	Received By:		Date/Time:	soon sellicorder curring	
Reinquished By:	Date/Time:	Received By:		Date/Time:		
Received by Laboratory-	Date/Time	Lab Remarks:		Lab: Custody Intact Cus	bdy Seal No.: BNSF COC No :	
ORIGINAL - RETURN TO LABORATORY WITH SAMPLES		DUPLICATE - CO	DNSULTANT		Rev 10	10/02/05

Page Time & Initials					Circle Y o
ł	TEST AMERIC	CA SAMPLI	E RECEIPT C	HECKLIST	(ii i, see oulei s
Received By: (applies to temp at receipt)	Logged-in By:	Unpao	cked/Labeled B	y: Cooler ID:	
Date: 12-18-08	Date:	Date:_		Work Order No.	
Time: <u>1050</u>	Time:	Time:		Client:	
Initials: DSA	Initials:	Initial	5:	Project:	
Container Type:	<u>C</u>	OC Seals:		Packing Material	
Cooler	Ship Cont	tainer	Sign By	<u>X</u> Bubble Bags	Styrofoa
Box	On Bottles	s	Date	Foam Packs	
None/Other		X None		None/Other _	
Refrigerant:				Received Via: Bill#	
Gel Ice Pack				Fed Ex	Client
				UPS	TA Courier
None/Other				DHL	Mid Valley
				Senvoy	TDP
Cooler Temperature Temperature Blank?	$(IR): _ ^C Plastic 27 ^{1.9} ^{0.7} - 0.3 ^{(circ)}$	Glass (Fr cle one) 3, 0.1,-0.5	ozen filters, Ted	lars and aqueous Me Trip Blan	Other etals exempt) k? Y or N or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments:	( <u>IR):</u> °C Plastic 27, ¹⁻⁹ °C of NA کی از mperature monitoring	Glass (Fr cle one) 3, 0.1,~0.5 9 every 15 mir	ozen filters, Ted	lars and aqueous Me Trip Blan	Other etals exempt) k? Y or N or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers:	( <u>IR):</u> °C Plastic 27, ^{1.9} °C of NA کی (circ 27, ^{1.9} °C of NA کی ( mperature monitoring	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir	ozen filters, Ted	lars and aqueous Me Trip Blan	Other etals exempt) k? Y or N or NA  ID
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact?	( <u>IR):</u> °C Plastic 27, ^{1,9} °C of NA کی (circ mperature monitoring  ID Y or N	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir	ozen filters, Ted	Iars and aqueous Me Trip Blan	Other etals exempt) k? Y or N or NA  ID or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA?	( <u>IR):</u> °C Plastic 2.7, ^{1.9} , °C of NA ^{(circ} imperature monitoring <u>ID</u> Y or N Y or N	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir	ozen filters, Ted nutes: Metals Preserved Client QAPP Pres	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o	Other etals exempt) k? Y or N or NA  ID or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type?	( <u>IR):</u> °C Plastic 2.7, ^{1.9} °C of NA کی (circ imperature monitoring <u>ID</u> Y or N Y or N Y or N	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir	ozen filters, Ted nutes: Metals Preserved Client QAPP Pres	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o ə? Y or N	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C	( <u>IR):</u> °C Plastic 2.7, ^{1.9} ,°C of NA (2.2,1); imperature monitoring Y or N Y or N Y or N Y or N Y or N Y or N	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir	nozen filters, Ted nutes: Metals Preserved Client QAPP Pres Adequate Volume for tests requested) Vater VOAs: He	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o adspace? Y or N o	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C Ds/time/date match 0	( <u>IR):</u> °C Plastic 2.7, ^{1.9} , °C of NA ^{(circ} imperature monitoring Y or N Y or N Y or N Y or N OC? Y or N COC? Y or N	Glass (Fr cle one) 3; 0.1;-0.5 9 every 15 mir / /	Metals Preserved Notes: Metals Preserved Client QAPP Prese Adequate Volume for tests requested) Water VOAs: He Comments:	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o e? Y or N adspace? Y or N o	Other etals exempt) k? Y or N or NA  iD or NA or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C Ds/time/date match C Hold Times in hold?	( <u>IR):</u> °C Plastic 2.7, ^{1.9} , °C of NA (circ imperature monitoring Y or N Y or N Y or N COC? Y or N COC? Y or N Y or N Y or N	Glass (Fr cle one) 3; 0.1;-0.5 9; every 15 mir  0;  (  (  ( 	Metals Preserved Client QAPP Preserved Vater VOAs: He Comments:	Iars and aqueous Me Trip Blan Y or No served? Y or No e? Y or No adspace? Y or No	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C IDs/time/date match C Hold Times in hold? PROJECT MANAGE	( <u>IR):</u> °C Plastic 2.7, ^{1.9} , °C or NA (circ imperature monitoring Y or N Y or N Y or N COC? Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N	Glass (Fr cle one) 3; 0.1;-0.5 9; every 15 mir	Metals Preserved Client QAPP Preserved Adequate Volume for tests requested) Vater VOAs: He Comments:	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o adspace? Y or N o	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C IDs/time/date match C Hold Times in hold? PROJECT MANAGE	( <u>IR</u> ):°C Plastic 2.7, ^{1.9} , °C or NA (circ imperature monitoring Y or N Y or N Y or N COC? Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N Y or N	Glass (Fr cle one) 3; 0.1;-0.5 9; every 15 mir	Metals Preserved Client QAPP Preserved Adequate Volume for tests requested) Water VOAs: He Comments:	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o adspace? Y or N o adspace? Y or N o	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA or NA or NA
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C IDs/time/date match C Hold Times in hold? PROJECT MANAGE Is the Chain of Custor Comments,Problems	( <u>IR</u> ):°C Plastic <u>2.7</u> , ^{1.9} , ^(C) C of NA ( ^(C) ), ^(C) emperature monitoring <u>ID</u> Y or N Y or N Y or N COC? Y or N COC? Y or N Y or N Y or N MENT dy complete?	Glass (Fr cle one) 3; 0.1;-0.5 9; every 15 mir  (  ( 	Metals Preserved Client QAPP Preserved Vater VOAs: He Comments:	Iars and aqueous Me Trip Blan Y or N of served? Y or N of adspace? Y or N of adspace? Y or N of Y or N If N, circle the	Other etals exempt) k? Y or N or NA  iD or NA or NA or NA e items that were incomp
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: Intact? Provided by TA? Correct Type? #Containers match C IDs/time/date match C Hold Times in hold? PROJECT MANAGE Is the Chain of Custor Comments,Problems	( <u>IR</u> ):°C Plastic 2.7, ^{1.9} , °C of NA (2.3), imperature monitoring Y or N Y or N Y or N COC? Y or N Y or N Y or N Y or N Y or N Y or N Y or N	Glass (Fr cle one) 3, 0.1, -0.5 9 every 15 mir  (  (  ( 	Metals Preserved Adequate Volume for tests requested) Vater VOAs: He Comments:	Iars and aqueous Me Trip Blan I? Y or N o served? Y or N o served? Y or N o adspace? Y or N o	Other etals exempt) k? Y or N or NA  <u>ID</u> or NA or NA or NA e items that were incomp
Cooler Temperature Temperature Blank? BP, OPLC,ARCO-Te (initial/date/time): Comments: Sample Containers: intact? Provided by TA? Correct Type? #Containers match C Ds/time/date match C Hold Times in hold? PROJECT MANAGE s the Chain of Custor Comments,Problems	( <u>IR</u> ):°C Plastic 2_7 ^{1.9} °C of NA (circ imperature monitoring Y or N Y or N Y or N COC? Y or N COC? Y or N Y or N Y or N Y or N Y or N Tegarding non-conformanc	Glass (Fr cle one) 3, 0.1,-0.5 9 every 15 mir (0 (0 (0) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Metals Preserved Client QAPP Preserved Adequate Volume for tests requested) Water VOAs: He Comments:	GS lars and aqueous Me Trip Blan 1? Y or N o served? Y or N o e? Y or N adspace? Y or N o Y or N If N, circle the Y or N If N, circle the	Other etals exempt) k? Y or N or NA  in NA or NA or NA e items that were incomp

(rev 4, 01/24/07)

Attachment 5 – Boring Logs

ENSR	AEC	MC					Boring Log	Bori She	ng #: 1/ et 1 of 2	A-B-8B	
Project:	Skykom	ish				Ope	erator: Brian Owens	Location: Skyk	komish, W	A	
Project #: 01140-204-0320						Drill	I Rig Type: Spider Sonic	Northing: 2594	51.96 Ea	sting: <b>1510712.82</b>	
Client: BNSF						Met	thod: Rotosonic	Ground Elevati	on: <b>930.37</b>	' ft.	
Contractor	Boart	Longyea	r Inc.			Cas	sing ID: -	Total Depth: 24 ft.			
Start Date	& Time:	09/19/20	)8 09	950		Bit 1	Type: Carbide Tooth Coring Bit	Seal: Bentonite chips			
Finish Date	e & Time	e: <b>09/19/2</b> 0	08 1	050		Bori	ing ID: 6 in.	Logged By: R. Knecht			
Sample					Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	tion CS/ASTM	Elevation (ft.)	Comments & Sample	

			-					-
						(0.0-0.5) Concrete.	- 930	
C-1	0.5- 5	-	77	-		(0.5-5.0) SW: WELL GRADED SAND WITH GRAVEL, dark brown to yellowish brown at 1.5', fine to coarse, sub angular to sub rounded, equant, loose, moist. At 0.5-1.5' 15% fine to coarse, sub rounded gravel up to 3" in diameter. At 1.5-5', 20% fine to coarse, sub		
						rounded, flat, equant gravel up to 2" in diameter. Trace cobbles up to 6" in diameter. Slight organic odor with wood at 1.5', no visible contamination.	+ 928 -	
							<b>927</b>	
							<b>926</b>	
C-2	5- 10	-	100	-		(5.0-10.0) SP: POORLY GRADED SAND WITH GRAVEL, yellowish gray, fine, loose, moist. 30% fine to coarse, sub rounded, gravel up to 5" in diameter. 15%	<b>925</b>	
						sub angular, medium to coarse, sand. Trace, sub rounded to sub angular cobbles, up to 4" long. No odor or visible contamination.	<b>924</b>	
							<b>923</b>	
							<b>922</b>	
							<b>921</b>	Analytical sample 1A- B-8B-13-15
C-3	10- 15	-	100	-		(10.0-15.0) SW: WELL GRADED SAND WITH GRAVEL, yellowish brown to gray, fine to medium, sub rounded to sub angular, equant, loose, moist. 20-25%	<b>920</b>	taken. TPH: 8960 mg/kg.
						fine to coarse, sub rounded to sub angular, equant and long, gravel up to 2" in diameter. At 10.5-11.5', boulders and rock flour. At 12.5-13' cobbles. Slight bunker-C odor from 14-15', slight bunker-C staining on core bag	+ 919	
					$\mathbf{X}$	Such from 14 10, single burner o starting of the bag.	+ 	
							<b>917</b>	Analytical sample 1A- B-8B-15-17
							+ 916	taken. TPH:   36.95

Remarks and Datum Used:	ft.bas - foot bolow ground surface	Sample Type	Gro	oundwa	ter
	Trogs = leet below ground surface	SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push	9/19/2008	1050	20 ft-bgs
Seattle, WA 98134-1162		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSI	R AEC	COM					Boring Log	Bor She	ing #: 1/ et 2 of 2	<b>∖-B-8B</b>
Project:	Skyko	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	≠: 01140·	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2594	51.96 Eas	sting: 1510712.82
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.37</b>	ft.
Contractor: Boart Longyear Inc.						Cas	ing ID: -	Total Depth: 2	24 ft.	
Start Date & Time: 09/19/2008 0950						Bit 7	Sype: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Date & Time:09/19/2008 1050				3 1050		Bori	ng ID: 6 in.	Logged By: R	. Knecht	
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample
C-4	15-20	-	100	-		- 15	(15.0-20.0) SW: WELL GRADED SAND V GRAVEL, brownish gray, fine to medium, to sub angular, equant, loose, moist. 20-2 coarse, sub rounded to sub angular, equa elongated, gravel up to 2.5" in diameter. B 19-20'. Rock flour from 18-18.75'. Slight b at 19'. No visible contamination.	WITH sub rounded 25% fine to ant to Boulder from bunker-C odor	915 914 913 912 911	mg/kg. Analytical sample 1A- B-8B-17-19 taken. TPH: 5160 mg/kg.
C-5	20- 24	-	100	-		-	(20.0-24.0) SP: SAND, gray, very fine, loc dilatency, wet. 20% silt. Little mica. Bunke surface of sand and silt, rainbow bunker-0 water table at 20'.	ose, slow er-C odor on C droplets on	910 909 909 908 908	Analytical sample 1A- B-8B-19-21 taken. TPH: 10.96 mg/kg.

Remarks and Datum Used	ft has - foot holow ground surface	Sample Type	Gro	oundwa	ter
	Tt-bgs = leet below ground surface	SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push	9/19/2008	1050	20 ft-bgs
Seattle, WA 98134-1162		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSR	AECOM				Boring Log	Boring #: 1A-B-7B Sheet 1 of 2				
Project:	Skykomish			Ope	rator: Brian Owens	Location: Skyl	komish,	WA		
Project #:	01140-204-0320			Drill	Rig Type: Spider Sonic	Northing: 2594	35.01 E	Easting: <b>1510783.80</b>		
Client: BN	SF			Met	hod: Rotosonic	Ground Elevation: 935.63 ft.				
Contractor	: Boart Longyear In	с.		Cas	ing ID: -	Total Depth: 2	0 ft.			
Start Date	& Time:09/19/2008 0	820		Bit 7	ype: Carbide tooth Coring Bit	Seal: Bentoni	te chips	3		
Finish Date	e & Time: <b>09/19/2008</b>	0915		Bori	ng ID: <b>6 in.</b>	Logged By: R. Knecht				
Type I & Number I	Sample Depth Blows Range Per (ft.) 6 Inch	PID (ppm)	Graphic	(ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample		

-	1				0		1+ -	1
						(0.0-0.5) CONCRETE.	+	
SS-1	0.5- 5.0	-	66	-		(0.5-5.0) SW: WELL GRADED SAND WITH SILT, dark brown to yellowish brown, fine to medium, sub	+ 935 - -	
						rounded, loose, moist. 20% silt. 15% coarse sand. 10- 15% fine to coarse, sub rounded, gravel, up to 1.5" in diameter. Trace modum sand, coarse gravel, and	+ - - - 934	
						cobbles. No odor or visible contamination.	÷ 933	
							932	
					5			Analytical sample 1A- B-7B-10-12
55-2	5.0- 10.0	-	100	-		(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	+ + - - - - 930	taken. TPH: 2.45 mg/kg.
						to 6" in diameter. 30% rock flour. No odor or visible contamination.		
							- 928	
							927	Analytical sample 1A- B-7B-12-14
					10		926	2.525 mg/kg.
SS-3	10.0- 15.0	-	100	-		(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.	+ + 924	Analytical
						contamination.	<b>923</b>	sample 1A- B-7B-14-16
					$\overline{\ }$		‡ 922	2.56

Remarks and Datum Used:		Sample Type	Gr	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	ttbgs = feet below ground surface	DP = Direct Push	9/19/2008	0845	13.5 ft-bgs
Seattle, WA 98134-1162 Phone: (206) 624-9349		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSR AEC	COM				Boring Log	Bor She	ing #: 1/ et 2 of 2	А-В-7В
Project: Skyko	mish			Opera	tor: Brian Owens	Location: Sky	komish, W	Α
Project #: 01140	204-0320			Drill Ri	ig Type: <b>Spider Sonic</b>	Northing: 2594	35.01 Eas	sting: <b>1510783.80</b>
Client: BNSF				Metho	d: Rotosonic	Ground Elevat	ion: <b>935.63</b>	ft.
Contractor: Boar	t Longyear Ir	າc.		Casing	g ID: -	Total Depth: 2	20 ft.	
Start Date & Time	e: <b>09/19/2008</b>	0820		Bit Typ	De: Carbide tooth Coring Bit	Seal: Benton	ite chips	
Finish Date & Tin	ne: <b>09/19/2008</b>	8 0915		Boring	ID: 6 in.	Logged By: R	. Knecht	
Sa	ample				Soil and Rock Descrip	tion	ion	Comments
Type Depth & Number Range (ft.)	Blows Per % Rec 6 Inch	PID (ppm)	Graph	(ft.)	Classification Scheme: US	CS/ASTM	Elevat) (ft.)	& Sample
SS-4 15.0- 20.0	- 95	-		- <b>15</b> - ((	(15.0-20.0) SW: WELL GRADED SAND V GRAVEL, brownish gray, fine to medium, ioose, moist. 20% coarse sand. 20% sub sub angular, fine gravel. 10% sub rounder angular, coarse gravel to small cobbles, u diameter. No odor or visible contamination	VITH equant, rounded to d to sub up to 5" in n.	+ 922 - 921 - 920 - 919 - 918 - 917	mg/kg. Analytical sample 1A- B-7B-16-18 taken. TPH: 2.435 mg/kg.

Remarks and Datum Used		Sample Type	Gr	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	ftbgs = feet below ground surface	DP = Direct Push	9/19/2008	0845	13.5 ft-bgs
Seattle, WA 98134-1162		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

AE	COM	1					Boring Log	Bor She	ing #: 1/ et 1 of 2	A-B-8C
Project:	Skykor	nish				Ope	erator: Brian Owens	Location: Sky	komish, W/	A
Project #	#: <b>01140-</b>	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2593	68.68 Eas	ting: <b>1510808.95</b>
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>935.96</b>	ft.
Contract	or: Boart	Long	year lı	nc.		Cas	ing ID: -	Total Depth: 2	5 ft.	
Start Dat	te & Time	:09/19	/2008	1142		Bit 7	Type: HSA coring bit	Seal: Benton	ite chips	
Finish D	ate & Tim	e: <b>09/1</b>	9/2008	3 1220		Bori	ng ID: 6 in.	Logged By: R	. Knecht	
	Sa	mple			<u>ں</u>	~		-	u	Commonto
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	Depti (ft.)	Classification Scheme: US	tion CS/ASTM	Elevati (ft.)	& Sample
C-1	10-15	-	100	-		- 10	(0.0-10.0) Not Sampled. Boring is 11' nort please see log for description. (10.0-15.0) SW: WELL GRADED SAND V GRAVEL, brownish gray, medium to coar rounded, equant, loose, moist. 20-25% ro angular, fine to coarse gravel, up to 2" in 0 fine sand. Trace, sub rounded to sub ang up to 4" in diameter. Slight to moderate bu grains coated from 14-15'.	h of 1A-B-8B, VITH se, sub unded to sub diameter. 15% jular cobbles unker-C odor,	935 934 933 932 931 930 929 929 928 927 926 925 925 924	Analytical sample 1A- B-8C-13-15 taken. TPH: 3610 ma/ka
						-			<b>923</b>	

Remarks and Datum Used	ft bas - foot bolow ground surface	Sample Type	Gr	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push	9/19/2008	1200	17.5 ft-bgs
Seattle, WA 98104 Phone: (206) 624-9349		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

AE	COM	1					Boring Log	Bori She	ing #: 1/ et 2 of 2	A-B-8C
Project:	Skykoi	nish				Ope	rator: Brian Owens	Location: Skyl	komish, W	'A
Project #	#: <b>01140</b> -	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2593	<b>68.68</b> Ea	sting: <b>1510808.95</b>
Client:	BNSF					Met	hod: Rotosonic	Ground Elevati	ion: <b>935.96</b>	6 ft.
Contrac	tor: <b>Boar</b>	t Long	year lı	nc.		Cas	ing ID: -	Total Depth: 2	5 ft.	
Start Da	ite & Time	e: <b>09/1</b> 9	/2008	1142		Bit T	Type: HSA coring bit	Seal: Bentoni	ite chips	
Finish D	ate & Tin	ne: <b>09/1</b>	9/2008	3 1220		Bori	ng ID: <b>6 in.</b>	Logged By: R.	Knecht	
Type & Numbe	Depth r Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	tion CS/ASTM	Elevation (ft.)	Comments & Sample
C-2	20-25	-	100	-		- 15 20 	<ul> <li>(15.0-17.5) SW: WELL GRADED SAND V GRAVEL, brownish gray, medium to coar rounded, equant, loose, moist. 20-25% ro angular, fine to coarse gravel. Trace to 10 rounded to sub angular cobbles up to 4" in No odor or visible contamination.</li> <li>(17.5-18.5) SW: WELL GRADED SAND V brown, medium to coarse, sub rounded, e wet. Silt is brown, medium plasticity, low o 10% rounded, equant cobbles up to 4" in Slight bunker-C odor, rainbow sheen.</li> <li>(18.5-25.0) SP: POORLY GRADED SANI brown grading to gray, very fine, dense, w rapid dilatency, low to no plasticity, firm, s brown and light gray bedding up to 1" thic No odor or visible contamination.</li> </ul>	VITH se, sub unded to sub %, sub n diameter. VITH SILT, quant, loose, dilatency, soft. diameter. D WITH SILT, vet. 20%, ilt. Little light k from 22-25'.	922 921 920 919 919 918 917 916 917 916 915 914 913 912 911	Analytical sample 1A- B-8C-15-17 taken. TPH: 171.8 mg/kg.

Remarks and Datum Used	ft bas - foot bolow ground surface	Sample Type	Gre	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push	9/19/2008	1200	17.5 ft-bgs
Seattle, WA 98104		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENS	RAEC	COM					Boring Log	Bor She	ing #: 1 <i>I</i> et 1 of 2	A-B-8D	
Project:	Skyko	nish				Ope	rator: Brian Owens	Location: Sky	komish, W	٩	
Project #	#: <b>01140</b> -	204-0	320			Drill Rig Type: Spider Sonic Northing: 2593			79.52 Easting: 1510836.40		
Client: E	BNSF					Meth	nod: Rotosonic	Ground Elevat	ion: <b>936.19</b>	ft.	
Contract	tor: <b>Boar</b>	t Long	year			Cas	ing ID: -	Total Depth: 2	25 ft.		
Start Da	te & Time	e: <b>09/2</b> 9	9/2008	1345		Bit T	ype: Carbide Tooth Coring Bit	Seal: Benton	ite chips		
Finish D	ate & Tim	ne: <b>09/2</b>	9/2008	8 1530		Bori	ng ID: <b>6 in.</b>	Logged By: R	. Knecht		
	Sa	ample	)		<u>.</u>	_	Soil and Dook Descrip	4:e.e.	u o	Comments	
Type & Numbe	Depth r Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	(ft.)	Classification Scheme: US	CS/ASTM	Elevati (ft.)	& Sample	
C-1 C-2	0-5	-	100	-		-0	(0.0-5.0) SW: WELL GRADED SAND, yel to brownish gray at 1', fine to coarse, sub sub rounded, loose, dry. From 1-5', 25% s fine gravel up to 3/4" in diameter. 15% co to 2" in diameter. 10% silt from 4.5-5'. No visible contamination. (5.0-20.0) SW: WELL GRADED SAND W grayish brown, fine to coarse, sub angula rounded, equant to elongated, loose, moi fine to coarse gravel. At 5-10', small cobb diameter. At 8.5-9', boulder and rock flour visible contamination.	lowish brown angular to sub rounded, arse gravel up o odor or ITH GRAVEL, ir to sub st. 30-45% les up to 4" in . No odor or	<ul> <li>936</li> <li>935</li> <li>934</li> <li>933</li> <li>932</li> <li>931</li> <li>930</li> <li>929</li> <li>928</li> <li>927</li> <li>926</li> <li>925</li> <li>924</li> <li>923</li> </ul>	Sample 1A- B-8D-14-16 taken. TPH: 6.79 mg/kg.	

Remarks and Datum Used:	Sample Type	Gr	oundwa	ter
	 SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	 DP = Direct Push			
Seattle, WA 98134-1162	 GS = Grab Sample			
Fax: (206) 624-2839	C = Core			

ENSI	R AEC	COM					Boring Log	Bor She	ing #: 1/ eet 2 of 2	4-B-8D
Project:	Skyko	mish				Ope	rator: Brian Owens	Location: Sky	komish, W	Α
Project #	#: <b>01140</b> -	204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2593	79.52 Eas	sting: <b>1510836.40</b>
Client: E	BNSF					Meth	nod: Rotosonic	Ground Elevat	ion: <b>936.19</b>	ft.
Contract	tor: Boar	t Long	year			Casi	ng ID: -	Total Depth: 2	25 ft.	
Start Da	te & Time	e: <b>09/2</b> 9	9/2008	1345		Bit T	ype: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish D	ate & Tin	ne: <b>09/2</b>	29/2008	1530		Borir	ng ID: <b>6 in.</b>	Logged By: R	. Knecht	
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	s % Rec	PID (ppm)	Graphic	Ueptn (ft.)	Soil and Rock Descrip Classification Scheme: US	tion SCS/ASTM	Elevation (ft.)	Comments & Sample
C-4	15-20	-	80	-		- 15			+ 923 + 922 + 921 + 920 + 919 + 918 + 917 + 917	Sample 1A- B-8D-16-18 taken. TPH: 6.95 mg/kg. Sample 1A- B-8D-18-20 taken. TPH: 11.625 mg/kg.
C-5	20-25	-	100	-		- 20	(20.0-25.0) ML: SILT WITH SAND, gray, dilatency, no to low plasticity, stiff, wet. At 20-25% very fine sand. Thin, black, gray laminations from 2mm-1/4" thick. Trace p medium to coarse sand from 20-20.5'. No visible contamination.	rapid 20.75-21.25', and brown ockets of odor or	916 915 914 913 913 912	Sample 1A- B-8D-20-22 taken. TPH: 3.025 mg/kg.

Remarks and Datum Used:	Sample	Туре	Gr	oundwa	ter
	SS = SPT		Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	DP = Direc	ct Push			
Seattle, WA 98134-1162 Phone: (206) 624-9349	GS = Grat	o Sample			
Fax: (206) 624-2839	C = Core				





ENSI	RAEC	COM					Boring Log	Bor She	ing #: 2l et 1 of 2	B-B-44
Project:	Skykor	nish				Ope	erator: Brian Owens	Location: Skyl	komish, W	A
Project #	#: <b>01140-</b>	204-0	230			Drill	Rig Type: Spider Sonic	Northing: 2588	45.58 Eas	sting: <b>1511229.90</b>
Client: B	BNSF					Met	hod: Rotosonic	Ground Elevat	on: <b>930.69</b>	) ft.
Contract	tor: Boar	t Long	yyear			Cas	ing ID: -	Total Depth: 2	0 ft.	
Start Dat	te & Time	e:10/03	3/08 10	52		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Bentoni	te Chips	
Finish Da	ate & Tim	ne: <b>10/(</b>	03/08 1	120		Bori	ing ID: 6 in.	Logged By: R	Kencht	
	Sa	ample	•		<u>.</u>	~			u	Commonts
Type & Number	Depth Range (ft.)	Blows Per 6 Incl	s % Rec 1	PID (ppm)	Graph	(ft.)	Classification Scheme:	otion	Elevati (ft.)	& Sample
C-1	0- 5 5- 10	-	60	- -		-0	<ul> <li>(0.0-0.25) Top soil. Abundant rootlets.</li> <li>(0.25-3.5) SP: POORLY GRADED SAND GRAVEL, brown to gray, fine, loose, mois angular to sub rounded, fine to coarse gra in. long. Trace, flat cobbles up to 4 in. lon 10% rootlets. No odor or visible contamin</li> <li>(3.5-5.0) SP: POORLY GRADED SAND M gray, very fine, loose, soft, moist to wet at Abundant rootlets. Trace mica flakes. No contamination.</li> <li>(5.0-11.0) SW: WELL GRADED SAND, g to coarse, sub rounded to sub angular, ec elongated, loose, wet. 20% very fine sand sub angular, fine to coarse gravel, up to 2 boulder at 7.5-8.5 ft. No odor or visible co</li> </ul>	WITH st. 20% sub avel, up to 2 g. Trace to ation. WITH SILT, t 5'. 30% silt. odor or visible ray, medium quant to 1 and silt. 20% 2-3 in. long. intamination.	<ul> <li>□</li> <li>930</li> <li>929</li> <li>928</li> <li>927</li> <li>926</li> <li>925</li> <li>924</li> <li>923</li> <li>922</li> <li>922</li> </ul>	Analytical sample 2B- B-44-0-2 taken. TPH: 189 mg/kg. Analytical sample 2B- B-44-2-4 taken. TPH: 1579 mg/kg. DUP-01 collected. TPH: 684 mg/kg. Analytical sample 2B- B-44-6 taken. TPH: 48.03 mg/kg. Analytical sample 2B- B-44-6-8 taken. TPH: 4.64 mg/kg.
C-3	10- 15	-	100	-		- 10	(11.0-11.5) SP: POORLY GRADED SAN brown, very fine, wet. Red laminations 0.5 odor or visible contamination.	D, yellowish 5 in. thick. No	- + 921 - + 920 -	

Remarks and Datum Used:	Sample Type	Gr	oundwa	ter	
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push			
Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		GS = Grab Sample			
		C = Core			

ENSR AECOM		Boring Log	Boring #: 2B-B-44 Sheet 2 of 2
Project: Skykomish		Operator: Brian Owens	Location: Skykomish, WA
Project #: 01140-204-0230		Drill Rig Type: Spider Sonic	Northing: 258845.58 Easting: 1511229.90
Client: BNSF		Method: Rotosonic	Ground Elevation: 930.69 ft.
Contractor: Boart Longyear		Casing ID: -	Total Depth: 20 ft.
Start Date & Time: 10/03/08 1052		Bit Type: Carbide Tooth Coring Bit	Seal: Bentonite Chips
Finish Date & Time:10/03/08 1120		Boring ID: 6 in.	Logged By: R. Kencht
Sample           Type & Number         Depth Range (ft.)         Blows Per 6 Inch         PID (ppm)	Graphic Depth	Soil and Rock Descrip Classification Scheme:	ntion
C-4 15 60 - 20		(11.5-18.0) MH: SILT, gray, high plasticity light gray to black laminations. No odor or contamination. <b>15</b> (18.0-20.0) SW: WELL GRADED SAND V GRAVEL, brown to dark brown, medium t rounded to sub angular, loose, wet. 20% s fine gravel. 10% silt. No odor or visible co	VITH o coarse, sub sub rounded ntamination. 919 919 919 919 919 917 917 916 915 914 912 911

Remarks and Datum Used:	Sample	е Туре	Gre	oundwa	ter
	SS = SPT	Г	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	DP = Dire	ect Push			
Seattle, WA 98134-1162 Phone: (206) 624-9349	GS = Gra	b Sample			
Fax: (206) 624-2839	C = Core				

AECO	Μ					Boring Log	Bor She	ing #: 2E et 1 of 2	3-B-43
Project: SKy	komish				Ope	erator: Brian Owens	Location: Skyl	comish, WA	۹
Project #: 0114	0-204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2588	43.23 Eas	ting: <b>1511235.18</b>
Client: BNSF					Met	hod: Rotosonic	Ground Elevat	on: <b>930.97</b>	ft.
Contractor: Bo	art Long	year			Cas	ing ID: -	Total Depth: 2	0 ft.	
Start Date & Ti	me: <b>10/03</b>	3/08 10	)30		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Bentoni	te Chips	
Finish Date & T	ime: <b>10/0</b>	3/08 1	050		Bori	ng ID: <b>6 in.</b>	Logged By: R.	Knecht	
	Sample	)			<b>_</b>	Sail and Book Desarin	tion	o	Comments
Type Dept & Number Rang (ft.)	h Blows e Per 6 Inch	s % Rec	PID (ppm)	Graph	Lept (:ft.)	Classification Scheme:	hon	Elevati (ft.)	& Sample
C-1 0-5 C-2 5-10	-	80	-		-5	(0.0-0.5) SM: SILTY SAND, dark brown, r abundant organics, rootlets and grass. No visible contamination. (0.5-9.0) SW: WELL GRADED SAND WI Light brown grading to gray, fine to coars to sub rounded, equant to elongated, loo wet at 5 ft. 20-25% rounded to sub angula coarse gravel, up to 2" in diameter, coar downhole. No odor or visible contamination	moist, top soil, o odor or TH GRAVEL, e, sub angular se, moist to ar fine to sening on.	930 929 929 928 927 927 926 926 925 925 924 924	Analytical sample 2B- B-43-0-2 taken. TPH: 8.025 mg/kg. Analytical sample 2B- B-43-2-4 taken. TPH: 7.68 mg/kg. Analytical sample 2B- B-43-4-6 taken. TPH: 6.51 mg/kg. Analytical sample 2B- B-43-6-8
						(9.0-10.0) Boulder.		- 922	taken. TPH: 2.57 mg/kg.
C-3 10-1	5 -	100	-		- 10	<b>├</b>		H+ 921 ∣	1

Remarks and Datum Used	Sample Type	Gr	oundwa	ter	
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push			
Seattle, WA 98104 Phone: (206) 624-9349		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

AE	COM	1					Boring Log	Bor She	ing #: 2I et 2 of 2	3-B-43
Project:	SKyko	mish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	#: <b>01140</b> -	204-03	820			Drill	Rig Type: Spider Sonic	Northing: 2588	43.23 Eas	sting: 1511235.18
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.97</b>	ft.
Contract	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	0 ft.	
Start Dat	te & Time	e:10/03	/08 10	30		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	ite Chips	
Finish Da	ate & Tin	ne: <b>10/0</b>	3/08 1	050		Bori	ng ID: <b>6 in.</b>	Logged By: R	Knecht	
	Sa	ample			<u>.</u>	c		<b>4. . . .</b>	Б Б	Comments
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	Dept (ft.)	Classification Scheme:	otion	Elevati (ft.)	& Sample
C-4	15-20		40	-		10	<ul> <li>(10.0-12.0) GP: POORLY GRADED GRA SAND, gray, fine, rounded to sub angular equant, loose, wet. 30% coarse sand. 20° No odor or visible contamination.</li> <li>(12.0-13.0) SW: WELL GRADED SAND, brown, medium to coarse, rounded to sub equant, loose, wet. 10% fine sand. Trace coarse gravel, up to 1" in diameter. No oc contamination.</li> <li>(13.0-15.0) ML: SILT WITH SAND, light b stiff, wet. 20-25% very fine sand. Trace n Trace 1/8 in. thick, red, dark brown and g laminations. No odor or visible contamina</li> <li>(15.0-20.0) GW: WELL GRADED GRAVE coarse, rounded to sub rounded, equant t loose, wet. Cobbles from 3-5" in diameter sand pockets around cobbles. No odor or contamination.</li> </ul>	VEL WITH , elongated to % fine sand. grayish o rounded, rounded lor or visible rown, medium nica flakes. ray tion. EL, gray, to elongated, with silt and visible	921 920 919 919 918 917 917 916 915 915 914 913 913 912 912 911	Analytical sample 2B- B-43-10-12 taken. 2.545 mg/kg.

Remarks and Datum Used:	Sample Type	Gr	oundwa	ter
	 SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000	 DP = Direct Push			
Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839	 GS = Grab Sample			
	C = Core			

ENSE	RAEC	COM					Boring Log	Bor She	ing #: 28 eet 1 of 2	3-B-42
Project:	Skyko	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	t: 01140-	204-02	230			Drill	Rig Type: Spider Sonic	Northing: 2588	339.38 Eas	sting: <b>1511242.53</b>
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	tion: <b>931.17</b>	ft.
Contract	or: <b>Boar</b>	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	te & Time	e:10/03	6/08 09	58		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	ite Chips	
Finish Da	ate & Tim	ne: <b>10/0</b>	3/08 1	025		Bori	ing ID: 6 in.	Logged By: R	. Knecht	
	Sa	ample			<u>ic</u>	۲	Sail and Deak Deserin	4	uo	Comments
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	(ft.)	Classification Scheme:		Elevati (ft.)	& Sample
C-1	0-5	-	80	-		-0	<ul> <li>(0.0-1.0) SM: SILTY SAND, brown, fine, I Abundant rootlets and grass. Slight orgar visible contamination.</li> <li>(1.0-5.0) SW: WELL GRADED SAND, lig medium to coarse, sub angular to sub roo loose, moist. 20-25% sub angular to sub to coarse gravel. 15% sub angular, elong up to 4" diameter. 15% fine sand. No odd contamination.</li> <li>(5.0-10.0) GW: WELL GRADED GRAVEI brownish gray grading to gray, fine to co angular to sub rounded, elongated to equ wet. 30% coarse sand. 10-15% cobbles. sand and silt, increasing to 30% from 7-8 visible contamination.</li> </ul>	oose, moist. hic odor. No ht brown, unded, equant, rounded, fine ated cobbles r or visible 	931 930 929 928 927 927 926 925 925 924 923 922	Analytical sample 2B- B-42-0-2 taken. TPH: 9.97 mg/kg. 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. Analytical sample 2B- B-42-6-8 taken. TPH: 2.68 mg/kg.
C-3	10-15	-	100	-		- - -	<ul> <li>(10.0-12.0) GW: WELL GRADED GRAVE SAND, gray, fine to coarse, sub angular to rounded, elongated to equant, loose, med wet. 30% coarse sand. 10-15% cobbles. sand and silt. No odor or visible contamine</li> <li>(12.0-14.0) MH: SILT WITH GRAVEL, lig plasticity, medium stiff, wet. 20% gravel a sand. rom 12.5-13.0', boulder. No odor of contamination.</li> <li>(14.0-15.0) ML: SILT, gray, non plastic, so fine sand, little laminations from 2mm to a</li> </ul>	EL WITH o sub dium dense, Trace fine ation. ht brown, high and coarse r visible tiff, wet. 10% I/4" thick. No	921 920 919 918 918	

Remarks and Datum Used:	Sample Type	Gr	oundwa	ter
	 SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	 DP = Direct Push		ĺ	
Seattle, WA 98134-1162	 GS = Grab Sample			
Fax: (206) 624-2839	C = Core			

ENSE	R AEC	COM					Boring Log	Bor She	ing #: 2E et 2 of 2	3-B-42
Project:	Skykor	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	: 01140-	204-02	230			Drill	Rig Type: Spider Sonic	Northing: 2588	39.38 Eas	ting: <b>1511242.53</b>
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>931.17</b>	ft.
Contracto	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	e & Time	:1 <b>0/03</b>	/08 09	58		Bit	Type: Carbide Tooth Coring Bit	Seal: Benton	ite Chips	
Finish Da	ate & Tim	ne: <b>10/0</b>	3/08 1	025		Bori	ng ID: <b>6 in.</b>	Logged By: R	. Knecht	
Type & Number	Sa Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme:	tion	Elevation (ft.)	Comments & Sample
C-4	15-20	-	60	-		- 15	(15.0-18.0) ML: SILT,gray to brown at 17. plastic, stiff, wet. Trace fine sand lenses in Little laminations, light gray and black in g yellow and red in brown silt. No odor or vi contamination.	0', non n brown silt. gray silt, sible	916 915 914	
						- 20	(18.0-20.0) SW: WELL GRADED SAND, fine to coarse, sub rounded, equant, loos silt. 10-15% sub rounded to sub angular f Trace coarse gravel up to 2" in diameter. visible contamination.	gray to brown, e, wet. 20% ine gravel. No odor or	912	

Remarks and Datum Used	Sample	е Туре	Gro	oundwa	ter
	SS = SPT	-	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	DP = Dire	ct Push			
Seattle, WA 98134-1162	GS = Gra	b Sample			
Fax: (206) 624-2839	C = Core				

ENSR	AECOM				Boring Log	Boring #: 2B-B-41 Sheet 1 of 1					
Project:	Skykomish			Ope	erator: Ritch Gibson	Location: Skyl	komish, V	VA			
Project #:	01140-204-0320			Drill	Rig Type: Acker HSA 140 lbs.	Northing: 2587	<b>72.00</b> Ea	asting: <b>1510570.42</b>			
Client: BN	SF			Met	hod: HSA	Ground Elevation: 925.87 ft.					
Contractor	: Geologic Drill Ex	oloratior	n Inc.	Cas	sing ID: -	Total Depth: 6 ft.					
Start Date	& Time:09/11/2008	0808		Bit ⁻	Type: HSA coring bit	Seal: Bentoni	te chips				
Finish Date	e & Time: <b>09/11/2008</b>	8 0857		Bor	ing ID: 4.25 in.	Logged By: M. Williams					
Sample            Type         Depth         Blows           & Number         Range         Per (ft.)         % Rec 6 Inch         PID					Soil and Rock Descrip Classification Scheme: US	Soil and Rock Description Classification Scheme: USCS/ASTM		Comments & Sample			

		1	T		0		і г	
SS-1	0.5-3.0	3 3 3 3 3	53	-		(0.5-3.0) CL: CLAY, dark gray, low plasticity, soft, moist. Trace fine sand and gravel toward bottom of section. Trace rootlets and angular charcoal pieces. No odor or visible contamination.	- - - - 925 -	Analytical sample 2B- B-41-0.5-3
							- - - 924 - -	taken. TPH: 20.93 mg/kg.
SS-2	3.0-5.0	3 5 14 23	25	-		(3.0-5.0) SM: SILTY SAND WITH GRAVEL, olive gray, fine, sub rounded to sub angular, elongated to equant, dense, wet. Silt content increases as gravel content decreases downhole. No odor or visible contamination.	- - - - - - - - - - - - - - - - - - -	^z Analytical sample 2B- B-41-3-5 taken. TPH:24.93 mg/kg.
SS-3	5.0-6.0	52 87	75	-	-5	(5.0-6.0) SM: SILTY SAND WITH GRAVEL, olive gray, fine, angular to sub angular, elongated, dense, wet. Gravel increases from 20-60% downhole. No odor or visible contamiantion.	- - - - - - - - - - - - - - - - - - -	Analytical sample 2B- B-41-5-6 taken. TPH:100.4 mg/kg.

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-9349		C = Core				

ENSR	AEC	OM					Boring Log	Boring #: 2B-B-40B Sheet 1 of 1				
Project:	Skykon	nish				Оре	erator: Ritch Gibson	Location: Skyl	komish, W	٩		
Project #:	01140-2	204-0320				Drill	Rig Type: Acker HSA 140 lbs.	Northing: 1510	667.97 Eas	ting: <b>258746.29</b>		
Client: BN	ISF					Met	hod: HSA	Ground Elevation: 926.31 ft.				
Contractor	r: Geolo	gic Drill	Expl	loratior	n Inc.	Cas	sing ID: -	Total Depth: 5 ft.				
Start Date	& Time	09/10/20	08 1	720		Bit ⁻	Type: HSA coring bit	Seal: Bentonite chips				
Finish Date	e & Tim	e: <b>09/10/2</b>	<b>800</b>	1800		Bori	ing ID: 4.25 in.	Logged By: M.	. Williams			
Type & Number I	Sa Depth Range (ft.)	mple Blows Per % 6 Inch	Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample		

SS-1	0.5-3.0	3333	53	-	0 (0.0-0.5) Not sampled. (0.5-3.0) ML: SILT, brown, medium plastici 15% sand. Little charcoal. Trace roots. Mo No odor or visible contamination.	y, soft, dry. ttling at 1'.
		3				-         Analytical sample 2B-           925         B-40B-0.5-3 taken.           -         TPH: 20.93 mg/kg.
						- 924 - -
SS-2	3.0-5.0	3 5 14 23	25	-	(3.0-5.0) ML: SILT WITH SAND AND GRA plasticity, hard, wet. 15% sand. 15% grave rootlets. No odor or visible contamination.	/EL, low . Little 923 - - - - - - - - - - - - - - - - - - -
						- 

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

ENSR	AEC	COM					Boring Log	Bor She	ing #: 2 et 1 of 1	B-B-39B
Project:	Skykor	nish				Ope	rator: Brian Owens	Location: Sky	komish, W	Ά
Project #:	: 01140-	204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2588	<b>04.37</b> Ea	sting: <b>1511149.49</b>
Client: Bl	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>928.96</b>	S ft.
Contracto	or: <b>Boar</b> t	t Long	year			Cas	ing ID: -	Total Depth: 1	0 ft.	
Start Date	e & Time	: <b>09/30</b>	0/08 1 [·]	146		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	ite Chips	
Finish Da	ate & Tim	ne: <b>09/3</b>	<b>0/08</b> 1	1206		Bori	ng ID: <b>6 in.</b>	Logged By: J.	Waknitz	
	Sa	mple	•		<u>.</u>	c		<b>(</b> ¹	uo	Comments
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	Dept (ft.)	Classification Scheme:	ntion	Elevati (ft.)	& Sample
C-1	(ft.) 0-5 5-10	6 Inch	60	-		- <b>0</b> 	(0.0-5.0) ML: SILT WITH GRAVEL, brown plasticity, moist. From 0.0-0.5', organic sil and roots. From 0.5-1.0', silt. From 1.0-5. angular, fine gravel. 10% fine sand. No or contamination. (5.0-10.0) ML: SILT WITH GRAVEL, brow 20%, sub angular fine gravel. From 5.0-8 angular coarse gravel. 10% sub rounded From 8.0-10.0' low plasticity silt. No odor contamination.	n, soft, low t with wood D', 30% sub dor or visible dor or visible vn, soft, wet. 0', 15% sub coarse sand. or visible	□ - - - - - - - - - - - - -	Analytical sample 2B- B-39B-2-4 taken. TPH: 7.985 mg/kg. Analytical sample 2B- B-39B-4-6 taken. TPH: 2.845 mg/kg. Analytical sample 2B- B-39B-6-8 taken. TPH: 2.92 mg/kg. Analytical sample 2B- B-39B-6-8 taken. TPH: 2.92 mg/kg.
						- 10			∔  ↓  ↓ 919	mg/kg.

Remarks and Datum Used:	Sample Type	Groundwater			
	 SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Wav. Suite 207	 DP = Direct Push				
Seattle, WA 98134-1162	 GS = Grab Sample				
Fax: (206) 624-9349	C = Core				

ENSR	AEC	OM					Boring Log	Boring #: 2B-B-39 Sheet 1 of 1					
Project:	Skykon	nish				Ope	erator: Ritch Gibson	Location: Skyl	komish, W	Α			
Project #:	01140-2	204-032	20			Drill	I Rig Type: Acker HSA 140 lbs.	Northing: 1511	1 <b>39.42</b> Eas	sting: <b>258789.58</b>			
Client: BN	ISF					Method: HSA		Ground Elevation: 931.04 ft.					
Contractor	Geolo	gic Dri	ill Exp	oloratio	n Inc.	Cas	sing ID: -	Total Depth: 3 ft.					
Start Date	& Time:	09/10/2	2008	1630		Bit ⁻	Type: HSA coring bit	Seal: Bentonite chips					
Finish Date	e & Tim	e: <b>09/10</b>	/2008	1640		Bor	ing ID: 4.25 in.	Logged By: R.	. Knecht				
Sample        Type     Depth     Blows     PID     Q       & Number     Range     Per     % Rec     (ppm)     U       (fft.)     6 Inch     (ppm)     U					Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	Soil and Rock Description Classification Scheme: USCS/ASTM		Comments & Sample			

					0	(0.0-0.5) Not sampled.	+ 931	
SS-1	0.5-3	1	53	-		(0.5-3.0) MH: SILT, brown to yellowish brown, high plasticity, very stiff, moist. 10-15% fine sand. Trace coarse sand, fine gravel and clay. Little rootlets. Friable, gray clay and silt nodules up to 3/4" in diameter. No odor or visible contamination.	- - - - - - - - - - - - - - - - - - -	Analytical sample 2B- B-39-0.5-3 taken. TPH: 52.3 mg/kg.
							+	

Remarks and Datum Used	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Wav. Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

AECOM		Boring Log		Boring #: 2B-B-38D Sheet 1 of 1			
Project: Skykomish			rator: Brian Owens	Location: Skykomish, WA			
Project #: 01140-204-0320			Rig Type: Spider Sonic	Northing: 258796.80 Easting: 1511137.39			
Client: BNSF			nod: Rotosonic	Ground Elevation: 929.64 ft.			
Contractor: Boart Longyear			ing ID: -	Total Depth: 10 ft.			
Start Date & Time: 09/30/08 1120			ype: Carbide Tooth Coring Bit	Seal: Bentonite Chips			
Finish Date & Time:09/30/08 1137		Boring ID: 6 in.		Logged By: J. Waknitz			
Sample	<u>.</u>			410.0	Б Б	Comments	
Type & NumberDepth Range (ft.)Blows Per 6 InchPID (ppm)	Graph	Dept (ft.)	Classification Scheme:	DTION	Elevati (ft.)	& Sample	
C-1 0-5 - 70 - C-2 5-10 - 60 -		-0	(0.0-5.0) SM: SILTY SAND, Brown to dar loose, wet to moist, medium to low plastic to moist. From 0.0-0.5', wood, roots and o 2.0' abundant rootlets. From 3.5-5.0', con or visible contamination. (5.0-10.0) SM: SILTY SAND, brown, med low plasticity, loose, wet. 15% sub angul 15% sub angular coarse gravel. 5% sub r cobbles up to 4" diameter. No odor or visi contamination.	k brown, fine, bity, soft, wet organics. 0.5- crete. No odor	929 928 927 927 926 925 925 924 923 923 922 922 921 921	Analytical sample 2B- B-38D-0-2 taken. TPH: 27.47 mg/kg. Analytical sample 2B- B-38D-2-4 taken. TPH: 19.29 mg/kg. Analytical sample 2B- B-38D-4-6 taken. TPH: 7.83 mg/kg. Analytical sample 2B- B-38D-6-8 taken. TPH: 2.68 mg/kg.	

Remarks and Datum Used		Sample Type	Groundwater					
AECOM Environment 710 2nd Avenue, Suite 1000 Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839		SS = SPT	Date	Time	Depth (ft.)			
		DP = Direct Push GS = Grab Sample C = Core						
ENSR AECOM		Boring Log			oring #: 2B-B-38C heet 1 of 1			
------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------	------------------------------------	----------------------------------------------------	-----------------------------------------	----------------------------------	----------------------	--	--
Project: Skykomish		Ope	erator: Ritch Gibson	Location: Skyl	komish, W	Α		
Project #: 01140-204-0320		Drill Rig Type: Acker HSA 140 lbs.		Northing: 1511143.12 Easting: 258807.82				
Client: BNSF		Method: HSA		Ground Elevation: 929.14				
Contractor: Geologic Drill Exploration	Inc.	Cas	sing ID: -	Total Depth: 5'				
Start Date & Time: 09/10/2008 1525		Bit Type: HSA coring bit		Seal: Bentonite chips				
Finish Date & Time:09/10/2008		Bori	ing ID: 4.25"	Logged By: R. Knecht				
Sample           Type         Depth         Blows         PID           & Number         Range (ft.)         Per 6 Inch         % Rec (ppm)         PID	Graphic	Uepth (ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample		

SS-1	0.5-3	2 2 2 5 3	26	-	(0.0-0.5) Not sampled. (0.5-3.0) ML: SILT, dark brown, high plasticity, stiff, moist. 15% sand. Trace coarse sand. Little rootlets. No odor or visible contamination.	+ 929 + + + + + + + 928 + +	Secondary location logged. 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.	- - - - - - - - - - - - - - - - - - -	[™] Analytical sample 2B- B-38-3-5 taken. TPH: 7.71 mg/kg.
						-	

Remarks and Datum Used	HSA - Hollow Stom Augor	Sample Type	Groundwater			
	SS	SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-9349		C = Core				

AECON	Λ			Boring Log She			ing #: 2B-B-38 et 1 of 1		
Project: Skyko	mish			Operator: Ritch Gibson Location: Sky			komish. WA		
Project #: 01140	-204-032	0		Drill	Rig Type: Acker HSA 140 lbs.	Northing: 2588	07.82 Eas	sting: 1511143.12	
Client: BNSF				Met	hod: HSA	Ground Elevati	ion: <b>929.14</b>	ft.	
Contractor: Geo	logic Dril	I Exploratio	n Inc.	Cas	ing ID: -	Total Depth: 5	ft.		
Start Date & Tim	e: <b>09/10/2</b>	008 1525		Bit T	Type: HSA coring bit	Seal: Bentoni	ite chips		
Finish Date & Tir	ne: <b>09/10/</b> 2	2008		Bori	ng ID: <b>4.25 in.</b>	Logged By: R.	. Knecht		
S	ample		<u>.</u>	~			uo	Commonte	
Type Depth & Number Range (ft.)	Blows Per % 6 Inch	Rec (ppm)	Graph	(ft.)	Classification Scheme: US	SCS/ASTM	Elevati (ft.)	& Sample	
SS-1 0-3	2 2 5 3 4 5 52 43 76	29		- 0	(0.0-3.0) MH: SILT, dark brown, high plas moist. 15% sand. Trace coarse sand. Littl odor or visible contamination. (3.0-5.0) SW: WELL GRADED SAND WT fine, sub angular, equant, very dense, we gravel and coarse sand. 5-10% silt. No or	ticity, stiff, e rootlets. No TH GRAVEL, t. 45% fine dor or visible	- 929 	Third attempt, 2B-B-38D was logged and analyzed. Analytical sample 2B- B-38-0-2 taken. TPH: 69.6 mg/kg. ∽	
		-		- 5			- - - - - - - - -	Analytical sample 2B- B-38-3-5 taken. TPH: 7.71 mg/kg.	

Remarks and Datum Used:	HSA - Hollow Stem Auger	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push				
Seattle, WA 98104		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

ENSE	R AEC	OM					Boring Log	Bor She	ing #: 2E et 1 of 1	3-B-37	
Project:	Skykon	nish				Ope	erator: Ritch Gibson	Location: Skyl	/komish, WA		
Project #	t: 01140-2	204-03	820			Drill	Rig Type: Acker HSA 140 lbs.	Northing: 1510	0764.12 Easting: 258729.44		
Client: B	INSF					Met	hod: HSA	Ground Elevat	ion: <b>926.94</b>	ft.	
Contract	or: Geolo	ogic D	rill Ex	ploratio	n Inc.	Cas	ing ID: -	Total Depth: 5	.4 ft.		
Start Dat	te & Time	:09/10	/2008	1415		Bit 7	Гуре: <b>2.25" HSA Bit</b>	Seal: Bentoni	te chips		
Finish Da	ate & Tim	e: <b>09/1</b>	0/2008	8 1430		Bori	ng ID: 4.25 in.	Logged By: R	Knecht		
	Sa	mple				c		4:	u	Comments	
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	(ft.)	Classification Scheme: US	CS/ASTM	Elevati (ft.)	& Sample	
SS-1	0-2.5	4 5 6 11 17	40	-		-0	(0.0-2.5) SM: SILTY SAND, brown to dark dense, moist to wet at 2'. 20-30% silt. 10% coarse sand. Trace, rounded, fine to coar to 2" in diameter. Abundant rootlets from wood. No odor or visible contamination.	k brown, fine, 6 medium to se gravel up 0-0.5'. Trace	- - - - 926 -	Analytical sample 2B- B-37-0-2 taken. TPH: 586 mg/kg.	
SS-2	2.5-4.5	5 2 12 17	29	-			(2.5-4.5) SW: WELL GRADED SAND WI brown, medium to coarse, dense, wet. 15 angular gravel up to 3/4" in diameter. Top with trace gravel. Little rootlets. No odor c contamination.	TH GRAVEL, % sub 1" silty sand r visible	- - - - - - - - - - - - - - - - - - -	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 WI brown, fine to coarse, sub angular, equan wet. 15-20% sub angular, gravel up to 1" No odor or visible contamination.	TH GRAVEL, t, very dense, in diameter.	- 923 - - - - 922 -	Analytical sample 2B- B-37-4-5 taken. TPH: 616 mg/kg.	

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

ENSR AECOM	Boring Log	Boring #: 2B-B-36 Sheet 1 of 1
Project: Skykomish	Operator: Ritch Gibson	Location: Skykomish, WA
Project #: 01140-204-0320	Drill Rig Type: Acker HSA 140 lbs.	Northing: 1510758.29 Easting: 258735.56
Client: BNSF	Method: HSA	Ground Elevation: 926.17 ft.
Contractor: Geologic Drill Exploration Inc	nc. Casing ID: -	Total Depth: 4 ft.
Start Date & Time: 09/10/2008 1259	Bit Type: HSA coring bit	Seal: Bentonite chips
Finish Date & Time:09/10/2008 1320	Boring ID: 4.25 in.	Logged By: M. Williams
Sample . <u>o</u>	Soil and Pock Descri	
Type Depth Blows PID & Constant & Number Range Per % Rec (ft.) 6 Inch (ppm) 0	Classification Scheme: U	SCS/ASTM
SS-2 2.5-4 5 29 14 50/6" 29	0 (0.0-0.4) CL: CLAY, dark gray, medium   40% organic silt. Slight organic odor, no contamiantion. (0.4-2.0) ML: SILT WITH SAND AN GR/ gray, medium plasticity, very stiff, moist. decreasing to 0% at 0.04'. At 0.4-2', 30% fine to medium, elongate to equant sand Slight organic odor, no visible contamina (2.0-4.0) SW: WELL GRADED SAND W medium to dark gray, fine to medium, su angular, elongate, very dense, moist to v Gravel ranges from 0.25-1.5", pieces co oderless, dark substance. No odor or vis contamination.	Delasticity, moist.       926         AVEL, dark       926         60% clay       925         and gravel.       925         ITH GRAVEL,       924         b angular to vet at 2.5'.       924         ated with an ible       923         923       Analytical sample 2B-B-36-0-2 taken. TPH: 9050 mg/kg.

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
	S S S S S S S S S S S S S S S S S S S	SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Wav. Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

ENSR AECOM	Boring Log	Boring #: 2B-B-35 Sheet 1 of 1
Project: Skykomish	Operator: Ritch Gibson	Location: Skykomish, WA
Project #: 01140-204-0320	Drill Rig Type: Acker HSA 140 lbs.	Northing: 1510838.36 Easting: 258719.21
Client: BNSF	Method: HSA	Ground Elevation: 926.87 ft.
Contractor: Geologic Drill Exploration Ir	Inc. Casing ID: -	Total Depth: 6.5 ft.
Start Date & Time: 09/10/2008 1130	Bit Type: HSA coring bit	Seal: Bentonite chips
Finish Date & Time:09/10/2008 1210	Boring ID: 4.25 in.	Logged By: M. Williams
Sample		
Type Depth Blows & Number Range Per % Rec (ft.) 6 Inch (ppm)	Lag     Soll and Rock Description       Classification Scheme:     U	SCS/ASTM
SS-1       0-2.5       1       54       -         2       2       2       2       1       1         SS-2       2.5-4.5       1       75       -         SS-3       4.5-6.5       1       79       -	0 (0.0-2.5) CL: CLAY, dark gray to brown, plasticity, medium stiff, moist. 30% silt. In and mottles from 0-1.3'. Trace wood deb No odor or visible contamination. (2.5-4.5) ML: SILT WITH SAND, medium medium plasticity, soft, moist. 60 % clay trace at 3.5'. 40% sand from 3.5-4.5'. Co yellowish brown. No odor or visible conta (4.5-6.5) SM: SILTY SAND, medium bro rounded to sub rounded, equant, very low wood debris. No odor or visible contamin	medium ron staining pris throughout. 926 926 926 Analytical sample 2B- B-35-0-2 taken. TPH: 104 mg/kg. Analytical sample 2B- B-35-2-4 taken. TPH: 104 mg/kg. Analytical sample 2B- B-35-2-4 taken. TPH: 62.7 mg/kg. 923 Analytical sample 2B- B-35-2-4 taken. TPH: 62.7 mg/kg. 924 923 Analytical sample 2B- B-35-2-4 taken. TPH: 19.48 mg/kg.

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push		ĺ		
Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839		GS = Grab Sample				
	C	C = Core		[		

ENSR AECOM BO							Boring Log	Boring #: 2B-B-34 Sheet 1 of 1					
Project:	Skykor	nish				Ope	erator: Ritch Gibson	Location: Sky	komish, W	Α			
Project #:	01140-	204-03	320			Drill	Rig Type: Acker HSA 140 lbs.	Northing: 1510	838.56 Eas	sting: <b>258725.20</b>			
Client: BNSF						Met	hod: HSA	Ground Elevat	ion: <b>926.26</b>	ft.			
Contracto	r: Geolo	ogic D	rill Exp	oloratio	n Inc.	Cas	ing ID: -	Total Depth: 7	ft.				
Start Date	e & Time	:09/10	/2008	1110		Bit 7	Гуре: HSA coring bit	Seal: Benton	te chips				
Finish Dat	te & Tim	ne: <b>09/1</b>	0/2008	3 1128		Bori	ng ID: 4.25 in.	Logged By: M	. Williams				
	Sa	mple			<u>.</u>	-			no	Commonts			
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	Lepti (ft.)	Classification Scheme: US	CS/ASTM	Elevati (ft.)	& Sample			
SS-1	0-3	2 3 3 3 3	66	-		-0	(0.0-1.0) CL: LEAN CLAY, dark gray, low plasticity, medium stiff, moist. 20% silt. 5% wood debris. No odor or visible contamina	to medium 6 sand. Trace ation.	+ + 926 - +	Boring			
		3					(1.0-3.0) SM: SILT AND POORLY GRAD dark gray, medium, loose, moist. 50% silt debris. No odor or visible contamination.	ED SAND, . Trace wood	- - - - - - - - - - - - - - - - - - -	- 925			
SS-2 :	3-5	1 1 1 1	83	-			(3.0-5.0) SM: SILTY SAND, dark gray, fin rounded to rounded, equant, loose, wet. 2 wood debris from 5-7'. No odor or visible contamination.	e, sub 20% silt. Trace	924 - - - - - - - - -	5950 mg/kg. Analytical sample 2B- B-34-2-4 taken. TPH: 31.26 mg/kg.			
SS-3	5-7	1	83	-		-5			- + 922 - - -	Analytical sample 2B- B-34-4-6 taken. TPH: 163.5 mg/kg.			
		1 1 1							+ 921 - - - - - - 920				
									+	Driller says gravel at 7' bgs.			

Remarks and Datum Used:	HSA - Hollow Stom Augor	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push				
Seattle, WA 98134-1162		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

AECO	М					Boring Log	Bor She	ing #: 1A-B-35 eet 1 of 2			
Project: Skyk	omish				Ope	rator: Brian Owens	Location: Skyl	komish, W <i>A</i>	١		
Project #: 0114	0-204-032	20			Drill	Rig Type: Spider Sonic	Northing: 2595	61.63 East	ing: <b>1510594.94</b>		
Client: BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.15</b>	ft.		
Contractor: Boa	rt Longy	vear			Cas	ing ID: -	Total Depth: 3	5 ft.			
Start Date & Tir	ne: <b>10/06/</b> 2	2008	1100		Bit T	Type: Carbide Tooth Coring Bit	Seal: Bentoni	ite chips			
Finish Date & T	me: <b>10/06</b>	6/2008	1215		Bori	ng ID: <b>6 in.</b>	Logged By: J.	Waknitz			
Type Depth	Blows			shic	u .	Soil and Rock Descrip	tion	ation t.)	Comments		
& Number Range (ft.)	Per 6	% Rec	PID (ppm)	Graf	n n n E €	Classification Scheme: US	CS/ASTM	Eleva (f	& Sample		
C-1 0-5 C-2 5-10	-	60	-		-5	(0.0-5.0),(0.0-3.5) SW: WELL GRADED S fine to medium, sub rounded, equant, loco 0-2', 10% coarse gravel. Trace roots. At 2 medium sand. No odor or visible contamin (5.0-10.0),(3.5-7.1) SP: POORLY GRADE WITH GRAVEL, brown, medium, sub roun loose, moist. At 5-7', medium sand. At 7-8 10% silt. 8-10', 40% sub rounded, equant 10% sub rounded, equant, flat, coarse gra or visible contamination.	AND, brown, se, moist. At -5', fine to hation. D SAND hded, equant, if fine sand. , fine gravel. avel. No odor	929 928 927 926 925 924 923 922 922 921 921 920	45 degree angle boring. Sample 1A- B-35-10 taken. TPH: 7660 mg/kg.		
C-3 10-15	-	80	-		- 10	(10.0-12.0),(7.1-8.5) SM: SILTY SAND W brown, fine, sub rounded, equant, loose, sub angular, equant, fine gravel. 10% sub equant, coarse gravel up to 2.5". No odor contamination.	ITH GRAVEL, moist. 35% rounded, or visible	919 918	Sample 1A- B-35-14 taken. TPH: 88.4		
				I		(12.0-14.0),(8.5-10.0) Boulder.		+ 917	шу/ку.		
C-4 15-25	_	80	-		- 15	(14.0-15.0),(10.0-10.6) SP: POORLY GR/ WITH GRAVEL, light brown, coarse, sub equant, loose, moist. 20% sub rounded, e gravel. 5% sub rounded, flat cobbles. Moo C odor and sheen.	ADED SAND angular, quant, fine derate bunker-	916 915 914	Sample 1A- B-35-15 taken. TPH: 14540 rg/kg.		
						(15.0-18.0),(10.6-12.7) SP: POORLY GR/ WITH SILT AND GRAVEL, light brown an sub rounded, equant, loose, wet. 20% sut equant, coarse gravel. 10% non-plastic si rounded, equant cobbles. No odor or visit contamination.	ADED SAND d gray, fine, o rounded, lt. 5%, sub ole	913 912	DUP-01 collected. TPH: 2670 mg/kg.		

Remarks and Datum Used:	First depth interval is at angle	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
AECOM Environment	Second depth interval is vertical depth	DP = Direct Push				
Seattle, WA 98104 Phone: (206) 624-9349		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

AE	COM	1					Boring Log	Bor She	ing #: 1/ et 2 of 2	A-B-35
Project:	Skykoi	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	#: <b>01140</b> -	204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2595	61.63 Eas	sting: <b>1510594.94</b>
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.15</b>	ft.
Contract	tor: <b>Boar</b>	t Long	year			Cas	sing ID: -	Total Depth: 3	65 ft.	
Start Da	te & Time	e:10/06	6/2008	1100		Bit	Type: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish D	ate & Tin	ne: <b>10/0</b>	6/2008	1215		Bori	ing ID: 6 in.	Logged By: J.	Waknitz	
	Sa	ample	•		<u>.</u>	ء	Sail and Beak Description	4 <b>:</b>	Б С	Comments
Type & Number	Depth r Range (ft.)	Blows Per 6 Inch	s % Rec	PID (ppm)	Graph	Dept (ft.)	Classification Scheme: US	SCS/ASTM	Elevati (ft.)	& Sample
C-5 C-6	25-30	-	90	-		- 20	<ul> <li>(18.0-22.0),(12.7-15.6) SP: POORLY GR. WITH SILT AND GRAVEL, light brown, fir rounded, equant, loose, wet. 20% sub rou coarse gravel. 10% non-plastic silt. 5% s equant cobbles. Strong bunker-C odor, la to 2" long.</li> <li>(22.0-25.0),(15.6-17.7) SP: POORLY GR. brown, medium, sub rounded, equant, loc sub rounded, equant cobbles. 5% silt. Slig odor, no visible contamination.</li> <li>(25.0-29.0),(17.7-20.5) ML: SILT, brown, slow dilatency, non-plastic, wet. 10% very odor or visible contamination.</li> <li>(29.0-30.0),(20.5-21.2) ML: SILT, brown, slow dilatency, low plasticity, wet. No odo contamination.</li> <li>(30.0-31.0),(21.2-21.9) SM: SILTY SAND medium dense, wet. 20%, low plasticity, silt. No odor or visible contamination.</li> <li>(31.0-35.0),(21.9-24.8) SW: WELL GRAD brown, fine to medium, sub rounded, equat cobbles. silt. No odor or visible contamination.</li> </ul>	ADED SAND ne, sub inded, equant, ub rounded, rge blebs up ADED SAND, ose, wet. 5% ght bunker-C medium stiff, fine sand. No medium stiff, r or visible , brown, fine, slow dilatency DED SAND, ant, loose, At 31-35', 5%	911 909 909 908 907 906 905 904 903 904 903 902 901 900 899 899 898 898 897 896 895	Sample 1A- B-35-16 taken. TPH: 34.15 mg/kg. Sample 1A- B-35-17 taken. TPH: 5.495 mg/kg.

Remarks and Datum Used:	First denth interval is at angle	Sample Type	Gre	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000	Second depth interval is vertical depth	DP = Direct Push			
Seattle, WA 98104 Phone: (206) 624-9349		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSE	AEC	COM				_	Boring Log	Bor She	ing #: 1 et 1 of 1	A-B-34
Project:	Skykor	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	/A
Project #	: 01140-	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2595	54.17 Ea	sting: 1510662.98
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.2</b>	8 ft.
Contracto	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	e & Time	e:10/01	/2008	1400		Bit 7	Гуре: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Da	ate & Tim	ne: <b>10/0</b>	1/2008	1440		Bori	ng ID: 6 in.	Logged By: J.	Waknitz	
	Sa	mple	)		hic		Soil and Rock Descrip	otion	tion .)	Comments
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Grap	de ti	Classification Scheme: US	SCS/ASTM	Eleva (ft	& Sample
C-1 C-2 C-3	0-5 5-10 10-15	-	70 100	-		- 5	<ul> <li>(0.0-3.0) SP: POORLY GRADED SAND, coarse, sub angular, equant, loose, moist concrete sub base. At 2-3' 20% sub round gravel. No odor or visible contamination.</li> <li>(3.0-5.0) OL: ORGANIC SOIL, black, moi non plastic, soft silt and wood debris. At 3 rounded, equant cobbles up to 4" in diam or visible contamination.</li> <li>(5.0-10.0) SP: POORLY GRADED SANE GRAVEL, light brown, medium, sub angulose, moist. 20% sub rounded, equant, f 10% sub angular, equant, coarse gravel. boulder and cobbles. No odor or visible contamination</li> <li>(10.0-13.0) SW: WELL GRADED SAND N GRAVEL, light brown, fine to medium, sub</li> </ul>	brown, At 1-2', ded, fine st. At 3-3.5', 3.5-5', 10% heter. No odor D WITH lar, equant, ine gravel. At 7-9', ontamination. WITH b angular,	930 929 928 927 926 925 924 923 922 921 920	Sample 1A- B-34-15-17
						- 15	GRAVEL, light brown, fine to medium, su equant, loose, moist. 10% sub rounded, e gravel. Trace, sub rounded, equant, coars Trace, rounded, equant cobbles. No odor contamination.	or visible	919 918 917 917 916	B-34-15-17 taken. TPH: 12.12 mg/kg. Sample 1A- B-34-17-19
C-4	15-20	-	100	-		13	<ul> <li>(13.0-15.0) BOULDERS. At 15', 10% sub equant, fine gravel. 10% non plastic silt. N visible contamination.</li> <li>(15.0-20.0) SM: SILTY SAND WITH GRA brown, medium to coarse, sub angular, explanation.</li> </ul>	rounded, No odor or VEL, light quant, loose,	915 914 913	taken. TPH: 16.31 mg/kg. ∽ Sample 1A-
						- 20	wet at 17'. 20% sub rounded, equant, fine sub rounded, flat, coarse gravel. Trace co in diameter. Trace silt. No odor or visible contamination.	e gravel. 10% obbles up to 5"	+ 912 + 911	B-34-19-21 taken. TPH: 2.605 mg/kg.

Remarks and Datum Used:	Sample Type	Groundwater			
	 SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207	 DP = Direct Push				
Seattle, WA 98134-1162	 GS = Grab Sample				
Fax: (206) 624-2839	C = Core				

AE	CON	1					Boring Log	Bor She	ing #: 1A et 1 of 2	A-B-33	
Project:	Skykoi	nish				Ope	erator: Brian Owens	Location: Sky	komish, W <i>l</i>	A	
Project #	≠: <b>01140</b> •	204-0	320			Drill	Rig Type: Spider Sonic	Northing: 259541.72 Easting: 1510599.5			
Client: B	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.52</b>	ft.	
Contract	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	25 ft.		
Start Dat	te & Time	e: <b>10/0</b> 1	/2008	1007		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	ite chips		
Finish Da	ate & Tin	ne: <b>10/0</b>	1/2008	3 1250		Bori	ng ID: 6 in.	Logged By: J.	Waknitz		
	Sa	ample	)		<u>.</u>		Sail and Baak Descrip	4:00	u	Comments	
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	(:t)	Classification Scheme: US	CS/ASTM	Elevati (ft.)	& Sample	
C-1	0-5	-	70	-		-0	(0.0-5.0),(0.0-3.5) SW: WELL GRADED S brown to black at 4', fine to coarse, sub ar equant, loose, damp. At 0-0.5' grass roots 15% sub rounded, equant, coarse gravel. black, medium sand. At 4.5-5', 10% silt. N visible contamination.	AND, dark ngular, s. At 0.5-4', At 4-4.5', lo odor or	929 928 927 927 926 925 924 923 922	45 degree angle boring.	
C-3	10-15	-	100	-		- 10	<ul> <li>(9.0-10.0),(3.5-7.1) SP: POORLY GRADE</li> <li>light brown, fine, sub angular, equant, loo 5-9', boulder. At 9-10', 20% sub angular, f gravel. 10% sub angular, flat, coarse grav visible contamination.</li> <li>(10.0-15.0),(7.1-10.6) SP: POORLY GRA</li> <li>WITH GRAVEL, brown, coarse, sub angu loose, wet at 14'. At 10-12', 10% sub angu gravel. 10% sub angular, coarse gravel. A boulder. At 13-15', 20% sub angular, flat, No odor or visible contamination.</li> </ul>	ED SAND, se, moist. At lat, fine rel. No odor or DED SAND lar, equant, ular, fine tt 12-13', fine gravel.	921 920 919 919 918 917 916	Sample 1A- B-33-11-13 taken. TPH: 4780 mg/kg.	

Remarks and Datum Used:	First depth interval is at angle	Sample Type	Gre	oundwa	ter
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000	Second depth interval is vertical depth	DP = Direct Push			
Seattle, WA 98104		GS = Grab Sample			
Fax: (206) 624-9349		C = Core			

AE	CON	1					Boring Log	Bor She	ing #: 1/ et 2 of 2	А-В-33
Project:	Skyko	mish				Ope	rator: Brian Owens	Location: Skyl	komish, W	A
Project #	≠: <b>01140</b> ∙	-204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2595	41.72 Eas	sting: <b>1510599.56</b>
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.52</b>	ft.
Contract	tor: <b>Boar</b>	t Long	year			Cas	ing ID: -	Total Depth: 2	5 ft.	
Start Da	te & Time	e: <b>10/0</b> 1	/2008	1007		Bit T	ype: Carbide Tooth Coring Bit	Seal: Bentoni	ite chips	
Finish D	ate & Tin	ne: <b>10/0</b>	1/2008	3 1250		Bori	ng ID: <b>6 in.</b>	Logged By: J.	Waknitz	
Type & Number	Sa Depth r Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Uepth (ft.)	Soil and Rock Descrip Classification Scheme: US	tion CS/ASTM	Elevation (ft.)	Comments & Sample
									916 	
C-4	15-20	-	100	-		- 15	(15.0-20.0),(10.6-14.1) SM: SILTY SAND GRAVEL, light brown, medium, sub angu loose, wet at 10'. 15-16', 35% sub angula 10% sub rounded, equant, coarse gravel. 20% sub angular, equant, fine gravel. 10% silt. Bunker-C odor at 16-20'. Slight sheer	WITH lar, equant, r, flat, gravel. At 16-18', % non plastic n.	914 913 913	Sample 1A- B-33-13-15 taken. TPH: 7780 mg/kg. Sample 1A- B-31-16 taken TPH:
						- 20			+ + 911 + + 910	13.105 mg/kg. Sample 1A- B-31-17 taken. TPH:
C-5	20-25	-	100	-			(20.0-24.0),(14.1-17.0) SP: POORLY GR. WITH GRAVEL, light brown, coarse, sub equant, loose, wet. At 18-20', boulder. 10' angular, equant, fine gravel. 10% sub ang coarse gravel. Slight odor and sheen.	ADED SAND angular, % sub gular, flat,	909 908 908 907 907 906	3.25 mg/kg.
						- 25	(24.0-25.0),(17.0-17.7) SM: SILTY SAND fine, sub angular, equant, loose, wet. 20% silt. Slight odor and sheen.	, light brown, 6 non plastic	905	

Remarks and Datum Used:	First depth interval is at angle	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)	
AECOM Environment 710 2nd Avenue, Suite 1000	Second depth interval is vertical depth	DP = Direct Push				
Seattle, WA 98104		GS = Grab Sample				
Fax: (206) 624-2839		C = Core				

ENSE	AEC	COM					Boring Log	Bor She	ing #: 1/ et 1 of 2	A-B-32
Project:	Skykor	nish				Ope	rator: Brian Owens	Location: Sky	komish, W	Α
Project #	: 01140-	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2594	84.54 Eas	sting: 1510676.35
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.33</b>	ft.
Contracto	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	e & Time	e:10/01	/2008	0800		Bit 7	ype: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Da	ate & Tim	ne: <b>10/0</b>	1/2008	3 0920		Bori	ng ID: <b>6 in.</b>	Logged By: J.	Waknitz	
	Sa	ample			<u>.</u>	c	Coll and Dook Descrip	41.0.0	u	Comments
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graph	Lept (ft.)	Classification Scheme: US	SCS/ASTM	Elevati (ft.)	& Sample
C-2 C-3	0-5	-	80	-		-5	<ul> <li>(0.0-3.5) SW: WELL GRADED SAND WI'light brown, fine to coarse, sub rounded, edry. Trace wood debris. At 0-1', apshalt w base. At 1-3.5', 30% sub angular, equant, gravel. 10% sub angular, fine gravel. No o contamination.</li> <li>(3.5-5.0) SW: WELL GRADED SAND, light to medium, sub rounded, equant, coarse, boulder. At 4-5', 10% sub rounded, coars 3" in diameter. 5% sub rounded, fine gravor visible contamination.</li> <li>(5.0-10.0) SW: WELL GRADED SAND W light brown, medium to coarse, sub round loose, moist. At 6-9', 30% sub angular, edgravel. 10% sub angular, equant, coarse and 9-10', boulders. 4" bed of fine gravel. visible contamination.</li> <li>(10.0-15.0) SW: WELL GRADED SAND V GRAVEL, light brown, medium to coarse, and 9-10', boulders. 4" bed of fine gravel. visible contamination.</li> </ul>	TH GRAVEL, equant, loose, ith gravel sub- coarse odor or visible ht brown, fine dry. At 3.5-4', se gravel up to vel. No odor TTH GRAVEL, ded, equant, quant, fine gravel. At 5-6' No odor or WITH sub rounded, e gravel. 10% meter. 10% light bunker-C	929 928 927 927 926 925 924 923 922 922 921 920 921 920 919 919 918	Sample 1A- B-32-13-15 taken. TPH: 1074 mg/kg. DUP-01 collected. TPH: 1522 mg/kg.
									916	

Remarks and Datum Used:	Sample Type	Groundwater			
	 SS = SPT	Date	Time	Depth (ft.)	
1011 SW Klickitat Way, Suite 207	 DP = Direct Push				
Seattle, WA 98134-1162 Phone: (206) 624-9349 Fax: (206) 624-2839	GS = Grab Sample				
	C = Core				

ENSR AECOM							Boring Log	Boring #: 1A-B-32 Sheet 2 of 2			
Project:	Skyko	nish				Ope	rator: Brian Owens	Location: Sky	komish, W	A	
Project #	t: 01140	204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2594	84.54 Eas	sting: 1510676.35	
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>929.33</b>	ft.	
Contract	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.		
Start Dat	te & Time	e: <b>10/0</b> 1	/2008	0800		Bit 7	Sype: Carbide Tooth Coring Bit	Seal: Benton	ite chips		
Finish Da	ate & Tin	ne: <b>10/0</b>	1/2008	3 0920		Bori	ng ID: 6 in.	Logged By: J.	. Waknitz		
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	Dtion SCS/ASTM	Elevation (ft.)	Comments & Sample	
C-4	15-20	-	100	-		- 15	(15.0-18.0) SW: WELL GRADED SAND ' GRAVEL, light brown, fine to coarse, sub equant, loose, wet. At 15-18', 20% sub ro	WITH o rounded, ounded, fine	+ 915 + 914	Sample 1A- B-32-15-17 taken. TPH: 3.175 mg/kg.	

		equant, loose, wet. At 15-18', 20% sub rounded, fine gravel. 10% silt. sheen and odor. Slight bunker-C sheen and odor.		
			+ + 912	Sample 1A- B-32-17-19 taken, TPH:
		(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.	+ + 911	2.595 mg/kg.
	20		+ 910 +	

Remarks and Datum Used:	Sample Type	Groundwater			
	 SS = SPT	Date	Time	Depth (ft.)	
ENSR 1011 SW Klickitat Way, Suite 207	 DP = Direct Push				
Seattle, WA 98134-1162	 GS = Grab Sample				
Fax: (206) 624-9349	 C = Core				

AE	CON	1					Boring Log	Bor She	ing #: 1/ et 1 of 2	A-B-31
Project:	Skykoi	nish				Ope	erator: Brian Owens	Location: Sky	komish, W	A
Project #	: 01140-	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2595	87.16 Eas	ting: <b>1510620.17</b>
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.46</b>	ft.
Contracto	or: Boar	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	te & Time	e:09/30	/2008	1523		Bit ⁻	Type: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Da	ate & Tim	ne: <b>09/3</b>	0/2008	3 1545		Bor	ing ID: 6 in.	Logged By: J.	Waknitz	
Turne	Sa	ample	1		hic	fž .	Soil and Rock Descrip	otion	ttion )	Comments
& Number	Range (ft.)	Per 6 Inch	% Rec	PID (ppm)	Grap	де <u>т</u>	Classification Scheme: US	CS/ASTM	Eleva (ft	& Sample
C-1	0-5	-	80	-		<b>0</b> 	(0.0-5.0) SW: WELL GRADED SAND WI brown, medium to coarse, sub angular, ed dry to moist at 3'. At 0-2', 10% sub rounde 5% sub rounded cobbles. At 3-5', 20% su coarse gravel up to 3" in diameter. 10% s fine gravel. Trace silt. No odor or visible c	TH GRAVEL, quant, loose, ed, fine gravel. Jb rounded, ub rounded, ontamination.	930 929 928	
C-2	5-10	-	80	-		5	(5.0-10.0) SW: WELL GRADED SAND W brownish gray, medium to coarse, sub ar	ITH GRAVEL,	927 926 925	
						-	equant, loose, moist. From 5-8', 20% sub and coarse gravel. From 8-10', 20% sub a fine gravel. 10% cobbles, sub rounded, up diameter. No odor or visible contamination	angular, fine angular, flat, o to 4" in n.	924 923	
C-3	10-15	-	100	-		- 10	(10.0-16.0) SP: POORLY GRADED SANI GRAVEL, brown, coarse, sub angular, eq wet at 14'. At 10-12', 20% sub angular fine gravel. At 12-13', boulder. At 13-15', 20% flat, fine gravel. At 15-16', 10% sub angula No odor or visible contamination.	D WITH uant, loose, e and coarse sub angular, ar, fine gravel.	922 921 920 919 919 918	Sample 1A- B-31-12-14 taken. TPH: 2.535 mg/kg. Sample 1A- B-31-14-16
						-			- - - 917	taken. TPH:   2.62   mg/kg.

Remarks and Datum Used	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push			
Seattle, WA 98104 Phone: (206) 624-9349 Fax: (206) 624-2839		GS = Grab Sample			
		C = Core			

AE	CON	1					Boring Log	Bori She	ing #: 1 <i>4</i> et 2 of 2	<b>\-В-31</b>
Project:	Skyko	mish				Ope	erator: Brian Owens	Location: Skyl	komish, W/	A
Project #	#: 01140	-204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2595	87.16 Eas	ting: <b>1510620.17</b>
Client: E	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.46</b>	ft.
Contract	tor: <b>Boar</b>	t Long	year			Cas	ing ID: -	Total Depth: 2	0 ft.	
Start Da	ite & Tim	e:09/30	/2008	1523		Bit ⁻	Type: Carbide Tooth Coring Bit	Seal: Bentoni	ite chips	
Finish D	ate & Tin	ne: <b>09/3</b>	0/2008	1545		Bor	ing ID: <b>6 in.</b>	Logged By: J.	Waknitz	
Type & Numbe	Depth r Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	tion CS/ASTM	Elevation (ft.)	Comments & Sample
C-4	15-20	-	100	-		- 15	(16.0-20.0) SP: POORLY GRADED SANI to coarse, loose, no plasticity, wet. At 16- with 10% non plastic silt. No odor or visibl contamination.	), brown, fine 20', fine sand e	917 916 915 914 913 912 911	Z Sample 1A- B-31-16-18 taken. TPH: 3.155 mg/kg. Sample 1A- B-31-18-20 taken. TPH: 3.175 mg/kg.

Remarks and Datum Used	Sample T	Гуре	Groundwater			
	SS = SPT		Date	Time	Depth (ft.)	
AECOM Environment 710 2nd Avenue, Suite 1000	DP = Direct	Push				
Seattle, WA 98104	GS = Grab	Sample				
Fax: (206) 624-2839	C = Core					

AE	CON	1					Boring Log	Bor She	ing #: 1/ et 1 of 2	A-B-30
Project:	Skyko	mish				Ope	erator: Brian Owens	Location: Sky	komish, W/	A
Project #	t: 01140∙	-204-0	320			Drill	Rig Type: Spider Sonic	Northing: 2595	84.38 Eas	ting: <b>1510605.02</b>
Client: B	BNSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.63</b>	ft.
Contract	or: <b>Boar</b>	t Long	year			Cas	ing ID: -	Total Depth: 2	20 ft.	
Start Dat	te & Time	e:09/30	)/2008	1400		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Da	ate & Tin	ne: <b>09/3</b>	0/2008	3 1445		Bori	ing ID: 6 in.	Logged By: J.	Waknitz	
-	Sa	ample	•	1	hic	ŧ.	Soil and Rock Descrip	tion	tion .)	Comments
l ype & Number	Range (ft.)	Per 6 Inch	% Rec	PID (ppm)	Grap	(ft. Dep	Classification Scheme: US	CS/ASTM	Eleva (ft	& Sample
C-1	0-5	-	100	-		-0	(0.0-5.0) SW: WELL GRADED SAND WI brown, fine to coarse, sub angular, equan At 4', 20% sub rounded, elongated, coars sub angular, fine gravel. No odor or visible contamination.	TH GRAVEL, t, loose, dry. e gravel. 5% e	930 929	
									928 927 927	
C-2	5-10	-	80	-		-5	(5.0-10.0) SM: SILTY SAND, medium to c angular, equant, loose, no plasticity, mois rounded, coarse gravel. At 7.6', sub round 9', 30% sub rounded cobbles. At 9.5', bor or visible contamination.	coarse, sub t. 20% sub ded cobble. At ulder. No odor	925 924 923	
C-3	10-15	-	60	-		- 10 	(10.0-15.0) SP: POORLY GRADED SANI GRAVEL, brown, fine, sub angular, equar moist to wet at 15'. 20% sub rounded, coa 14-14.5', boulder. At 14.5', lense of sub a coarse sand. 10% sub rounded, fine grav visible contamination.	D WITH ht, loose, arse gravel. At ingular, el. No odor or	922 921 920 919 919 918	Sample 1A- B-30-12-14 taken. TPH: 19.07 mg/kg. Sample 1A- B-30-14-16 taken. TPH: 2.59
									‡ 917	mg/kg.

Remarks and Datum Used		Sample Type	Gr	oundwa	ter
	1	SS = SPT	Date	Time	Depth (ft.)
AECOM Environment 710 2nd Avenue, Suite 1000		DP = Direct Push			
Seattle, WA 98104		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

AECOM		Boring Log	Boring #: 1A-B-30 Sheet 2 of 2			
Project: Skykomish	Op	erator: Brian Owens	Location: Skykomish, WA			
Project #: 01140-204-0320	Dril	l Rig Type: Spider Sonic	Northing: 259584.38 Easting: 1510605.02			
Client: BNSF	Me	thod: Rotosonic	Ground Elevation: 930.63 ft.			
Contractor: Boart Longyear	Cas	sing ID: -	Total Depth: 20 ft.			
Start Date & Time: 09/30/2008 1400	Bit	Type: Carbide Tooth Coring Bit	Seal: Bentonite chips			
Finish Date & Time:09/30/2008 1445	Вог	ing ID: <b>6 in.</b>	Logged By: J. Waknitz			
Sample           Type         Depth         Blows         PID           & Number         Range (ft.)         6 Inch         % Rec (ppm)         PID	Graphic Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	tion CS/ASTM			

					L		+ 917	
					- 15		916	∠
C-4	15-20	-	100	-		(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.	915	Sample 1A- B-30-16-18 taken. TPH:
					-		- - - 914	3.145 mg/kg.
							913	
					-		912	Sample 1A- B-30-18-20 taken. TPH: 3 22
					20		÷911	mg/kg.

Remarks and Datum Used	Sa	Sample Type	Groundwater			
	SS =	S = SPT	Date	Time	Depth (ft.)	
AECOM Environment 710 2nd Avenue, Suite 1000	DP :	P = Direct Push				
Seattle, WA 98104	GS :	S = Grab Sample				
Fax: (206) 624-2839	C =	= Core				

ENSE	R AEC	COM					Boring Log	Bor She	ing #: 1/ eet 1 of 1	A-B-28
Project:	Skykor	nish				Ope	rator: Tom Craney	Location: Sky	komish, W	A
Project #	: 01140-	204-03	320			Drill	Rig Type: Spider Sonic	Northing: -	Eas	sting: -
Client: B	NSF					Meth	nod: Rotosonic	Ground Elevat	ion: -	
Contracto	or: Boar	t Long	year			Cas	ing ID: <b>4</b> "	Total Depth: 2	20'	
Start Date & Time: 08/25/2008 1050				1050		Bit T	ype: HSA coring bit	Seal: Benton	ite chips	
Finish Da	ate & Tim	ne: <b>08/2</b>	5/2008	3 1145		Bori	ng ID: <b>4</b> "	Logged By: R	. Knecht	
	Sa	mple			<u></u>	_		_	u	Commonto
Type & Number	Depth Range (ft.)	Blows Per 6 Inch	% Rec	PID (ppm)	Graphi	(ft.)	Soil and Rock Descrip Classification Scheme: US	SCS/ASTM	Elevatio (ft.)	& Sample
SS-1	0-5	-	60	-		0	(0.0-1.0) Concrete.		0 +-1	
SS-2 SS-3	5-10	-	60	-		- 10	<ul> <li>(1.0-2.0) SW: WELL GRADED SAND, brofine to coarse, sub rounded to sub angula elongated, loose, dry. 15% fine to coarse 2" in diameter. Trace silt and fine sand. N visible contamination.</li> <li>(2.0-7.0) SP: POORLY GRADED SAND, brown at 5', fine, sub rounded, loose, dry. 2-5', 10% from 5-7'. Trace medium to coarse gravel up to 2" in diameter. No odd contamination.</li> <li>(7.0-9.0) SW: WELL GRAED SAND WITH brownish gray, medium to coarse, sub an rounded, equant to elongated, loose, dam coarse gravel and cobbles up to 5" in dia</li> <li>(9.0-14.0) White rock flour and boulders.</li> </ul>	ownish gray, ar, equant to gravel up to o odor or dark gray to 15% silt from rse sand and or or visible H GRAVEL, gular to sub ap. 30% fine to meter.		Analytical sample 1A- B-28-14-16 taken for
SS-4	15-20	-	100	-		- 15	<ul> <li>(14.0-18.0) SW: WELL GRADED SAND V GRAVEL, brown to yellowish brown, med sub angular to sub rounded, loose, wet. 3 coarse, equant to elongated gravel. Trace fine sand and silt. Strong bunker-C odor. from 14-15' with a 2" layer of blebs at 14.3</li> <li>(18.0-20.0) SM: SILTY SAND, brown to y brown, very fine, slightly stiff, rapid dilater plasticity, wet. Trace clay. 5mm-1" lenses bottom. No odor or visible contamination.</li> </ul>	WITH ium to coarse, 30% fine to a to little very Trace blebs 5'. ellowish hcy, slight of gray silt at	-14 -15 -16 -17 -17 -18 -19 -20	Analysis. Analytical sample 1A- B-28-16-18 taken for analysis. Analytical sample 1A- B-28-18-20 taken for analysis.

Remarks and Datum Used	HSA - Hollow Stom Augor	Sample Type	Gro	oundwa	ter
		N = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	BGS = below ground surface	DP = Direct Push	8/25/2008	1120	14' BGS
Seattle, WA 98134-1162		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSR	AEC	OM					Boring Log	Boring #: 1A-B-27 Sheet 1 of 1				
Project:	Skykon	nish				Ope	erator: Tom Craney	Location: Skyk	comish, W	Α		
Project #:	01140-2	204-0320	)			Drill	Rig Type: Spider Sonic	Northing: -	Eas	sting: -		
Client: BN	SF					Met	hod: Rotosonic	Ground Elevation: -				
Contractor	: Boart	Longyea	ar			Cas	ing ID: -	Total Depth: 2	0 ft.			
Start Date	& Time:	08/25/20	0 800	935		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Bentonite chips				
Finish Date	e & Tim	e: <b>08/25/2</b>	2008	1010		Bori	ng ID: <b>6 in.</b>	Logged By: R. Knecht				
Sample        Type     Depth     Blows     PID     C       & Number     Range     Per     % Rec     (fpm)     0       (ft.)     6 Inch     (ppm)     0     0					Graphic	Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample		

		_		0		0	
C-1	0-5	-	60	-	(0.0-1.0) Concrete.		
					(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 2 3 4	
C-2	5-10	-	60	5			
C-3	10-15	-	100		(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.	-11 A -12 B -13 7	nalytical ample 1A- -27-13-15 aken. TPH: 730 mg/kg.
C-4	15-20	-	100	15		-14 A -15 B 16 ⊻ ta	nalytical ample 1A- -27-15-17 aken. TPH:
					(16.0-20.0) SP: POORLY GRADED SAND, yellowish brown, fine to very fine, medium dense, wet. No odor or visible contamination.	-17 A -18 B 19 ta	nalytical ample 1A- -27-17-19 aken. TPH:
				20		<u></u> <b>⊥ ⊥ ⊥ ⊥</b>	.'.3 mg/kg.

Remarks and Datum Used	Sample Type	Gre	oundwa	ter
	 SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	 DP = Direct Push			
Seattle, WA 98134-1162	 GS = Grab Sample			
Fax: (206) 624-2839	C = Core			

ENSR	AECO	)M				Boring Log	Boring #: 1A-B-26 Sheet 1 of 1				
Project:	Skykomi	ish			Ope	erator: Tom Craney	Location: Skyl	komish, W	A		
Project #:	01140-20	04-0320			Drill	Rig Type: Spider Sonic	Northing: -	Eas	sting: -		
Client: BN	ISF				Met	hod: Rotosonic	Ground Elevation: -				
Contractor	: Boart L	ongyear			Cas	sing ID: -	Total Depth: 2	0 ft			
Start Date	& Time:(	08/25/2008 (	0855		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Bentoni	te chips			
Finish Date	e & Time	:08/25/2008	0925		Bori	ing ID: 6 in	Logged By: R.	Knecht			
Sample        Type     Depth     Blows     PID       & Number     Range     Per     % Rec     (fc.)       (ft.)     6 Inch     (ppm)     0					Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	otion SCS/ASTM	Elevation (ft.)	Comments & Sample		

C 1	0.5	1-	100	0		<b>0</b>
0-1	0-5		100	-	(0.0-1.0) Concrete.	
					(1.0-4.0) WELL GRADED SAND, grayish brown, medium to coarse, sub angular, equant, loose, moist. 15% rounded to sub rounded, fine to coarse gravel. Trace cobbles up to 6" in diameter. No odor or visible contamination.	-2
C-2	5-10	-	100	5	(4.0-4.5) SP: POORLY GRADED SAND, grayish brown, fine, sub rounded, loose, moist. No odor or visible contamination.	-4 -5
					(4.5-15.0) SW: WELL GRADED SAND WITH GRAVEL, grayish brown, medium to coarse, sub rounded to sub angular, equant to elongated, loose, moist. 30% gravel. Trace rock flour from 9-11' Trace fine sand and silt	-6 -7
					from 14-14.5'. Moderate odor, trace sheen from 14.5- 15'.	-8 -9
C-3	10-15	-	80	-		-10
						+ -11 + -12
						-13 Analytical
						<b>-14</b> B-26-16-18
C-4	15-20	-	100		(15.0-18.0) SW: WELL GRADED SAND WITH GRAVEL, grayish brown, medium to coarse, sub angular to sub rounded, equant, loose, wet at 16'. 30% gravel up to 2.5" in long. Trace silt and fine sand from 15-17'. Moderate odor from 14.8-18'. Pinpoint blebs with a moderate rainbow sheen from 16-18'.	+-15 taken. TPH: 7200 16 ∞ mg/kg. 17 Analytical sample 1A-
				20	(18.0-20.0) SP: POORLY GRADED SAND, slightly yellowish brown, fine to very fine, loose to medium dense, wet. No odor or visible contamination.	-19   B-26-18-20 taken. TPH: 14.1 mg/kg.

Remarks and Datum Used:	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push			
Seattle, WA 98134-1162		GS = Grab Sample			
Fax: (206) 624-2839		C = Core			

ENSE	R AEC	COM					Boring Log	Bor She	ing #: 1/ et 1 of 2	A-B-19C
Project:	Skykor	nish				Oper	rator: Brian Owens	Location: Sky	komish, W	A
Project #	: 01140-	204-03	320			Drill	Rig Type: <b>Spider Sonic</b>	Northing: 2594	82.19 Eas	sting: 1510811.24
Client: B	NSF					Meth	od: Rotosonic	Ground Elevat	ion: <b>934.42</b>	ft.
Contract	or: Boar	t Long	year l	nc.		Casi	ng ID: -	Total Depth: 2	20 ft.	
Start Dat	te & Time	: <b>09/30</b>	/2008	0806		Bit T	ype: Carbide Tooth Coring Bit	Seal: Benton	ite chips	
Finish Da	ate & Tim	ne: <b>09/3</b>	0/2008	3 0900		Borir	ng ID: 6 in.	Logged By: R	. Knecht	
	Sa	ample			υ	_			L L	Commonto
Туре	Depth	Blows		PID	phi	(; b	Soil and Rock Descrip	tion	atic ft.)	Comments
& Number	Range	Per	% Rec	(ppm)	Gra	n n	Classification Scheme: US	CS/ASTM		
	(π.)	o inch		4-1					Ш	
C-1	0-5	-	100	-		-0	(0.0-5.0) SW: WELL GRADED SAND WIT brownish gray, fine to coarse, sub rounde angular, equant, loose, moist. 25% rounde angular, fine gravel 1/4-3/4" in diameter. 1 to sub angular coarse gravel and small co long. Top 4" asphalt, then 6" of roadbase. visible contamiantion.	TH GRAVEL, d to sub ed to sub 5% rounded bble up to 4" No odor or	934 933 932 931 930	
C-2	5-10	-	100	-		-5	(5.0-10.0) SW: WELL GRADED SAND W brownish gray, fine to coarse, sub rounde angular, moist to dry. 20% flat, equant, fin 3/4" in diameter. 20% elongated, equant, and small cobble up to 5" long. 10% coar 7.5-8', boulder wtih rock flour. No odor or contamination.	ITH GRAVEL, ed to sub e gravel up to coarse gravel se sand. At visible	929 928 927 927 926 925	
C-3	10-15	-	100	-		- <b>10</b> -	(10.0-15.0) SW: WELL GRADED SAND V GRAVEL, brownish gray, fine to medium, equant, loose, wet at 13'. 40% sub angula rounded, fine to coarse gravel. Lense of s from 12.5-13'. Boulder from 13-14', and fro No odor or visible contamination.	VITH sub angular, ir to sub ilty gravel om 14.75-15'.	924 923 922 922 921	Sample 1A- B-19C-12-14 taken. TPH: 2.66 mg/kg.
C-4	15-20	-	100	-		- 15	(15.0-15.75) SW: WELL GRADED SAND GRAVEL, brownish gray, fine to medium, equant, loose, wet. 40% gravel. No odor o contamination.	WITH sub angular, or visible	+ 920 + 919	Sample 1A- B-19C-14-16 taken. TPH: 2.54 mg/kg.

Remarks and Datum Used:	Sample	Туре	Gro	ter	
	SS = SPT		Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207	DP = Direct	t Push			
Seattle, WA 98134-1162	GS = Grab	Sample			
Fax: (206) 624-2839	C = Core				

ENSR	AECOM					Boring Log	Bor She	ing #: 1/ et 2 of 2	A-B-19C	
Project: SI	ykomish				Ope	erator: Brian Owens	Location: Skyl	komish, W	Ά	
Project #: 0*	140-204-03	820			Drill	Rig Type: Spider Sonic	Northing: 2594	82.19 Eas	sting: <b>1510811.24</b>	
Client: BNS	•				Met	hod: Rotosonic	Ground Elevat	ion: <b>934.42</b>	2 ft.	
Contractor:	Boart Long	year In	nc.		Cas	ing ID: -	Total Depth: 2	20 ft.		
Start Date &	Time: <b>09/30</b>	/2008 (	0806		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Bentoni	ite chips		
Finish Date	k Time: <b>09/3</b>	0/2008	0900		Bori	ng ID: <b>6 in.</b>	Logged By: R	. Knecht		
Type De & Number Ra	Sample				Depth (ft.)	Soil and Rock Descrip Classification Scheme: US	ption ISCS/ASTM But in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			
						<ul> <li>(15.75-18.0) ML: SILT WITH SAND, brow dilatency, medium to low plasticity, mediu 30% very fine sand. No odor or visible co</li> <li>(18.0-18.75) SP: POORLY GRADED SAN brown, fine, sub rounded, equant, loose, or visible contamination.</li> <li>(18.75-20.0) SM: SILTY SAND, gray, very loose, wet. 30% silt. No odor or visible contamination</li> </ul>	/n, rapid Im stiff, wet. ntamination. ND, reddish wet. No odor y fine, equant, ntamination.	918 917 917 916 915	Sample 1A- B-19C-16-18 taken. TPH: 6.76 mg/kg. Sample 1A- B-19C-18-20 taken. TPH: 2.915 mg/kg.	

Remarks and Datum Used:	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push			
Seattle, WA 98134-1162		GS = Grab Sample C = Core			
Fax: (206) 624-2839					

ENSE	AECOM						Boring Log	Boring #: 1A-B-18B Sheet 1 of 1					
Project: Skykomish							erator: Brian Owens	Location: Sky	komish, WA	A			
Project #	: <b>01140-</b>	204-03	320			Drill	Rig Type: Spider Sonic	Northing: 2594	51.96 Eas	ting: <b>1510712.82</b>			
Client: B	NSF					Met	hod: Rotosonic	Ground Elevat	ion: <b>930.37</b>	ft.			
Contracto	or: Boar	t Long	year li	nc.		Cas	ing ID: -	Total Depth: 1	5 ft.				
Start Dat	te & Time	: <b>09/2</b> 9	/2008	1015		Bit 7	Type: Carbide Tooth Coring Bit	Seal: Benton	Seal: Bentonite chips				
Finish Da	ate & Tim	ne: <b>09/2</b>	9/2008	3 1130		Bori	ng ID: 6 in.	Logged By: R	R. Knecht				
<b>.</b>	Sa	mple			hic		Soil and Rock Descrip	tion :.)	Comments				
l ype & Number	Type         Depth         Blows         PID           Number         Range         Per         % Rec         (ppm)           (ft.)         6 Inch         (ppm)         (ppm)			Grap		Classification Scheme: USCS/ASTM		Eleva (ft	& Sample				
C-1 C-2 C-3	0-5 5-10 10-15	-	40	-		- 5	(0.0-5.0) SP: POORLY GRADED SAND V GRAVEL, light yellowish brown, fine, loos 2', 40% rounded, large gravel up to 2" in of 5', 20% medium to coarse sand. 20% silt. At 3-4', boulders with rock flour. No odor contamination. (5.0-10.0) SW: WELL GRADED SAND W whitish gray grading to brownish gray, fin sub rounded, equant, loose, moist at 8'. 3 angular to sub rounded, fine gravel up to diameter. 10% sub rounded to sub angula gravel up to 3" in diameter. Trace to 10% or visible contamination.	WITH e, dry. At 1.5- diameter. At 2- Trace gravel. or visible ITH GRAVEL, e to medium, 0% sub 3/4" in ar, coarse silt. No odor	930 929 928 927 927 926 925 924 923 922 922 921				
							(10.0-15.0) SW: WELL GRADED SAND, gray, fine to medium, sub rounded, equar moist at 14'. 20% sub rounded, fine grave diameter. 10-15% sub rounded to sub an gravel and cobbles up to 4" long. 10% silt cobbles up to 5" in diameter with little to n odor or visible contamination.	orownisn it, loose, el up to 3/4" in gular coarse . At 14-15', o gravel. No	920 919 918 918 917	Hit refusal			
						15			<b>916</b>	relocated 11' north to 1A-B-18C.			

Remarks and Datum Used:	Sample Type	Groundwater			
		SS = SPT	Date	Time	Depth (ft.)
ENSR 1011 SW Klickitat Way, Suite 207		DP = Direct Push			
Seattle, WA 98134-1162		GS = Grab Sample C = Core			
Fax: (206) 624-9349					

FNS	RAFC	OM			Bor	ing/Well I o	a		Well #:	2B-	W-46			
LING		0101			Bornig/Wen Log					Sheet 1 of 2				
Project	Skykomisl	h			Monumen	t: Flush Mount		Stick Up: -						
Project	#: 01140-20	04-0320			Northing: 258697.832 Easting: 1510811.78			Ground Elevation: 935.68 ft.						
Locatio	n: Skykomi	sh, WA			Drill Rig Type: Spider Sonic			MP Elevation: 935.28 ft.						
Client:	BNSF				Method:	Rotosonic		Total Depth: 25 ft.						
Start Da	ate & Time:	11/11/08 1	200		Casing ID	: <b>2 in.</b>		Filter Pa	ck: -					
Finish [	Date & Time:	: 11/11/08	1300		Boring ID:	6 in.		Seal: B	entonite	Chips				
Contrac	ctor: Boart	Longyear	Inc.		Bit Type:	Carbide Tooth Coring B	it	Grout: -						
Operate	or: Brian O	wens			Logged B	By: J. Waknitz Screen: 2-in. Sch. 40 PVC				from 9-	24 ft-bgs			
ype mber	Sample		Well mpletion Log	aphic	pth (ft.)	Soil and Rock Desc		cription		ation(ft.)	Coi & S	Comments & Samples		
	a s	- %	ပိ	Ō	De					Elev				
C-1	0-5	100			- <b>0</b>	(0.0-4.0),(0.0-3.5) SM: S fine, medium dense, mo rounded, equant, fine gra No odor or visible contar	ILTY SANI ist. 20% sili avel with br mination.	D, light bro t. Trace, si ick fragme	wn, Jb ents.	- - - -	Borir degro vertic Sam colle vertic 12 in manh with pad f bgs.	g at 30 ees from sal. oles cted at cal interval. . diameter nole cover concrete rom 0-1 ft-		
C-2	5-10	40				(4.0-11.0),(3.5-9.5) SM: coarse, sub rounded, eq 30% silt. Trace, sub rou No odor or visible contar	SIL I Y SAN want, medi nded, equa nination.	ID, light br um dense, ant, fine gr	own, moist. avel.	- - 930 - -	seal ft-bg: 2 in. PVC 0-9 ft 10/20 sand 7-25 2 in.	from 1-5 s. sch. 40 riser from -bgs. ) silica pack from ft-bgs. sch. 40		
C-3	10-15	100			- 10 	(11.0-12.0),(9.5-10.4) MI slow dilatency, no plastic visible contamination. (12.0-19.0),(10.4-16.5) S	L: SILT, gra city, moist. SP: POORL	ay, mediun No odor ol Y GRADE	n stiff,	- - 925 -	PVC from bgs. Sam 46-10 taker 2.665 Sam	screen 9-24 ft- 0-12 0. TPH: 5 mg/kg. 001e 2B-W- 2-14		
C-4	15-20	100			- - - 15	SAND, light brown, coarse, sub rounded, equant, loose, wet. 15% sub rounded, equant, fine to coarse gravel. 10% silt. No odor or visible contamination.		ant, coarse ttion.	+ + +	40-12 taker 41.05 Sam 46-14 taker 2.63	2-14 h. TPH: 5 mg/kg. ole 2B-W- 4-16 h. TPH: mg/kg			
Remarks and Datum Used:				nth inte	arval angle	denth	Sample	е Туре		Gro	roundwater			
					internel -		N = SPT		Date	3	Time	Depth (ft.)		
1011 SW Klickitat Way, Suite 207				aepth	interval col	rected to vertical depth.	DP = Dire	ct Push						
Seattle, V	NA 98134-116 206) 624-9349	52 )	ft-bgs =	feet be	elow ground	d surface	SS = Spli	t Spoon						
Fax: (206	5) 624-2839		sch. = s	chedul	е		C = Core							



# ENSR

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 sheen¹.

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  $\mu$ g/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

¹ 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 x  $10^{-3}$ ) 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 µg/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 µg/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.






















		TOC Elevation		Corrected			Potentiometric	
Well ID	Date	(feet above	DTW from	DTW from	Outside PVC-	DTP from TOC	Elevation	Product
		MSL)	TOC (feet)	TOC (feet)	DTW (feet)	(feet)	(ft-msl)	
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	
MVV-14	11/15/2007	936.49	10.01				926.48	
MVV-15	11/15/2007	936.8	11.45				925.35	
IVIVV-17	11/15/2007	939.11	10.63				928.48	
MVV-18	11/15/2007	940.68	13.45				927.23	
IVIV-19	11/15/2007	932.55	10.11				922.44	
	11/15/2007	939.2	11.06				928.14	
N/\/ 20	11/15/2007	930.03	0.23				929.00	
M_4	11/15/2007	930.21	7.30				920.03	
M\\/_40	11/15/2007	936.52	10.80				025.63	
M\\/-5	11/15/2007	933 36	4 97				928.39	
M\\/-7	11/15/2007	936.89	11.08				925.81	
M\\\/-9	11/15/2007	937 53	11.00				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	11400
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	

# Table B-1Potentiometric, Surface Water, and Product Thicknesses— November 2007 to September 2008

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	

MW-12

MW-13

12/13/2007

12/13/2007

931.45

934.93

4.95

9.19

926.50

925.74

Table B-1	Potentiometric, Surface Water, and Product Thicknesses
- Novembe	er 2007 to September 2008

	Data	TOC Elevation	DTW from	Corrected	Outside PVC-	DTP from TOC	Potentiometric	Draduct
vveiriD	Date	(reet above MSL)	TOC (feet)	TOC (feet)	DTW (feet)	(feet)	(ft-msl)	Product
1B-W-1	1/1/2008	935.52	97	100 (ieei)			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 NM				925.28	
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	2 38				926.93	
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	930.20 931.03	1.30				930.70	
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	
IVIVV-14 M\\/_16	1/1/2008	930.49 036 r	10.16 11 / P				920.33	
MW-17	1/1/2008	939.11	10.7			10.79	928.32	
MW-18	1/1/2008	940.68	13.62			10.10	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	
MVV-39	1/1/2008	936.21	7.55				928.66	
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	Traca
2A-VV-11 2A-W-2	3/24/2008	933.59	5.75 0.40				927.84	Trace
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 2B-B-21	3/24/2008	930.30	0.02 NM				920.30 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 2B-W-21	3/24/2000	935.25	7 27				929.09	
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	
IVIVV-1	3/24/2008	939.2	11.59				927.61	
MW-11	3/24/2008	939.2	12 79				926.39	
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	Traca
IVIVV-17 M\\/_18	3/24/2008	939.11	10.20 13.27				928.83 927 11	TIACE
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	
IVIVV-40	3/24/2008	936.52	10.75				925.77	
MW/-7	3/24/2008	933.30	5.04 10.87				920.32 926.02	Trace
MW-9	3/24/2008	937.53	11.01				926.52	

		TOC Elevation		Corrected			Potentiometric	
Well ID	Date	(feet above	DTW from	DTW from	Outside PVC-	DTP from TOC	Elevation	Product
-		MSL)	TOC (feet)	TOC (feet)	DTW (feet)	(feet)	(ft-msl)	
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 Abandone	ed		
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			l	926.94	
MW-19	4/30/2008		44.00	1	Well Abandone	ed I	000 17	1
MW-2	4/30/2008	939.2	11.03				928.17	
MVV-3	4/30/2008	938.03	8.02				930.01	-
MW-39	4/30/2008	936.21	7.53				928.68	Irace
IVIVV-4	4/30/2008	936.95	7.12				929.83	
MVV-40	4/30/2008	936.52	11.29				925.23	
IVIVV-5	4/30/2008	933.36	5.52				927.84	
	4/30/2008	936.89	11.48				925.41	
MVV-9	4/30/2008	937.53	11.73		Mall Abandona		925.80	
1B-VV-1	5/29/2008	027.02	0.40	1			020.45	1
2A-W-10	5/29/2000	937.93	0.40				929.40	
2A-W-11	5/29/2000	955.59	0.33				927.20	neavy nace
2A-W-22 2A-W-3	5/29/2008	03/ /3	0.33				025 10	Trace
2A-W-3	5/29/2008	038.21	9.33 NIM				923.10 NM	Trace
2A-W-4	5/29/2008	930.21	11 32				028 15	
2A-W-3 2A-W-7	5/20/2008	939.47	0.10				920.10	
2A-W-7 2A-W/-9	5/29/2008	940.59	9.19				027.08	
2R-W-5 2B-B-21	5/20/2008	330.30	4.45				-1 15	
2B-W-11	5/20/2008	030 71	0.88		1 17		020.83	
2B-W-11	5/29/2008	930.71	0.00	3.88	1.17		929.00	
2B-W-12 2B-W-13	5/29/2008	932 52	3.82	0.00	3.3		928.70	
2B-W-14	5/29/2008	931.25	2 47		Drv		928 78	
2B-W-15	5/29/2008	931 74	NM		Drv		NM	1
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	1			929.94	
2B-W-33	5/29/2008	938.28	7.57	1			930.71	
2B-W-4	5/29/2008	931.03	1.22		1		929.81	1

#### Potentiometric, Surface Water, and Product Thicknesses Table B-1 - November 2007 to September 2008

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	

5/29/2008

5/29/2008

5/29/2008

5/29/2008

939.2

938.34

939.2

931.45

934.93

10.1

10.95

11.58

4.59

MW-1

MW-10

MW-11

MW-12

929.10

927.39 927.62

926.86

		TOC Elevation		Corrected			Potentiometric	
Well ID	Date	(feet above	DTW from	DTW from	Outside PVC-	DTP from TOC	Flevation	Product
	Dato	(ICOL GEORG	TOC (feet)	TOC (feet)	DTW (feet)	(feet)	(ft-msl)	1 TOUGOU
24-\//-10	6/23/2008	937.93	8.83	100 (1001)			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	Hubb
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		Í Í		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	000 74	5.89				-5.89	
2B-W-11	7/24/2008	930.71	3.03	0.40	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	
20-VV-14	7/24/2008	931.25	4.71		Dry		920.54	
2B-W-10	7/24/2000	931.74						
2B-W-19	7/24/2000	935.25	7.14				920.11	
2D-VV-21	7/24/2000	900.01 026.6	0.99				920.02 NIM	
2D-VV-30	7/24/2000	930.0						
2D-VV-32 2B-\\\/.22	7/24/2000	028.20	10.56				007 70	
20-11-33 2R_\\\/ /	7/24/2000	031 02	3 20				007 71	
<u>20-νν-4</u> Μ\\Λ/_1	7/24/2000	931.03	3.23 12.62				921.14	
M\\/_10	7/24/2000	038.31	12.03				925.37	
Μ\Λ/_11	7/24/2008	030.04	13.8				925.35	
M\\/_12	7/24/2008	933.Z	6 16				925.40	
MW-13	7/24/2008	034 03	10.10				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
					1			

# Table B-1Potentiometric, Surface Water, and Product Thicknesses— November 2007 to September 2008

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	

14.81

12.2

MW-18

MW-2

7/24/2008

7/24/2008

940.68

939.2

925.87

927.00

Table B-1	Potentiometric, Surface Water, and Product Thicknesses
- Novembe	er 2007 to September 2008

		TOC Elevation	DTW from	Corrected	Outside PVC-	DTP from TOC	Potentiometric	
Well ID	Date	(feet above	TOC (feet)	DTW from	DTW (feet)	(feet)	Elevation	Product
		MSL)	100 (1001)	TOC (feet)	BTW (1000)	(1001)	(ft-msl)	
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	0.00	Dry		926.55	
2B-W-14	8/27/2008	931.25	4.8		Dry		926.45	
2B-W-15	8/27/2008	031 7/	4.0		Dry		027.40	
2B-W-13	8/27/2000	025.25	7.35		Diy		027.00	
2D-W-19	0/27/2000	933.23	7.33				927.90	
2D-VV-21	0/21/2000	933.01	9.22				920.09	
2B-VV-30	8/27/2008	936.6	7.00				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	
M\\/-7	8/27/2008	936.89	12.87				924.02	
<u>Ν/\\/_</u> Ω	8/27/2008	937.53	12.07				925.04	
20 10/ 10	0/27/2000	027.02	11.45				025.07	
2A-W-10	9/22/2000	937.93	9 70				923.97	
2A-VV-11	9/22/2000	933.39	0.79				924.00	
2A-VV-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	
Μ\λ/_11	Q/22/2000	Q20 2	14 /6				Q24.00	
 	0/22/2000	031 /5	6 05				024.04	
<u>Μ</u> \λ/_12	0/22/2000	02/ 02	10.00				024.00	
M\\\/_1 /	0/22/2000 0/22/2000	036 10	10.99				920.94 072 F1	
	0/00/0000	300.43 026 0	12.30				022.04	
C1-VVIVI	3/22/2000	300.0	14.19 NIM				922.01 NIM	
	9/22/2008	939.11						
	9/22/2008	940.68	15.63				925.05	
	9/22/2008	939.2	13.28				925.92	
IVIVV-3	9/22/2008	938.03	11.19				926.84	
MW-39	9/22/2008	936.21	10.33				925.88	Irace
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			NV	VTPH-D	K	NV	VTPH-D>	(	NWTPH-Dx	
		Chem	ical Name		Diesel		L	ube Oil		TPH (Calculated)
			Unit		µg/L			µg/L		µg/L
Location ID	Sample ID	Sample Date	Sample	Result &	MDL	RDL	Result &	MDL	RDL	
1B-\\\/_1	1B-\W_1-0103	1/15/2003	пуре	ND	110	110		54	54	513
1B-W-1	1B-W-1-0105	5/12/2005	N	140 J	<b>90</b>	500	748	26	250	888
1B-W-1	1B-W-1-0805	9/1/2005	Ν	140 J	85.7	476	732	61.9	238	872
1B-W-1	1B-W-1-1105	12/2/2005	Ν	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 912 I	84.9	4/2	942 J	61.3 27.7	236	984.45
1B-W-1	1B-W-1-0707	7/31/2007	N	141 J	84.9	472	478	37.7	230	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 ND	2 <b>6</b>	250	266 J	90	500	579 207.85
2A-W-10 2A-W-10	2A-W-10-0005	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	Ν	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-11	2A-W-10-0308	1/21/2002	N	ND	20	250	243 J ND	<b>64.9</b> 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	Ν	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		84.9 85.7	472	857.45
2A-W-11 2A-W-11	2A-W-11-0500	11/30/2006	N	434 J	9.05	238	312 J	86.7	470 476	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 202	500	500	790
2A-W-9	2A-W-9-0103	5/12/2005	N N	464	54 26	54 250	292 210 I	110	110 500	/56 773
2A-W-9	2D-W-9-0805	9/1/2005	FD	ND	63.7	245	ND 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	Ν	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	600 972 I	61.3	236	ND	84.9	4/2	642.45
2A-W-9 2A-W-9	2A-W-9-0300	11/30/2006	N	999 J	9.05	240	277 J	86.5 86.7	<b>4</b> 01 <b>476</b>	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	Ν	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 100	110	110	179
2B-W-4 2B-W-4	2B-W-4-0103	5/10/2005	N FD	138 63.8 I	54 26	54 250	183 ND	11 <b>0</b> 90	110 500	321
2B-W-4	2B-W-14-0505	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	Ν	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		61.9	238	ND	85.7	476	73.8
2B-W-4 2B-W-4	2B-W-4-1106 2B-W-4-0707	7/31/2007	N N		9.22	243		00.3 84 9	400	40.70
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	Ν	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 61.3	238	433
MW-3	MW-3-0506	5/25/2006	N	ND	86.5	472	ND	62.5	230	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	Ν	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
IVIVV-4	IVIVV-4-0505	5/11/2005	N N	124 J	26	250	115 J	90 85 7	500	239
MW-4	MW-4-1105	12/1/2005	N	353 J	63 1	230	355	87.4	470	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
IVIVV-4	MW-12 0102	3/26/2008	N N	81.2 J	38.5	240	119 J	86.5 500	<b>481</b>	200.2
1∠ MW-12	MW-12A-0505	5/10/2002	FD	טאו <b>72 ו</b>	20 26	250 250	ND	900 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
10100-12	10100-12-0506	5/25/2006	IN IN	ND	61.3	236	ND	84.9	472	/3.1

# Table B-2 Total Petroleum Hydrocarbon Results in Groundwater

Analytical Method Chemical Name				NWTPH-Dx Diesel			NV L	VTPH-D> ube Oil	C	NWTPH-Dx TPH (Calculated)
Location ID	Sample ID	Sample Date	Sample Type	Result & Qualifier	μg/L MDL	RDL	Result & Qualifier	μg/L MDL	RDL	μg/L
MW-12	MW-12-1106	11/30/2006	N	148 J	9.05	238	ND	86.7	476	191.35
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	54.5 J	26	250	ND	90	500	99.5
MW-13	MW-13-0805	9/1/2005	Ν	ND	61.9	238	ND	85.7	476	73.8
MW-13	MW-13-1105	12/1/2005	Ν	78.1 J	61.9	238	ND	85.7	476	120.95
MW-13	MW-13-0206	2/21/2006	Ν	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	Ν	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	57.2	54	54	112.2
MW-19	MW-19-0505	5/9/2005	Ν	ND	90	500	55.4 J	26	250	100.4
MW-19	MW-119-0805	8/31/2005	FD	ND	85.7	476	68.8 J	61.9	238	111.65
MW-19	MW-19-0805	8/31/2005	N	ND	85.7	476	72.6 J	61.9	238	115.45
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	Ν	ND	86.5	481	ND	62.5	240	74.5
MW-19	MW-19-0506	5/23/2006	Ν	ND	84.9	472	ND	61.3	236	73.1
MW-19	MW-19-1106	11/29/2006	Ν	ND	86.7	476	ND	9.05	238	47.875
MW-19	MW-19-0707	7/31/2007	Ν	ND	85.7	476	ND	38.1	238	61.9
MW-19	MW-19-0308	3/26/2008	N	ND	84.9	472	38 J	37.7	236	80.45
MW-39	MW-39-0102	1/17/2002	N	520	20	250	ND	500	500	770
MW-39	MW-39-0103	1/14/2003	N	1070	54	54	356	110	110	1426
MW-39	MW-39-0505	5/11/2005	N	1120	26	250	450 J	90	500	1570
MW-39	MW-39-0805	8/31/2005	N	844 J	61.3	236	ND	84.9	472	886.45
MW-39	MW-39-1105	12/1/2005	N	1960 J	61.9	238	727 J	85.7	476	2687
MW-39	MW-39-0206	2/22/2006	Ν	712 J	61.3	236	ND	84.9	472	754.45
MW-39	MW-39-0506	5/24/2006	Ν	716 J	61.3	236	ND	84.9	472	758.45
MW-39	MW-39-1106	11/30/2006	N	566 J	9.13	240	240 J	87.5	481	806
MW-39	MW-39-0707	7/31/2007	Ν	681 J	37.7	236	380 J	84.9	472	1061
MW-39	MW-39-0308	3/26/2008	Ν	639	38.5	240	222 J	86.5	481	861

## Notes:

Ν	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

## Memorandum

Date:	Febru	uary 16, 2009					
To:	File						
From:	M. Ga	ardner					
Subject: Former Maloney Creek Hydraulic Barrier							
Distribution:		M. Byers	H. Voges	S. Albano	M. Havighorst		
		W. Chen					

## 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 (BentomatTM 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 1x10⁻⁶ 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.



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### **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



Appendix C

# **2009 Conceptual Restoration Plan**



				Architecture Landscape Architecture Civil Engineering Urban Design	BNSF SKYKOMISH 2009 CONCEPTUAL RESTORATIO PROJECT # 0559C
СНКД	DATE	APPVD	DATE	Surveying	CURRENT DATE SEPTEMBER 2008