

BNSF Railway Company

2023 Annual Hydraulic Control and Containment System Operations Report

Former Maintenance and Fueling Facility Skykomish, Washington

May 22, 2024

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Acronyms and Abbreviations

μg/L microgram per liter

2023 O&M Manual 2023 Operation and Maintenance Manual for the Hydraulic Control and Containment

System

AECOM Environment

Arcadis U.S., Inc.

BNSF Railway Company

DRO total petroleum hydrocarbons as diesel-range organics

Ecology Washington State Department of Ecology

Farallon Consulting, L.L.C.

GAC granulated activated carbon

HCC hydraulic control and containment

LNAPL light non-aqueous phase liquid

NPDES Permit National Pollutant Discharge Elimination System Permit No. WA0032123

OWS oil-water separator

Report 2023 Annual Hydraulic Control and Containment System Operations Report

RL remediation level

Site BNSF Former Maintenance and Fueling Facility

Executive Summary

Arcadis U.S., Inc. prepared this 2023 Annual Hydraulic Control and Containment System Operations Report on behalf of BNSF Railway Company (BNSF) to describe hydraulic control and containment (HCC) system operations and performance monitoring conducted during 2023 at the BNSF Former Maintenance and Fueling Facility in Skykomish, Washington. The cleanup objective for the HCC system is to prevent light nonaqueous-phase liquid (LNAPL) and groundwater with total petroleum hydrocarbon concentrations in the vicinity of the HCC barrier wall from exceeding the site-specific groundwater remediation level (RL) of 477 micrograms per liter from migrating from the BNSF railyard to the Skykomish River. Approximately 4.06 million gallons of groundwater were extracted and treated in 2023. Approximately 20 gallons of LNAPL were recovered by the recovery well oil-skimmer storage tanks in 2023.

The HCC system operated in conformance with National Pollutant Discharge Elimination System Permit No. WA0032123. The reported concentrations of lead, arsenic, and total petroleum hydrocarbons (referred to as combined diesel range organics/heavy oil [DRO/HO] by Northwest method NWTPH-Dx, in HCC water treatment system effluent samples were less than the respective discharge limits specified in National Pollutant Discharge Elimination System Permit No. WA0032123 in 2023.

In July 2023 a biosparge system was constructed to support the transition from active to passive HCC system operation, as approved by Ecology. The HCC system was switched from active mode to passive mode on July 18, 2023 in accordance with the Fourth Amendment to Consent Decree No. 07-2-33672-9 SEA dated September 29, 2023 and the biosparge system was started on August 3, 2023.

Liquid level gauging and groundwater sampling were performed to assess HCC system performance in March, June, September, and December 2023. South (i.e., upgradient) and north (i.e. downgradient) of the HCC system barrier wall, the groundwater flow direction is predominantly toward the west-northwest. The inferred groundwater flow directions in 2023 were consistent with previous years following construction of the barrier wall. Groundwater flows from south to north through three of the four gates along the HCC sheet pile wall that runs parallel to Railroad Avenue. The Center Gate has been blocked due to biofouling and groundwater instead is treated through the Far West, West, and East Gates.

LNAPL was observed in monitoring wells and piezometers upgradient (south) of and adjacent to the HCC system barrier wall, between the West Gate and Center Gate, which is consistent with previous years; measured LNAPL observations ranged from a sheen to 0.30 foot thick. LNAPL observations and thickness measurements in monitoring wells and piezometers have exhibited an overall decreasing or stable trend since the HCC system was installed.

Concentrations of combined DRO/HO in groundwater samples collected from monitoring wells downgradient (north) of the HCC system barrier wall were less than the site-specific groundwater RL of 477 micrograms per liter, with the exception of samples collected from monitoring wells GW-3 (March), GW-4 (September), and 2A-W-41 (September and December). Results from monitoring well GW-3 and 2A-W-41 were compared with silica gel and non-silica gel sample preparation methods and confirmed to be biased high due to biogenic and petroleum metabolite interference. Results of the samples analyzed following silica gel cleanup were less than the RL in both locations.

1 Introduction

On behalf of the BNSF Railway Company (BNSF), Arcadis U.S., Inc. (Arcadis) has prepared this 2023 Annual Hydraulic Control and Containment System Operations Report (Report) for the BNSF Former Maintenance and Fueling Facility (the Site). This Report describes the hydraulic control and containment (HCC) system operation and performance monitoring conducted during 2023. The Site includes BNSF property and public and private properties within the town of Skykomish, Washington (Figure 1).

The HCC system was designed to meet the cleanup objective, as defined in the Cleanup Action Plan prepared by the Washington State Department of Ecology (Ecology), of preventing light nonaqueous-phase liquid (LNAPL) and groundwater with total petroleum hydrocarbon concentrations (defined herein as the sum of total petroleum hydrocarbons as diesel range organics [DRO] and heavy oil [HO] using Northwest Method NWTPH-Dx and herein referred to as "combined DRO/HO") exceeding the site-specific remediation level (RL) of 477 micrograms per liter (µg/L) from migrating from the BNSF railyard to the Skykomish River (Ecology 2007).

The HCC system is part of an integrated and comprehensive cleanup action and is operated and maintained in accordance with the requirements of the Cleanup Action Plan (Ecology 2007). The HCC system design is documented in the Hydraulic Control and Containment System Special Design Report (ENSR Corporation 2008b) and the Plans and Specifications for 2008 Remediation (ENSR Corporation 2008a). The HCC system was constructed as described in the 2008 Skykomish Remediation—As-Built Completion Report (AECOM 2009) and the 2009 Skykomish Remediation—As-Built Completion Report (AECOM 2010).

A 24-month HCC system passive operation pilot study was initiated on January 18, 2019 in accordance with the 2018 HCC System Passive Operation Pilot Study Work Plan (Farallon 2018b) and emails from Ecology regarding extending the pilot study through 2020 (Ecology 2020a, 2020b). Active operation of the HCC system resumed on January 4, 2021 (Ecology 2020c).

Site-wide groundwater monitoring and sampling events were conducted in March and September 2023 in accordance with the Final Long-Term Monitoring Plan (Farallon Consulting, L.L.C. [Farallon] 2020b). Quarterly HCC system groundwater monitoring was conducted in March, June, September, and December 2023 in accordance with the 2011 Operation and Maintenance Manual (AECOM Environment [AECOM] 2011) and 2014 addendum (Farallon 2014).

In July 2023 a biosparge system, consisting of four biosparge wells upgradient of the HCC barrier wall and an associated blower installed in the HCC building, was constructed to support the transition from active to passive HCC system operation, as approved by Ecology (Ecology 2023a). Details regarding the newly installed biosparge system are provided in Section 3. The HCC system was switched from active mode to passive mode on July 18, 2023 in accordance with the Fourth Amendment to Consent Decree No. 07-2-33672-9 SEA dated September 29, 2023 (Ecology 2023b). Mothballing of the pump-and-treat portion of the HCC system was conducted in accordance with the draft 2023 Operation and Maintenance Manual for the Hydraulic Control and Containment System (2023 O&M Manual; Arcadis 2023). Details of the HCC system operational transition are described in Section 2.2.11.

2 HCC System Description and Performance Monitoring

This section provides a general description of the HCC system and a summary of the performance monitoring activities conducted during 2023, including the monitoring parameters, schedule, and results. HCC system performance monitoring is conducted to facilitate system performance, assess performance relative to the cleanup objective, and document compliance with the discharge limits specified in National Pollutant Discharge Elimination System Permit No. WA0032123 (NPDES Permit). The primary components of the HCC system are summarized in Section 2.1. The HCC system operations and maintenance activities are summarized in Section 2.2.

2.1 HCC System Description

A detailed description of the HCC system, and figures showing the HCC system layout and process and instrumentation diagrams, are provided in the 2011 Operation and Maintenance Manual for the Hydraulic Control and Containment System (AECOM 2011). The HCC system comprises the following primary components:

- A 1,183-foot-long groundwater barrier wall and interception trench with four flow-through treatment gates, which contain oil—water separators (OWSs) and a mixture of granulated activated carbon (GAC) and pea gravel media, along the northern boundary of the BNSF railyard. These treatment gates are referred to as the Far West Gate, the West Gate, the Center Gate, and the East Gate;
- · Nine groundwater extraction/LNAPL recovery wells;
- Fourteen piezometers;
- Twenty sentry wells;
- Eleven HCC system monitoring wells;
- Two groundwater injection wells;
- A water treatment system, which includes aboveground and underground water conveyance piping, an OWS, a hydrogen peroxide disinfectant system, sand filters, GAC vessels, a pH adjustment system, and influent and effluent water storage tanks; and
- A computer-based programmable logic controller that collects system operational data and is used to monitor, control, and adjust system operating parameters.

The groundwater injection wells were used intermittently in 2009 and 2010 to inject treated groundwater into the BNSF railyard subsurface. In September 2010, the discharge of treated groundwater to the injection wells ceased, and the discharge at one of the injection wells was rerouted to an upgradient OWS chamber in the East Gate of the barrier wall. The discharge of treated groundwater to the East Gate OWS chamber was discontinued at the end of 2012. Since the end of 2012, all groundwater treated by the HCC system has been discharged to the municipal storm sewer system (in accordance with the NPDES Permit), which discharges to the Skykomish River (Farallon 2018a).

2.2 HCC System Operations and Maintenance

HCC system operations monitoring was conducted in accordance with the 2011 Operation and Maintenance Manual for the Hydraulic Control and Containment System (AECOM 2011) and 2014 addendum (Farallon 2014) through July 18, 2023 when the system was switched to passive mode. HCC system operations monitoring consists of monitoring the following operational parameters and conducting inspections and sampling at the frequencies noted:

- System run-time (daily when system is operating);
- Groundwater extraction and treated water discharge flow (daily when system is operating);

Influent equalization tank water level (daily when system is operating);

Effluent equalization tank water level (daily when system is operating);

Backwash-water holding tank water level (daily when system is operating);

- Visual inspection of the effluent equalization tank for sheen (bimonthly when system is operating);
- Visual inspection of the recovery wells and recovery well oil-skimmer storage tanks for accumulation of LNAPL (bimonthly);
- Water treatment system influent monitoring, which includes sampling of primary and secondary GAC vessel
 influent (bimonthly when system is operating) (Note: Secondary GAC vessel influent samples were collected
 to assess petroleum hydrocarbon loading of primary GAC vessel and are not discussed further in this Report);
- Water treatment system effluent monitoring (bimonthly when system is operating): sampling of treatment system effluent and analysis by Northwest Method NWTPH-Dx; monitoring of treatment system effluent pH; and sampling of treatment system effluent and analysis for total lead and total arsenic by U.S. Environmental Protection Agency Method 200.8; and
- Groundwater elevations in piezometers and recovery wells (gauged by field personnel quarterly).

HCC system operation during passive mode and HCC system restart requirements are summarized in the draft 2023 Operation and Maintenance Manual for the Hydraulic Control and Containment System (2023 O&M Manual; Arcadis 2023).

2.2.1 System Run-Time

The HCC water treatment system operated for approximately 4,703 hours (196 days) in 2023. System operations were interrupted for short periods due to power outages or to perform maintenance, change out GAC and/or sand filter media, optimize system parameters, or make repairs. The system was shut down on July 18, 2023, for the transition from active to passive HCC system operations and has been shut down through December 31, 2023 for a total of approximately 3,984 hours (166 days).

2.2.2 Groundwater Extraction and Treated Water Discharge

Approximately 4.1 million gallons of groundwater were extracted and treated in 2023 from recovery wells RW-02, RW-03, RW-04, RW-06, RW-07, and RW-08 between January and July 2023. HCC system discharge flow rate data are summarized in Table 1.

2.2.3 Tank Water Levels

Influent equalization tank, effluent equalization tank, and backwash-water holding tank water levels were maintained within normal operating ranges.

2.2.4 Visual Inspection of Effluent Equalization Tank for Sheen

Water treatment system effluent water was monitored for the presence of sheen by visually observing the water in the effluent equalization tank, either during site visits or via a remote video camera (i.e., web cam). No sheen was observed on the water in the effluent equalization tank.

2.2.5 Visual Inspection of Recovery Wells and Oil-Skimmer

Recovery wells and recovery well oil-skimmer storage tanks were inspected bimonthly for accumulation of LNAPL. The recovery well oil-skimmer storage tanks were pumped out as required (Section 2.2.8).

2.2.6 Water Treatment System Influent Monitoring

HCC treatment system influent water was sampled from the inlet to the primary GAC on a bimonthly basis until the system was shut down on July 18, 2023. Reported influent combined DRO/HO concentrations ranged from less than 100 to 1,110 μ g/L; the average reported influent combined DRO/HO concentration was 748 μ g/L. Influent Northwest Method NWTPH-Dx data are summarized in Table 2; laboratory analytical reports are provided in Appendix A.

2.2.7 Water Treatment System Effluent Monitoring

HCC treatment system effluent water was sampled from the outlet of the secondary GAC vessel on a bimonthly basis until the system was shut down on July 18, 2023. Samples were analyzed for combined DRO/HO and for total lead and total arsenic (one sample per quarter). Additionally, the pH of the HCC treatment system effluent water was monitored while the HCC system was operating. The results of the effluent monitoring are summarized below:

- Combined DRO/HO: Reported combined DRO/HO concentrations in the HCC treatment system effluent samples were less than the NPDES Permit discharge limit of 208 µg/L for all samples collected in 2023. Effluent DRO and HO data are summarized in Table 2; laboratory analytical reports are provided in Appendix A.
- **pH:** Measured pH in the HCC treatment system effluent ranged from 6.98 to 7.70 standard units, which was within the NPDES Permit discharge limit for pH of 6.5 to 8.5. Effluent pH data are summarized in Table 3.
- Lead and Arsenic: Reported total lead and total arsenic concentrations in the HCC treatment system effluent samples were less than the respective NPDES Permit discharge limits of 17.5 and 360 µg/L, respectively.
 Effluent lead and arsenic data are summarized in Table 4; laboratory analytical reports are provided in Appendix A.

2.2.8 Recovered LNAPL Volumes

The belt-type oil skimmers in recovery wells RW-04, RW-07, and RW-08 were operated with approximately 2-minute run-times four to six times per day. Approximately 20 gallons of LNAPL were recovered by the recovery well oil skimmers in recovery wells RW-07 and RW-08 in 2023. No LNAPL was recovered from well RW-04 and no measurable LNAPL was observed in any other recovery wells. There were no apparent changes in LNAPL recovery rates once the HCC system was reconfigured to passive operations mode.

2.2.9 Differential Groundwater Elevations Across Barrier Wall

Six piezometer pairs installed along the barrier wall (piezometer pairs PZ-2S/PZ-2N through PZ-7S/PZ-7N) and two single piezometers, one at each end of the barrier wall (piezometers PZ-1 and PZ-8) (Figure 1), are used to monitor groundwater elevations adjacent to the barrier wall and near the flow-through treatment gates. One piezometer of each piezometer pair is on the southern (upgradient) side of the barrier wall (designated PZ-2S, PZ-3S, etc.), and the other piezometer is on the northern (downgradient) side of the barrier wall (designated PZ-2N, PZ-3N, etc.).

Quarterly groundwater elevation differentials across the barrier wall at each piezometer pair location were calculated by subtracting the groundwater elevation measured in the northern piezometer from the groundwater elevation measured in the southern piezometer. Barrier wall groundwater elevation data for the 2023 reporting period, including calculated elevation differentials at piezometer pairs, are presented in Table 5.

The largest differential elevations between piezometer pairs generally occurred in spring (March) during periods of higher groundwater elevations, and smaller differential elevations between piezometer pairs occurred during summer (September). The differential elevations recorded during periods of high groundwater indicate that, generally, groundwater mounding is occurring on the southern (upgradient) side of the barrier wall, which is expected and consistent with historical data. The differential groundwater elevation data demonstrate that the barrier wall effectively directed groundwater flow through the East Gate, West Gate, and Far West Gate during 2023. Previous pilot testing has shown that the Center Gate is blocked to groundwater flow due to the presence of iron bacteria biofouling in the upgradient portions of the GAC and pea gravel media in this gate (Farallon 2017). Potentiometric surface maps from March and September 2023 (Figures 2 and 3, respectively) and differential elevation calculations (Table 5) indicate that groundwater flows generally to the west to northwest through the barrier wall.

2.2.10 Service Interruptions

HCC system operations were occasionally interrupted for short periods during 2023 prior to passive mode operation due to utility power outages, to perform maintenance, change out GAC and/or sand filter media, optimize system parameters, or make repairs. Two service interruptions exceeded 48 hours as summarized below:

- Manual shutdown of the HCC system occurred on February 13, 2023, ahead of a scheduled GAC changeout by Pacific Coast Carbon. The HCC system was restarted on February 15, 2023.
- Manual shutdown of the HCC system occurred on March 30, 2023, ahead of a scheduled GAC changeout by Pacific Coast Carbon. The HCC system was restarted on April 1, 2023.

2.2.11 HCC System Shutdown

The pump and treat component of the HCC system was shut down on July 18, 2023, following Ecology approval, allowing for passive mode operations. HCC system passive operation and maintenance and system restart requirements are summarized in the 2023 O&M Manual (Arcadis 2023). In accordance with the 2023 O&M Manual, the pump and treat portion of the HCC system has been reconfigured to be maintained in a state of readiness and allow for intermittent operation without extracting, treating, or discharging water.

2.2.12 Biosparge System

A biosparge system was installed at the Site from July 7, 2023 through August 3, 2023 to address residual LNAPL upgradient of the HCC system barrier wall near the West Gate. The biosparge system was constructed in accordance with the Biosparge Pilot Study and Engineering Design Work Plan dated October 2, 2020 (Farallon 2020a), with some modifications based on subsequent discussions with Ecology in a meeting with BNSF, Arcadis, and Ecology on February 23, 2023 (BNSF, Arcadis, and Ecology 2023). During this meeting, several design modifications were discussed that were intended to improve reliability and functionality of the biosparge system.

Design modifications discussed during the February 2023 meeting that were implemented in the final remedial design included the reuse of existing subsurface piping for air conveyance to the individual biosparge wells using dedicated piping to each well, the construction of an air manifold with electric solenoid valves and individual well flow meters in the HCC system building where the biosparge blower is located to control and measure air flow into each biosparge well, the installation of a rotary claw compressor rather than a reciprocating piston compressor, and the installation of an air-to-air heat exchanger to cool the air and mitigate excessive temperatures to the high density polyethylene piping.

In the February 2023 meeting, Ecology requested that BNSF implement biosparge operations at approximately the same time that the HCC system switched from active to passive operation (BNSF, Arcadis, and Ecology 2023). Although Ecology recognized that passive operations of the HCC system is sufficient to meet the applicable cleanup levels based on the results of a 24-month HCC system passive operation pilot study (Ecology 2023a), operation of the biosparge system should accelerate the overall restoration timeframe by treating petroleum hydrocarbons upgradient of the passive GAC west gate where LNAPL and residual dissolved phase hydrocarbon concentrations are present at concentrations above the RL.

2.3 Biosparge System Description

The biosparge system consists of the following:

- Four biosparge wells (BS-1 through BS-4) located near the West Gate of the HCC system (near 5th Street North), as shown on Figure 1;
- A rotary claw compressor (Busch, Model MM1104) controlled by a variable frequency drive;
- An air-to-air heat exchanger (Xchanger, Inc., Model AA-250, 1 horsepower);
- A biosparge manifold with solenoid valves, flow rotameters, and valves to direct air flow into each biosparge well:
- Instrumentation to monitor system temperatures and pressures;

- A Computer-based control system to monitor system parameters and shut down the system if pressure or temperature exceed user-defined setpoints; and
- Subsurface piping dedicated to each biosparge well.

The biosparge system is also equipped with a telemetry system that allows both local and remote access to equipment operating status and several operating parameters (system pressure and temperature), as well as notifications of a system shutdown in the event of a power outage or other alarm condition (system high pressure or high temperature). The human–machine interface on the computer will also display operating time of the biosparge blowers, heat exchanger fan, and individual well solenoid valves.

A process instrument and flow diagram of the biosparge system is presented on Figure 4. Manifold details are presented on Figure 5.

2.4 Installation and Startup

The biosparge wells were installed by Cascade Environmental on July 6 and July 7, 2023, under the direction of an Arcadis geologist. Glacier Environmental Services performed the piping modifications and assembled the biosparge system and manifold in July and August 2023. Electrical connections were made by SHJ Electrical under a subcontract to Glacier Environmental Services in early August 2023. Arcadis performed programmable logic controller and human—machine interface programming to incorporate the new biosparge system into the existing HCC water treatment system programmable logic controller and computer control system. System commissioning activities were conducted in early August, and the biosparge system was started on August 3, 2023.

2.5 Biosparge System Operations and Maintenance

Operation and maintenance activities consist of weekly remote monitoring and quarterly site visits. System operating parameters are recorded during the site visits on field sheets. Data collected include date and time of site visit, system operating status on arrival and departure, hour meter readings, variable frequency drive parameters, temperatures, pressures, air flowrate into each biosparge well, and well head pressures. Biosparge system operating data are presented in Table 6. As indicated in Table 6, the biosparge system operated approximately 2,890 hours during the period between August 3 and December 31, 2023. Air injection flow rates ranged from approximately 3.8 to 7.5 standard cubic feet per minute per well at wellhead injection pressures of approximately 3.5 to 7 pounds per square inch gauge.

3 Results of HCC System Groundwater Monitoring

The results of site-wide groundwater monitoring conducted in 2023 are presented in the 2023 Annual Long-Term Monitoring Report (Arcadis 2024). The results of groundwater monitoring conducted in 2023 to assess HCC system performance are summarized below.

Downgradient of the HCC system barrier wall, groundwater flows toward the west-northwest and roughly parallel to the Skykomish River. South of the barrier wall, groundwater flows toward the northwest. The groundwater flow directions observed in 2023 were consistent with previous years. Groundwater elevation contours and interpreted groundwater flow directions derived from the site-wide groundwater monitoring data for March and September 2023 are shown on Figures 2 and 3, respectively. Groundwater elevation contours were not prepared for the June

and December 2023 monitoring events, as a limited subset of monitoring wells are gauged for those events and do not provide a complete representation of groundwater flow at the Site. The groundwater elevation differential evaluation across the four gates, included in Table 5, confirm groundwater is flowing through the gates as designed except for the Center Gate, which remains blocked due to biofouling.

Groundwater analytical results for locations used to monitor HCC performance are summarized below. Groundwater field parameter data are summarized in Table 7. Groundwater analytical results for DRO, HO, and combined DRO/HO are summarized in Table 8. Groundwater elevation and LNAPL thickness data from the quarterly HCC monitoring events are summarized in Table 9. Figures 6 through 9 show combined DRO/HO concentrations in groundwater and measured LNAPL thicknesses at the monitoring locations used to assess HCC system performance, as described in Sections 4.1 through 4.7. Laboratory analytical reports are included as Appendix A, and data validation reports are included as Appendix B.

3.1 Sentry Wells

The 20 sentry wells (wells S1-AU, S2-BD, etc.) were sampled during the March, June, September, and December quarterly groundwater monitoring events. LNAPL was not observed in any of the sentry wells (Table 9; Figures 6 through 9).

DRO and HO were not detected at concentrations above the laboratory method reporting limit in 9 of 20 wells sampled. The 11 sentry wells (S1-BU, S2-AU, S2-BD, S2-BU, S3-AD, S3-AU, S3-BU, S3-CD, S4-AU, S4-CD, and S4-CU) with detections during 2023 are described below:

- Combined DRO/HO was detected at a concentration of 398 μg/L in the December 2023 groundwater sample collected from upgradient sentry well S1-BU in the east vault of the Far West Gate (Table 8; Figure 9).
 Combined DRO/HO was not detected at samples collected from S1-BU in March, June, or September 2023.
 Combined DRO/HO was not detected at the corresponding down-gradient well S1-BD throughout 2023.
- Combined DRO/HO exceeded the RL at a concentration of 640 μg/L in December 2023 from upgradient sentry well S2-AU in the west vault of the West Gate (Table 8; Figure 9). Combined DRO/HO was not detected at S2-AU in March, June, or September 2023. Combined DRO/HO was not detected at the corresponding down-gradient well S2-AD throughout 2023.
- Combined DRO/HO was detected at the upgradient well S2-BU during all 2023 sampling events (Table 8; Figures 6 through 9). Combined DRO/HO exceeded the RL during the September and December 2023 events with concentrations of 1,200 and 1,640 μg/L, respectively. S2-BU is in the upgradient GAC and pea gravel chamber within its vault. All upgradient sentry wells are paired with a down-gradient sentry well located in the down-gradient GAC and pea gravel chamber in the same vault to evaluate the effectiveness of groundwater treatment. Combined DRO/HO was detected at a concentration of 148 μg/L in the September 2023 groundwater sample collected from down-gradient sentry well S2-BD in the east vault of the West Gate (Table 8; Figure 8). Combined DRO/HO was not detected in S2-BD during the March, June, or December 2023 events.
- Combined DRO/HO was detected at a concentration of 278 µg/L in the December 2023 groundwater sample collected from down-gradient sentry well S3-AD in the west vault of the Center Gate (Table 8; Figure 9).
 Combined DRO/HO was not detected in S3-AD samples from March, June, or September 2023. Combined DRO/HO was detected at the corresponding upgradient well S3-AU at concentrations of 169 (estimated) and

- $219 \mu g/L$ during the March and June 2023 sampling events, respectively, and not detected during the September and December 2023 events.
- Combined DRO/HO was detected at a concentration of 119 μg/L in the December 2023 groundwater sample collected from upgradient sentry well S3-BU in the center vault of the Center Gate (Table 8; Figure 9).
 Combined DRO/HO was not detected in the duplicate sample collected from S3-BU during the December 2023 sampling event. Combined DRO/HO was not detected from S3-BU samples in March, June, or September 2023. Combined DRO/HO was not detected in samples collected from the corresponding downgradient well S3-BD throughout 2023.
- Combined DRO/HO was detected at a concentration of 308 µg/L in the December 2023 groundwater sample collected from down-gradient sentry well S3-CD in the east vault of the Center Gate (Table 8; Figure 9).
 Combined DRO/HO was not detected from S3-CD samples in March, June, or September 2023. Combined DRO/HO was not detected at the corresponding upgradient well S3-CU throughout 2023.
- Combined DRO/HO was detected at a concentration of 269 μg/L in the December 2023 groundwater sample collected from upgradient sentry well S4-AU in the west vault of the East Gate (Table 8; Figure 9). Combined DRO/HO was not detected from S4-AU samples in March, June, or September 2023. Combined DRO/HO was not detected at the corresponding down-gradient well S4-AD throughout 2023.
- Combined DRO/HO was detected at a concentration of 300 μg/L in the December 2023 groundwater sample collected from down-gradient sentry well S4-CD in the east vault of the East Gate (Table 8; Figure 9). Combined DRO/HO was not detected in S4-CD samples in March, June, or September 2023. Combined DRO/HO was detected at the corresponding upgradient well S4-CU during the March, September, and December 2023 sampling events. The parent sample for S4-CU was not detected in September 2023, but the duplicate sample was detected at a concentration of 320 μg/L. The December 2023 sample for S4-CU exceeded the RL with a concentration of 510 μg/L.

3.2 Gate Wells

All four gate wells (GW-1 through GW-4) were gauged and sampled during the groundwater monitoring events in March, June, September, and December 2023, except for GW-1, which was sampled in October due to inaccessibility during the September 2023 event. All four gate wells had reported detections of petroleum hydrocarbons during 2023 and are described below:

- Combined DRO/HO was detected at a concentration of 260 μg/L in the October 2023 groundwater sample and 120 μg/L in the December 2023 groundwater sample collected from gate well GW-1 (Table 8; Figures 8 and 9).
- Combined DRO/HO was detected at a concentration of 320 μg/L in the December 2023 groundwater sample collected from gate well GW-2 (Table 8; Figure 9).
- Combined DRO/HO was detected during all 2023 samples collected from gate well GW-3. The March 2023 sample exceeded the RL with an estimated concentration of 630 μg/L. The groundwater samples from GW-3 were also analyzed following a silica gel cleanup preparation process with reported concentrations being lower for all 2023 sampling events with the December 2023 sample having a non-detect value (Table 8; Figures 6 through 9).

 Combined DRO/HO exceeded the RL at a concentration of 820 µg/L in the September 2023 groundwater sample collected from gate well GW-4 (Table 8; Figure 8). GW-4 was not sampled in December 2023 because the well was inaccessible due to surface water ponding.

LNAPL was not observed in any of the gate wells (Table 9; Figures 6 through 9). Gate well GW-3 is immediately north and down-gradient of the Center Gate, where substantial biofouling by iron bacteria has been observed (Farallon 2014). Between June 2014 and December 2018, combined DRO/HO concentrations ranged between 63 and 1,020 μ g/L. Historically (between April 2009 and June 2014), combined DRO/HO concentrations fluctuated over a smaller range of 34 to 184 μ g/L. Increased concentration ranges in gate well GW-3 since June 2014 are the result of interference from biogenic substances and petroleum metabolites, as evidenced by split sampling with and without silica gel cleanup. Combined DRO/HO concentrations in all the samples prepared with silica gel were less than the combined DRO/HO concentrations in the samples not prepared with silica gel, as shown on the trend plot included in Appendix C. These data demonstrate that the results for the samples not prepared with silica gel are biased high due to biogenic and petroleum metabolite interferences originating from the biofouled gate.

The results at gate well GW-4 may have been influenced by surface water intrusion as the area is intermittently flooded and the combined DRO/HO has not historically exceeded the RL at this location. The integrity of this well will be reassessed in March 2024 and any observed deficiencies will be addressed. Additionally, samples will be analyzed with and without silica gel cleanup to assess for the potential influence of biogenic interference.

3.3 End Wells

The two end wells (wells EW-1 and EW-2A) were gauged and sampled during the March, June, September, and December 2023 groundwater monitoring events. Combined DRO/HO was not detected at concentrations exceeding the laboratory method reporting limit in groundwater samples collected from the end wells during the March and June 2023 sampling events. Combined DRO/HO was detected in groundwater samples collected from end well EW-2A during September 2023 and from end well EW-1 during December 2023 with concentrations of 258 and 109 µg/L, respectively (Table 8; Figures 8 and 9). LNAPL was not observed in either of the end wells (Table 9).

3.4 Monitoring Wells

The HCC system monitoring well network includes 1B-W-23, 2A-W-40, 2A-W-41, 2A-W-42, and 5-W-43. Reported combined DRO/HO concentrations in groundwater samples collected from these wells were less than the RL, except for the samples collected in September and December 2023 from 2A-W-41, which had reported concentrations of 520 μ g/L and 500 μ g/L, respectively (Table 8; Figures 8 and 9). LNAPL was not observed in any of the wells (Table 9; Figures 6 through 9).

Between September 2013 and December 2018, reported combined DRO/HO detections in monitoring well 2A-W-41 ranged from 56 to 1,100 μ g/L, with three values exceeding the RL. Historically (between December 2009 and September 2013), combined DRO/HO results from monitoring well 2A-W-41 ranged from 26 to 175 μ g/L. Monitoring well 2A-W-41 is west and down-gradient of gate well GW-3 and the Center Gate and is also affected by biogenic substances and petroleum metabolites, similar to gate well GW-3. Combined DRO/HO concentrations in all the samples prepared with silica gel were less than the combined DRO/HO concentrations in the samples

not prepared with silica gel, as shown on the trend plot included in Appendix C. These data demonstrate that the combined DRO/HO results for the samples not prepared with silica gel are biased high due to biogenic and petroleum metabolites originating from the biofouled gate.

3.5 Piezometers

The 14 piezometers were gauged for the presence or absence of LNAPL and sheen during the March, June, September, and December 2023 groundwater monitoring events. Measurable LNAPL was observed in piezometers PZ-3S, PZ-5S, and PZ-6S on the southern (upgradient) side of the barrier wall (Table 9):

- **PZ-3S:** A sheen was observed in March 2023, and measurable LNAPL was recorded in June (0.3 foot), September (0.01 foot), and December (0.01 foot) 2023. LNAPL was not observed in the down-gradient piezometer (PZ-3N) paired with PZ-3S.
- **PZ-5S** and **PZ-5N**: Measurable LNAPL was recorded in PZ-5S in March (0.05 feet), June (0.05 foot), September (0.01 foot), and December (0.01 foot) 2023. The measured LNAPL thicknesses in 2023 were an overall decrease in LNAPL thickness compared with observations from 2022. LNAPL was not observed in the down-gradient piezometer (PZ-5N) paired with PZ-5S.
- PZ-6S: A sheen was observed in March and June 2023, and measurable LNAPL was recorded in September 2023 (0.05 foot). No measurable LNAPL was observed in December 2023 at PZ-6S. LNAPL observations at piezometer PZ-6S are consistent with observations from 2022. LNAPL was not observed in the down-gradient piezometer (PZ-6N) paired with PZ-6S.

LNAPL thickness trend plots for HCC system monitoring locations that historically have contained measurable LNAPL are included in Appendix D.

3.6 Recovery Wells

The 10 recovery wells were gauged for the presence or absence of LNAPL during the March and September 2023 groundwater monitoring events. There was no measurable LNAPL observed in recovery wells RW-01, RW-02, RW-03, RW-04, RW-05, RW-06, and RW-09. LNAPL observed as sheen was reported in recovery wells RW-3, RW-07, RW-08, and RW-09, and measurable LNAPL was observed in recovery wells RW-07 and RW-08 (Table 9):

- **RW-07:** A sheen was observed in March 2023. Measurable LNAPL was recorded in September (0.02 foot) 2023. LNAPL thickness decreased from measurable LNAPL in March (0.81 foot) and June (1.51 foot) 2022 to a sheen in March 2023 and 0.02 foot in September 2023.
- **RW-08:** A sheen was observed in March 2023. Measurable LNAPL was recorded in September (0.01 foot) 2023. LNAPL thickness decreased from measurable LNAPL in March (7.10 feet) and June (2.12 feet) 2022 to a sheen in March 2023 and 0.01 foot in September 2023.

LNAPL thickness trend plots for HCC system monitoring locations that historically (within the past five years) have contained measurable LNAPL are included in Appendix D.

3.7 Barrier Wall Gate Oil-Water Separator Chambers

Each flow-through treatment gate in the HCC system barrier wall consists of two or three concrete vaults. Each gate contains an OWS chamber on the upgradient side of the gate (as shown on Figure 1, which shows a typical construction of a treatment gate). During the March, June, September, and December 2023 monitoring events, the gate OWS vaults were monitored for LNAPL (Table 9). There was no measurable LNAPL observed in the OWS chambers in 2023, and only a sheen was observed in September 2023 in the south chamber of the East Gate east vault OWS.

4 Data Validation and Usability

Quality assurance and quality control samples were collected and analyzed for both field and laboratory operations to monitor overall precision and accuracy throughout the groundwater monitoring period in accordance with the Final Long-Term Monitoring Plan (Farallon 2020b). Field quality assurance and quality control samples included field duplicate and field blank samples. Field duplicate samples were collected at a frequency of one duplicate sample per 10 samples, or one duplicate sample per batch of samples if less than 10 samples were collected. Duplicate samples were treated as separate samples from the originals (assigned unique sample numbers) and not identified to the laboratory as duplicate samples. Field duplicate samples were documented on the field sampling form. At least one field blank sample was collected during each groundwater sampling event. Matrix spike and matrix spike duplicate samples were also collected at a frequency of one per 20 samples collected, or one per batch if less than 20 samples were collected. Data validation was conducted in accordance with the following guidance documents:

- United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (2020a), with reference to the historical Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1999), as appropriate.
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (2020b), with reference to the historical Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 2002), as appropriate.

Quality assurance and quality control sample results are discussed in the data validation reports included as Appendix B. The laboratory quality control criteria were met, unless otherwise noted, and all data were deemed usable. The qualified validated laboratory analytical reports are included as Appendix B.

5 Conclusions

The groundwater monitoring results from 2023 and previous years indicate that the HCC system, particularly the HCC system barrier wall, continues to be effective in meeting the cleanup objective. Based on the groundwater monitoring results from 2022 and the results of the passive operation pilot study conducted between January 2019 and December 2020 (Farallon 2018b), Ecology approved passive operation of the HCC system, along with the operation of a biosparge system. Although Ecology recognized that passive operations of the HCC system is sufficient to meet the applicable cleanup levels based on the results of a 24-month HCC system passive operation pilot study (Ecology 2023a), operation of the biosparge system should accelerate the overall restoration timeframe by treating petroleum hydrocarbons upgradient of the passive GAC west gate where LNAPL and residual dissolved phase hydrocarbon concentrations are present at concentrations above the RL.

Groundwater monitoring is conducted in accordance with the Final Long-Term Monitoring Plan (Farallon 2020b). On July 18, 2023, the HCC system was transitioned from active to passive operation, and it continued to operate in passive mode through 2023 since this time. On July 7, 2023, biosparge wells were installed and the biosparge system was started on August 3, 2023. Operation and maintenance will be conducted approximately bimonthly in 2024 to optimize operation of the biosparge system.

In 2023, measured LNAPL thicknesses were generally consistent in piezometers PZ-6S and PZ-3S, and decreased in piezometer PZ-5S and recovery wells RW-07 and RW-08, compared with observations from 2022. Over the lifecycle of the data record, measured LNAPL thicknesses in these piezometers and wells have exhibited an overall decreasing or stable trend, with minor variability (Appendix D).

In 2024, groundwater monitoring and HCC performance monitoring will be conducted in accordance with the 2011 Operation and Maintenance Manual for the Hydraulic Control and Containment System (AECOM 2011) and 2014 addendum (Farallon 2014). The biosparge system will be operated in accordance with the 2023 O&M Manual (Arcadis 2023). Groundwater samples collected from gate well GW-3 and monitoring well 2A-W-41 will continue to be analyzed for DRO and HO hydrocarbons both with and without silica gel cleanup preparation. Results will be assessed in accordance with Ecology's guidance on silica gel cleanup in Washington State (Ecology 2023c).

6 References

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Tables





Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
NPDES Permit Discharge Limit ¹		100
1/1/2023	151,834,735	0
1/2/2023	151,834,735	0
1/3/2023	151,840,403	23.62
1/4/2023	151,874,367	23.59
1/5/2023	151,907,955	23.33
1/6/2023	151,940,859	22.85
1/7/2023	151,973,167	22.44
1/8/2023	152,005,051	22.14
1/9/2023	152,036,815	22.06
1/10/2023	152,068,087	21.72
1/11/2023	152,099,515	21.83
1/12/2023	152,129,563	20.87
1/13/2023	152,160,051	21.17
1/14/2023	152,189,539	20.48
1/15/2023	152,217,743	19.59
1/16/2023	152,245,779	19.47
1/17/2023	152,273,847	19.49
1/18/2023	152,302,051	19.59
1/19/2023	152,330,859	20.01
1/20/2023	152,360,119	20.32
1/21/2023	152,388,827	19.94
1/22/2023	152,417,151	19.67
1/23/2023	152,444,935	19.29
1/24/2023	152,475,007	20.88
1/25/2023	152,505,535	21.20
1/26/2023	152,536,647	21.61
1/27/2023	152,566,615	20.81
1/28/2023	152,597,207	21.24
1/29/2023	152,627,855	21.28
1/30/2023	152,658,563	21.33
1/31/2023	152,689,579	21.54
2/1/2023	152,720,871	21.73
2/2/2023	152,752,383	21.88
2/3/2023	152,776,839	16.98





Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
2/4/2023	152,780,891	2.81
2/5/2023	152,782,835	1.35
2/6/2023	152,784,103	0.88
2/7/2023	152,786,275	1.51
2/8/2023	152,789,499	2.24
2/9/2023	152,798,847	7.79
2/10/2023	152,810,903	8.37
2/11/2023	152,823,075	8.45
2/12/2023	152,834,455	7.90
2/13/2023	152,839,719	21.93
2/14/2023	152,839,787	0.28
2/15/2023	152,843,495	20.60
2/16/2023	152,872,915	20.43
2/17/2023	152,901,855	20.10
2/18/2023	152,930,763	20.08
2/19/2023	152,958,259	19.09
2/20/2023	152,985,003	18.57
2/21/2023	153,007,819	15.84
2/22/2023	153,029,315	14.93
2/23/2023	153,049,987	14.36
2/24/2023	153,069,951	13.86
2/25/2023	153,089,531	13.60
2/26/2023	153,107,839	12.71
2/27/2023	153,126,055	12.65
2/28/2023	153,144,119	12.54
3/1/2023	153,158,963	10.31
3/2/2023	153,190,507	21.91
3/3/2023	153,222,755	22.39
3/4/2023	153,254,523	22.06
3/5/2023	153,285,671	21.63
3/6/2023	153,316,643	21.51
3/7/2023	153,347,679	21.55
3/8/2023	153,378,719	21.56
3/9/2023	153,410,103	21.79
3/10/2023	153,441,795	22.01





Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
3/11/2023	153,473,807	21.34
3/12/2023	153,505,683	22.14
3/13/2023	153,538,035	22.47
3/14/2023	153,570,759	22.73
3/15/2023	153,603,695	22.87
3/16/2023	153,636,175	22.56
3/17/2023	153,668,351	22.34
3/18/2023	153,700,975	22.66
3/19/2023	153,733,643	22.69
3/20/2023	153,766,327	22.70
3/21/2023	153,799,019	22.70
3/22/2023	153,831,559	22.60
3/23/2023	153,864,327	22.76
3/24/2023	153,897,275	22.88
3/25/2023	153,913,179	11.04
3/26/2023	153,927,155	9.71
3/27/2023	153,940,995	9.61
3/28/2023	153,954,859	9.63
3/29/2023	153,965,775	7.58
3/30/2023	153,965,835	0.33
3/31/2023	153,965,887	0.87
4/1/2023	153,969,655	12.56
4/2/2023	153,990,003	14.13
4/3/2023	154,010,359	14.14
4/4/2023	154,030,539	14.01
4/5/2023	154,050,891	14.13
4/6/2023	154,071,143	14.06
4/7/2023	154,090,775	13.63
4/8/2023	154,109,979	13.34
4/9/2023	154,128,979	13.19
4/10/2023	154,147,951	13.18
4/11/2023	154,166,655	12.99
4/12/2023	154,185,915	13.38
4/13/2023	154,204,659	13.02
4/14/2023	154,223,795	13.29





Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
4/15/2023	154,241,679	12.42
4/16/2023	154,260,279	12.92
4/17/2023	154,279,103	13.07
4/18/2023	154,297,595	12.84
4/19/2023	154,316,039	12.81
4/20/2023	154,333,851	12.37
4/21/2023	154,351,883	12.52
4/22/2023	154,369,639	12.33
4/23/2023	154,387,271	12.24
4/24/2023	154,396,399	16.90
4/25/2023	154,421,355	17.33
4/26/2023	154,444,947	16.38
4/27/2023	154,467,735	15.83
4/28/2023	154,490,343	15.70
4/29/2023	154,512,447	15.35
4/30/2023	154,534,419	15.26
5/1/2023	154,556,343	15.23
5/2/2023	154,578,471	15.37
5/3/2023	154,600,303	15.16
5/4/2023	154,622,363	15.32
5/5/2023	154,644,467	15.35
5/6/2023	154,666,623	15.39
5/7/2023	154,688,631	15.28
5/8/2023	154,710,827	15.41
5/9/2023	154,733,343	15.64
5/10/2023	154,756,299	15.94
5/11/2023	154,779,075	15.82
5/12/2023	154,802,455	16.24
5/13/2023	154,825,735	16.17
5/14/2023	154,848,379	15.73
5/15/2023	154,867,119	13.01
5/16/2023	154,885,811	12.98
5/17/2023	154,905,463	13.65
5/18/2023	154,924,187	13.00
5/19/2023	154,943,043	13.09





Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
5/20/2023	154,962,159	13.28
5/21/2023	154,981,135	13.18
5/22/2023	154,999,767	12.94
5/23/2023	155,018,867	13.26
5/24/2023	155,038,035	13.31
5/25/2023	155,056,931	13.12
5/26/2023	155,076,283	13.44
5/27/2023	155,077,607	0.92
5/28/2023	155,078,511	0.63
5/29/2023	155,081,123	1.81
5/30/2023	155,082,191	0.74
5/31/2023	155,085,191	2.08
6/1/2023	155,086,883	1.18
6/2/2023	155,087,551	0.46
6/3/2023	155,087,571	0.01
6/4/2023	155,087,587	0.01
6/5/2023	155,087,607	0.01
6/6/2023	155,087,627	0.01
6/7/2023	155,095,207	5.26
6/8/2023	155,123,359	19.55
6/9/2023	155,152,551	20.27
6/10/2023	155,181,755	20.28
6/11/2023	155,211,267	20.49
6/12/2023	155,240,363	20.21
6/13/2023	155,260,311	13.85
6/14/2023	155,279,695	13.46
6/15/2023	155,299,067	13.45
6/16/2023	155,318,531	13.52
6/17/2023	155,337,679	13.30
6/18/2023	155,357,363	13.67
6/19/2023	155,376,159	13.05
6/20/2023	155,395,223	13.24
6/21/2023	155,414,419	13.33
6/22/2023	155,433,419	13.19
6/23/2023	155,452,583	13.31

Table 1 HCC Water Treatment System Discharge Flow Rates 2023 Annual HCC System Operations Report BNSF Railway Company



Former Maintenance and Fueling Facility, Skykomish, WA

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate (gallons per minute)
6/24/2023	155,477,603	17.38
6/25/2023	155,503,807	18.20
6/26/2023	155,521,851	15.04
6/27/2023	155,532,419	7.34
6/28/2023	155,557,503	17.42
6/29/2023	155,582,355	17.26
6/30/2023	155,606,819	16.99
7/1/2023	155,631,339	17.03
7/2/2023	155,655,683	16.91
7/3/2023	155,680,379	17.15
7/4/2023	155,702,315	15.23
7/5/2023	155,702,959	0.45
7/6/2023	155,707,959	3.47
7/7/2023	155,735,251	18.95
7/8/2023	155,751,463	11.26
7/9/2023	155,766,859	10.69
7/10/2023	155,782,083	10.57
7/11/2023	155,796,911	10.30
7/12/2023	155,811,731	10.29
7/13/2023	155,826,763	10.44
7/14/2023	155,841,867	10.49
7/15/2023	155,857,299	10.72
7/16/2023	155,872,743	10.73
7/17/2023	155,888,251	10.77
7/18/2023 ²	155,902,383	11.78

Notes:

Acronyms and Abbreviations:

HCC = hydraulic control and containment NAVD88 = North American Vertical Datum of 1988 NPDES = National Pollutant Discharge Elimination System

¹ Discharge limit specified in NPDES Permit No. WA0032123, applicable when the Skykomish River level is less than 928.56 feet NAVD88. Discharge is not allowed when the river level exceeds 928.56 feet NAVD88.

² System switched from active to passive operation on July 18, 2023.





Sample Location	Sample Date	Sample Identification	Diesel Range Organics	Heavy Oil	Calculated NWTPH-Dx
			Result	Result	
NPDES Permit Dis	charge Limit			-	208
	1/5/2023	BEFORE GAC-1523	800	200	1,000
	1/19/2023	BEFORE GAC-11923	1,000	210	1,210
	2/3/2023	BEFORE GAC-2323	860	150	1,010
	2/15/2023	BEFORE GAC-21523	500	120	620
	3/1/2023	BEFORE GAC-3123	1,100	200	1,300
	3/14/2023	BEFORE GAC-31423	740	180	920
Treatment System	3/29/2023	BEFORE GAC-32923	750	200	950
Influent (Primary GAC	4/13/2023	BEFORE GAC-41323	700	130	830
Vessel Influent)	4/24/2023	BEFORE GAC-42423	670	160	830
<i>'</i>	5/11/2023	BEFORE GAC-51123	840	260	1,100
	5/22/2023	BEFORE GAC-52223	530	130	660
	6/7/2023	BEFORE GAC-6723	<100	<100	<15.5
	6/23/2023	BEFORE GAC-62323	630	110	740
	6/30/2023	BEFORE GAC-63023	610	130	740
	9/26/2023	BEFORE GAC-092623	190	110	300
	1/5/2023	HCC EFF-1523	<100	<100	<15.5
	1/19/2023	HCC EFF-11923	<100	<100	<15.5
	2/3/2023	HCC EFF - 2323	<100	<100	<15.5
	2/15/2023	HCC EFF - 21523	<100	<100	<15.5
	3/1/2023	HCC EFF - 3123	<100	<100	<15.5
	3/14/2023	HCC EFF - 3123	<100	<100	<15.5
Treatment System	3/29/2023	HCC EFF - 3123	<100	<100	<15.5
Effluent (Secondary GAC	4/13/2023	HCC EFF - 41323	<100	<100	<15.5
Vessel Effluent)	4/24/2023	HCC EFF - 42423	<100	<100	<15.5
	5/11/2023	HCC EFF - 51123	<100	<100	<15.5
	5/22/2023	HCC EFF - 52223	<100	<100	<15.5
	6/7/2023	HCC EFF - 6723	<100	<100	<15.5
	6/23/2023	HCC EFF - 62323	<100	<100	<15.5
	6/30/2023	HCC EFF - 63023	<100	<100	<15.5
	9/26/20223	HCC EFF - 092623	<100	<100	<15.5

Notes:

- 1. Results in **bold** font indicate the compound was detected at a concentration greater than the laboratory reporting limit.
- 2. Results in **bold** font and shaded grey indicate the compound was detected at a concentration greater than the site-specific remediation level. The remediation level is not applicable to vaults in the barrier wall treatment gates.
- 3. All results are reported in micrograms per liter.
- 4. Analyzed by Northwest Method NWTPH-DX without silica gel cleanup.
- 5. Calculated NWTPH-Dx is the sum of diesel range organic and heavy oil, using half the method detection limit for non-detect results. Data reported previously in NPDES Discharge Monitoring Reports pursuant to NPDES Permit No. WA0032123.
- 6. Discharge limit specified in NPDES Permit No. WA0032123.

Acronyms and Abbreviations:

< = analyte not detected at or exceeding the reported concentration

EFF = effluent

GAC = granular activated carbon

HCC = hydraulic control and containment

NPDES = National Pollutant Discharge Elimination System





Sample Date	pH (Standard Units)
NPDES Permit Discharge Limit	6.5-8.5
1/5/2023	6.98
1/19/2023	7.10
2/3/2023	7.70
2/15/2023	7.40
3/1/2023	7.19
3/14/2023	7.26
3/29/2023	7.37
4/13/2023	7.49
4/24/2023	7.18
5/11/2023	7.27
5/22/2023	7.16
6/7/2023	7.37
6/23/2023	7.47
9/26/2023	7.41

Notes:

- 1. Data reported previously in NPDES Discharge Monitoring Reports pursuant to NPDES Permit No. WA0032123.
- 2. Discharge limit specified in NPDES Permit No. WA0032123.

Acronyms and Abbreviations:

HCC = hydraulic control and containment

NPDES = National Pollutant Discharge Elimination System





Sample Date	Sample Identification	Analytical Results (micrograms per liter)	
		Total Lead	Total Arsenic
NPDES Permit Discharge Limit		17.5	360
03/01/2023	HCC EFF - 3123	< 1.0	< 1.0
06/30/2023	HCC EFF - 63023	< 1.0	< 1.0
09/26/2023	HCC EFF - 092623	< 1.0	1.1

Notes:

- 1. Analyzed by U.S. Environmental Protection Agency Method 200.8. Data reported previously in NPDES Discharge Monitoring Reports pursuant to NPDES Permit No. WA0032123.
- 2. Discharge limit specified in NPDES Permit No. WA0032123.

Acronyms and Abbreviations:

< = analyte not detected at or exceeding the method reporting limit

EFF = effluent

HCC = hydraulic control and containment

NPDES = National Pollutant Discharge Elimination System

Table 5 **HCC System Barrier Wall Groundwater Elevations** 2023 Annual HCC System Operations Report **BNSF Railway Company** Former Maintenance and Fueling Facility, Skykomish, WA



	Groundwater Elevations at Piezometers (feet NAVD88) and Elevation Differentials at Piezometer Pairs (feet)																			
Date	PZ-1	PZ-2S	PZ-2N	Elevation Differential at PZ-2S/PZ-2N	PZ-3S	PZ-3N	Elevation Differential at PZ-3S/PZ-3N	PZ-4S	PZ-4N	Elevation Differential at PZ-4S/PZ-4N	PZ-5S	PZ-5N	Elevation Differential at PZ-5S/PZ-5N	PZ-6S	PZ-6N	Elevation Differential at PZ-6S/PZ-6N	PZ-7S	PZ-7N	Elevation Differential at PZ-7S/PZ-7N	PZ-8
3/27/2023	925.42	928.19	922.33	5.86	925.09	920.43	4.66	924.67	920.65	4.02	929.21	917.67	11.54	923.78	917.57	6.21	922.69	918.86	3.83	919.41
6/13/2023	924.68	925.91	922.21	3.70	925.14	920.41	4.73	924.34	920.66	3.68	923.87	917.90	5.97	923.66	917.86	5.80	922.52	917.86	4.66	919.59
9/25/2023	923.03	922.51	920.59	1.92	921.72	DRY		920.388	920.33	0.05	920.69	917.15	3.54	919.80	916.36	3.44	916.89	916.39	0.50	915.60
12/4/2023	928.20	926.65	922.25	4.40	927.82	DRY		920.208	920.31	-0.11	926.79	917.42	9.37	920.38	917.40	2.98	923.29	917.48	5.81	922.98
Average Eleva	tion Differe	ntial		3.97			4.70			1.91			7.60			4.61			3.70	
Maximum Elevation Differential			5.86			4.73			4.02			11.54			6.21			5.81		
Minimum Elevation Differential			1.92			4.66			0.05			3.54			2.98			0.50		

- Groundwater elevations are measured quarterly using water level meters and are referenced to NAVD88.
 Positive elevation differentials indicate a groundwater gradient of south to north, through the granular activated carbon treatment gates.

Acronyms and Abbreviations:

HCC = hydraulic control and containment NAVD88 = North American Vertical Datum of 1988

Table 6

Biosparge System Operational Data 2023 Annual HCC System Operations Report BNSF Railway Company





	Biosparge Compressor Status						Heat Exchan	ger	Ter	nperatures a			
Date	Status on Arrival	Status on Departure	Approximate Runtime (hours)	Speed (Hz)	Amps	Status on Arrival	Status on Departure	Approximate Runtime (hours)	Blower Outlet Temperature (°F)		Blower Outlet Pressure (psig)	Heat Exchanger Outlet Pressure (psig)	Comments
08/03/23	Off	On	0	60	4.8	Off	On	0	186	83	14.5	14.5	System startup. All biosparge wells are open 24 hours a day, 7 days a week.
12/05/23	On	On	2,250	50		On	Off	2,250	140	97	18	18	Heat exchanger turned off.

Note:

1. System operating parameters were recorded upon arrival unless system was shutdown on arrival.

Acronyms and Abbreviations:

°F = degree Fahrenheit

amp = ampere

HCC = hydraulic control and containment

Hz = hertz

psig = pound per square inch gauge

Table 6 Biosparge System Operational Data 2023 Annual HCC System Operations Report BNSF Railway Company



Former Maintenance and Fueling Facility, Skykomish, WA

	N	Ianifold Flov	v Rate (scfn	n)	Manifold Injection Pressure (psig)				1	Well Head Pr	essure (psig			
Date	BS-1	BS-2	BS-3	BS-4	BS-1	BS-2	BS-3	BS-4	BS-1	BS-2	BS-3	BS-4	Comments	
08/03/23	6.2	6.6	6.0	6.0	6.0	9.0	5.5	4.0	5.0	7.0	5.0	3.5	System startup. All biosparge wells are open.	
12/05/23	5.0	7.5	3.8	6.0	7.0	7.0	7.5	6.0	6.0	6.0	7.0	5.0	All biosparge wells are open.	

Note:

Acronyms and Abbreviations:

HCC = hydraulic control and containment psig = pound per square inch gauge scfm = standard cubic feet per minute

^{1.} Biosparge well parameters were recorded upon arrival unless system was shutdown on arrival.

Table 7 Stabilized Field Parameter Values at HCC System Monitoring Wells 2023 Annual HCC System Operations Report BNSF Railway Company

Former Maintenance and Fueling Facility, Skykomish, WA



Oxidation-Reduction Specific Temperature Dissolved Oxygen Conductivity **Potential** pH (Standard Units) (degrees Celsius) Sample Date (mS/cm) **Monitoring Well** Turbidity (milligrams per liter) (millivolts) 3/29/2023 10.71 230.9 6.27 0.106 8.62 439.86 6/15/2023 9.05 205.0 6.45 0.105 54.19 1076.60 1B-W-23 9/27/2023 211.2 0.090 18.40 0.29 6.08 6.09 12/6/2023 8.81 250.3 6.68 0.089 8.78 3.25 55.51 3/29/2023 9.58 12.8 6.56 0.052 7.69 6/14/2023 7.91 231.3 6.84 0.055 48.07 2.62 2A-W-40 9/28/2023 6.96 183.6 6.44 0.057 9.07 2.01 12/6/2023 6.04 218.8 6.58 0.06 9.56 1.98 3/29/2023 6.47 0.144 8.41 2.67 4.20 4.2 6/14/2023 4.15 24.9 6.32 0.131 48.99 0.77 2A-W-41 9/28/2023 26.1 6.35 0.171 10.93 3.67 1.99 12/6/2023 9.75 -14.76.36 0.141 10.39 0.89 3/30/2023 3.20 45.1 6.07 0.132 7.31 123.55 6/14/2023 0.34 196.5 6.29 0.143 10.16 143.15 2A-W-42 10.60 9/28/2023 3 40 209.8 5.90 0.116 7 23 16/6/23 4 45 28.3 6.16 0.147 9.01 0.00 3/29/2023 5.03 104.7 6.11 0.086 8.04 0.19 6/14/2023 3.24 235.0 6.43 0.076 47.92 0.00 5-W-43 9/29/2023 0.98 207.7 6.13 0.073 10.63 0.00 12/5/2023 1.38 -27.8 6.03 0.110 9.81 0.00 3/29/2023 3.22 99.2 6.04 0.087 7.96 0.32 6/14/2023 2.42 213.9 6.35 0.077 7.88 0.00 EW-1 9/28/2023 0.53 196.3 6.01 0.058 8.84 0.00 12/6/2023 0.55 39.7 6.02 0.114 9.59 0.00 3/29/2023 6.49 246.4 8.10 36.88 6.10 0.046 47.63 6/15/2023 6.42 185.8 6.28 0.050 0.00 FW-2A 9/27/2023 5.20 192.0 5.94 0.062 9.79 11.77 12/6/2023 4.67 248.9 6.07 0.066 8.68 0.00 3/29/2023 2.50 6.34 0.117 7.58 3.73 59.2 6/15/2023 73.2 6.46 10.64 4.05 0.46 0.098 GW-1 10/17/2023 NM 0.84 -68.8 6.16 0.121 11.48 12/5/2023 97.1 8.96 2.17 4.74 6.00 0.154

-35.9

62.9

18.7

-16.9

-597

118.6

56.4

-11.4

-47.7

-38.9

112.4

6.24

6 41

6.27

6.51

6 23

6.24

6.05

6.01

6.61

6.84

6.35

0.118

0.090

0.119

0.169

0.102

0.090

0.088

0.081

0.089

0.144

0.087

7.61

9 54

11.49

9.25

8 67

51.64

10.85

8.77

7.45

48.84

10.09

3.62

1 18

1609.80

29.64

0.74

3.44

7.66

0.00

0.00

0.00

10.48

Notes

GW-4

GW-2

GW-3

HCC = hydraulic control and containment mS/cm = milliSiemen per centimeter NM = not monitored

3/29/2023

6/14/2023

9/28/2023

12/5/2023

3/29/2023

6/14/2023

9/27/2023

12/6/2023

3/30/2023

6/14/2023

9/27/2023

117.71

0.24

1.02

7.63

1.58

1.10

2.92

4.45

1.84

1.07

3.00





Well	Date	Sample Identification	Sample Type	Diesel Range Organics (µg/L)	Heavy Oil (μg/L)	Combined DRO/HO (μg/L)	
			Sentry W	/ells			
	3/30/2023	S1-AD	N	<100 UJ	<100 UJ	16.5 UJ	
S1-AD	6/14/2023	S1-AD_06142023	N	<100 U	<100 U	16.5 U	
SI-AD	9/28/2023	S1-AD_092823	N	<100 U	<100 U	16.5 U	
	12/6/2023	S1-AD_120623	N	<100 U	<100 U	16.5 U	
	3/30/2023	S1-AU	N	<100 UJ	<100 UJ	16.5 UJ	
S1-AU	6/14/2023	S1-AU_06142023	N	<100 U	<140 UB	17.5 UB	
31-AU	9/28/2023	S1-AU_092823	N	<100 U	<100 U	16.5 U	
	12/6/2023	S1-AU_120623	N	<100 U	<100 U	16.5 U	
	3/30/2023	S1-BD	N	<100 UJ	<100 UJ	16.5 UJ	
S1-BD	6/15/2023	S1-BD_06152023	N	<100 U	<100 UB	15.5 UB	
31-00	9/28/2023	S1-BD_092823	N	<100 U	<100 U	16.5 U	
	12/6/2023	S1-BD_120623	N	<100 U	<100 U	16.5 U	
	3/30/2023	S1-BU	N	<100 UJ	<100 UJ	16 UJ	
S1-BU	6/15/2023	S1-BU_06152023	N	<100 U	<100 U	16.5 U	
31-60	9/28/2023	S1-BU_092823	N	<100 U	<100 U	16.5 U	
	12/6/2023	S1-BU_120623	N	<100 U	390	398	
	3/30/2023	S2-AD	N	<100 UJ	<100 UJ	16.5 UJ	
	6/14/2023	S2-AD_06142023	N	<100 U	<100 U	16 U	
S2-AD	9/29/2023	S2-AD_092923	N	<100 U	<100 U	16.5 U	
	12/6/2023	S2-AD_120623	N	<100 U	<100 U	16.5 U	
	12/6/2023	FD-2_120623	FD	<100 U	<100 U	16.5 U	
	3/30/2023	S2-AU	N	<100 UJ	<100 UJ	16.5 UJ	
S2-AU	6/14/2023	S2-AU_06142023	N	<100 U	<100 U	17.5 U	
32-A0	9/29/2023	S2-AU_092923	N	<100 U	<100 U	16.5 U	
	12/6/2023	S2-AU_120623	N	500	140	640	
	3/30/2023	S2-BD	N	<100 UJ	<100 UJ	16 UJ	
	6/15/2023	FD-2_06152023	FD	<100 U	<100 U	15.5 U	
S2-BD	6/15/2023	S2-BD_06152023	N	<100 U	<100 U	16.5 U	
	9/29/2023	S2-BD_092923	N	<100 U	140	148	
	12/7/2023	S2-BD_120723	N	<100 U	<100 U	16.5 U	





	Sentry Wells (continued)											
	3/30/2023	S2-BU	N	360 J	110 J	470 J						
00 DU	6/15/2023	S2-BU_06152023	N	330	<130 UB	339						
S2-BU	9/29/2023	S2-BU_092923	N	1,000	200	1,200						
	12/7/2023	S2-BU_120723	N	1,300	340	1,640						
	3/30/2023	S3-AD	N	<100 UJ	<100 UJ	16.5 UJ						
CO AD	6/15/2023	S3-AD_06152023	N	<100 U	<100 U	16 U						
S3-AD	9/27/2023	S3-AD_092723	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-AD_120723	N	<100 U	270	278						
	3/30/2023	DUP-4	FD	170 J	<100 UJ	179 J						
	3/30/2023	S3-AU	N	160 J	<100 UJ	169 J						
S3-AU	6/15/2023	S3-AU_06152023	N	210	<100 U	219						
	9/27/2023	S3-AU_092723	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-AU_120723	N	<100 U	<100 U	16.5 U						
	3/30/2023	S3-BD	N	<100 UJ	<100 UJ	16.5 UJ						
00.00	6/15/2023	S3-BD_06152023	N	<100 U	<100 U	16 U						
S3-BD	9/28/2023	S3-BD_092823	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-BD_120723	N	<100 U	<100 U	16.5 U						
	3/30/2023	S3-BU	N	<100 UJ	<100 UJ	16.5 UJ						
	6/15/2023	FD-3_06152023	FD	<100 U	<100 U	16.5 U						
S3-BU	6/15/2023	S3-BU_06152023	N	<100 U	<100 U	17.5 U						
53-60	9/28/2023	S3-BU_092823	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-BU_120723	N	110	<100 U	119						
	12/7/2023	FD-3_120723	FD	<100 U	<100 U	16.5 U						
	3/30/2023	S3-CD	N	<100 UJ	<100 UJ	16.5 UJ						
63 CD	6/15/2023	S3-CD_06152023	N	<100 U	<100 U	16.5 U						
S3-CD	9/27/2023	S3-CD_092723	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-CD_120723	N	<100 UJ	300	308						
	3/30/2023	S3-CU	N	<100 UJ	<100 UJ	16.5 UJ						
C2 C11	6/15/2023	S3-CU_06152023	N	<100 U	<100 U	17.5 U						
S3-CU	9/27/2023	S3-CU_092723	N	<100 U	<100 U	16.5 U						
	12/7/2023	S3-CU_120723	N	<100 U	<100 U	16.5 U						
	3/30/2023	S4-AD	N	<100 UJ	<100 UJ	16.5 UJ						
C4 AD	6/15/2023	S4-AD_06152023	N	<100 U	<100 U	16 U						
S4-AD	9/27/2023	S4-AD_092723	N	<100 U	<100 U	16.5 U						
	12/7/2023	S4-AD_120723	N	<100 U	<100 U	16.5 U						





		Sentr	y Wells (continued)		
	3/30/2023	S4-AU	N	<100 UJ	<100 UJ	16.5 UJ
	6/15/2023	S4-AU_06152023	N	<100 U	<100 U	16.5 U
S4-AU	9/27/2023	S4-AU_092723	N	<100 U	<100 U	16.5 U
	12/7/2023	S4-AU_120723	N	260	<100 U	269
	3/29/2023	S4-BD	N	<100 UJ	<100 UJ	15.5 UJ
04.55	6/15/2023	S4-BD_06152023	N	<100 U	<100 U	16 U
S4-BD	9/27/2023	S4-BD_092723	N	<100 U	<100 U	16.5 U
	12/7/2023	S4-BD_120723	N	<100 U	<100 U	16.5 U
	3/30/2023	S4-BU	N	<100 UJ	<100 UJ	16.5 UJ
	6/15/2023	S4-BU_06152023	N	<100 U	<100 U	16.5 U
S4-BU	9/27/2023	S4-BU_092723	N	<100 U	<100 U	16.5 U
	12/7/2023	S4-BU_120723	N	<100 U	<100 U	16.5 U
	12/7/2023	FD-4_120723	FD	<100 U	<100 U	16.5 U
	3/30/2023	S4-CD	N	<100 UJ	<100 UJ	16.5 UJ
04.00	6/15/2023	S4-CD_06152023	N	<100 U	<100 U	16.5 U
S4-CD	9/27/2023	S4-CD_092723	N	<100 U	<100 U	16.5 U
	12/7/2023	S4-CD_120723	N	150	150	300
	3/30/2023	S4-CU	N	130 J	<100 UJ	139 J
	6/15/2023	S4-CU_06152023	N	<100 U	<100 U	16.5 U
S4-CU	9/27/2023	FD-1_092723	FD	100	220	320
	9/27/2023	S4-CU_092723	N	<100 U	<100 U	16.5 U
	12/7/2023	S4-CU_120723	N	330	180	510
	H	lydraulic Control and C	Containm	ent System Mon	itoring Wells	
Site-Specific (Groundwater Re	mediation Level				477
	3/29/2023	1B-W-23	N	<100 UJ	<100 UJ	16.5 UJ
1B-W-23	6/15/2023	1B-W-23_06152023	N	<100 U	<100 U	15.5 U
10-77-23	9/27/2023	1B-W-23_092723	N	<100 U	<100 U	16.5 U
	12/6/2023	1B-W-23_120623	N	<100 U	<100 U	16.5 U
	3/29/2023	2-A-W-40	N	<100 UJ	280 J	288 J
	3/29/2023	DUP-2	FD	<100 UJ	330 J	338 J
	6/14/2023	2A-W-40_06142023	N	<100 U	<120 UB	15.5 UB
2A-W-40	6/14/2023	FD-1_06142023	FD	<100 U	<150 UB	15.5 UB
	9/28/2023	2A-W-40_092823	N	<100 U	<100 U	16.5 U
	12/6/2023	2A-W-40_120623	N	<100 U	<100 U	16.5 U
	12/6/2023	FD-1_120623	FD	<100 U	<100 U	16.5 U





	Hydrau	lic Control and Contain	nment Sy	stem Monitoring	Wells (continued)	
Site-Specific (Groundwater Re	mediation Level				477
	3/29/2023	2A-W-41	N	310 J [110 J]	<100 UJ [<100 UJ]	319 J [119 J]
00.107.44	6/14/2023	2A-W-41_06142023	N	250 [95]	120 UB [<100 U]	310 [103]
2A-W-41	9/28/2023	2A-W-41_092823	N	400 [240 J]	120 [<100 U]	520 [249 J]
	12/6/2023	2A-W-41_120623	N	230 [55]	270 [<100 U]	500 [63.5]
	3/30/2023	2A-W-42	N	<100 UJ	<100 UJ	16.5 UJ
04.14/.40	6/14/2023	2A-W-42_06142023	N	110	<100 U	119
2A-W-42	9/28/2023	2A-W-42_092823	N	120	<100 U	129
	12/6/2023	2A-W-42_120623	N	170	130	300
	3/29/2023	5-W-43	N	<100 UJ	<100 UJ	15.5 UJ
	6/14/2023	5-W-43_06142023	N	<100 U	<100 U	15.5 U
5-W-43	9/29/2023	5-W-43_092923	N	<100 U	<100 U	17.5 U
	9/29/2023	FD-4_092923	FD	<100 U	<100 U	16.5 U
	12/5/2023	5-W-43_120523	N	<100 U	<100 U	16.5 U
	3/29/2023	EW-1	N	<100 UJ	<100 UJ	16.5 UJ
E14/ 4	6/14/2023	EW-1_06142023	N	<100 U	<100 U	16.5 U
EW-1	9/28/2023	EW-1_092823	N	<100 U	<100 U	16.5 U
	12/6/2023	EW-1_120623	N	100	<100 U	109
	3/29/2023	DUP-3	FD	<100 UJ	<100 UJ	16.5 UJ
	3/29/2023	EW-2A	N	<100 UJ	<100 UJ	16.5 UJ
EW-2A	6/15/2023	EW-2A_06152023	N	<100 U	<100 U	16.5 U
	9/27/2023	EW-2A_092723	N	<100 U	250	258
	12/6/2023	EW-2A_120623	N	<100 U	<100 U	16.5 U
	3/29/2023	GW-1	N	<100 UJ	<100 UJ	15.5 UJ
	6/15/2023	GW-1_06152023	N	<100 U	<100 U	16.5 U
GW-1	10/17/2023	GW-1_101723	N	150	110	260
	10/17/2023	DUP-1_101723	FD	140	130	270
	12/5/2023	GW-1_120523	N	<100 U	120	128
	3/29/2023	GW-2	N	<100 UJ	<100 UJ	15.5 UJ
OW 0	6/14/2023	GW-2_06142023	N	<100 U	<100 U	16.5 U
GW-2	9/28/2023	GW-2_092823	N	<100 U	<100 U	16.5 U
	12/5/2023	GW-2_120523	N	120	200	320

Table 8

Total Petroleum Hydrocarbon Concentrations in Groundwater 2023 Annual HCC System Operations Report BNSF Railway Company



Former Maintenance and Fueling Facility, Skykomish, WA

	Hydraulic Control and Containment System Monitoring Wells (continued)										
Site-Specific C	Groundwater Re	mediation Level			-	477					
	3/29/2023	GW-3	N	490 J [160 J]	140 J [<100 UJ]	630 J [168 J]					
GW-3	6/14/2023	GW-3_06142023	N	400 [150]	<110 UB [<100 U]	408 [158]					
GW-3	9/27/2023	GW-3_092723	N	250 [110]	<100 U [<100 U]	259 [119]					
	12/6/2023	GW-3_120623	N	81.0 [<50.0 U]	<100 U [<100 U]	89.5 [16.5 U]					
	3/30/2023	GW-4	N	<100 UJ	<100 UJ	16 UJ					
GW-4	6/14/2023	GW-4_06142023	N	<100 U	<100 U	15.5 U					
GW-4	9/27/2023	GW-4_092723	N	130	690	820					
	12/6/2023			NM	NM	NM					

Validation Qualifiers

- J = compound was positively identified and the associated numerical value is an estimate
- U = compound was analyzed for but not detected and the associated value is the compound quantitation limit
- UB = compound is considered non-detect at the listed value due to associated blank contamination
- UJ = compound was not detected above the reported sample quantitation limit and the reported limit is approximate

Notes

- 1. Results in **bold** font indicate the compound was detected at a concentration greater than the laboratory reporting limit.
- 2. Results in **bold** font and shaded grey indicate the compound was detected at a concentration greater than the site-specific remediation level. The remediation level is not applicable to vaults in the barrier wall treatment gates.
- 3. Analyzed by Northwest Method NWTPH-Dx without silica gel cleanup unless otherwise noted.
- 4. Calculated NWTPH-Dx is the sum of diesel range organic and heavy oil, using half the method detection limit for non-detect results.

Acronyms and Abbreviations

< = denotes analyte not reported as detected at or exceeding the listed laboratory reporting limit

[] = sample analyzed by Northwest Method NWTPH-Dx with silica gel cleanup

μg/L = microgram per liter

DRO = diesel range organics

FD = field duplicate

HO = heavy oil

N = parent sample

NM = not monitored due to inaccessiblity



	Zone		Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwater Elevation (ft NAVD88) ^{3,4}			
						3/27/2023	10.85			917.39			
			014/4	000.04		6/13/2023	10.46			917.78			
			GW-1	928.24		10/17/2023	11.18			917.06			
						12/4/2023	7.52			920.72			
						3/27/2023	12.85			917.44			
			0144.0	000.00	000.44	6/13/2023	12.50			917.79			
			GW-2	930.29	930.14	9/26/2023	10.57			919.57			
	0-4-	Walla				12/4/2023	12.55			917.59			
<u>s</u>	Gate	e Wells				3/27/2023	14.10			921.72			
HCC Wall Monitoring Wells			0144.0	935.82		6/13/2023	13.99			921.83			
ing			GW-3			9/25/2023	15.30			920.52			
ito						12/4/2023	13.91			921.91			
Mo						3/27/2023	10.82			923.86			
Vall			014/4	004.00	934.58	6/13/2023	10.83			923.85			
ွ			GW-4	934.68		9/25/2023	12.50			922.08			
일 보						12/4/2023	NM			NM			
						3/27/2023	10.49			918.23			
			E)A/ 4	000 70		6/13/2023	10.33			918.39			
			EW-1	928.72	928.34	9/26/2023	11.95			916.39			
		347.11.				12/4/2023	7.83			920.51			
	End	Wells				3/27/2023	10.55			925.65			
			514.04			6/13/2023	10.34			925.86			
			EW-2A	936.2	935.84	9/25/2023	12.65			923.19			
						12/4/2023	6.71			929.13			
			S1 AD	-	929.47	3/27/2023	8.60			920.87			
						6/13/2023	8.71			920.76			
			S1-AD			9/25/2023	11.75			917.72			
						12/4/2023	8.76			920.71			
						3/27/2023	8.64			920.85			
			04.411		000.40	6/13/2023	9.76			919.73			
	ate		S1-AU		929.49	9/25/2023	11.77			917.72			
	, to					12/4/2023	8.80			920.69			
	Far West Gate	S1				3/27/2023	9.17			920.85			
	Far		C4 DD		020.00	6/13/2023	9.29			920.73			
<u>s</u>			S1-BD		930.02	9/25/2023	12.32			917.70			
Sentry Wells						12/4/2023	8.24			921.78			
ntry						3/27/2023	9.25			920.82			
Se			C4 DII		020.07	6/13/2023	9.32			920.75			
			S1-BU		930.07	9/25/2023	12.37			917.70			
						12/4/2023	8.25			921.82			
						3/27/2023	13.90			917.33			
			60 40		021.22	6/13/2023	13.62			917.61			
	West Gate		S2-AD		931.23	9/25/2023	14.80			916.43			
		60				12/4/2023	13.82			917.41			
	/est	S2				3/27/2023	13.89			917.32			
	>	W	CO ALL		6	6/13/2023	13.60			917.61			
						S2-AU	J	931.21	9/25/2023	14.80			916.41
						12/4/2023	13.86			917.35			



	Zone		Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwater Elevation (ft NAVD88) ^{3,4}
						3/27/2023	12.90			918.46
			00.00		004.00	6/13/2023	12.13			919.23
	σ.		S2-BD		931.36	9/25/2023	14.00			917.36
	Gat					12/4/2023	12.25			919.11
	West Gate	S2				3/27/2023	12.04			919.24
	3		00 011		004.00	6/13/2023	12.10			919.18
			S2-BU		931.28	9/25/2023	13.92			917.36
						12/4/2023	12.17			919.11
						3/27/2023	13.32			923.09
						6/13/2023	13.23			923.18
	9		S3-AD		936.41	9/25/2023	15.64			920.77
	Gal					12/4/2023	13.25			923.16
	Center Gate					3/27/2023	13.34			923.08
	ပီ					6/13/2023	13.25			923.17
			S3-AU		936.42	9/25/2023	15.65			920.77
						12/4/2023	13.21			923.21
.						3/27/2023	14.00			922.34
						6/13/2023	13.84			922.5
			S3-BD		936.34	9/25/2023	15.70			920.64
						12/4/2023	14.07			922.27
<u>0</u>		S3				3/27/2023	14.00			922.30
Sentry Wells						6/13/2023	13.82			922.48
Ę			S3-BU		936.30	9/25/2023	15.66			920.64
Sen	Gat					12/4/2023	14.07			922.23
	Center Gate				935.62	3/27/2023	13.62			922.00
	Š					6/13/2023	13.59			922.03
			S3-CD			9/25/2023	15.12			920.50
						12/4/2023	12.91			922.71
						3/27/2023	13.62			922.00
						6/13/2023	13.66			921.96
			S3-CU		935.62	9/25/2023	15.82			919.80
						12/4/2023	13.52			922.10
, -						3/27/2023	10.32			923.72
						6/13/2023	10.25			923.79
			S4-AD		934.04	9/26/2023	11.79			922.25
						12/4/2023	9.90			924.14
						3/27/2023	10.30			923.75
	ate					6/13/2023	10.32			923.73
	East Gate	S4	S4-AU		934.05	9/25/2023	11.93			922.12
	Еа					12/4/2023	9.91			924.14
						3/27/2023	10.19			923.81
						6/13/2023	10.08			923.92
			S4-BD		934.00	9/26/2023	11.72			922.28
		טק-ייט	,,,		12/4/2023	9.77			922.28	



	Zone		Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwater Elevation (ft NAVD88) ^{3,4}
						3/27/2023	10.18			923.83
			S4-BU		934.01	6/13/2023	10.19			923.82
			34-DU		934.01	9/25/2023	11.79			922.22
						12/4/2023	9.34			924.67
	Φ.					3/27/2023	9.31			924.67
Sentry Wells	East Gate	S4	S4-CD		933.98	6/13/2023	9.34			924.64
ntr.	ast	34	34-00		933.96	9/25/2023	11.35			922.63
တိ	ш ш					12/4/2023	9.08			924.90
						3/27/2023	9.32			924.66
			S4-CU		022.00	6/13/2023	9.40			924.58
			34-00		933.98	9/25/2023	11.35			922.63
						12/4/2023	9.00			924.98
						3/31/2023	9.96			925.42
	_	7.4	D7.4	005.00	005.04	6/13/2023	10.70			924.68
	"	PZ-1	PZ-1	935.38	935.01	9/25/2023	11.98			923.03
						12/4/2023	6.81			928.20
					024.00	3/27/2023	12.02			922.33
			DZ ON	024.25		6/13/2023	12.14			922.21
			PZ-2N	934.35	934.00	9/25/2023	13.41			920.59
	_	. . .				12/4/2023	11.75			922.25
	'	PZ-2		934.94		3/31/2023	6.75			928.19
			D7.00		004.57	6/13/2023	9.03			925.91
			PZ-2S	934.94	934.57	9/25/2023	12.06			922.51
						12/4/2023	7.92			926.65
			PZ-3N		934.047	3/27/2023	13.98			920.43
				004.44		6/13/2023	14.00			920.41
				934.41		9/25/2023	Dry			Dry
	_	. . .				12/4/2023	Dry			Dry
ဖွ	'	PZ-3				3/28/2023	9.36		Sheen	925.09
lete			D7.00	004.45	004.00	6/13/2023	9.60	9.30	0.30	925.14
Piezometers			PZ-3S	934.45	934.06	9/26/2023	12.35	12.34	0.01	922.11
, ig						12/4/2023	6.25	6.24	0.01	928.21
						3/27/2023	14.62			920.65
			D7 4N	025.07	024.02	6/13/2023	14.61			920.66
			PZ-4N	935.27	934.93	9/25/2023	14.60			920.33
		7.4				12/4/2023	14.62			920.31
	'	PZ-4				3/27/2023	10.64			924.67
			D7.40	005.04	004.00	6/13/2023	10.97			924.34
			PZ-4S	935.31	934.99	9/26/2023	14.60			920.39
						12/4/2023	14.78			920.21
						3/27/2023	15.48			917.67
			D7 511	000.45	000.00	6/13/2023	15.25			917.90
			PZ-5N	933.15	932.82	9/28/2023	15.66			917.16
		N7 F				12/4/2023	15.40			917.42
		PZ-5				3/28/2023	4.30	4.25	0.05	929.21
			57.50	200 15	933.16	6/13/2023	9.64	9.59	0.05	923.87
			PZ-5S	933.46		9/26/2023	12.48	12.47	0.01	920.99
						12/4/2023	6.38	6.37	0.01	927.09





	Zone		Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwate Elevation (ft NAVD88) ³			
						3/27/2023	13.60			917.57			
			D7.0N	004.47	000.00	6/13/2023	13.31			917.86			
			PZ-6N	931.17	930.88	9/25/2023	14.52			916.36			
						12/4/2023	13.48			917.40			
		PZ-6				3/31/2023	7.63		Sheen	923.78			
						6/13/2023	7.75		Sheen	923.66			
			PZ-6S	931.41	931.10	9/26/2023	11.35	11.30	0.05	919.80			
						12/4/2023	10.72			920.38			
ē						3/31/2023	11.51			918.86			
Piezometers						6/13/2023	12.51			917.86			
шoz			PZ-7N	930.37	930.09	9/26/2023	13.70			916.39			
Pie						12/4/2023	12.61			917.48			
		PZ-7				3/28/2023	7.71			922.69			
						6/13/2023	7.88		Sheen	922.52			
			PZ-7S	930.4	930.132	9/25/2023	13.24			916.89			
						12/4/2023	6.84			923.29			
						3/31/2023	10.07			919.41			
						6/13/2023	9.89		Sheen	919.59			
		PZ-8	PZ-8	929.48	929.20	9/25/2023	13.60			915.60			
						12/4/2023	6.22			922.98			
						3/27/2023	16.22			914.54			
			FWG-WV-	930.76	930.44								
	arrier Wall Oil-Water Separator Chamber Vaults Gate Far West Gate		NORTH	930.76	930.44	9/26/2023	15.10 7.87	 		915.34 922.57			
ults		FWG-WV											
r Va	o		FWG-WV-	930.76	930.44	3/27/2023	16.22			914.54			
nbe	Gat		SOUTH	930.76	930.44	9/26/2023	15.10			915.34			
han	Far West Gate					12/4/2023	7.35			923.09			
ō	×		FWG-EV-		020.47	3/27/2023	18.65			911.82			
arat	ı ii							NORTH	930.47	9/26/2023	15.10		
Sep		FWG-EV				12/4/2023	4.75			925.72			
iter			FWG-EV-		000.47	3/27/2023	18.65			911.82			
-Wa			SOUTH		930.47	9/26/2023	15.10			915.37			
Ö						12/4/2023	4.91			925.56			
Wal			WG-WV-			3/27/2023	21.20			910.37			
je	Gate		NORTH		931.57	9/28/2023	15.88			915.69			
Barı		WG-WV				12/4/2023	6.81			924.76			
	West		WG-WV-			3/27/2023	21.20			910.37			
			SOUTH		931.57	9/28/2023	15.88			915.69			
						12/4/2023	6.81			924.76			
per			WG-EV-			3/27/2023	21.25			910.59			
nam	ıte		NORTH	931.84	931.62	9/28/2023	15.90			915.72			
Ö	West Gate	WG-EV				12/4/2023	6.81			924.81			
rato	Nes		WG-EV-			3/27/2023	21.25			910.59			
eba	-		SOUTH	931.84	931.62	9/28/2023	15.90			915.72			
er S ults						12/4/2023	6.80			924.82			
Wat Va			CG-WV-			3/27/2023	22.52			914.57			
ë	ate		NORTH	937.09	934.99	9/27/2023	11.75			923.24			
/all	ğ	CG-WV				12/4/2023	8.84			926.15			
ē S	Center Gate				3/27/2023	22.52			914.57				
Barrier Wall Oil-Water Separator Chamber Vaults	Cer	Ceu	CG-WV- SOUTH	937.09	934.99	9/27/2023	11.75			923.24			
ω						12/4/2023	8.84			926.15			





	Zone		Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwater Elevation (ft NAVD88) ^{3,4}
						3/27/2023	15.85			920.95
			CG-CV- NORTH		936.80	9/27/2023	11.75			925.05
			NORTH			12/4/2023	8.83			927.97
		CG-CV				3/27/2023	15.85			920.95
	உ		CG-CV-SOUTH		936.80	9/27/2023	11.75			925.05
	Center Gate					12/4/2023	8.83			927.97
	nter					3/27/2023	15.25			920.96
	్రి		CG-EV-NORTH		936.21	9/26/2023	17.88			918.33
ς,						12/4/2023	8.23			927.98
ault		CG-EV				3/27/2023	15.25			920.96
er V			CG-EV-SOUTH		936.21	9/26/2023	17.86			918.35
q E						12/4/2023	8.23			927.98
ຮື						3/27/2023	10.35			923.96
ator			EG-WV-	934.31	933.99	9/25/2023	11.94			922.05
para			NORTH			12/4/2023	9.89			924.10
Se		EG-WV				3/27/2023	10.35			923.96
ater			EG-WV-	934.31	934.03	9/28/2023	11.95			922.08
Barrier Wall Oil-Water Separator Chamber Vaults			SOUTH			12/4/2023	9.92			924.11
9						3/27/2023	10.15			923.80
× ×			EG-CV-NORTH		933.95	9/25/2023	11.78			922.17
rier	ate		Le ev Heitin		000.00	12/4/2023	9.74			924.21
Ba	East Gate	EG-CV				3/27/2023	10.11			923.83
	Ea		EG-CV-SOUTH		933.94	9/28/2023	11.79			922.15
			20-07-000111		333.54	12/4/2023	9.74			924.20
						3/27/2023	9.28			924.20
			EG-EV-NORTH		933.95	9/25/2023	11.33			922.62
					333.33	12/4/2023	8.99			924.96
		EG-EV	EG-EV-SOUTH	1	933.96	3/27/2023	9.30			924.66
						9/25/2023	11.34 8.99		Sheen 	922.62 924.97
						3/27/2023	9.15			923.69
			RW-01	932.84	936.203					925.32
						9/25/2023	10.88			
			RW-02	933.84	936.853	3/27/2023 9/25/2023	10.25			923.59
							14.48			922.37
			RW-03	933.8	936.814	3/27/2023	10.18		Sheen	923.62
						9/26/2023	12.51		Sheen	924.30
			RW-04	931.86	934.91	3/31/2023	8.84			923.02
	<u>8</u>					9/28/2023			Sheen	Sheen
	Wel		RW-05	928.53	931.848	3/27/2023	16.78			911.75
	ery					9/26/2023	14.14			917.71
	Recovery Wells		RW-06	928.53	931.547	3/27/2023	16.17			912.36
					9/25/2023	13.79			917.76	
		RW-07	933.06		3/31/2023	7.33		Sheen	925.73	
					9/26/2023	11.45	11.43	0.02	921.63	
		RW-08	931.85		3/28/2023	7.49		Sheen	924.36	
					9/26/2023	10.44	10.43	0.01	921.42	
			RW-09	933.96	937.011	3/27/2023	NM			NM
						9/25/2023	10.97		Sheen	926.04
			RW-10 025 1	925 11		3/27/2023	7.52			917.59
		RW-10	925.11		9/28/2023	8.86			916.25	



Former Maintenance and Fueling Facility, Skykomish, WA

Zone	Location	Measuring Point Elevation Q1 and Q2 (ft NAVD88) ¹	Measuring Point Elevation Q3 and Q4 (ft NAVD88) ²	Date	Depth to Groundwater (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness	Groundwater Elevation (ft NAVD88) ^{3,4}
				3/27/2023	12.50			920.84
	2A-W-40	933.34	933.03	6/13/2023	12.29			921.05
	2/1-11-40	933.34	955.05	9/27/2023	13.41			919.62
				12/4/2023	8.22			924.81
		935.22	934.90	3/27/2023	17.61			917.61
	2A-W-41			6/13/2023	17.32			917.90
				9/26/2023	18.49			916.41
<u>σ</u>				12/4/2023	14.31			920.59
Site Wide Wells	2A-W-42	935.37	935.04	3/27/2023	13.33			922.04
> 9				6/13/2023	13.49			921.88
Ň	2/1/1/42			9/28/2023	14.22			920.82
Site				12/4/2023	13.14			921.90
				3/27/2023	15.58			920.67
	1B-W-23	936.25	930.39	6/13/2023	17.49			918.76
	10-77-23	930.23	930.39	9/26/2023	16.57			913.82
				12/4/2023	16.48			913.91
				3/27/2023	8.29			917.89
	5-W-43	926 18	<u> </u>	6/13/2023	8.10			918.08
	J-VV-4J	926.18		9/26/2023	9.60			916.58
				12/4/2023	5.52			920.66

Notes:

Acronyms and Abbreviations:

-- = not applicable
btoc = below top of casing
ft = feet
LNAPL = light non-aqueous phase liquid
NAVD88 = North American Vertical Datum of 1988
NM = not monitored due to inaccessibility

Q1, Q2, Q3, Q4 = first quarter, second quarter, third quarter, fourth quarter

^{1 2015} survey measuring point elevations used for groundwater elevation calculations prior to third quarter of 2023 or if well not resurveyed.

 $^{^{\}rm 2}$ Survey was performed on October 6, 2023 by Otak, Inc.

³ Updated survey data taken in the third quarter was used for measuring point elevation where historical measuring point elevation for the first and second quarters is unavailable.

⁴ Groundwater elevation corrected where LNAPL present. LNAPL density estimated at 0.974 grams per cubic centimeter.

Figures

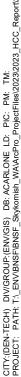
SITE PLAN

ARCADIS

INSET MAP SCALE IN FEET

1) Aerial Imagery from Google Earth

Notes:



4

Piezometer

Sentry Well

Biosparge Well

Bridge Gauge

Abandoned Monitoring Well

Abandoned Injection Well

Mechanically Stabilized Earth Wall

Biosparge Air Conveyance Line

-- BNSF Railyard Boundary

Utility Vault

Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates

Legend

- Monitoring Well
- Recovery Well
- Piezometer
- Bridge Gauge
- Sentry Well
- Biosparge Well
- Mechanically Stabilized Earth Wall

Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates

Biosparge Air Conveyance Line

BNSF Railyard Boundary

Utility Vault

Groundwater Elevation Contour

Approximate Groundwater Flow Direction

924.89 Groundwater Elevation (Feet NAVD 88)

140 280 MAIN MAPSCALE IN FEET

- Aerial Imagery from Google Earth
 NAVD 88 = North American Vertical Datum of 1988 3) ^ = Groundwater elevation corrected where LNAPL present. LNAPL density estimated at 0.974 grams per cubic centimeter
- 4) * = Groundwater elevation not used in contouring. LNAPL = Light Non-Aqueous Phase Liquid

BNSF RAILWAY COMPANY FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON
2023 ANNUAL HYDRAULIC CONTROL AND
CONTAINMENT SYSTEM OPERATIONS REPORT

MARCH 2023 POTENTIOMETRIC SURFACE MAP



2

Legend

- Monitoring Well
- Recovery Well
- Piezometer
- Bridge Gauge
- Sentry Well
- Biosparge Well
- **Groundwater Elevation Contour**

- Approximate Groundwater Flow Direction
- Biosparge Air Conveyance Line
- Mechanically Stabilized Earth Wall
- Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates
- BNSF Railyard Boundary
- Utility Vault

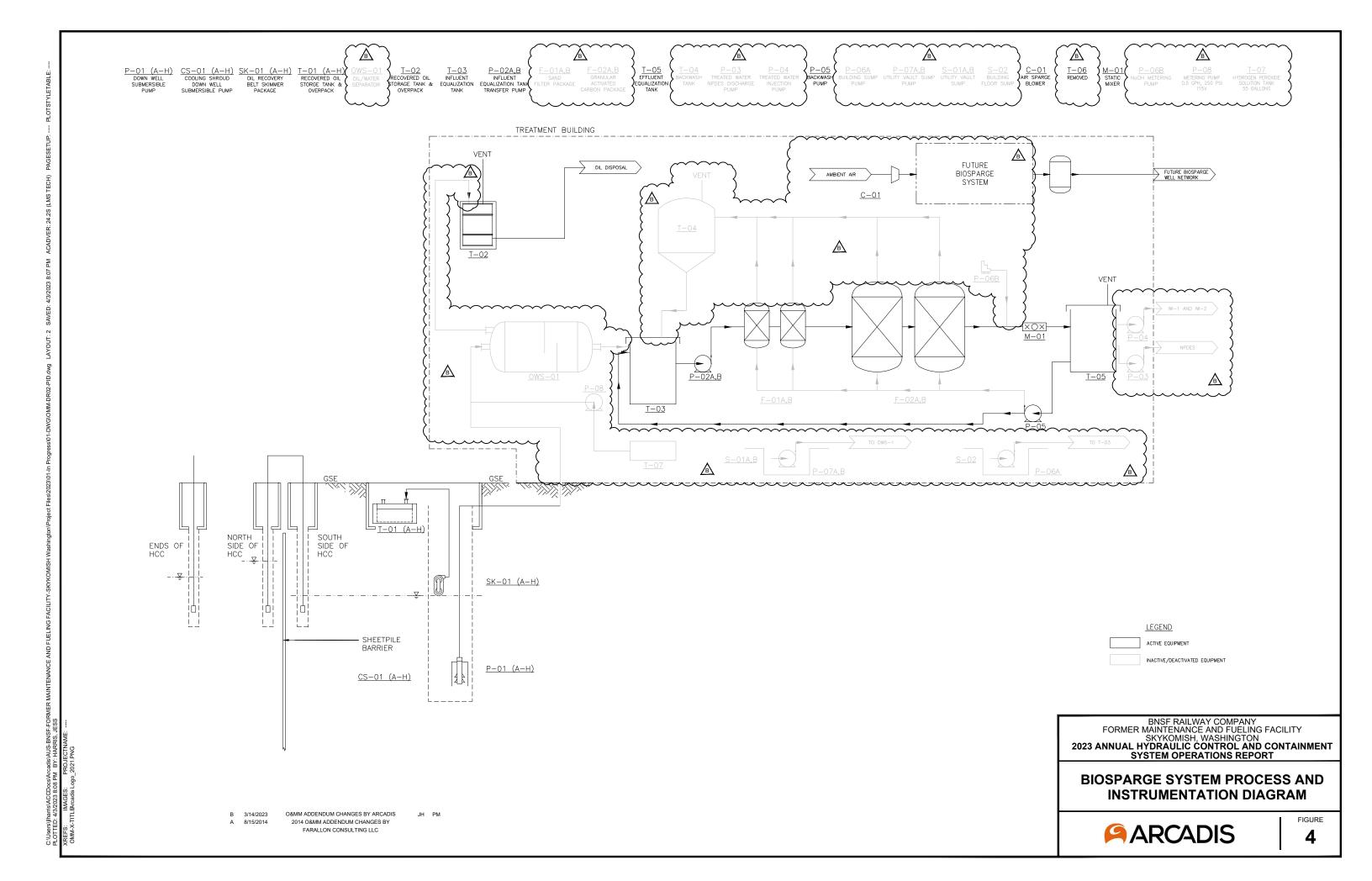
MAIN MAP SCALE IN FEET

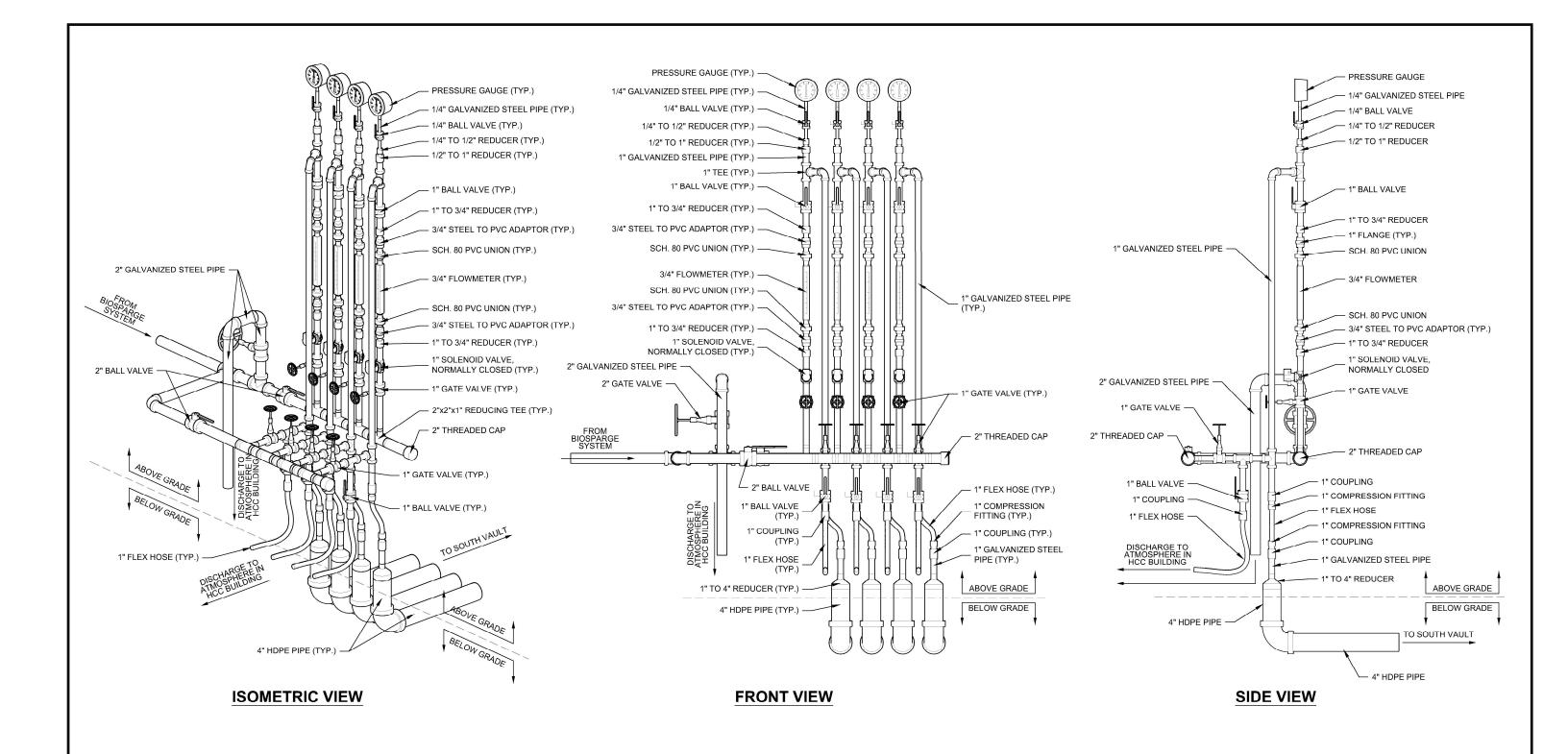
- 1) Aerial Imagery from Google Earth 2) * = Not included in contouring
- 3) ^ = Groundwater elevation corrected where LNAPL present. LNAPL density estimated at 0.974 grams
- 4) Hydraulic Control and Containment system in passive mode. Biosparge system is active. LNAPL = Light Non-Aqueous Phase Liquid NM = Not Monitored

BNSF RAILWAY COMPANY FORMER MAINTENANCE AND FUELING FACILITY SKYKOMISH, WASHINGTON
2023 ANNUAL HYDRAULIC CONTROL AND
CONTAINMENT SYSTEM OPERATIONS REPORT

SEPTEMBER 2023 POTENTIOMETRIC SURFACE MAP







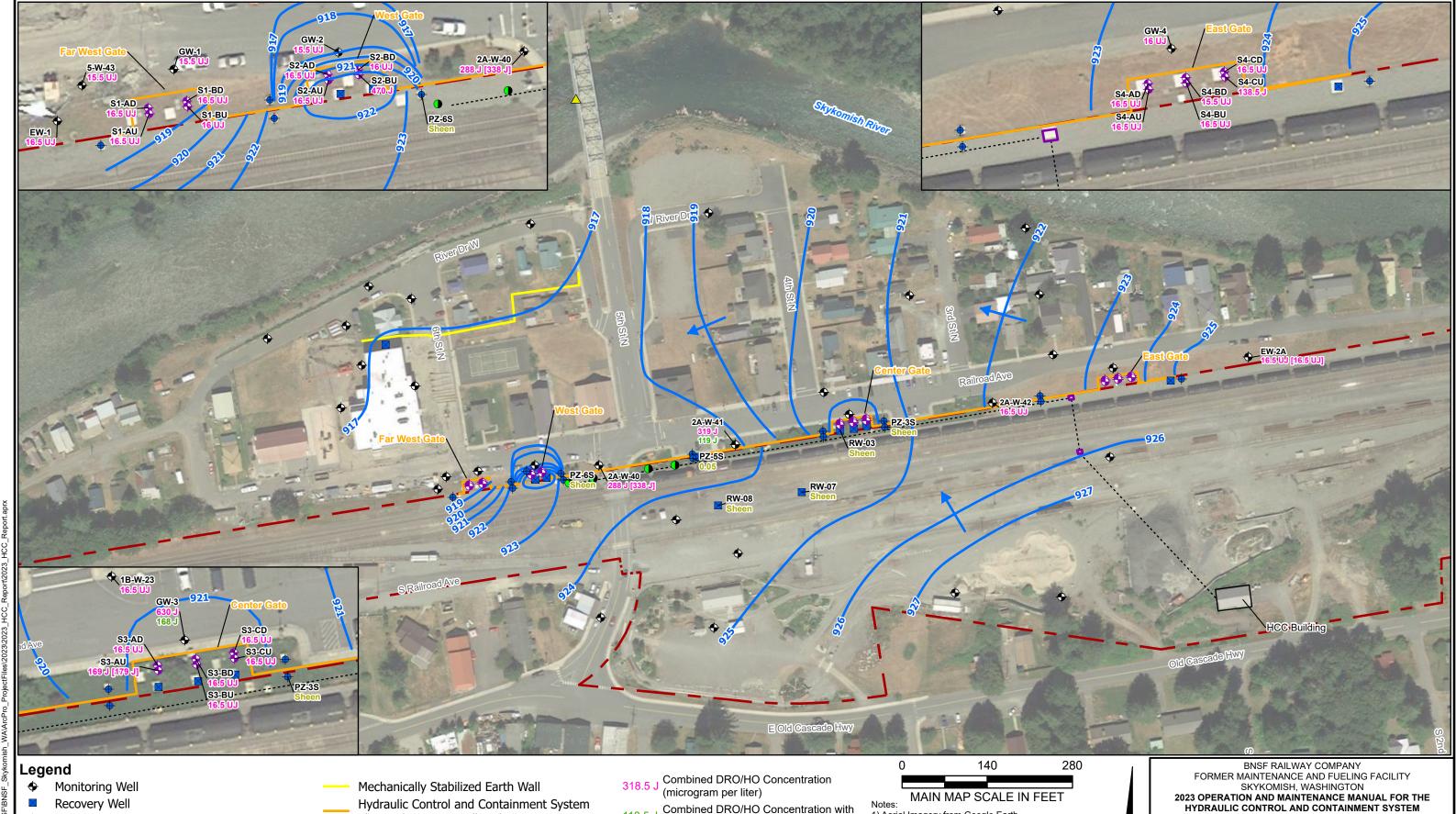
Notes

- 1. All vertical pipes are 1-inch galvanized steel unless otherwise specified.
- 2. All horizontal pipes are 2-inch galvanized steel unless otherwise specified.
- 3. The orientation of the biosparge manifold is diagrammatic and may be changed by contractor based on site conditions providing that the functionality of manifold depicted on this drawing is not changed.
- 4. Contractor can use discretion on coupler or adaptor to connect the rotameter to the manifold leg.

BNSF RAILWAY COMPANY
FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON
2023 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT
SYSTEM OPERATIONS REPORT

BIOSPARGE MANIFOLD





- Recovery Well
- Piezometer
- Bridge Gauge
- Sentry Well
- Biosparge Well
- ---- Biosparge Air Conveyance Line

- - Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates
- **Groundwater Elevation Contour**
- Approximate Groundwater Flow Direction
- **BNSF Railyard Boundary**

- Combined DRO/HO Concentration with Silica Gel Cleanup (microgram per liter)
- LNAPL Measurement Sheen (thickness in feet)

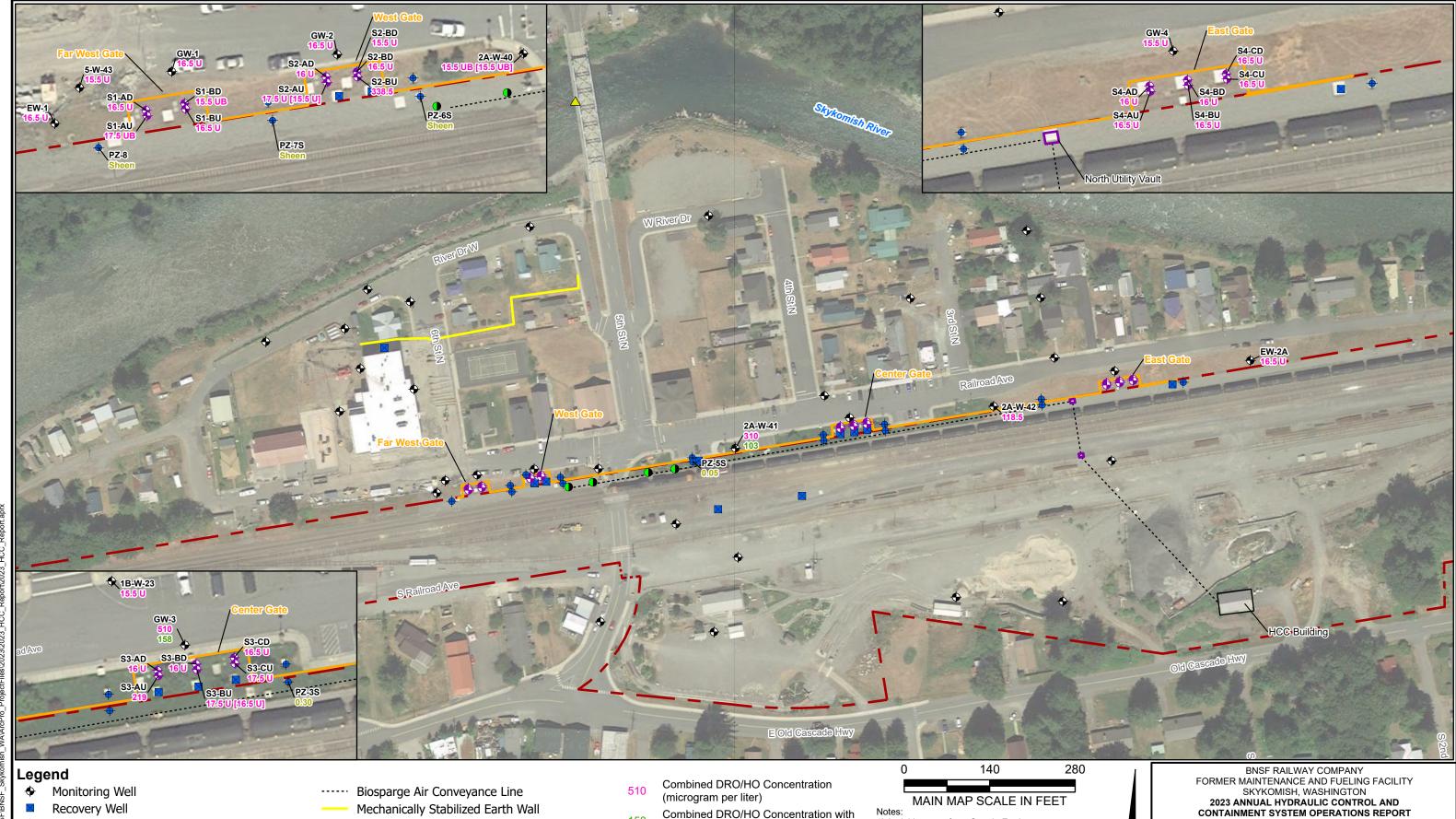


MAIN MAP SCALE IN FEET Notes:

- 1) Aerial Imagery from Google Earth
 2) NAVD 88 = North American Vertical Datum of 1988
 3) DRO = Diesel Range Organics
 4) HO = Heavy Oil
- 5) J = Compound was positively identified and the associated numerical value is an estimate.
- 6) UJ = Compound was not detected above the reported sample quantitation limit and the reported limit is approximate.
- 7) LNAPL = Light Non-Aqueous Phase Liquid
- 8) [] = duplicate result

MARCH 2023 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER





- Recovery Well
- Piezometer
- Bridge Gauge
- Sentry Well
- Biosparge Well

- Mechanically Stabilized Earth Wall
- Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates
- **---** BNSF Railyard Boundary

- Combined DRO/HO Concentration with Silica Gel Cleanup (microgram per liter)
- **LNAPL** Measurement (thickness in feet)



- 1) Aerial Imagery from Google Earth
 2) NAVD 88 = North American Vertical Datum of 1988
 3) DRO = Diesel Range Organics

- 4) HO = Heavy Oil

 5)U = Compound was analyzed for but not detected and the associated value is the compound quantitation limit. 6) UB = Compound considered non-detect at the listed value due to associated blank contamination.
 7) LNAPL = Light Non-Aqueous Phase Liquid
- 8) [] = Duplicate result

JUNE 2023 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER





Piezometer

Bridge Gauge

- Sentry Well
- Biosparge Well
- ---- Biosparge Air Conveyance Line

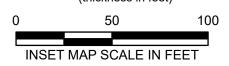
Sheet Pile Barrier Wall and Gates

Groundwater Elevation Contour

Approximate Groundwater Flow Direction

BNSF Railyard Boundary MonitoringWellZones

- Combined DRO/HO Concentration with Silica Gel Cleanup (microgram per liter)
- **LNAPL** Measurement (thickness in feet)



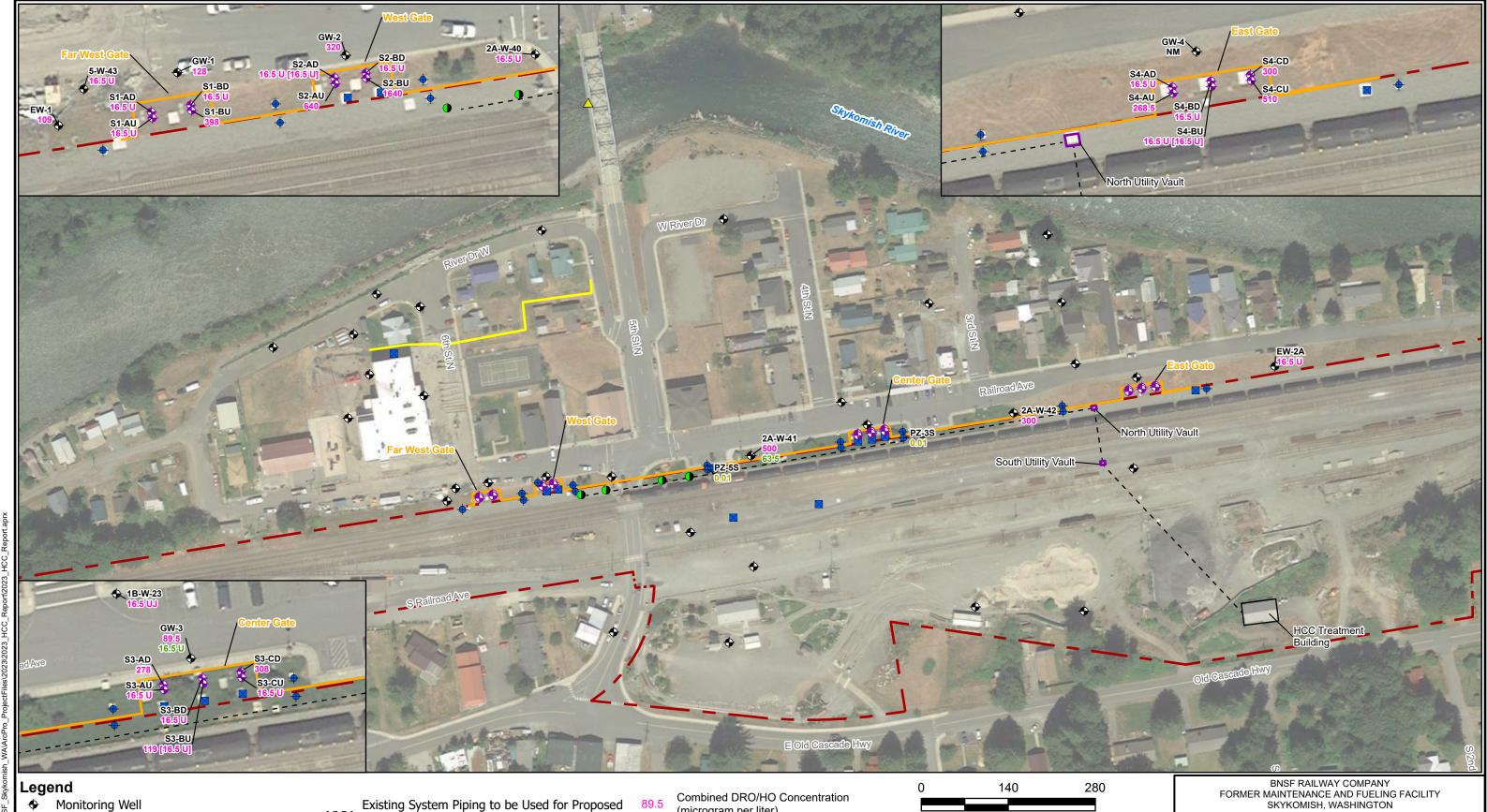
- Notes:
 1) Aerial Imagery from Google Earth
 2) NAVD 88 = North American Vertical Datum of 1988
 3) DRO = Diesel Range Organics
 4) HO = Heavy Oil
 5) U = Compound was analyzed for but not detected and the associated value is the compound quantitation limit.
- 6) J = Compound was positively identified and the associated numerical value is an estimate.

 7) LNAPL = Light Non-Aqueous Phase Liquid

8) [] = Duplicate result

SEPTEMBER 2023 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER



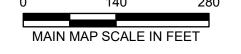


- Recovery Well
- Piezometer
- Bridge Gauge
- Sentry Well
- Biosparge Well

- Biosparge System
- Mechanically Stabilized Earth Wall
 - Hydraulic Control and Containment System Sheet Pile Barrier Wall and Gates
- **---** BNSF Railyard Boundary

- Combined DRO/HO Concentration (microgram per liter)
- Combined DRO/HO Concentration with Silica Gel Cleanup (microgram per liter)
- **LNAPL** Measurement (thickness in feet)





- Notes:
 1) Aerial Imagery from Google Earth
 2) U = Compound was analyzed for but not detected and the associated value is the compound quantitation limit.
 3) DRO = Diesel Range Organics
 4) HO = Heavy Oil
 5) NM = Not Monitored

- 6) LNAPL = Light Non-Aqueous Phase Liquid
- 7) [] = Duplicate result

SKYKOMISH, WASHINGTON
2023 ANNUAL HYDRAULIC CONTROL AND
CONTAINMENT SYSTEM OPERATIONS REPORT

DECEMBER 2023 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER



Appendix A

Laboratory Analytical Report



April 12, 2023

Mr. Kyle Haslam Arcadis U.S., Inc. 1100 Olive Way, Suite 800 Seattle, WA 98101

Dear Mr. Haslam,

On March 31st, 49 samples were received by our laboratory and assigned our laboratory project number EV23040003. The project was identified as your BNSF Skykomish. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer

Laboratory Director

Environmental 🚴



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-

Seattle, WA 98101 ALS SAMPLE#: EV23040003-01

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 9:45:00 AM

CLIENT SAMPLE ID 1C-W-8 WDOE ACCREDITATION: C601

		OAMI LL	DATAILOULIO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	103				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-02

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 9:50:00 AM

CLIENT SAMPLE ID 5-W-17 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	116				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-03

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 11:15:00 AM

CLIENT SAMPLE ID 5-W-16 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	100				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-04

Seattle, WA 98101 ALS SAMPLE#: EV2304000 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 4:10:00 PM

CLIENT SAMPLE ID 5-W-55 WDOE ACCREDITATION: C601

		0, 22	D/ (1/ (TKEOOETO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	108				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit..



1C-W-4

CLIENT SAMPLE ID

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-05

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT:

BNSF Skykomish CLIENT PROJECT: COLLECTION DATE: 3/28/2023 11:00:00 AM

> WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	104				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-06

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 4:05:00 PM

CLIENT SAMPLE ID 5-W-56 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	2800	500	5	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	1800	500	5	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25 5X Dilution	NWTPH-DX	87.6				04/09/2023	DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

Seattle, WA 98101 ALS SAMPLE#: EV23040003-07

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 12:40:00 PM

CLIENT SAMPLE ID 5-W-14 WDOE ACCREDITATION: C601

		C/ WIII EE	D/ (1/ (TKEOOETO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	99.6				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-08

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 2:08:00 PM

CLIENT SAMPLE ID 5-W-19 WDOE ACCREDITATION: C601

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	109				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-09

Seattle, WA 98101 ALS SAMPLE#: EV2304000 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 3:10:00 PM

CLIENT SAMPLE ID 5-W-18 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	106				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-10

04/08/2023

DHM

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023 CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023

CLIENT SAMPLE ID DUP-1 WDOE ACCREDITATION: C601

107

SAMPLE DATA RESULTS

TPH-Oil Range	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-11

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 5:02:00 PM

CLIENT SAMPLE ID EW-2A WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		O/ tivii EE	BATTATECOLIC				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	150 SUR01				04/08/2023	DHM

SUR01 -One or more surrogate recoveries were above the upper control limits. The sample results may be biased high. U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-12

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 10:15:00 AM

WDOE ACCREDITATION: **CLIENT SAMPLE ID** MW-4 C601

SAMPLE DATA RESULTS

		O/ tivii LL	BRITTINEGGETG				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	140	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	160	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	105				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and light oil. Diesel range product results biased high due to oil range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-13

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 12:20:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: EW-1 C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	110				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit..



Arcadis U.S., Inc. CLIENT: DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-14

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 12:50:00 PM

CLIENT SAMPLE ID 5-W-43 WDOE ACCREDITATION: C601

		O/ IIVII EE	DATATION				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	111				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-15

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 2:45:00 PM

CLIENT SAMPLE ID 2-A-W-40 WDOE ACCREDITATION: C601

		SAIVIFLE	DATA RESULTS				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	280	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	106				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains weathered lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-16

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 12:10:00 PM

CLIENT SAMPLE ID GW-1 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	161 SUR01				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

SUR01 -One or more surrogate recoveries were above the upper control limits. The sample results may be biased high.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-17

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 5:00:00 PM

CLIENT SAMPLE ID GW-3 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX w/ SGA	160	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	04/09/2023	DHM	
TPH-Diesel Range	NWTPH-DX	490	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	140	100	1	UG/L	04/08/2023	DHM	

			Ar	ANALTSIS AN	
URROGATE	METHOD	METHOD %REC		DATE	
	NWTPH-DX w/ SGA	105	04	4/09/2023	
	NWTPH-DX	106	04	4/08/2023	

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product.

Oil range product results biased high due to diesel range product overlap.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-18

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 1:45:00 PM

CLIENT SAMPLE ID GW-2 WDOE ACCREDITATION: C601

		O/ tivii EE	BATTATECCETC				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	106				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-19

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 1:00:00 PM

CLIENT SAMPLE ID 5W-51 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	270	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	95.7				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains highly weathered an unidentified diesel range product and an unidentified oil range product.

Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-20

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 3:35:00 PM

CLIENT SAMPLE ID 1B-W-23 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	95.1				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-2

Seattle, WA 98101 ALS SAMPLE#: EV23040003-21 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 11:55:00 AM

CLIENT SAMPLE ID 2A-W-9 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	350	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	220	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	91.9				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains highly weathered diesel and lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-22

DATE

04/08/2023

BY

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 2:10:00 PM

CLIENT SAMPLE ID 1C-W-7 WDOE ACCREDITATION: C601

%REC

89.9

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	
						ANALYSIS	ANALYSIS

U - Analyte analyzed for but not detected at level above reporting limit.

METHOD

NWTPH-DX

SURROGATE

C25

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-23

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 4:00:00 PM

CLIENT SAMPLE ID 2A-W-41 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX w/ SGA	110	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	04/09/2023	DHM	
TPH-Diesel Range	NWTPH-DX	310	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM	

			ANALYSIS
SURROGATE	METHOD	METHOD %REC	DATE
225	NWTPH-DX w/ SGA	91.1	04/09/2023
C25	NWTPH-DX	92.9	04/08/2023

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains highly weathered diesel.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-24

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 5:50:00 PM

CLIENT SAMPLE ID GW-4 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	92.1				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-25

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 2:49:00 PM

CLIENT SAMPLE ID S3-CD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	88.6				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-26

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 4:55:00 PM

CLIENT SAMPLE ID S4-CD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	90.9				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-27

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 3:49:00 PM

CLIENT SAMPLE ID S4-AD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	94.2				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-28

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 4:24:00 PM

CLIENT SAMPLE ID S4-BD WDOE ACCREDITATION: C601

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	95.2				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-29

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:16:00 PM

CLIENT SAMPLE ID S3-AD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	91.4				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-30

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 12:05:00 PM

CLIENT SAMPLE ID S1-BU WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	94.0				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-31

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 3:50:00 PM

CLIENT SAMPLE ID S4-AU WDOE ACCREDITATION: C601

		<u> </u>	2711711120210				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	80.4				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-3

 Seattle, WA 98101
 ALS SAMPLE#:
 EV23040003-32

 Kyle Haslam
 DATE RECEIVED:
 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 12:35:00 PM

CLIENT SAMPLE ID S1-AU WDOE ACCREDITATION: C601

		C/ WIII EE	D/ (1/ (TKEOOETO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	92.7				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-33

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:55:00 PM

CLIENT SAMPLE ID S3-BD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	95.3				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-34

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 5:00:00 PM

CLIENT SAMPLE ID S4-CU WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	130	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	93.0				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-35

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 2:48:00 PM

CLIENT SAMPLE ID S3-CU WDOE ACCREDITATION: C601

		O/ WIII 22	D/ (I/ CRECOLIC				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	90.7				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-36

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 4:30:00 PM

CLIENT SAMPLE ID S4-BU WDOE ACCREDITATION: C601

		O/ WITH 22	D/ (1/ (1/LEGGE 1 G				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	93.1				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

Seattle, WA 98101 ALS SAMPLE#:

EV23040003-37 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 03/31/2023 **BNSF Skykomish COLLECTION DATE:** 3/29/2023 **CLIENT PROJECT:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** DUP-2 C601

		O/ (IVII EE	DATATICEOULIG				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	330	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	101				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains weathered lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-38

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023 CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023

CLIENT SAMPLE ID DUP-3 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.9				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-39

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 11:20:00 AM

CLIENT SAMPLE ID S1-BD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	101				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-40

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: BNSF Skykomish CLIENT PROJECT: COLLECTION DATE: 3/30/2023 9:55:00 AM

CLIENT SAMPLE ID WDOE ACCREDITATION: S2-BU C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	360	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	04/08/2023	DHM
						ANALYSIS	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	91 4				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-41

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:07:00 AM

CLIENT SAMPLE ID S2-BD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	94.5				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-42

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:56:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: S3-AU C601

		O/ 11711 EE	Dittittle				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	160	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	98.7				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-43

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 11:26:00 AM

CLIENT SAMPLE ID S1-AD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	100				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-44

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:21:00 PM

CLIENT SAMPLE ID S3-BU WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	93.0				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-45

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:05:00 AM

CLIENT SAMPLE ID S2-AD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	93.8				04/09/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-46

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 6:18:00 PM

CLIENT SAMPLE ID 2A-W-42 WDOE ACCREDITATION: C601

		<u> </u>	2711711120210				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.9				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-47

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:45:00 AM

CLIENT SAMPLE ID S2-AU WDOE ACCREDITATION: C601

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	78KEG				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-48

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023 CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023

CLIENT SAMPLE ID DUP-4 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	170	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.7				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-49

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:00:00 PM

CLIENT SAMPLE ID EQUIPMENT BLANK WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	92.9				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc.

Arcadis U.S., Inc. DATE: 4/12/2023 1100 Olive Way, Suite 800 ALS SDG#: EV23040003

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam
CLIENT PROJECT: BNSF Skykomish

LABORATORY BLANK RESULTS

MB-040423W - Batch 192046 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	04/07/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	04/07/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

MB-040523W - Batch 192064 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	04/08/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

MB2-040523W - Batch 192065 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	100	04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS SDG#: EV23040003

LIMITS

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam
CLIENT PROJECT: BNSF Skykomish

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 192046 - Water by NWTPH-DX

						ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	85.9		67	125	04/07/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	95.0	10	67	125	04/07/2023	DHM

ALS Test Batch ID: 192064 - Water by NWTPH-DX

				LIM	ITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	119		67	125	04/08/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	117	2	67	125	04/08/2023	DHM

ALS Test Batch ID: 192065 - Water by NWTPH-DX

				LIM	ITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	101		67	125	04/08/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	110	8	67	125	04/05/2023	DHM



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS SDG#: EV23040003

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam

CLIENT PROJECT: BNSF Skykomish

MATRIX SPIKE RESULTS

ALS Test Batch ID: 192064 - Water

Parent Sample: S4-AU

				SPIKE	PARENT SAMPLE			LIMITS		ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	ADDED	RESULT	RESULT	MIN	MAX	RPD	DATE	
TPH-Diesel Range - MS	NWTPH-DX	102		500	29.0	510	67	125		04/08/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	101	0	500	29.0	500	67	125	15.2	04/08/2023	DHM

APPROVED BY

Rob Greer

Laboratory Director

EV23040003

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Seattle. WA 98101			***************************************					And .	1.	tidades.			36,90		663. - 14625			
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James O'Connell/Sydney Clark K	YLE H	<i>ASE</i>	W	Sydney.Clar	k@arcadis.com;	Amanda.Bowr	ng@a	Jo		i E						and the second	12065 Lebanon Rd Mo Submitting a sample vi	ount Juliet, TN 37122 a this chain of custody
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SDG# EU 23040003 Page 2 of 6 12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
https://frifo.pacelabs.com/hubis/pas-standard-Sample # (lab only) NCF / OK If preservation required by Login: Date/Time PEGPLE ADVANCING SCIENCE cetnum: CHEVARCWA MT JULIET, TN Sample Receipt Checklist
COC Seal Present/Intact: NP Pace Prelogin: P967072 emplate:T220745 PM: 110 - Brian Ford Preservation Correct/Checked: Bottles arrive intact: Correct bottles used: Sufficient volume sent: If Applicable Chain of Custody Shipped Via: RAD Screen <0.5 mR/hr: Remarks COC Signed/Accurate: 70% Zero Headspace: Table # 8 50 <u>ر</u> ي 7 EV 2304000 HCL / MeaH **Bottles Received:** Yes / No Ime: Temp, Other frip Blank Received: XaHATWU 245/M Flow Hd rotal Lead 6010 8ozClr-NoPres Тетр: Date: NWTPHGX 40mlAmb/MeOH10ml/Syr N 3-31-23 (F-2) X X X X X NWTPHDX no silica BozCir-NoPres-TEXM, EDB, EDC 8260D 40mlAmb/MeOH10ml/γγ Received for lab by: (Signature) Cntrs Email To: Sydney.Clark@arcadis.com;Amanda.Bownng@a R 유 PT MT CT ET οĮ Please Circle: Received by: (Signature) eceived by: (Signature) 1200 1445 535 70七 1345 1015 1250 00년 1220 012 CHEVARCWA-200410 Time Date Results Needed Highlands Ranch, CO 80129 Fracking # Attn: Accounts Payable 630 Plaza Dr., Ste. 600 3-27-23 Lab Project# Date Quote # P.O.# Billing Information: N Time: lime: Time: 15 I S 5 Day (Rad Only) 10 Day (Rad Only) Depth Rush? (Lab MUST Be Notified) などな Same Day Five Day SIS ISS10 AURORA AVEN 53 6W DUST Strey Strey Facility ID # Courier City/State Collected: Matrix * K h \$ SF. 8 SS \$ 3 \$\$ 30063829.25.21 Samples returned via: _Two Day _Three Day Date: Client Project # Next Day FedEx Comp/Grab G × Remarks: ÙPS Arcadis - Chevron - WA demes O'Connell/Sydney Clark B - Bioassay F-Filter 2-A-W-40 Relinquished by : (Signature) Relinquished by : (Signature 1B-W-23 Relinquished by: (Signature Sample ID Phone: 206-325-5254 5-W-42 Collected by (signature) Seattle. WA 98101 Company Name/Address: 5M-5 5-M5 WW - WasteWater DW - Drinking Water 1100 Olive Way SS-Soil AIR-Air Project Description: Collected by (print): EW- 2A 5-M5 GW - Groundwater 1-175 Packed on ice N EW-1 MM-M mmediately Suite 800 Report to: OT - Other 200410

Page 3 of 12065 Lebanon Rd Mount Juliet, TN 37122 Bubmitting a sample via this chain of custody constitutes advandelgement and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubis/pas-standard-Sample # (lab only) NG / OK Pace PEOPLE ADVANCING SCIENCE Condition: If preservation required by Login: Date/Time Cctnum: CHEVARCWA MT JULIET, TN relogin: P967072 emplate: **T220745** PM: 110 - Brian Ford COC Seal Present/Intact:
COC Signed/Accurate:
Bottles arraye intact:
Correct Dottles used:
Sifficient volume sent: Preservation Correct/Chec RAD Screen <0.5 mR/hr: Chain of Custody Shipped Via: Remarks JOA Zero Headspace: Table# SDG# EV23040003 () () <u>ب</u> کام 3 R S HCL / MeoH **Bottles Recei** Temp Other 'rip Blank Received: X O HATWU 795 Analysis / Flow Hd otal Lead 6010 8ozClr-NoPres Гетр: Date: NWTPHGX 40mlAmb/MeOH10ml/Syr X X X X X X X NWTPHDX no silica Bozeir-Mopres BTEXM, EDB, EDC 8260D 40mlAmb/MeOH10ml/\$yr Received for lab by: (Signature) Sydney.Clark@arcadis.com,Amanda.Bowring@a Intrs Pres Chk PT MT CT ET Please Circle: Received by: (Signature 1750 1316 549 449 909 1655 129 [H10 155 Time CHEVARCWA-200410 Date Results Needed Highlands Ranch, CO 80129 Fracking # Attn: Accounts Payable 630 Plaza Dr., Ste. 600 2022 2-12-13 Lab Project# Date Quote # Billing Information: P.O.# 3 1220 Time: BUST SKYLDINGS Time: 10 Day (Rad Only) Depth 5 Day (Rad Only) Rush? (Lab MUST Be Notified) 15510 AURORA AVE N 50 74 Courier City/State Collected: Matrīx * 6W387 * SX S SS \$ 8 \$ S 8 8 30063829.25.21 Samples returned via:
UPS FedEx Date: Date: Site/Facility ID # Same Day Next Day Three Day Client Project # Two Day Comp/Grab 5 Remarks: Arcadis - Chevron - WA fames O'Connell/Sydney Clark-B - Bioassay - 130 AD A Relinquished by : (Signature) RSD なな 0 2A- W- 4 Sample ID Phone: 206-325-5254 Collected by (signature) Seattle. WA 98101 S3-CD Company Name/Address: 3 6-W-4 OW - Drinking Water C-W-Project Description: 1100 Olive Way Collected by (print): SS-Soil AIR-Air GW - Groundwater 555 WW - WasteWater · 切 Packed on Ice N Relinquished by: - HS Ŋ mmediately Suite 800 other_ Report to: 25422 Matrix:

EV23040003

2 of Page 4 of 6			PEOPLE ADVANCING SCIENCE		MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122	outbridting a sample via this chain of custody constitutes advondedment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubis/pas-standard-	1		Table#	emplate: T220745	Preiogin: P967072 PM: 110 - Brian Ford PB:	(ia: ks Sample # (lab only)	- B										:NPY Y Y	rnt: <u>Y</u> N:	ked:Y	w.l.ogip: Date/Time
Chain of Custody		$\frac{1}{\sqrt{l}}$			N 12065 Lebanor	Submitting a samp constitutes acknow Pace Terms and Control https://info.pacela	terms.pdf SDG #		Table #	Template	Preiogin: PM: 110- PB:	Shipped Via: Remarks	MS/MSD	+		7 %	7.33		1	د 36	7 37	9 25	Sample Receipt Cloc Seal Present/Intact COC Signed/Accurate: Bottles arrive intact: Correct bottles used:	Sufficient volume sent: <u>If Applicab</u> VOA Zero Headspace:	Preservation Correct/Chec RAD Screen <0.5 mR/hr:	If preservation required by Login: Date/Time
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Preservative						1																	Temp		Yes / No HCL / MeoH TRB	Bottles Received:
is / Container /							d)	2.54	54.48														pH Te.		rip Blank Received:	J,
Analys					j		OTH	Oa≬	√qu	iAln	ол ХОН НGX 40r 109 beэ	qtWI	v	不	k	X	<u></u> ス		X	X	X		d Ï		Trip B (52)	Temp:
			/ju)TC		M/dn	nAlmi			-),EDB,EC	TEXA		,	P\										31-23 6	
	Pres	<u>E</u>	67		кот;Аmanda<u>.</u>Bowri ng@a	Please Circle:	1				Needed No.	Time Cntrs	USS	553	PSS1	1235	1355	00±1	ઉત્તમ	1630		J		#	l by: (Signature)	Received by: (Signature)
ion:		r., Ste. 600	anch, CO 80129		ассадівлентідя		Lab Project # CHEVARCWA-		P.O.#	Quote #	Date Results Needed	Date	-3033							¥	3-2923	3-29-23		Tracking #	Reserved by:	Received
Billing Information:	Attn: Accou	630 Plaza Dr., Ste.	Hignlands Kanch,		Email To: Sydney Clark@arcadis.	***************************************		- RONDIA		 	Five Day 5 Day (Rad Only) 10 Day (Rad Only)	Depth	100								(1)	,,,	E		7 Time:	Time:
					u v	City/State Collected:	# 25.21	24-45	Site/Facility ID # 15510 AURORA AVE N	Rush? (Lab MUST Be Notified)		Matríx *	6WBS-	- 38	*	%	38	23	\$	22	<u>\$</u>	×ss	SPO	via: Courier	Date:	Đate:
	(Client Project # 30063829.2	BUST SKY	Site/Facility ID #	Rush? (I	Same Day Next Day Two Day Three Day	Comp/Grab	5	+						-		₩	Remarks:	Samples returned via: UPSFedEx		Pa
	Arcadis - chevron - WA				ney Clark		1			***************************************			***************************************	[2	CV	BV			ssay	. S	(a)	(e.
Company Name/Address:	Spevi	1100 Olive Wav	•	Seattle. WA 98101	Report to: James O'Connell/Sydney-Clark	Project Description: 200410	Phone: 286-325-5254		Collected by (print):	Collected by (signature):	Immediately Packed on Ice N Y	Sample ID	- AU	-MS	488	SI- AU	- BD	SH-CU	53-6	3H - PS	DUP-2	DUR-3	_	OT - Other	Relinguished by: (Signature)	Relipquished by. (Signature)

Page Of 6 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://mio.pacelabs.com/hubfs/pas-standard-Sample # (lab only) NCF / OK FACE PEOPLE ADVANCING SCIENCE Condition: If preservation required by Login: Date/Time cernum: CHEVARCWA MT JULIET, TN NOT RECEIVED Pelogin: P967072 emplate: **T220745** PM: 110 - Brian Ford Chain of Custody Shipped Via: Remarks RAD Screen <0.5 mR/hr: COC Signed/Accurate: Bottles arrive intact. Sufficient volume sen Correct bottles used EV23040003 Table # PDG# erms.pdf 4 \$\frac{1}{4} なり E E 3 Š 3 \mathfrak{E} 4 B 3 Hold. Bottles Received: HCL / MeoH Trip Blank Received: Yes / No Other Temp Ú Flow Hd Total Lead 6010 8ozClr-NoPres Гетр: Date: NWTPHGX 40mlAmb/MeOH10ml/syr X X X X X NWTPHDX no silica 802CH-NoPres 33123 BTEXM, EDB, EDC 8260D 40mlAmb/MeOH10ml/\$yr Received for lab by: (Signature) Email To: <u>Sydney.Clark@arcadis.com;</u>Amanda.Bowring@a Cntrs Pres S, S PT MT CT ET φ Please Circle: ceived by: (Signature) 70K SHOU 0711 888 1356 50105 1818 1126 CHEVARCWA-200410 Time 1251 Date Results Needed Highlands Ranch, CO 80129 Tracking # Attn: Accounts Payable 630 Plaza Dr., Ste. 600 23023 Lab Project# Date Quote# Billing Information: P.O.# Time: BNSF SICTICOLNEY 10 Day (Rad Only) Depth 5 Day (Rad Only) Rush? (Lab MUST Be Notified) SPO TAY Date: 33.22 15519 AURORA AVE N Courier City/State Collected: Matrix * **MSS** S S₂ 22 SS S Š 8 8 ß 30063829.25.21 Same Day ____ Samples returned via: Date: Site/Facility ID # Three Day Client Project # Next Day Two Day Comp/Grab FedEx \$ Remarks: __ UPS Arcadis - Chevron - WA James-O'Connell/Sydney Clark 24-M-42 F - Filter Relinquished by : (Signature) Relinquished by : (Signature) クな DSI USI Sample ID P RD B Phone: 206-325-5254 Relinquished by: (Signat Collected by (signature) Seattle. WA 98101 52-AV 14- HO Company Name/Address: DW - Drinking Water 1100 Olive Way Project Description: Collected by (print): SS - Soil AIR - Air GW - Groundwater WW - WasteWater Packed on Ice N -75 Ì mmediately Suite 800 Report to: other. 200410

Page 6 of 6 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Sample # (lab only) Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-NCF / OK Face PEOPLE ADVANCING SCIENCE If preservation required by Login: Date/Time cctnum: CHEVARCWA MT JULIET, TN Sample Receipt Checklist emplate: T220745 Prelogin: P967072 VOA Zero Headspace: Preservation Correct/Checked: M: 110 - Brian Ford Chain of Custody COC Seal Present/intact: COC Signed/Accurate: Bottles arrive intact: Correct bottles used: Shipped Via: RAD Screen <0.5 mR/hr: Sufficient volume sent Remarks Table # SDG# (C) 5 * EV23046003 か **Bottles Received:** HCL / Meoh rip Blank Received: Yes / No Temp_ Other ڼ Flow_ Hd Тетр: Total Lead 6010 8ozClr-NoPres Date: NWTPHGX 40mlAmb/MeOHJ0ml/syr (5:20 X NWTPHDX no silica Sozeh-NoPres BTEXM, EDB, EDC 8260D 40mlAmb/MeOH10ml/\$yr Received for lab by: (Signature) Cntrs Pres Chk Email To: Sydney Clark@arcadis.com;Amanda.Bowring@z PT MT CT ET g g Please Circle: Seceived by: (Signature) 8 Received by: (Sign CHEVARCWA-200410 Time Date Results Needed Highlands Ranch, CO 80129 Tracking# Attn: Accounts Payable 630 Plaza Dr., Ste. 600 3-25.73 3-30-23 Lab Project # Date Quote # P.O.# Billing Information: (25) Time: Ime: Time: COUNTY SKYLLONIST _ 5 Day (Rad Only) _ 10 Day (Rad Only) Depth Rush? (Lab MUST Be Notified) STO 25 Five Day 15510 AURORA AVE N FedEx Counier Matrix * City/State Collected: 61Wss-Salves-SS SS SS SS SS SS SS SS 30063829.25.21 Samples returned via: UPS FedEx Date: Same Day Site/Facility ID# Three Day Client Project # Next Day Two Day Comp/Grab کہ Remarks: EQUIPMENT BLANK Arcadis - Chevron - WA lames O'Connell/Sydney Clark F - Filter Relinquished by : (Signature) Relinquished by : (Signature) Relinquished by : (Signature Sample ID Phone: 206-325-5254 Collected by (signature): Seattle. WA 98101 Company Name/Address: DW - Drinking Water 1100 Olive Way J Project Description: Collected by (print): GW - Groundwater SS-Soil AIR-Air WW - WasteWater Packed on Ice N DUP-Immediately Suite 800 of - Other Report to: 200410 Matrix:

ALS ENVIRONMENTAL

Sample Receiving Checklist

Client: ARCADS)	ALS Job #:	FU230	1000	3
Project: BNSF SKYKOMESH				
Received Date: 3/3/23 Received Time: 15:2	20	Ву:	BF	
Type of shipping container: Cooler Box	Other			
Shipped via: FedEx Ground UPS Mail FedEx Express	Courier	<u></u> Н		vered /
Were custody seals on outside of shipping container? If yes, how many? Where? Custody seal date: Seal name:		Yes	No	<u>N/A</u>
Was Chain of Custody properly filled out (ink, signed, dated,	etc.)?	<u> </u>		
Did all bottles have labels?		1		
Did all bottle labels and tags agree with Chain of Custody?				- vyská dilovad
Were samples received within hold time?				
Did all bottles arrive in good condition (unbroken, etc.)?				
Was sufficient amount of sample sent for the tests indicated?		<i>—</i>		
Was correct preservation added to samples?				
If no, Sample Control added preservative to the following: Sample Number Reagent Analyte				
Were VOA vials checked for absence of air bubbles? Bubbles present in sample #:				
Temperature of cooler upon receipt: 6.4°C	Cold) Cool	Ambie	ent N/	A
Explain any discrepancies:				
Was client contacted? Who was called?	By whom?)	Date	»:



June 23, 2023

Mr. Kyle Haslam Arcadis U.S., Inc. 1100 Olive Way, Suite 800 Seattle, WA 98101

Dear Mr. Haslam,

On June 16th, 35 samples were received by our laboratory and assigned our laboratory project number EV23060093. The project was identified as your BNSF Skykomish. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer

Laboratory Director



CLIENT CONTACT:

C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-0

06/21/2023

DHM

Seattle, WA 98101 ALS SAMPLE#: EV23060093-01

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:06:00 AM

CLIENT SAMPLE ID GW-1_06152023 WDOE ACCREDITATION: C601

105

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-02

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 11:21:00 AM

CLIENT SAMPLE ID GW-2 06142023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-03

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 1:25:00 PM

CLIENT SAMPLE ID GW-3 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	400	50	1	UG/L	06/21/2023	DHM
TPH-Diesel Range	NWTPH-DX w/SGA	150	50	1	UG/L	06/23/2023	DHM
TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	06/23/2023	DHM

			ANALYSI	S ANALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	111	06/21/2023	3 DHM
C25	NWTPH-DX w/SGA	108	06/23/2023	3 DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-04

06/21/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 2:40:00 PM

CLIENT SAMPLE ID GW-4 06142023 WDOE ACCREDITATION: C601

88.3

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS DATE	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT SAMPLE ID

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-05

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 10:01:00 AM

WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	83.8				06/21/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

EW-1 06142023



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-06

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:11:00 AM

CLIENT SAMPLE ID EW-2A 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	76.3				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-07

06/21/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 3:55:00 PM

CLIENT SAMPLE ID S1-AD 06142023 WDOE ACCREDITATION: C601

86.6

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-08

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 4:00:00 PM

CLIENT SAMPLE ID S1-AU 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		O/ tivii EE	BRITTINEGGETG				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	140	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	87.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-09

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 4:30:00 PM

CLIENT SAMPLE ID S1-BD 06152023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	100	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	79.8				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-10

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 4:40:00 PM

CLIENT SAMPLE ID S1-BU_06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	69.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-11

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 5:05:00 PM

CLIENT SAMPLE ID S2-AD 06142023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
						ANALYSIS	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	77.5				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-12

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 5:15:00 PM

CLIENT SAMPLE ID S2-AU 06142023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	77.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-13

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 9:05:00 AM

CLIENT SAMPLE ID S2-BD 06152023 WDOE ACCREDITATION: C601

		O/ WIII 22	D/ (1/ (1/LEGGE 1 G				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	73.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-14

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 9:05:00 AM

CLIENT SAMPLE ID S2-BU 06152023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	330	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	130	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

C25 NWTPH-DX **85.4** 06/21/2023 DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-15

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:47:00 AM

CLIENT SAMPLE ID S3-AD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	84.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-16

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:58:00 AM

CLIENT SAMPLE ID S3-AU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	210	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
						ANALYSIS	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	70.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-17

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:42:00 AM

CLIENT SAMPLE ID S3-BD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	78.5				06/21/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-18

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:37:00 AM

CLIENT SAMPLE ID S3-BU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	82.7				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-19

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 12:34:00 PM

CLIENT SAMPLE ID S3-CD 06152023 WDOE ACCREDITATION: C601

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	70KEG				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-20

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 12:25:00 PM

CLIENT SAMPLE ID S3-CU 06152023 WDOE ACCREDITATION: C601

		C/ WIII EE	D/ (1/ (TKEOOETO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	73.0				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-21

06/22/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:26:00 PM

CLIENT SAMPLE ID S4-AD 06152023 WDOE ACCREDITATION: C601

66.4

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-22

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:16:00 PM

CLIENT SAMPLE ID S4-AU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	78.4				06/22/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-23

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:58:00 PM

CLIENT SAMPLE ID S4-BD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	113				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-24

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:55:00 PM

CLIENT SAMPLE ID S4-BU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	110				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-25

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 2:32:00 PM

CLIENT SAMPLE ID S4-CD_06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	113				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-26

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 2:30:00 PM

CLIENT SAMPLE ID S4-CU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	105				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-27

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 11:16:00 AM

CLIENT SAMPLE ID 2A-W-40 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	109				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-28

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 12:22:00 PM

CLIENT SAMPLE ID 2A-W-41 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	250	50	1	UG/L	06/22/2023	DHM	
TPH-Diesel Range	NWTPH-DX w/SGA	95	50	1	UG/L	06/23/2023	DHM	
TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	06/22/2023	DHM	
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	06/23/2023	DHM	

			ANALYSIS A	NALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	112	06/22/2023	DHM
C25	NWTPH-DX w/SGA	99.2	06/23/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-29

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 1:50:00 PM

CLIENT SAMPLE ID 2A-W-42 06142023 WDOE ACCREDITATION: C601

		SAMPLE	DATA RESULTS				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	110	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	117				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-30

06/22/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:10:00 AM

CLIENT SAMPLE ID 1B-W-23 06152023 WDOE ACCREDITATION: C601

116

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-31

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 10:00:00 AM

CLIENT SAMPLE ID 5-W-43 06142023 WDOE ACCREDITATION: C601

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	95.2				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-32

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: BNSF Skykomish CLIENT PROJECT: COLLECTION DATE: 6/15/2023 3:06:00 PM

EB 06152023 WDOE ACCREDITATION: **CLIENT SAMPLE ID** C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	98.4				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

EV23060093-33 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 06/16/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 6/14/2023

FD-1 06142023 WDOE ACCREDITATION: **CLIENT SAMPLE ID** C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	150	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	101				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 6/15/2023 **CLIENT SAMPLE ID** FD-2 06152023

WDOE ACCREDITATION: C601

EV23060093-34

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	115				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



Arcadis U.S., Inc. CLIENT: DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

EV23060093-35 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 06/16/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 6/15/2023

CLIENT SAMPLE ID FD-3 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	111				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc.

DATE: 6/23/2023 1100 Olive Way, Suite 800 ALS SDG#: EV23060093

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam **CLIENT PROJECT: BNSF Skykomish**

LABORATORY BLANK RESULTS

MB-062123W - Batch 196692 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	50	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	100	06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

MB2-062123W - Batch 196693 - Water by NWTPH-DX

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS Date	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	50	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	100	06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS SDG#: EV23060093

C601

Seattle, WA 98101 WDOE ACCREDITATION: CLIENT CONTACT: Kyle Haslam

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 196692 - Water by NWTPH-DX

BNSF Skykomish

CLIENT PROJECT:

				LIM	ITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	92.2		67	125	06/21/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	93.6	2	67	125	06/21/2023	DHM

ALS Test Batch ID: 196693 - Water by NWTPH-DX

	_			LIM	ITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	74.8		67	125	06/22/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	73.9	1	67	125	06/21/2023	DHM



CLIENT: Arcadis U.S., Inc.

Arcadis U.S., Inc. DATE: 6/23/2023 1100 Olive Way, Suite 800 ALS SDG#: EV23060093

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam

CLIENT PROJECT: BNSF Skykomish

MATRIX SPIKE RESULTS

ALS Test Batch ID: 196692 - Water Parent Sample: \$3-BD_06152023

				SPIKE	PARENT SAMPLE			LIMITS		ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	ADDED	RESULT	RESULT	MIN	MAX	RPD	DATE	
TPH-Diesel Range - MS	NWTPH-DX	75.1		485	16.0	360	67	125		06/21/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	74.3	1	485	16.0	360	67	125	15.2	06/21/2023	DHM

ALS Test Batch ID: 196693 - Water Parent Sample: 2A-W-42_06142023

				SPIKE	PARENT SAMPLE			LIMITS		ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	ADDED	RESULT	RESULT	MIN	MAX	RPD	DATE	
TPH-Diesel Range - MS	NWTPH-DX	108		493	110	530	67	125		06/22/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	102	4	493	110	500	67	125	15.2	06/22/2023	DHM

APPROVED BY

Rob Greer

Laboratory Director



Customer Information

30159458

Purchase Order

Work Orde

Arcadis U.S., Inc.

Company Name

1100 Olive Way

Suite 800

Address

Kyle Haslam

Send Report To

Cincinnati, OH +1 513 733 5336 Everett, WA +1 425 356 2600

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Fort Collins, CO +1 970 490 1511

Chain of Custody Form

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Spring City, PA +1 610 948 4903

Salt Lake City, UT +1 801 266 7700

South Charleston, WV +1 304 356 3168 York, PA +1 717 505 5280

Parameter/Method Request for Analysis ALS Work Order #: NWTPH-DX w/ SGC NWTPH-DX accountspayable administration@arcadisus com V В O Ш Ш O I coc ID: 289098 ALS Project Manager: Highlands Ranch CO 80129 Project Information Accounts Payable **BNSF Skykomish** Arcadis U.S., Inc. 630 Plaza Drive (303) 471-3699 Suite 600 Project Name Phone Bill To Company Invoice Attn City/State/Zip Fax Address Project Number O-Mail Addrose

Seattle, WA 98101

City/State/Zip

(206) 325-8218 (206) 325-5254

> Phone Fax

						•									
e-Mail Address kyle.haslam@arcadis.com	adis.com	e-Mail Address		accountspayable.administration@arcadis-us.com	administratio	n@arcad	S-US.com	_							
No. Sample Description	on	Date	Time	Matrix	Pres.	# Bottles	A	0	۵	ш	ш	5	_	٦	Hold
1 GW-1_06152023		6-15-2023	9001	Water	1	_	×								
2 GW-2 - 06142023		6-14-2023	1211	Water	1	_	×								
3 GW3 -06142023		1202-14-9	1325	Water	1	7	×								
4 GW4 _ 06142623		5202- HI-9	0/1/1	Water	1	_	×								
5 EW-1 - 06142023		6-14-2023	1001	Water	Antonio	_	×								
6 EW-2A _06157023		6-15-2023	1101	Water	1	_	×								
7 S1-AD - 66142023	6-14-23	6-14-23 6-15-2023	1555	Water	1	-	×								
8 S1-AU - 06142023	6-14-23	645-2023	1600	Water	1	_	×								
9 S1-BD - (16152023	CÓS	(,-152003	1630	Water	forma	_	×								
10 S1-BU _ 06152023		(515-Wa	16410	Water	1	~	×	2							
Sampler(s) Please Print & Sign	1	Shipmer	Shipment Method	Requi	Required Turnaround Time: (Check Box)	d Time: (C	heck Box)	Other	Je		1	Resul	Results Due Date:	Date:	
ELTHINTA MUCH ROBIN	PORERTS PIEMONTERE	28.67		D SI	STD 10 Wk Days	\S	5 WK Days	2	2 Wk Days		24 Hour				
Relinquished by: ROSGRIO PIEMONTESE	Date: 6/16/123	Time:	Received by:	Sur G/16/23 0800 ALS	23 0800	<u> </u>	Notes:								
Relinquished by:	Date:	Time:	Received by (Laboratory)	boratory):			Cooler ID	Coo	Cooler Temp.	QC Pa	ckage: (QC Package: (Check One Box Below)	e Box Be	low)	
4 4 4 1 4 1 4 1 4 1		i	:							×	Level II Std OC	00		L FR	TRRP Checklist
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	boratory):			- 4	,	ن د د	П	Level III St	Level III Std QC/Raw Date	Date	F F	TRRP Level IV
Preservative Key: 1-HCI 2-HNO ₃	3-H ₂ SO ₄	4-NaOH 5-Na ₂ S ₂ O ₃	6-NaHSO4	4 7-Other	8-4°C	9-5035	n	in	2	I	Other	Other			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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ALS Project Manager:

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South Charleston, WV +1 304 356 3168

Salt Lake City, UT +1 801 266 7700

EVZ3060 ALS Work Order #:

York, PA +1 717 505 5280

Middletown, PA +1 717 944 5541 coc ID: 289097

	Customer Information		Division to the contraction of t	2					
- 1			riojeci illiorinalio	O. C.		Parameter	Parameter/Method Request for Analysis	st for Analys	sis
Purchase Order	30159458	Project Name	BNSF Skykomish		A NWTPH-DX	X			
Work Order		Project Number			B NWTPH-	NWTPH-DX w/ SGC			
Company Name	Arcadis U.S., Inc.	Bill To Company	Arcadis U.S., Inc.		O				
Send Report To	Kyle Haslam	Invoice Attn	Accounts Payable		D				
	1100 Olive Way		630 Plaza Drive		ш				
Address	Suite 800	Address	Suite 600		ш				
City/State/Zip	Seattle, WA 98101	City/State/Zip	Highlands Ranch CO 80129	CO 80129	ŋ				
Phone	(206) 325-5254	Phone	(303) 471-3699		I				
Fax	(206) 325-8218	Fax							
e-Mail Address	kyle.haslam@arcadis.com	e-Mail Address		accountspayable.administration@arcadisus.com	ishus.com				
No.	Sample Description	Date	Time Matrix	Pres. # Bottles	A	C	E G	— ±	J Hold
1	52024190	井 52-11-9	中中了205 Mater	1	×				
1	061412023	(2-1/1-9	7 S Water	1	×				
58	51-51-7 - MSHMSH 6-15-13		0905 Water	1	×				
3.3	06152023	- 0	0905 Water]	×				
	-06152623	1) 52-51-9	() 47 Water	1	×				
	-06152023	6-12-33	1058 Mater	_	×				
	MS/MST		252 I'll Mater	1	×				
	06152023			[×				
	-06152023		1234 Water	-	×				
70 S3-CU_061	_06152023	1 22-54	122 S Water	-	×				
Sampler(s) Please F	Sampler(s) Please Print & Sign BERTO PIEMONTERS	Shipment Method		and Time	theck Box)	Other		Results Due Date	ie:
N. C.				STD 10 Wk Days X 5 v	5 Wk Days	2 Wk Days	24 Hour		
POBERTO PIEMONTESE	Date: 6/16/23	8.5	Received by: Oak WILE 123 6800 HSF		Notes:				
Relinquished by:			eived by (Laboratory):		Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	ck One Box Below	۷)
Logged by (Laboratory):	Date:	Time: Che	Checked by (Laboratory):				X Level II Std QC		TRRP Checklist
Precentative Kev	1-HCI 2-HNO 3-H SO 4-NO						Level IV SW846/CLP	Arcup Care	I KKT Level (*)
rieservauve reg.	SONILL-Z	OH 9-14825203	6-NansO4 /-Other	8-4-0 9-5035			Other		

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South Charleston, WV +1 304 356 3168 York, PA +1 717 505 5280 Salt Lake City, UT +1 801 266 7700 Spring City, PA +1 610 948 4903 AI S Work Order #-

				. 4							12/	1)
				AL	ALS Project Manager:	//anager:			A	ALS Work Order #:	Order #			
	Customer Information		Proj	Project Information	ion			Par	ameter/	Parameter/Method Request for Analysis	Sednesi	for Ar	alysis	
Purchase Order	30159458	Project Name		BNSF Skykomish			A NWTPH-DX	¥0±	*					
Work Order		Project Number	mber				B NWTP	NWTPH-DX w/ SGC	SGC					
Company Name	Arcadis U.S., Inc.	Bill To Company		Arcadis U.S., Inc.			O							
Send Report To	Kyle Haslam	Invoice Attn		Accounts Payable	45		D							
	1100 Olive Way			630 Plaza Drive			Ш							
Address	Suite 800	Ado	Address Suit	Suite 600			ш							
City/State/Zip	Seattle, WA 98101	City/State/Zip	1	Highlands Ranch CO 80129	CO 80129		G							
Phone	(206) 325-5254	a	Phone (303	303) 471-3699			I							
Fax	(206) 325-8218		Fax				_							
e-Mail Address	kyle.haslam@arcadis.com	e-Mail Address	1	accountspayable.administration@arcadisus.com	administration	on@arcadi:	ans.com							
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	O	Q	F	G	I	٦	Hold
21 S4AD - 66152023	152023	6-15-23	1326	Water	1	-				¥				
22 S4-AU _ 06	- 06157023	6-15-23	1316	Water	J	_	×							
1	66152023	82-51-9	135%		1	_	×	*	À					
24 S4-BU _ 661	- 66152027	£2-S1-9	1355		1		×						-	
			1432	Water	1	-	×							
Ze S4-CU - 6	× (5-1)	62-11-9- EZ-	1430		1	_	×							
Z7 ZA-W-40 - (16/14/2023	5 H 2023	6-14-23	9111		J	_	×						- (
	-06142023	6-14-23	7271	Water	1	N	×					量月		
29 2A-W-42 - C	-06142023 MS/MSD	6-14-23	1350	Water	1	₩.	×							
30 1B-W-23 _C	1B-W-23 - 06152023	6-15-73	011	Water	Taxana I	_	×						K	
Sampler(s) Please Print & Sign ELT 74R ETH & HELLER	- ROBERE	PLEMONTERE Shipme	Shipment Method	Requ	Required Turnaround Time: (Check Box)	nd Time: (Ch	: (Check Box)	Other 2 Wk Dave	Jave	28 Hour	-	Results Due Date:	Date:	8
Relinquished by:	Date: 6,16,133	Time;	Received by:	0	1. MSF GILDS KON	3	Notes:		2		_			
Relinquished by:		Time:	Received by (apo	1	2	Cooler ID	Coole	Cooler Temp.	QC Package: (Check One Box Below)	: (Check (One Box I	selow)	
Logged by (Laboratory):	: Date:	Time:	Checked by (Laboratory):	Laboratory):						X revel	Level II Std QC		Ĕ	TRRP Checklist
				į.				_		Level	Level III Std QC/Raw Date	w Date	Ë]	TRRP Level IV

A-Check IL Amber 2 confirm. Can

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Level IV SW846/CLP

Other

9-5035

8-4°C

7-Other

6-NaHSO4

5-Na₂S₂O₃

4-NaOH

3-H₂SO₄

2-HNO3

1-HCI

Preservative Key:



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coc ID: 289095 Page 4 of 4

ALS Project Manager:

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South Charleston, WV +1 304 356 3168

York, PA +1 717 505 5280 EV2306009 Salt Lake City, UT +1 801 266 7700 ALS Work Order #:

	Customer Information		Project Information	Parameter/Method Request for Analysis
Purchase Order	30159458	Project Name	BNSF Skykomish	A NWTPH-DX
Work Order		Project Number		B NWTPH-DX w/ SGC
Company Name	Arcadis U.S., Inc.	Bill To Company	Arcadis U.S., Inc.	O
Send Report To	Kyle Haslam	Invoice Attn	Accounts Payable	D
7	1100 Olive Way		630 Plaza Drive	ш
Address	Suite 800	Address	Suite 600	L
City/State/Zip	Seattle, WA 98101	City/State/Zip	Highlands Ranch CO 80129	Q
Phone	(206) 325-5254	Phone	(303) 471-3699	I
Fax	(206) 325-8218	Fax		
e-Mail Address	kyle.haslam@arcadis.com	e-Mail Address	accountspayable.administration@arcadisus.com	syls.com
No.	Sample Description	Date	Time Matrix Pres. # Bottles	A B C D E F G H I J Hold
31 5-W-43 - 06142023	14 2023	01 5202-171-9	3 0 0 Water 1	×
32 EB -06152023	5207		I SO / Water 1	×
33 FD-1-06 112023	2023		Water	×
	-06152623	6-15-23	Water	×
35 FD-3 -061	-06152023	6-15-23	Water	×
9		,		
7				
80				
0				
10				
Sampler(s) Please Print & Sign	ROBERTO PIEM	Premovn 的 Shipment Method	Required Turnaround Time	5 (Check Box) Other Results Due Date: 5 Wk Days 24 Hour
Relinquished by: ROBERTO PIEMONTERE	Date: 6/16/23	00.0	Received by: Outse 4/16/23 5/20	Notes:
Relinquished by:			ived by (Laboratory):	0.1
Logged by (Laboratory):); Date:	Time: Chec	Checked by (Laboratory):	Level III Std QC/Raw Date TRRP Level IV
Preservative Key:	1-HCI 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH	5-Na ₂ S ₂ O ₃	6-NaHSO ₄ 7-Other 8-4°C 9-5035	Level IV SW846/CLP Other
921 22				Catalonia

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ALS ENVIRONMENTAL

Sample Receiving Checklist

Client: Arcadis U.S., Inc. ALS Job #: 6123060093
Project: BNSF Skykomish
Received Date: 6 16 23 Received Time: 6800 By: CO
Type of shipping container: Cooler X Box Other
Shipped via: FedEx Ground UPS Mail Courier Hand Delivered X
Were custody seals on outside of shipping container? If yes, how many? Where? Custody seal date: Seal name:
Was Chain of Custody properly filled out (ink, signed, dated, etc.)?
Did all bottles have labels?
Did all bottle labels and tags agree with Chain of Custody?
Were samples received within hold time?
Did all bottles arrive in good condition (unbroken, etc.)?
Was sufficient amount of sample sent for the tests indicated?
Was correct preservation added to samples?
If no, Sample Control added preservative to the following: Sample Number Reagent Analyte ———————————————————————————————————
Were VOA vials checked for absence of air bubbles? Bubbles present in sample #:
Temperature of cooler upon receipt: \(\frac{3}{1.6} \) \(\frac{1}{4.3} \) \(\frac{1}{3.1} \) \(1
Was client contacted? Who was called? By whom? Date: Outcome of call:



October 16, 2023

Ms. Michelle Nguyen Arcadis U.S., Inc. 1420 - 5th Ave , Unit 2400 Seattle, WA 98101

Dear Ms. Nguyen,

On October 2nd, 46 samples were received by our laboratory and assigned our laboratory project number EV23100004. The project was identified as your BNSF Skykomish PN 30159457.01. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer

Laboratory Director

Environmental 🐊



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-

Seattle, WA 98101 ALS SAMPLE#: EV23100004-01
Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023
CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 2:05:00 PM

CLIENT SAMPLE ID GW-2_092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	93.8	10/09/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-02

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:55:00 PM

CLIENT SAMPLE ID GW-3 092723 WDOE ACCREDITATION: C601

		O,	27117111233213					4
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	i
TPH-Diesel Range	NWTPH-DX	250	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Diesel Range	NWTPH-DX w/ SGA	110	100	1	UG/L	10/16/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	10/16/2023	DHM	

SAMPLE DATA RESULTS

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS DATE BY	j
C25	NWTPH-DX	90.4	10/09/2023 DHM	
CAS: 629-99-2 C25	NWTPH-DX w/ SGA	101	10/16/2023 DHM	
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

CAS: ARC-TPH-ORO

Chromatogram indicates that it is likely that sample contains highly weathered diesel.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 12:30:00 PM

CLIENT SAMPLE ID GW-4 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	130	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	690	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANAI YSIS

SURROGATE METHOD %REC

C25 NWTPH-DX 93.8 10/09/2023 DHM

CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-04

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 4:42:00 PM

CLIENT SAMPLE ID EW-1 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	95.0	10/09/2023
S- 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-05

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:50:00 PM

CLIENT SAMPLE ID EW-2A 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	250	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	115	10/09/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-06

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:25:00 PM

CLIENT SAMPLE ID S1-AD_092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

SURROGATE			ANALYS
	METHOD	%REC	DATE
25	NWTPH-DX	93.0	10/09/202
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-07

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:25:00 PM

CLIENT SAMPLE ID S1-AU 092823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAI YSIS	ANAI YSIS	

SURROGATE METHOD %REC

C25 NWTPH-DX 82.6

CAS: 629-99-2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-08

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:50:00 PM

CLIENT SAMPLE ID S1-BD 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 93.3 10/09/202:					ANALYSI
NWTPH-DX 93.3 10/09/2023	URROGATE	METHOD	METHOD	%REC	DATE
		NWTPH-DX	NWTPH-DX	93.3	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-09

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:55:00 PM

CLIENT SAMPLE ID S1-BU 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

		ANALYSI	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	86.3	10/09/2023	B DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-10

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 3:42:00 PM

CLIENT SAMPLE ID S2-AD 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A	NALYSIS	S
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	96.9	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-11

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 3:18:00 PM

CLIENT SAMPLE ID S2-AU 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI: BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 1/010		_

			ANALYSIS A	ANALYSI
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	94.5	10/09/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-12

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 12:42:00 PM

CLIENT SAMPLE ID S2-BD 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	FACTOR	UNITS	ANALYSIS . DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	140	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ΔΝΔΙ ΥSIS	ΔΝΔΙ ΥSIS

			ANALYSIS A	ANALTOIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	93.7	10/09/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: DATE: 10/16/2023 Arcadis U.S., Inc.

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-13

Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/29/2023 12:03:00 PM

S2-BU 092923 MS/MSD **CLIENT SAMPLE ID** WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	1000	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	200	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

DATE BY **SURROGATE** %REC **METHOD** C25 NWTPH-DX 97.6 10/09/2023 DHM CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-14

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:51:00 PM

CLIENT SAMPLE ID S3-AD_092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	i
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 92.8 10/09/2023				ANALYSI
NWTPH-DX 92.8 10/09/2023	URROGATE	METHOD	%REC	DATE
		NWTPH-DX	92.8	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-15

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:26:00 PM

CLIENT SAMPLE ID S3-AU 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

		ANALYS	
URROGATE	METHOD	%REC	DATE
5	NWTPH-DX	95.0	10/09/202
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-16

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 9:30:00 AM

CLIENT SAMPLE ID S3-BD 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC		
	METHOD	URROGATE
NWTPH-DX 91.7	NWTPH-DX	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-17

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 10:45:00 AM

CLIENT SAMPLE ID S3-BU 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	97.7	10/09/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-18

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 3:55:00 PM

CLIENT SAMPLE ID S3-CD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS	ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	100	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-19

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:25:00 PM

CLIENT SAMPLE ID S3-CU 092723 MS/MD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						ANIAL VOIC	ANIAL VOI	_

			ANALYSIS A	ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	95.1	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-20

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 9:28:00 AM

CLIENT SAMPLE ID S4-AD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS A	NALYSIS	ŝ
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	100	10/09/2023	DHM	
CAS: 620-00-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-21

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 10:24:00 AM

CLIENT SAMPLE ID S4-AU 092723 WDOE ACCREDITATION: C601

			REPORTING	DILUTION		ANALYSIS A	ANALYSI	S
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 95.9 10/09/202				ANALYS
NWTPH-DX 95.9 10/09/202:	OGATE	METHOD	%REC	DATE
		NWTPH-DX	95.9	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-22

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 11:37:00 AM

CLIENT SAMPLE ID S4-BD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYS BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

				ANALYS
NWTPH-DX 101 10/09/202	URROGATE	METHOD	%REC	DATE
		NWTPH-DX	101	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-23

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:10:00 PM

CLIENT SAMPLE ID S4-BU 092723 WDOE ACCREDITATION: C601

			REPORTING LIMITS	DILUTION FACTOR		ANALYSIS A	ANALYSIS BY
ANALYTE	METHOD	RESULTS	LIMITS	TACTOR	UNITS	DAIL	о.
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYS
JRROGATE	METHOD	%REC	DATE
	NWTPH-DX	97.2	10/09/202
29-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-24

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 9:35:00 AM

CLIENT SAMPLE ID S4-CD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS A	ANALYSIS

			ANALYSIS A	SIS ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	105	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-25

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 10:30:00 AM

CLIENT SAMPLE ID S4-CU 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSI	S ANALYSI
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	95.1	10/09/2023	3 DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-26

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/26/2023 3:08:00 PM

CLIENT SAMPLE ID 5-W-14 092623 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

ATE METHOD %REC	
METHOD /MCEO	TE METHOD
NWTPH-DX 98.4	NWTPH-DX

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-27

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/26/2023 5:00:00 PM

CLIENT SAMPLE ID 5-W-16 092623 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	i
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSI
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	100	10/10/2023
CAS: 620-00-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-28

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 11:10:00 AM

CLIENT SAMPLE ID 5-W-17 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANIAL VOIC	ANIAI VOIC	

			ANALYS	IS ANALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	98.0	10/10/202	23 DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-29

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 11:55:00 AM

CLIENT SAMPLE ID 5-W-18_092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAI YSIS	ANAI YSIS	

SURROGATE METHOD %REC

C25 NWTPH-DX 103

CAS: 629-99-2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-30

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 12:40:00 PM

CLIENT SAMPLE ID 5-W-19_092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 97.0 10/10/202				ANALYS
NWTPH-DX 97.0 10/10/2023	DGATE	METHOD	%REC	DATE
		NWTPH-DX	97.0	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-31

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 10:30:00 AM

CLIENT SAMPLE ID 5-W-51 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	530	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	220	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAL VCIC	ANIAI VOIC	

SURROGATE			ANALYSIS A	ANALTSIS ANALTSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	98.6	10/10/2023	DHM		
CAS: 629-99-2						

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-32

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 3:50:00 PM

CLIENT SAMPLE ID 5-W-55 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE				ANALYSIS ANALYSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	97.1	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-33

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 3:30:00 PM

CLIENT SAMPLE ID 5-W-56 092823 WDOE ACCREDITATION: C601

SAM	1PL	E D/	ΑТА	١RE	ESU	LTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	1400	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	710	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANALYSIS	ANALYSI	s

SURROGATE METHOD %REC

C25 NWTPH-DX 81.2 10/10/2023 DHM

CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-34

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/29/2023

CLIENT SAMPLE ID FD-3 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	590	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	290	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALTSIS	ANALTSIS ANALTSI		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	100	10/10/2023	DHM		
CAS: 629-99-2						

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-35

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 1:02:00 PM

CLIENT SAMPLE ID 2A-W-40 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 7/010	*****	_

			ANALYSIS A	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	106	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-36

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 11:05:00 AM

CLIENT SAMPLE ID 2A-W-41 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS ANALYSIS DATE BY	
TPH-Diesel Range	NWTPH-DX	400	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Diesel Range	NWTPH-DX w/ SGA	240	50	1	UG/L	10/16/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	10/16/2023	DHM
CAS: ARC-TPH-ORO							

SURROGATE	METHOD	%REC	ANALYSIS A DATE
C25	NWTPH-DX	104	10/10/2023
CAS: 629-99-2			
C25	NWTPH-DX w/ SGA	132 SUR11	10/16/2023
CAS: 629-99-2			

SUR11 - Surrogate outside of control limits due to sporadic marginal failure. No corrective action taken.

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product.

Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-37

Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish PN 30159457.01 9/28/2023 10:01:00 AM **COLLECTION DATE:**

CLIENT SAMPLE ID 2A-W-42 092823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALTSIS	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	103	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-38

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:30:00 PM

CLIENT SAMPLE ID 1B-W-23 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI VSIS	ANAI VSIS

			ANALYSI
ROGATE	METHOD	%REC	DATE
	NWTPH-DX	86.5	10/10/2023
19-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-39

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:00:00 PM

CLIENT SAMPLE ID 1C-W-7 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI VCIC	ANAI VEIE

			ANAL 1313	ANALISIS ANALISIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	97.0	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-40

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 2:45:00 PM

CLIENT SAMPLE ID 1C-W-8 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A	anai
SURROGATE	METHOD	%REC	DATE	-
C25	NWTPH-DX	96.7	10/10/2023	D
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-41

Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: BNSF Skykomish PN 30159457.01 9/29/2023 11:30:00 AM **CLIENT PROJECT: COLLECTION DATE:**

CLIENT SAMPLE ID 5-W-43 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 7/010	*****	_

			ANALYSIS	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	93.3	10/10/2023	B DHM		
CAS: 620-00-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-42

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 4:03:00 PM

CLIENT SAMPLE ID MW-4_092923 WDOE ACCREDITATION: C601

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	290	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	100	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

		ANALYS	
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	95.2	10/10/202
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-43

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/27/2023

CLIENT SAMPLE ID FD-1 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	220	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

ANALYSIS ANALYSIS DATE BY **SURROGATE** %REC **METHOD** C25 NWTPH-DX 115 10/10/2023 DHM CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.

Environmental 🗦



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-44

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:10:00 PM

CLIENT SAMPLE ID EB-1_092723 WDOE ACCREDITATION: C601

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 88.2 10/10/2023				ANALYSI
NWTPH-DX 88.2 10/10/2023	OGATE	METHOD	%REC	DATE
		NWTPH-DX	88.2	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004

EV23100004-45

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023

CLIENT SAMPLE ID FD-2 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

		ANALYSIS	ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	89.2	10/10/2023	DHM
CAS: 620-00-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-46

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **COLLECTION DATE:** 9/29/2023 **CLIENT PROJECT:**

CLIENT SAMPLE ID FD-4 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 93.2 10/10/2023				ANALYSI
NWTPH-DX 93.2 10/10/2023	JRROGATE	METHOD	%REC	DATE
		NWTPH-DX	93.2	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc.

Arcadis U.S., Inc. DATE: 10/16/2023 1420 - 5th Ave , Unit 2400 ALS SDG#: EV23100004

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT: Michelle Nguyen

CLIENT PROJECT: BNSF Skykomish PN 30159457.01

LABORATORY BLANK RESULTS

MB-100623W - Batch 201638 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	10/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	100	10/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

MB-100823W - Batch 201641 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	10/10/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	10/10/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

MB2-100623W - Batch 201639 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	UG/L	50	10/10/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	10/10/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS SDG#: EV23100004

LIMITS

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Michelle Nguyen

CLIENT PROJECT: BNSF Skykomish PN 30159457.01

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 201638 - Water by NWTPH-DX

						ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	95.1		67	125	10/09/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	96.3	1	67	125	10/09/2023	DHM

ALS Test Batch ID: 201639 - Water by NWTPH-DX

				LIM	115	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	92.2		67	125	10/10/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	96.0	4	67	125	10/10/2023	DHM

ALS Test Batch ID: 201641 - Water by NWTPH-DX

				LIN	IITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	99.5		67	125	10/10/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	97.7	2	67	125	10/10/2023	DHM



CLIENT: Arcadis U.S., Inc.

DATE: 10/16/2023

1420 - 5th Ave , Unit 2400

ALS SDG#: EV23100004

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT:

Michelle Nguyen

CLIENT PROJECT:

BNSF Skykomish PN 30159457.01

MATRIX SPIKE RESULTS

ALS Test Batch ID: 201638 - Water
Parent Sample: S2-BU_092923 MS/MSD

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	PARENT SAMPLE RESULT	CALC RESULT*	MIN	LIMITS MAX	RPD	ANALYSIS Date	ANALYSIS BY
TPH-Diesel Range - MS	NWTPH-DX	70NEC	nru	SQ2	493	1000	700 SQ2	67	125	nru	10/09/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	158	5	MS14	500	1000	790 MS14	67	125	15.2	10/09/2023	DHM

Parent Sample: S3-CU_092723 MS/MD

				SPIKE	PARENT SAMPLE	CALC		LIMITS		ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	ADDED	RESULT	RESULT*	MIN	MAX	RPD	DATE	
TPH-Diesel Range - MS	NWTPH-DX	97.0		493	16.0	480	67	125		10/09/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	98.5	1	493	16.0	480	67	125	15.2	10/09/2023	DHM

MS14 - MS/MSD recoveries were above the control limits, due to matrix interference. The associated LCS recoveries and MS/MSD RPD were within the control limits.

SQ2 - Spike outside of control limits due to matrix effect.

*Calc Result = (Sample Result - Parent Sample Result)

APPROVED BY

Rob Greer

Laboratory Director



Everett, WA +1 425 356 2600

Fort Collins, CO +1 970 490 1511

Chain of Custody Form

coc ID: 28909

Houston, TX +1 281 530 5656

Spring City, PA +1 610 948 4903

Middletown, PA +1 717 944 5541

South Charleston, WV+1 304 356 3168 York, PA +1 717 505 5280

EU23100004 Salt Lake City, UT +1 801 266 7700

Hold 7 N ڡ ဘ 1 Parameter/Method Request for Analysis ١ 1 1 I ALS Work Order #: O ഥ ш Ω 210 DXSGA W O × 210 DX W \times × × × × × × × \times × A V O Ш 8 Ω Ш O 工 ALS Project Manager: # Bottles BNSF Skykomish PN 30159457.01 Highlands Ranch CO 80129 invoices_us@arcadis.com Pres, Project Information Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive (303)471-3699Matrix Water Water Water Water 17:5547911 2723 Water 9/27/23 12:30 Water 9123/23 17:25 Water 9/23/23 17:50 Water 128/23 17:55 Water (7:25 Water Suite 600 13:20 9/20123 16:42 9/23/23 14:05 Phone Project Name Bill To Company City/State/Zip e-Mail Address Project Number Invoice Attn Address 2212216 571216 Date Michelle.Nguyen@arcadis.com **Customer Information** Seattle, WA 98101 Sample Description Arcadis U.S., Inc. Michelle Nguyen OWY NOT SAMPL (206) 325-5254 1420 - 5th Ave (206) .32-5.82 527270--092823 GW3_092723 -092823 092823 Unit 2400 GW4 - U92723 10 S1-BU _ 09282 Phone Company Name Send Report To e-Mail Address Purchase Order Address City/State/Zip Work Orde EW-2A S1-AD S1-AU GW-2 EW41

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TRRP Checklist TRRP Level IV

QC Package: (Check One Box Below)

Cooler Temp.

Cooler ID

12:30

10k 23

Received by (Laboratory):

Checked by (Laboratory)

Level III Std QC/Raw Date

X Level II Std QC

Level IV SW846/CLP

9-5035

8-4°C

7-Other

6-NaHSO4

5-Na2S203

4-NaOH

3-H2SO4

2-HNO

1-HCI

Preservative Key:

Date:

Logged by (Laboratory):

Results Due Date:

24 Hour

2 Wk Days

5 Wk Days

X STD 10 WK Days

24

Drope

J.WASON MAY

Johnson

Relinquished by:

Relinquished by:

Sampler(s) Please Print & Sign

1220

10/2/13

Shipment Method

Other

Required Turnaround Time: (Check Box)



Holland, Mi +1 616 399 6070

Everett, WA +1 425 356 2600

Fort Collins, CO +1 970 490 1511

coc ID: 289092 Page 2 of

Chain of Custody Form

Houston, TX +1 281 530 5656

Middletown, PA +1 717 944 5541

South Charleston, WV +1 304 356 3168

17240 BODY Salt Lake City, UT +1 801 266 7700 Spring City, PA +1 610 948 4903

York, PA +1 717 505 5280

													ン	2)	-	
					AL	ALS Project Manager:	Manager:		Ė		AI	ALS Work Order #:	c Orde	ir #:			
	Customer Information	no		Project	Project Information	on				Parar	neter/	Method	Redu	est for	Parameter/Method Request for Analysis	sis	
Purchase Order			Project Name	BNSF	Skykomish	BNSF Skykomish PN 30159457.01	457.01	A 2.	210 DX_W	3							
Work Order			Project Number					В									
Company Name	Arcadis U.S., Inc.		Bill To Company	Arcadi	Arcadis U.S., Inc.			0	210 DXSGA W	GA W						,	
Send Report To	Michelle Nguyen		Invoice Attn	Accon	Accounts Payable	o o		Q		ı							
1	1420 - 5th Ave			630 PI	630 Plaza Drive			Ш									
Address	Unit 2400		Address	Suite 600	200			ш									
City/State/Zip	Seattle, WA 98101		City/State/Zip	Highla	inds Ranch	Highlands Ranch CO 80129	_	U									
Phone	(206) 325-5254		Phone	(303)	(303) 471-3699			エ									
Fax	(206) .32-5.82		Fax					-									
e-Mail Address	Michelle.Nguyen@arcadis.com	arcadis.com	e-Mail Address	invoice	invoices_us@arcadis.com	adis.com		7									
No.	Sample Description		Date	Time	Matrix	Pres.	# Bottles	A	В	O	D E	<u>L</u>	G	I	-	7	Hold
1	042423		9/29/23 1	245	Water	-	_	×							1	2	
	-092923		9/29/23 15	8/8	Water	-	_	×							١	2 =	
3 SZ-BD_0	092923	4	124/23	7	Water	-	_	×							1	2 2	
1	092873451	09 2923 9	128763 TO	1203	Water	-		×							1	1 2	
1	, 222260		9127/23 16:	r.	Water	-		×							,	2	
	-092723		9127/23 16.	50	Water	,-		×								1	
	-092823			30	Water	-		×									
2	092823		9/28/23 10	SHOI	Water	-	_	×							1	2 _	
8 9 S3-CD 0	092723		9/27/23 15	\$55	Water	-	~	×							1	8	
10 S3-CU - 092723		MS/msd	9/27/23 16:	23	Water	-	(5)	×							1	5	
Sampler(s) Please Print & Sign	rint & Sign		Shipment Method	thod	Redni	Required Turnaround Time: (Check Box)	und Time: (C	heck B	ox)	Other			1	Results	Results Due Date:	ë	
hyle Johnson dry	prose		5	#	S S	STD 10 Wk Days		5 Wk Days		2 Wk Days	s/s	Z Z	24 Hour				
Relinquished by:	<	10/2/y	1220	Received by:		> xolaks	N-34	Notes:									
Relinquished by:		Date:	1	ived by (Lab	Received by (Laboratory):	1		Cooler ID	er ID	Cooler Temp.		C Packa	ge: (Che	sck One	QC Package: (Check One Box Below)		
Logged by (Laboratory):		Date:	Time: Chec	Checked by (Laboratory):	oratory):	0						<u>ة</u> ق	Level III Stid QC	Level II Std QC	<u>_</u>	TRRP Checklis	TRRP Checklist
												I	avel III Sta GORAN	1000000	age	7	* 1 1 2 A

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Note:

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Level IV SW846/CLP

9-5035

8-4°C

7-Other

6-NaHSO4

5-Na,S,O3

4-NaOH

3-H,SO

2-HNO3

1-HCI

Preservative Key:



Holland, MI +1 616 399 6070

Everett, WA +1 425 356 2600

Fort Collins, CO +1 970 490 1511

Chain of Custody Form

coc ID: 289091

ALS Project Manager:

Project Information

Customer Information

Purchase Order

Houston, TX +1 281 530 5656

Salt Lake City, UT +1 801 266 7700

Spring City, PA +1 610 948 4903

South Charleston, WV +1 304 356 3168

York, PA +1 717 505 5280

Parameter/Method Request for Analysis

ALS Work Order #:

Middletown, PA +1 717 944 5541

C/12/20000

Hold TRRP Checklist TRRP Level IV 2 1 2/2 2 3 2 7 3 3 F Results Due Date: QC Package: (Check One Box Below) Level III Std QC/Raw Date I Level IV SW846/CLP Level II Std QC U 24 Hour ш X ш Cooler Temp. Ω 2 Wk: Days 210 DXSGA W Other O 210 DX W B Cooler ID Required Turnaround Time: (Check Box) 5 Wk Days A × × \times × × × × × × × O A Ω ш ш O ェ # Bottles 12:30 KUS 12:30 9-5035 BNSF Skykomish PN 30159457.01 X STD 10 WK Days Highlands Ranch CO 80129 8-4°C invoices_us@arcadis.com Pres. Received by Aaboratory): Accounts Payable Arcadis U.S., Inc. 7-Other 630 Plaza Drive (303) 471-3699 Water Water Water Water Water Water Water Checked by (Laboratory): Water Water Water Suite 600 6-NaHSO 09:28 1155 9/26/23 17:00 52:01 13:16 9126/23 15:08 9/27/23 11:37 10:30 Repetived by: o fit 0 Shipment Method Phone e-Mail Address City/State/Zip Project Name Bill To Company Invoice Attn Project Number Address Fax 9/29/23 5-Na2S2O3 aros 9127173 8117113 912713 Time: 120 129 4-NaOH Michelle.Nguyen@arcadis.com 3-H2SO4 Date: Seattle, WA 98101 Sample Description Arcadis U.S., Inc. Michelle Nguyen 2-HNO3 (206) 325-5254 1420 - 5th Ave (206) .32-5.82 220260--092723 -092723 -0926023 092723 s4-cu_092723 042423 -092923 -692727 22 2260-Unit 2400 Sampler(s) Please Print & Sign Johnson 1-HCI Kyle Johnson Ry Logged by (Laboratory): Preservative Key: Company Name Send Report To City/State/Zip Phone Fax e-Mail Address Address Work Order 5-W-16 nguished by: 5-W-14 5-W-18 S4-CD Relinquished by: S4-AD 5-W-17 S4-BD S4-BU S4-AU 29 10 9 4 250 B

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Other



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Chain of Custody Form

coc ID: 289090 Page 4 of

Middletown, PA +1 717 944 5541 Houston, TX +1 281 530 5656

York, PA +1 717 505 5280

Hold

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Bottles

Pres.

Matrix Water Water Water Water Water Water Water

9/28/23 15-30

9128/23 111:05

24-W41_092823

2A-W40 - 09 28 23

24-W3 (5)

-092827

5-11456

8 द्ध ES 20:8123 13:02

4/24/23

9/29/23 (0:30

9/29/23 1240

05:51 22/82/6

invoices_us@arcadis.com

e-Mail Address

Michelle.Nguyen@arcadis.com

Sample Description

092923

5-W-19

5-W65 092923

-092822

Highlands Ranch CO 80129

City/State/Zip

Seattle, VVA 98101

City/State/Zip

(206) 325-5254(206) .32-5.82

Phone

Fax

e-Mail Address

(303)471-3699

Phone

Fax

× × × × × × ×

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133 -34 13,

×

Salt Lake City, UT +1 801 266 7700

Parameter/Method Request for Analysis

210 DX W

X

BNSF Skykomish PN 30159457.01

Project Name

Customer Information

Purchase Order Work Order

Project Information

210_DXSGA_W

O ш ш G I

Accounts Payable Arcadis U.S., Inc.

Bill To Company Invoice Attn

Arcadis U.S., Inc. Michelle Nguyen

Company Name Send Report To 1420 - 5th Ave

Unit 2400

Address

Project Number

630 Plaza Drive

Suite 600

Address

ALS Work Order #:

ALS Project Manager:

Spring City, PA +1 610 948 4903

South Charleston, WV +1 304 356 3168

100000 1721

tal.

		1000000	1							0
27 8 2A-W42 - 0928 23		9/28/23 10	10:	Water	-	٠٠	×			3 6
34 9 1B-W23 - 09 27 23		9127123 17	:30	Water	-	- venue	×			o m
MOT SAMPLED	60			Water	-		×			7
Sampler(s) Please Print & Sign		Shipmer	Shipment Method	Requi	Required Turnaround Time: (Check Box)	d Time: (Cl	neck Box)	Other		Results Due Date:
Kyle Johnson Why Well		6	arro oft	X ST	X STD 10 WK Diays	2	5 Wk Days	2 Wk Days	24 Hour	
Relinquished by: 15hacea	Date; O/VI3 Time:	Time:	Received by:		क्षिति १३:३०		Notes:			
Relinquished by:	Date:	Time: (Beceived by (Laboratory)	oratory):	,		Cooler ID	Cooler Temp.	QC Package: (Ch	QC Package: (Check One Box Below)
			E	Treet o					OC POSITION	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	ratory):					N Telegraph Company	
									Level III Sul GORAW	Level III Suggestion Date
Preservative Key: 1-HCI 2-HNO ₃	3-H ₂ SO ₄ 4-Na	4-NaOH 5-Na ₂ S ₂ O ₃		6-NaHSO ₄ 7-Other	8-4°C	9-5035			Other	
Note: 1. Any changes must be made in writing once samples and COC Form have been	g once samples an	d COC Form have	been submitted t	submitted to ALS Environmental.	nmental.	,			Copy	Copyright 2011 by ALS Environmen
2. UNIESS OTHERWISE BUTTED TOTHING CONTINUE PRIVIDE PRIVIDE PRIVIDES IN A LA MINICONNESSION TIMITED ON LOS MANAGES OF THE CONTINUE OF THE CONT	Confract corvices	Drovided by A L H	avironmental are	overscely lin	ited to the to	and but our	ditions of other	on the morron	0	

3. The Chain of Custody is a legal document. All information must be completed accurately.



Fort Collins, CO +1 970 490 1511 Cincinnati, OH +1 513 733 5336

Everett, WA +1 425 356 2600

Holland, MI +1 616 399 6070

Chain of Custody Form

coc ID: 289089

Houston, TX +1 281 530 5656

York, PA +1 717 505 5280

Salt Lake City, UT +1 801 266 7700 Spring City, PA +1 610 948 4903

South Charleston, WV +1 304 356 3168

N7340000

Middletown, PA +1 717 944 5541

Hold 9/24 39 2 ر ج 7 4 15 テー チ Parameter/Method Request for Analysis とと Results Due Date: QC Package: (Check One Box Below) 3/29 I ALS Work Order #: 200. U 24 Hour ш Proto to ш Cooler Temp. 2Wk Days 210 DXSGA W Other 12101 O 210 DX W m Required Turnaround Time: (Check Box) Cooler ID 5 WK Days Notes: × V × × × Ø O Ш Ω ш 7 O 工 ALS Project Manager: # Bottles 10 John W BNSF Skykomish PN 30159457.01 Highlands Ranch CO 80129 X STD 10 Wk Days 10/2/25 invoices us@arcadis.com Pres. ch 9/26/23 15:00 Water 1,2 Project Information 17 . 40 Walach Accounts Payable Event Arcadis U.S., Inc. 図れた 630 Plaza Drive Water mater rite (303)471-3699eived by (Laboratory): 6:03 Water Water Water Checked by (Laboratory): 127/23 14:45 Water Suite 600 127/23 13:00 2.7 17:10 drop of erved by: Shipment Method Invoice Attn e-Mail Address Project Name Bill To Company City/State/Zip Address Phone Project Number 9/29/23 22/12/16 4/23/23 52/52/ 52/92 4/27/2 2/52/6 Time: 1228 5 Michelle.Nguyen@arcadis.com Customer Information Seattle, WA 98101 Sample Description 202 9260-80-T-05-04262023 09 2423 -092723 Arcadis U.S., Inc. Michelle Nguyen 1420 - 5th Ave (206) 325-5254(206) .32-5.82 2-072723 -092 3 23 092723 22 E260 - O92923 - 09722 Johnson **Unit 2400** Sampler(s) Please Print & Sign Tyle Johnson Wee P-07 Send Report To Company Name Address City/State/Zip Fax Purchase Order Phone e-Mail Address Work Order Relinquished by: FD-101 1C-W-7 1C-W48 5-W-43 MV44

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TRRP Level IV

Level III Std QC/Raw Date

Level II Std QC

Level IV SW846/CLP

9-5035

8-4°C

7-Other

6-NaHSO₄

5-Na2S2O3

4-NaOH

3-H,SO

2-HNO3

1-HCI

Preservative Key:

Date:

Logged by (Laboratory):

100

010

ALS ENVIRONMENTAL Sample Receiving Checklist

Client: Avcadis	ALS Job #: EV 23/00004
Project: BNSF SKykomush PN 3015945	7.01
Received Date: 12 Received Time: 12	
Type of shipping container: Cooler Box	
Shipped via: FedEx Ground UPS Mail FedEx Express	Courier Hand Delivered 🔀
Were custody seals on outside of shipping container? If yes, how many? Where? Custody seal date: Seal name:	Yes No N/A
Was Chain of Custody properly filled out (ink, signed, dated, e	etc.)? <u>V</u>
Did all bottles have labels?	<u>×</u>
Did all bottle labels and tags agree with Chain of Custody?	<u> </u>
Were samples received within hold time?	<u> </u>
Did all bottles arrive in good condition (unbroken, etc.)?	<u>v</u>
Was sufficient amount of sample sent for the tests indicated?	2
Was correct preservation added to samples?	<u> </u>
If no, Sample Control added preservative to the following: Sample Number Reagent Analyte ———————————————————————————————————	
Were VOA vials checked for absence of air bubbles? Bubbles present in sample #:	<u> </u>
Temperature of cooler upon receipt: $\frac{1.3^{\circ}/1.8^{\circ}}{1.00^{\circ}}$ Co	old Cool Ambient N/A
Explain any discrepancies: [.8° 52-Ap wro	agtime 410;
5W-43 + 43 times Manytimes Vary.	
Was client contacted? Who was called?	lossed as AZR
Outcome of call:	



October 24, 2023

Mr. Kyle Haslam Arcadis U.S., Inc. 1420 - 5th Ave , Unit 2400 Seattle, WA 98101

Dear Mr. Haslam,

On October 17th, 2 samples were received by our laboratory and assigned our laboratory project number EV23100095. The project was identified as your 30159457. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer

Laboratory Director



CLIENT: Arcadis U.S., Inc. DATE: 10/24/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100095 Seattle, WA 98101 ALS SAMPLE#: EV23100095-

Seattle, WA 98101 ALS SAMPLE#: EV23100095-01

Kyle Haslam DATE RECEIVED: 10/17/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 10/17/2023 CLIENT PROJECT: 30159457 COLLECTION DATE: 10/17/2023 12:40:00 PM

CLIENT SAMPLE ID GW-1 101723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	150	100	1	UG/L	10/23/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	10/23/2023	DHM
CAS: ARC-TPH-ORO							

SURROGATE	METHOD	%REC	ANALYSIS ANALYSI DATE BY
C25	NWTPH-DX	100	10/23/2023 DHM
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/24/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100095

EV23100095-02

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 10/17/2023 CLIENT PROJECT: 30159457 COLLECTION DATE: 10/17/2023

CLIENT SAMPLE ID DUP-1 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	140	100	1	UG/L	10/23/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	130	100	1	UG/L	10/23/2023	DHM
CAS: ARC-TPH-ORO							
						ΑΝΑΙ VSIS	ΔΝΔΙ ΥΟΙΟ

SURROGATE METHOD %REC

C25 NWTPH-DX 101 10/23/2023 DHM

CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc.

Arcadis U.S., Inc. DATE: 10/24/2023 1420 - 5th Ave , Unit 2400 ALS SDG#: EV23100095

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam CLIENT PROJECT: 30159457

LABORATORY BLANK RESULTS

MB-102023W - Batch 202366 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	ВҮ	
TPH-Diesel Range	NWTPH-DX	U	UG/L	100	10/23/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	10/23/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc.

DATE: 10/24/2023 1420 - 5th Ave, Unit 2400 ALS SDG#: EV23100095

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Kyle Haslam **CLIENT PROJECT:** 30159457

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 202366 - Water by NWTPH-DX

		LIM	ITS	ANALYSIS	ANALYSIS BY		
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	82.2		67	125	10/23/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	84.0	2	67	125	10/23/2023	DHM

APPROVED BY

Rob Greer

Laboratory Director



ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

9
7

ALS Job#

(Laboratory Use Only)

EV23100095

ANALYSIS REQUESTED 470 5th 1470 5th 1
EX by EPA 8260 (water) Junds by EPA 8270 Junds by EPA 8270 Junds by EPA 8081 Bemi-Vol Pest Herbs ERS
ERS 476 747
ERS 420 St.
EX by EPA 82 EX
EX by EF 8260 by EPA (water) unds by cons (PA 8 emi-Vol
E E E E E E E E E E E E E E E E E E E
BT MT FEP AA- S AA- AA-
npour 3260 (3260 (COm Hydro RCi PDNTA
B021 8021 8021 6021 EPA 8 EPA 8 F CC
FEDC by FEDC b
NWT NWT BTEX MTBI Halog Volat EDB Semi Polyc PCB Metal TCLF
1.6w-1-101723 10-17 1240 W 1 X
2. Dir-1 10-13 / 2 X
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6.
7.
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10.
SPECIAL INSTRUCTIONS \mathcal{U}_{i} \mathcal{X}_{i}

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Received By: _____Relinquished By:

robins

10/17/23

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SAME

Specify:

Standard

Organic, Metals & Inorganic Analysis

TURNAROUND REQUESTED in Business Days* ganic Analysis OTHER:

Fuels & Hydrocarbon Analysis

hasin, A realis

Received By:

Relinquished By:

SIGNATURES (Name, Company, Date, Time):

ALS ENVIRONMENTAL Sample Receiving Checklist

Client: Arcadis	ALS Job #: _	evi	2361	N 95
Project: 30159457				
Received Date: 1 Received Time: 15	12	Ву: _	Show	
Type of shipping container: Cooler Box	Other			
Shipped via: FedEx Ground UPS Mail FedEx Express	Courier]	Hand Deli	vered
Were custody seals on outside of shipping container? If yes, how many? Where? Custody seal date: Seal name:	_	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Was Chain of Custody properly filled out (ink, signed, dated,	etc.)?			
Did all bottles have labels?			-	
Did all bottle labels and tags agree with Chain of Custody?				
Were samples received within hold time?				
Did all bottles arrive in good condition (unbroken, etc.)?				
Was sufficient amount of sample sent for the tests indicated?		_	<u> </u>	
Was correct preservation added to samples?				
If no, Sample Control added preservative to the following: Sample Number Reagent Analyte ———————————————————————————————————				
Were VOA vials checked for absence of air bubbles? Bubbles present in sample #:			·····	
Temperature of cooler upon receipt: Micl	Cold Cool	Amb	ient N	'A
Explain any discrepancies:				
Was client contacted? Who was called?			Dat	e:



December 21, 2023

Ms. Michelle Nguyen Arcadis U.S., Inc. 1420 - 5th Ave, Unit 2400 Seattle, WA 98101

Dear Ms. Nguyen,

On December 8th, 35 samples were received by our laboratory and assigned our laboratory project number EV23120075. The project was identified as your BNSF Skykomish 4Q23 GWM. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer

Laboratory Director



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-

Seattle, WA 98101 ALS SAMPLE#: EV23120075-01
Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023
CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:05:00 PM

CLIENT SAMPLE ID GW-1_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							

			ANAI	ANALYSIS ANA		
SURROGATE	METHOD	%REC	D.	ATE		
C25	NWTPH-DX	100	12/12	2/2023		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-02

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:48:00 PM

CLIENT SAMPLE ID GW-2_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	200	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
ROGATE	METHOD	%REC	DATE
	NWTPH-DX	108	12/12/2023
329-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 11:56:00 AM

CLIENT SAMPLE ID GW-3_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS / DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	81	50	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS	ANALY
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	107	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 11:56:00 AM

CLIENT SAMPLE ID GW-3_120623_SG WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX w/SGA	U	50	1	UG/L	12/18/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	12/18/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSI
URROGATE	METHOD	%REC	DATE
	NWTPH-DX w/SGA	116	12/18/2023
629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit..



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-04

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM 12/6/2023 9:06:00 AM **COLLECTION DATE:**

EW-1_120623 WDOE ACCREDITATION: CLIENT SAMPLE ID C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS AN	IALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	107	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-05

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 10:45:00 AM

CLIENT SAMPLE ID EW-2A_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	106	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-06

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

BNSF Skykomish 4Q23 GWM 12/6/2023 2:48:00 PM **CLIENT PROJECT: COLLECTION DATE:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** S1-AD_120623 C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ANAI YSIS

			ANALYSIS AI	ANALTSIS ANALTSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	99.6	12/13/2023	DHM		
CAS: 620-00-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-07

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:00:00 PM

CLIENT SAMPLE ID S1-AU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSI
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	99.6	12/13/2023
CAS: 620-00-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-08

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:21:00 PM

CLIENT SAMPLE ID S1-BD_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANIAL VOIO	ANIAL VOIO

ROGATE METHOD %REC DATE NWTPH-DX 87.4 12/12/2023				ANALYSIS
NWTPH-DX 87.4 12/12/2023	URROGATE	METHOD	%REC	DATE
	25	NWTPH-DX	87.4	12/12/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-09

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:17:00 PM

CLIENT SAMPLE ID S1-BU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	390	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ANAI YSIS

			ANALISIS	J ANAL I SIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	96.3	12/12/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-10

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:56:00 PM

CLIENT SAMPLE ID S2-AD_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	96.9	12/12/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-11

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:57:00 PM

CLIENT SAMPLE ID S2-AU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	500	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO	NWTPH-DX	140	100	4	UG/L	12/12/2023	DHM
TPH-Oil Range CAS: ARC-TPH-ORO	NW IPH-DX	140	100	ı	UG/L	12/12/2023	DUM

			ANALYSIS
RROGATE	METHOD	%REC	DATE
	NWTPH-DX	89.3	12/12/2023
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-12

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 8:55:00 AM

CLIENT SAMPLE ID S2-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

DATE 12/13/2023	
12/13/2023 DH	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-13

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 8:52:00 AM

CLIENT SAMPLE ID S2-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		ANALIGIO	ANALYSIS
FACTOR	UNITS	DATE	BY
1	UG/L	12/13/2023	DHM
4	LIC/I	40/40/2022	DUM
ı	UG/L	12/13/2023	DHM
	FACTOR 1	UNITS	1 UG/L 12/13/2023

			ANALYSIS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	93.8	12/13/2023
AS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-14

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 9:42:00 AM

CLIENT SAMPLE ID S3-AD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range CAS: ARC-TPH-ORO	NWTPH-DX	270	100	1	UG/L	12/13/2023	DHM

			ANALYSIS
RROGATE	METHOD	%REC	DATE
	NWTPH-DX	109	12/13/2023
-99-2			

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-15

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 9:41:00 AM

CLIENT SAMPLE ID S3-AU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANIAL VOIO	ANIAL VOIO

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	91.0	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-16

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:17:00 AM

CLIENT SAMPLE ID S3-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

ANALYSIS
DATE
12/13/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-17

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:14:00 AM

CLIENT SAMPLE ID S3-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	110	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAL VOIC	ANIAL VOIC

			ANAL 1515 /	ANALY
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	89.7	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-18

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:52:00 AM

CLIENT SAMPLE ID S3-CD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	300	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI VSIS	ANAI VSIS

			AITALIOIO	WALIGIO
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	102	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-19

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:48:00 AM

CLIENT SAMPLE ID S3-CU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO	NIME TO A DOC		400			40/40/0000	5
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	103	12/13/2023
CAS: 620-00-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-20

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:05:00 PM

CLIENT SAMPLE ID S4-AD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

		ANALYSIS
METHOD	%REC	DATE
NWTPH-DX	104	12/13/2023
INVV I FII-DX	104	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-21

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 11:52:00 AM

CLIENT SAMPLE ID S4-AU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	260	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALYSIS AN	IALYSIS
	METHOD	%REC	DATE	BY
C25	NWTPH-DX	110	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-22

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:40:00 PM

CLIENT SAMPLE ID S4-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

%REC	ГНОД	ME	
	95.2	NWTPH-DX 95.2	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-23

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:23:00 PM

CLIENT SAMPLE ID S4-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
•							

			ANALYS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	66.4	12/13/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-24

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 1:15:00 PM

CLIENT SAMPLE ID S4-CD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	150	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	150	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO	NWIFIFDA	130	100	'	UG/L	12/13/2023	

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 98.9
 12/13/2023
 DHM

 _ CAS: 629-99-2
 CAS: 629-99-2<

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-25

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 1:01:00 PM

CLIENT SAMPLE ID S4-CU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	330	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	180	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALYSIS A	ANALY
	METHOD	%REC	DATE	BY
C25	NWTPH-DX	90.5	12/13/2023	DHM
CAS: 629-99-2				

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-26

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 8:57:00 AM

CLIENT SAMPLE ID 2A-W-40_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD %F	%REC	DATE
	NWTPH-DX	95.1	12/13/2023
8- 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-27

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:30:00 PM

CLIENT SAMPLE ID 2A-W-41_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	230	50	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	270	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A	NALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	90.0	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-27

REPORTING

DILUTION

ANALYSIS ANALYSIS

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:30:00 PM

CLIENT SAMPLE ID 2A-W-41_120623_SG WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	ВҮ
TPH-Diesel Range	NWTPH-DX w/SGA	55	50	1	UG/L	12/18/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	12/18/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A	WALISI
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX w/SGA	116	12/18/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-28

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 10:33:00 AM

CLIENT SAMPLE ID 2A-W-42_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	170	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	130	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
	NWTPH-DX	73.4	12/13/2023
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-29

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 12:02:00 PM

CLIENT SAMPLE ID 1B-W-23_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

%REC		METHOD
	97.9	

U - Analyte analyzed for but not detected at level above reporting limit.

Environmental 🗦



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-30

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:29:00 PM

CLIENT SAMPLE ID 5-W-43_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ΔΝΔΙ ΥSIS

			ANAL 1919 A	AINAL I SIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	96.8	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 EV23120075-31

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM **CLIENT PROJECT: COLLECTION DATE:** 12/6/2023

WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-1_120623 C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

DATE 12/13/2023				ANALYS	IS
12/13/2023 DH	1	METHOD	%REC	DATE	
12/10/2020 21		NWTPH-DX	85.8	12/13/20	23

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 EV23120075-32

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM 12/6/2023 **CLIENT PROJECT: COLLECTION DATE:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-2_120623 C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	108	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-33

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 CLIENT SAMPLE ID FD-3_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
IRROGATE	METHOD	%REC	DATE
	NWTPH-DX	105	12/13/2023
9-2			

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 ALS SAMPLE#: EV23120075-34

Seattle, WA 98101

Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM **COLLECTION DATE:** 12/7/2023

CLIENT PROJECT: WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-4_120723 C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

)	METHOD	
102	NWTPH-DX 102	
	METHOD NIATOH DV	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-35

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/8/2023 8:00:00 AM

CLIENT SAMPLE ID EB-1_120823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANAL 1919 AN
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	102	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc.

DATE: 12/21/2023 1420 - 5th Ave, Unit 2400 ALS SDG#: EV23120075

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT: Michelle Nguyen

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM

LABORATORY BLANK RESULTS

MB2-121123W - Batch 204702 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS	
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	UG/L	50	12/12/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	UG/L	100	12/12/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

MB3-121123W - Batch 204704 - Water by NWTPH-DX

				REPORTING	ANALYSIS	ANALYSIS
ANALYTE	METHOD	RESULTS	UNITS	LIMITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	50	12/13/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	100	12/13/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS SDG#: EV23120075

Seattle, WA 98101 WDOE ACCREDITATION: C601

CLIENT CONTACT: Michelle Nguyen

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 204702 - Water by NWTPH-DX

				LIM	ITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	93.9		67	125	12/12/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	100	6	67	125	12/12/2023	DHM

ALS Test Batch ID: 204704 - Water by NWTPH-DX

	-			LIM	IITS	ANALYSIS	ANALYSIS BY
SPIKED COMPOUND	METHOD	%REC	RPD QUAL	MIN	MAX	DATE	
TPH-Diesel Range - BS	NWTPH-DX	105		67	125	12/13/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	98.2	7	67	125	12/13/2023	DHM

Environmental 🚂



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave, Unit 2400

ALS SDG#: EV23120075

Seattle, WA 98101

WDOE ACCREDITATION: C601

CLIENT CONTACT:

Michelle Nguyen

CLIENT PROJECT:

BNSF Skykomish 4Q23 GWM

MATRIX SPIKE RESULTS

ALS Test Batch ID: 204702 - Water Parent Sample: S1-AU_120623

SPIKED COMPOUND	METHOD	%REC	RPD QUAL	SPIKE ADDED	PARENT SAMPLE RESULT	CALC RESULT*	MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - MS	NWTPH-DX	99.1		500	34.0	500	67	125		12/13/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	97.5	2	500	34.0	490	67	125	15.2	12/13/2023	DHM

Parent Sample: S3-CD_120723

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	SAMPLE RESULT	CALC RESULT*	MIN	LIMITS Max	RPD	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - MS	NWTPH-DX	85.1			500	48.0	420	67	125		12/13/2023	DHM
TPH-Diesel Range - MSD	NWTPH-DX	103	17	SR1	500	48.0	510 SR1	67	125	15.2	12/13/2023	DHM

DADENT

SR1 - RPD outside of control limits.

*Calc Result = (Sample Result - Parent Sample Result)

APPROVED BY

Rob Greer

Laboratory Director



Everett, WA +1 425 356 2600 Cincinnati, OH +1 513 733 5336 Fort Collins, CO +1 970 490 1511

Holland, MI +1 616 399 6070

Chain of Custody Form

Page

of Q

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Salt Lake City, UT +1 801 266 7700

York, PA +1 717 505 5280

ハこしいこくとして

er _	er	Customer Information		ALS)
Project Number	Project Name			
Skykomish	BNSF Skykomish 4Q23 GWM	Project Information	ALS Project Manager:	coc ID: 289088
В	A 210_DX_W	Parameter/Method Request for Analysis	ALS Work Order #:	EV23120075

					AL	ALS Project Manager:	ager:				-	M ST	ALS Work Order #:	er#:			
		Customer Information		Projec	Project Information	on				Para	meter	/Meth	Parameter/Method Request for Analysis	est fo	r Ana		ılysı
	Purchase Order		Project Name		Skykomist	BNSF Skykomish 4Q23 GWM		A 2	210_DX_W	≥							
*	Work Order		Project Number	Skykomish	omish		В	w									
	Company Name	Arcadis U.S., Inc.	Bill To Company		Arcadis U.S., Inc.	•	C	3.0	10 DX:	210 DXSGA W	_						
	Send Report To	Michelle Nguyen + EMILY FILMUND	NVN Invoice Attn		Accounts Payable	o l	D			ı			=			1	
	Q a a a	1420 - 5th Ave			630 Płaza Drive		ш	111									
	Address	Unit 2400	Address	Suite 600	600		П	- 11									
	City/State/Zip	Seattle, WA 98101	City/State/Zip		Highlands Ranch CO	CO 80129	G	м									
	Phone	(206) 325-5254	Phone		(303) 471-3699	39	I										
	Fax	(206) 325-8218	Fax					_									
	e-Mail Address	S 15	e-Mail Address		invoices_us@arcadis.com	adis.com	ل ا									1	
	No.	Sample Description	Date	Time	Matrix	Pres. #B	Bottles	A	8	C	D	ш	Π Ω	I	_	- 1	-
	1 GW-1_120523	0573	12-05-23	1505	Water	_	_	×									
	2 GW-2 _ 17	_120523	12-05-23	248	Water	-	_	×								- 1	3.4
	3 GW-3 _ 1	120623	12-06-23	1156	Water	+	7	×		×						- 1	-
	4		-		Water	+		×									
_	\$ EW-1_ 12	726623	12-06-23 C	0906	Water	-	-	×								1	-
5	6 EW-2A _ I	_120623	12-06-23 11	1045	Water	+		×								- 1	
6	7 S1-AD 1	_17.0623 MSTMSD	12-06-23	81111	Water	t	-	×									
1	8 S1-AU(120623 MS/MS/MSD	12-156-23	1400	Water	+	ħλ	×									
2	9 S1-BD _1	_120623	12-06-23	122	Water	4	_	×									-
2	10 S1-BU _ h	_ n_0623	12-06-23	4151	Water	+	_	×									
	Sampler(s) Please Print & Sign	Print & Sign	Shipment Method	ethod	Requ	Required Turnaround Time: (Check Box)	Time: (Ch	eck B	ox)	Other	1			Results	Results Due Date:		ate
					×	STD 10 Wk Days	5 W	5 Wk Days		2 Wk Days	ays		24 Hour				
	Relinquished by:	Mm 12/0/23	:30	Received by:	AR ASE	(SE 12/8/23	-	Notes:	9							- 1	
	nemiquismed by:	Date:	Time:	Received by (Laboratory)	oratory):	-		Cooler ID	er ID	Cooler Temp.	Temp.	QC Pa	QC Package: (Check One Box Below)	eck One	Box Be	0	low)
	Logged by (Laboratory):	r): Date:	Time: Che	Checked by (Laboratory):	oratory):							I×	Level III Std QC/Raw Date	QC/Raw	Date		
	Preservative Key:	1-HCI 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH	OH 5-Na ₂ S ₂ O ₃	6-NaHSO ₄	7-Other	8-4°C 9-5	9-5035						Level IV SW846/CLP	/846/CLP		10	
					8						n A	4	Other	STREET, STREET		4	

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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York, PA +1 717 505 5280

COC ID: 289087 ALS Project Manager:

Results Due Date: QC Package: (Check One Box Below) Evel II Std QC/Raw Date Level III Std QC/Raw Date TRRP Checklist Level IV SW848/CLP		Other		Check Box) Wk Days Whotes: Cooler ID	X X Cool	9-5035	Turnaro Wk Days		Mater 1048 Water 1048 Water Meceifed by: (14 poratory): Received by (Laboratory): Checked by (Laboratory): 3 6-NaHSO4 7-0	2-07-73 2-07-73 Shipment Shipment St. 30	PS /MSD (7) Date: Tim 12 / 9 / 12 Tim 12 / 9 / 9 / 9 / 9 / 9 / 9 / 9 / 9 / 9 /	2-HNO.	S3-CU\72723 Sampler(s) Please Print & Sign Relinquished by: Relinquished by: Logged by (Laboratory): Logged by (Laboratory):
					××		7 +	Water Water	h191 12191	12-07-23		_120723 _120723	S3-BD _ 17
					×××		F (-)	Water Water	0252	52-62-51		_120723	
					××		7 1-	Water Water	5580	12-04-73		- 120623	S2-BD S2-BD
F G H I J Hold	т	D	C	В	××	# Bottles	Pres.	Matrix Water	7	Date 7 - Al 2 - 2 - 2	on .	Sample Description 120625	No. S2-AD _ 12
					ے _		adis.com	invoices_us@arcadis.com		e-Mail Address	@arcadis.com	Michelle.Nguyen@arcadis.com	e-Mail Address
					. т			(303) 471-3699		Phone		(206) 325-5254	Phone
					G .		CO 80129	Highlands Ranch CO		City/State/Zip	3	Seattle, WA 98101	City/State/Zip
					п п			630 Plaza Drive Suite 600	*	Address		1420 - 5th Ave Unit 2400	Address
		1	9		D			Accounts Payable		Invoice Attn		Michelle Nguyen	Send Report To
		€	DXSGA W	210 DX	C B			Skykomish Arcadis U.S., Inc.		Project Number Bill To Company		Arcadis U.S., Inc.	Work Order Company Name
			\S	210_DX_W	A 2	Pv1	4.023 GW	BNSF Skykomish 4:Q23 GWM	1	Project Name			Purchase Order
ALS Work Order #: Parameter/Method Request for Analysis	ALS w	rame	P			Manager	ALS Project Manager: ation	ALS Project Information	Projec		ition	Customer Information	
						Ballander	חביים כ	>					

Note:

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Relinquished by: 6 Sampler(s) Please Print & Sign in Logged by (Laboratory): Rélinquished by: e-Mail Address Company Name Send Report To Purchase Order City/State/Zip S4-AU 2A-W-42 _ [20623 \$4-CU S4-CD S4-BU S4-BD 1B-W-23_120623 2A-W-41 2A-W-40 S4-AD _ 120723 Work Order Address Phone Fax -120723 -120723 となるロ 120723 -120623 170753 120623 **Customer Information** Michelle.Nguyen@arcadis.com Seattle, WA 98101 Michelle Nguyen (206) 325-5254 Unit 2400 Arcadis U.S., Inc (206) 325-8218 1420 - 5th Ave Sample Description Date: 12/9/23 Date: 12:30 Time: 12-67-23 12-06-23 12-67-23 12-07-23 12-03-23 12-66-23 12-07-23 12-67-73 けるられ 12-67-73 Bill To Company e-Mail Address **Project Number** City/State/Zip Project Name Shipment Method Invoice Attn Address Phone Received by LL AUSE 12/8/23 Checked by (Laboratory): 1202 0/121 0857 1205 1301 1033 1430 152 1315 1273 Time invoices_us@arcadis.com Highlands Ranch CO 80129 Accounts Payable Project Information (303) 471-3699 Suite 600 630 Plaza Drive Arcadis U.S., Inc Skykomish BNSF Skykomish 4Q23 GWW Water Matrix X STD 10 Wk Days Required Turnaround Time: (Check Box) ALS Project Manager: 4 4 + 1 + T + # Bottles N 5 Wk Days I Ω D 0 T Ш A × × × × × × × × × × D Cooler ID 210_DX_W 210 DXSGA W W × Cooler Temp. Other 0 2 Wk Days Parameter/Method Request for Analysis U ALS Work Order #: ш QC Package: (Check One Box Below Level II Std QC Level III Std QQ/Raw Date 24 Hour П Q Results Due Date: I _ TRRP Checklist TRRP Level IV Hold

0

Note:

Preservative Key:

1-HCI

2-HNO₃

3-H2SO4

4-NaOH

5-Na₂S₂O₃

6-NaHSO₄

7-Other

8-4°C

9-5035

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COC ID: 289085

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Middletown, PA +1 717 944 5541

Spring City, PA +1 610 948 4903

Salt Lake City, UT +1 801 266 7700

Preservative Key: Relinquished by: Relinquished by: Sampler(s) Please Print & Sign Logged by (Laboratory): Company Name e-Mail Address Send Report To Purchase Order City/State/Zip FD3 P FD4 _ 17,0723 FP2 5-W-43 Work Order Address Phone 224021--120623 _120623 Fax - 120523 12082 Customer Information Michelle.Nguyen@arcadis.com Seattle, WA 98101 Michelle Nguyen Arcadis U.S., Inc Unit 2400 1-HCI (206) 325-8218 (206) 325-5254 1420 - 5th Ave Sample Description 2-HNO₃ 3-H2SO4 Date: 4-NaOH Time: 2:30 Time: 12-06-23 2-08-23 12-06-23 12-05-23 1207-23 12-67-23 Bill To Company Project Number e-Mail Address 5-Na₂S₂O₃ City/State/Zip Project Name Shipment Method Invoice Attn Address Phone Checked by (Laboratory): Received by (Laborato) 0800 1579 6-NaHSO₄ Time invoices_us@arcadis.com Accounts Payable Highlands Ranch CO 80129 (303) 471-3699 Suite 600 630 Plaza Drive Arcadis U.S., Inc. Skykomish BNSF Skykomish 4Q23 GWM Project Information Water Water Water Water Water Water Matrix 7-Other Required Turnaround Time: (Check Box) STD 10 Wk Days ALS Project Manager: Pres. 8-4°C 12 82 Hotes 2: 30 # Bottles 5 Wk Days I 9 D _ П Ш 0 A × × × × × _ × A Cooler ID 210 DXSGA W 210 DX W 8 Other Cooler Temp. 2 Wk Days 0 Parameter/Method Request for Analysis O ALS Work Order #: QC Package: (Check One Box Below ш × Level II Std QC Level IV SW848/CLF Level III Std QC/Raw Date 24 Hour Π Ω Results Due Date: I TRRP Level IV TRRP Checkis **C** Hold

Note:

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ALS ENVIRONMENT. Sample Receiving Checklist

EV23120075

Client: Avcadis	ALS Job#	:		_
Project: BNSF Skykamish L	tQZ3 GWM			
Login Date: 12 8 23 Lo	gin Time: \230	Login By:	Se	
Type of Shipping Container: Cooler X	Box Other			
Shipped via: FedEx Ground UF FedEx Express	PS Courier	Hand Delivered \(\)	ALS Courier_	
		Yes	No	<u>N/A</u>
Were custody seals on outside of shippin If yes, how many? WI Custody seal date: Sea	nere?			\searrow
Was Chain of Custody properly filled ou	at (ink, signed, dated, etc.)	? ×		
Did all bottles have labels?		∞		
Did all bottle labels and tags agree with	Chain of Custody?		\bowtie	
Were samples received within hold time	?	\searrow		
Did all bottles arrive in good condition (unbroken, etc.)?	\(\times \)		
Was sufficient amount of sample sent for	the tests indicated?	×		
Was correct preservation added to sampl	es?	\searrow		
Subcontract test containers added to Sub-	contract Bin?	7		\sim
Wetchem test containers marked with rec	quired Tests?	\sim		
Short hold time test containers delivered	to analysts?			\searrow
Were VOA vials checked for absence of	air bubbles?			
Bubbles present in sample #:				7
5035A kits received? # Low Kits: # H	igh Kits:			\swarrow
5035A kits returned? # Low Kits: # H				
Temperature of cooler upon receipt: \.\	$\frac{3.2^{\circ}}{3.2^{\circ}}$ On ice?	\sim		
Temperature of cooler upon receipt: 1.1 Explain any discrepancies: 4, L Techned two FD1, one	00 120623 and	t 120723. lak		12072
as the missing FD3 san	ple.			
Was client contacted? Who		By whom?	Date:	(M)
Outcome of call:		(2)		_

Appendix B

Data Validation Reports



BNSF Skykomish

DATA REVIEW

Skykomish, Washington

Total Petroleum Hydrocarbon (TPH) Analyses

SDG #: EV23040003

Analyses Performed By: ALS Environmental Everett, Washington

Report #: 49616R Project: 30159458.02

1 Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # EV23040003 for samples collected in association with the BNSF Skykomish, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records. Analyses were performed on the following samples:

Occurrie ID	Labib	Madada	Sample Collection	Dament Commits	Analysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	TPH
1C-W-8	EV23040003-01	Water	03/28/2023		Х
5-W-17	EV23040003-02	Water	03/28/2023		Х
5-W-16	EV23040003-03	Water	03/28/2023		Х
5-W-55	EV23040003-04	Water	03/28/2023		Х
1C-W-4	EV23040003-05	Water	03/28/2023		Х
5-W-56	EV23040003-06	Water	03/28/2023		Х
5-W-14	EV23040003-07	Water	03/28/2023		Х
5-W-19	EV23040003-08	Water	03/28/2023		Х
5-W-18	EV23040003-09	Water	03/28/2023		Х
DUP-1	EV23040003-10	Water	03/28/2023	5-W-14	Х
EW-2A	EV23040003-11	Water	03/29/2023		Х
MW-4	EV23040003-12	Water	03/29/2023		Х
EW-1	EV23040003-13	Water	03/29/2023		Х
5-W-43	EV23040003-14	Water	03/29/2023		Х
2-A-W-40	EV23040003-15	Water	03/29/2023		Х
GW-1	EV23040003-16	Water	03/29/2023		Х
GW-3	EV23040003-17	Water	03/29/2023		Х
GW-2	EV23040003-18	Water	03/29/2023		Х
5W-51	EV23040003-19	Water	03/29/2023		Х
1B-W-23	EV23040003-20	Water	03/29/2023		Х
2A-W-9	EV23040003-21	Water	03/29/2023		Х
1C-W-7	EV23040003-22	Water	03/29/2023		Х
2A-W-41	EV23040003-23	Water	03/29/2023		Х
GW-4	EV23040003-24	Water	03/30/2023		Х
S3-CD	EV23040003-25	Water	03/30/2023		Х
S4-CD	EV23040003-26	Water	03/30/2023		Х
S4-AD	EV23040003-27	Water	03/30/2023		Х
S4-BD	EV23040003-28	Water	03/30/2023		Х

			Sample Collection		Analysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	TPH
S3-AD	EV23040003-29	Water	03/30/2023		Х
S1-BU	EV23040003-30	Water	03/30/2023		Х
S4-AU	EV23040003-31	Water	03/30/2023		Х
S1-AU	EV23040003-32	Water	03/30/2023		Х
S3-BD	EV23040003-33	Water	03/30/2023		Х
S4-CU	EV23040003-34	Water	03/30/2023		Х
S3-CU	EV23040003-35	Water	03/30/2023		Х
S4-BU	EV23040003-36	Water	03/30/2023		Х
DUP-2	EV23040003-37	Water	03/29/2023	2-A-W-40	Х
DUP-3	EV23040003-38	Water	03/29/2023	EW-2A	Х
S1-BD	EV23040003-39	Water	03/30/2023		Х
S2-BU	EV23040003-40	Water	03/30/2023		Х
S2-BD	EV23040003-41	Water	03/30/2023		Х
S3-AU	EV23040003-42	Water	03/30/2023		Х
S1-AD	EV23040003-43	Water	03/30/2023		Х
S3-BU	EV23040003-44	Water	03/30/2023		Х
S2-AD	EV23040003-45	Water	03/30/2023		Х
2A-W-42	EV23040003-46	Water	03/30/2023		Х
S2-AU	EV23040003-47	Water	03/30/2023		Х
DUP-4	EV23040003-48	Water	03/30/2023	S3 AU	Х
EQUIPMENT BLANK	EV23040003-49	Water	03/30/2023		Х

2 Analytical Data Package Documentation

The table below is the evaluation of the data package completeness.

Items Reviewed	Re	eported		rmance eptable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		X		X	
2. Requested analyses and sample results		Х		Х	
Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		X		Х	
6. Sample collection date		X		Х	
7. Laboratory sample received date		X		Х	
8. Sample preservation verification (as applicable)		X		Х	
9. Sample preparation/extraction/analysis dates		X		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance (QA) or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

3 Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method NWTPH-DX. Data were reviewed in accordance with USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
- NJ The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

4 Total Petroleum Hydrocarbons (TPH) Analyses

4.1 Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
NWTPH-DX	Water	14 days from collection to extraction and 40 days from extraction to analysis (preserved) 7 days from collection to extraction and 40 days from extraction to analysis (Unpreserved)	Cool to <6 °C

The analyses that exceeded the holding are presented in the following table.

Sample IDs	Holding Time	Criteria
1C-W-8		
5-W-17		
5-W-16		
5-W-55		
1C-W-4		
5-W-56		
5-W-14		
5-W-19		
5-W-18		
DUP-1		
EW-2A		
MW-4		
EW-1	6.4°C	Cool to <6 °C
5-W-43	6.4 C	C001 10 < 6 C
2-A-W-40		
GW-1		
GW-3		
GW-2		
5W-51		
1B-W-23		
2A-W-9		
1C-W-7		
2A-W-41		
GW-4		
S3-CD		
S4-CD		

Sample IDs	Holding Time	Criteria
S4-AD		
S4-BD		
S3-AD		
S1-BU		
S4-AU		
S1-AU		
S3-BD		
S4-CU		
S3-CU		
S4-BU		
DUP-2		
DUP-3		
S1-BD		
S2-BU		
S2-BD		
S3-AU		
S1-AD		
S3-BU		
S2-AD		
2A-W-42		
S2-AU		
DUP-4		
EQUIPMENT BLANK		

Sample results associated with sample locations analyzed by analytical method NWTPH-DX were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification							
Criteria	Detected Analytes	Non-detect Analytes						
Analysis completed past holding time	J	UJ						

4.2 Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

Target compounds were not detected above the RL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

4.3 Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits with the exceptions noted below.

Sample IDs	Surrogate	Recovery
EW-2A	C25	> UL
GW-1	G25	7 UL

Note:

UL Upper control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
> UL	Detect	J
< LL but > 10%	Non-detect	UJ
CLL Dut > 10%	Detect	J
< 10%	Non-detect	R
1070	Detect	J
Surrogates diluted below the calibration curve due to the high	Non-detect	UJ ¹
concentration of a target compounds	Detect	J ¹

Note:

4.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

MS/MSD analysis was performed on a sample S4-AU. MS/MSD analysis exhibited recoveries and RPDs within the control limits.

4.5 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPD between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

4.6 Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
5-W-14 / DUP-1	All compounds	U	U	AC
2-A-W-40 / DUP-2	TPH-Oil Range	280	330	AC
EW-2A / DUP-3	All compounds	U	U	AC
S3-AU / DUP-4	TPH-Diesel Range	160	170	AC

Note:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

4.7 Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

49616R_EV23040003

4.8 System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for Total Petroleum Hydrocarbon (TPH)

TPH: NWTPH-DX	Rep	orted	Perfor Acce	Not	
	No	Yes	No	Yes	Required
Gas Chromatography/Flame- and Photo- Ionization De	etectors (GC/F	ID/PID)			
Tier II Validation					
Holding Times/Preservation		X	X		
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Trip Blanks	X				Х
C. Equipment Blanks		X		X	
Surrogates Accuracy (%R)		Х	Х		
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		Х		Х	
Laboratory Duplicate Sample RPD	Х				X
Field Duplicate Sample RPD		Х		Х	
Dilution Factor		Х		Х	
Moisture Content	X				Х

Notes:

%R - percent recovery RPD - relative percent difference

Validation Performed By: Hareesha Naik

Signature: Halin L

Date: May 09, 2023

Peer Review: Jennifer Singer

Date: May 9, 2023

EV23040003

Company Name Aug.				Billing Infort	illing Information:					An	alvsis /	Containe	or / Preserva	ative			Chain of Custod	y Page 🛂 of 🏒	
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James O'Connell/Sydney Clark K	YLE H	<i>ASE</i>	W	Sydney.Clar	k@arcadis.com;	Amanda.Bowr	ng@a	Jo		E I							12065 Lebanon Rd M Submitting a sample v	ount Juliet, TN 37122 ia this chain of custody	
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EV23040003 Company Name/Address: Billing Information: Analysis / Container / Preservative Chain of Custody Arcadis - Chevron - WA. Pres Attn: Accounts Payable Chk 40mlAmb/MéOH10ml/8yr 630 Plaza Dr., Ste. 600 1100 Olive Way Highlands Ranch, CO 80129 Suite 800 Seattle. WA 98101 Report to: MT JULIET, TN Email To: James O'Connell/Sydney Clark Sydney.Clark@arcadis.com;Amanda.Bowning@a 12065 Lebanon Rd Mount Juliet, TN 37122 WWTPHGX 40mlAmb/MeOH10ml/Syr Submitting a sample via this chain of custody Project Description: City/State constitutes acknowledgment and acceptance of the Please Circle: NWTPHDX no silica 8ozCir-NoPres SS Pace Terms and Conditions found at: 200410___ Collected: PT MT CT ET Total Lead 6010 8ozClr-NoPres Client Project # Lab Project# Phone: 206-325-5254 SDG# EU23040003 30063829.25.21 CHEVARCWA-200410 DUST SKY KOND 8260D Collected by (print): Site/Facility ID# Table # P.O. # 15510 AURORA AVE N Acctnum: CHEVARCWA Collected by (signature): EDC Quote# Rush? (Lab MUST Be Notified) Template:T220745 Same Day _____ Five Day Prelogin: **P967072** 3TEXM, EDB, ____ Next Day ____ 5 Day (Rad Only) Date Results Needed PM: 110 - Brian Ford Immediately Two Day 10 Day (Rad Only) No. Packed on ice N _____Y __ Three Day PB: Shipped Via: Sample ID Cntrs Comp/Grab Matrix * Depth Date Time Sample # (lab only) EW- 2A 3-29-23 G 59 6W 1702 1015 MW-4 <u>\$</u>Ş. × EW-1 ક્ક (27.1) \times 5-W- 43 35 1250 2-A-W-40 55 1445 × 6W-1 1210 SS \rightarrow 6W-3 <u>.</u>\$\$-1700 61W-2 1345 .SS × 5W-51 ક્ક 1300 19 55~ × 1B-W-23 535 Remarks: Matrix: Sample Receipt Checklist Temp_ SS - Soil AIR - Air F - Filter COC Seal Present/Intact: NP Y COC Signed/Accurate: **GW** - Groundwater B - Bioassay Bottles arrive intact: WW - WasteWater Other Correct bottles used: DW - Drinking Water Sufficient volume sent: Samples returned via: OT - Other Tracking # If Applicable UPS FedEx Courier VOA Zero Headsbace: Relinquished by : (Signature) Received by: (Signature) Preservation Correct/Checked: Time: Trip Blank Received: Yes / No RAD Screen <0.5 mR/hr: HCL / MeoH 3-31-23 15-20 TBR Relinquished by: (Signature) eceived by: (Signature) Pottles Received: If preservation required by Login: Date/Time

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Suite 800	Highlands Ranch, CO 80129									i					PEOPLE	ADVANCING SCIENCE
Seattle. WA 98101										·						
Report to:			Email To:		***************************************	***************************************	1 품								JL TM	JLIET, TN
James O'Connell/Sydney Clark			Sydney.Cla	rk@arcadis.com,	manda.BoW	ring@a	VeO.		=		U				12065 Lebanon Rd Mo Submitting a sample via	
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EV23040003

Company Name/Address:							Ar	alvsis /	Contain	er / Pre	servativ	re .		······································	Chain of Custody	Page 4 of 6			
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James O'Connell/Sydney Clark	•			Sydney Cla	rk@arcadis.co	m;Amanda.Bow	ring@a	Je (¥								12065 Lebanon Rd Mou Submitting a sample via	
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EV23040003 Company Name/Address: Billing Information: Analysis / Container / Preservative Page 5 of 6 Arcadis - Chevron - WA Pres Attn: Accounts Payable Chk BTEXM, EDB, EDC 8260D 40mlAmb/MeOH10ml/8yr 630 Plaza Dr., Ste. 600 1100 Olive Way Highlands Ranch, CO 80129 Suite 800 Seattle. WA 98101 Report to: Email To: MT JULIET, TN James O'Connell/Sydney Clark Sydney.Clark@arcadis.com;Amanda.Bowring@a 12065 Lebanon Rd Mount Juliet, TN 37122 NWTPHGX 40mlAmb/MeOH10ml/Syr Submitting a sample via this chain of custody Project Description: constitutes acknowledgment and acceptance of the City/State Please Circle: 802Clr-NoPres Pace Terms and Conditions found at: 200410____ Collected: PT MT CT ET Total Lead 6010 8ozClr-NoPres Client Project # Lab Project # Phone: 206-325-5254 30063829.25.21 CHEVARCWA-280410 SDG# BNSF SKYKOWSN Collected by (print): Site/Facility ID# Table# P.O. # 15510 AURORA AVE N NWTPHDX no silica Acctnum: CHEVARCWA Collected by (signature): Quote# Rush? (Lab MUST Be Notified) Template:**T220745** Same Day _____ Five Day Prelogin: **P967072** Next Day _____ 5 Day (Rad Only) Date Results Needed PM: 110 - Brian Ford Immediately _Two Day _____10 Day (Rad Only) No. Packed on Ice N____Y__ Three Day . PB: Shipped Via: Sample ID Comp/Grab Matrix * Depth Date Time Remarks Sample # (lab only) 6N-55-51- BU 330-23 1205 NOT RECEIRED - BD SS- \times 1120 52- BU _SS_ \gg 52- BD 1907 £\$-× 53 - AU SS-1356 51 - AD 35 1126 53- BU 55 1321 SZ-AD SS 0905 2A-W-42 1818 55 \nearrow SS 52 - AU Matrix: Remarks: Sample Receipt Checklist SS - Soil AIR - Air F - Filter STO TAT ____ Temp COC Seal Present/Intact: NP Y GW - Groundwater B - Bioassay COC Signed/Accurate: Bottles arrive intact: WW - WasteWater Other Correct bottles used: DW - Drinking Water Sufficient volume sent: Samples returned via: OT - Other Tracking # If Applicable UPS ___ FedEx ___ Courier VOA Zero Headspace: Preservation Correct/Checked: Relinquished by : (Signature) Date: Time: Received by: (Signature) Trip Blank Received: Yes / No RAD Screen <0.5 mR/hr: HCL/ MeoH 3-31-23 15-20 TBR Relinquished by : (Signature) Date: Time: Bottles Received: If preservation required by Login: Date/Time Relinquished by: (Signature) Date: Time: Received for lab by: (Signature) Date: Hold: Time: Condition: NCF / OK

EV23040003

Company Name/Address:			Billing Infor	mation:					Δι	alvsis /	Contain	<u>er / Preservati</u>	re .		-	Chain of Custody	Page 6 of 6
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Phone: 206-325-5254	Client Project			Lab Project #	***************************************		A	<u>a</u>	110	2							
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CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-

Seattle, WA 98101 ALS SAMPLE#: EV23040003-01 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 9:45:00 AM

CLIENT SAMPLE ID 1C-W-8 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	V UJ	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	J.	100	1	UG/L	04/07/2023	DHM
		•				ANAI YSIS	ΔΝΔΙ ΥSIS

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 103
 04/07/2023
 DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-02

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 9:50:00 AM

CLIENT SAMPLE ID 5-W-17 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ \ ,,,	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	1 1 03	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	116				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-03

04/07/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 11:15:00 AM

CLIENT SAMPLE ID 5-W-16 WDOE ACCREDITATION: C601

100

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ\υJ	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	1 1 03	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-

Seattle, WA 98101 ALS SAMPLE#: EV23040003-04

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 4:10:00 PM

CLIENT SAMPLE ID 5-W-55 WDOE ACCREDITATION: C601

METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
NWTPH-DX	V UJ	100	1	UG/L	04/07/2023	DHM	
NWTPH-DX	⊎ ₩	100	1	UG/L	04/07/2023	DHM	
METHOD	%RFC				ANALYSIS A	ANALYSIS BY	
					04/07/2023	DHM	
	NWTPH-DX	NWTPH-DX NWTPH-DX METHOD %REC	METHOD RESULTS LIMITS NWTPH-DX UJ 100 NWTPH-DX 100	METHOD RESULTS LIMITS FACTOR NWTPH-DX UJ 100 1 NWTPH-DX 100 1 METHOD %REC	METHOD RESULTS LIMITS FACTOR UNITS NWTPH-DX UJ 100 1 UG/L NWTPH-DX 100 1 UG/L METHOD %REC	METHOD NWTPH-DX NWTPH-DX NWTPH-DX UNITS UDJ DATE UNITS UNITS UG/L 04/07/2023 NWTPH-DX NWTPH-DX NWTPH-DX NWTPH-DX NRTPH-DX NRTP	METHOD NWTPH-DX NWTPH-DX LIMITS UNITS UNITS UNITS UNITS UNITS UNITS UG/L 04/07/2023 DHM NWTPH-DX 100 1 UG/L 04/07/2023 DHM METHOD %REC ANALYSIS DATE BY

U - Analyte analyzed for but not detected at level above reporting limit..



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-05

Seattle, WA 98101 ALS SAMPLE#: EV23040003-05 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 11:00:00 AM

CLIENT SAMPLE ID 1C-W-4 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		C/ tivii LL	BATTATALOGETO				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	100 J	100	1	UG/L	04/07/2023	DHM
TPH-Oil Range	NWTPH-DX	X UJ	100	1	UG/L	04/07/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	104				04/07/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

Seattle, WA 98101 ALS SAMPLE#: EV23040003-06 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 4:05:00 PM

CLIENT SAMPLE ID 5-W-56 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	2800	500	5	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	1800	500	5	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

 C25 5X Dilution
 NWTPH-DX
 87.6
 04/09/2023
 DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-0

04/08/2023

DHM

Seattle, WA 98101 ALS SAMPLE#: EV23040003-07 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 12:40:00 PM

CLIENT SAMPLE ID 5-W-14 WDOE ACCREDITATION: C601

99.6

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ ,,,	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	∫ ∪ı	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-0

04/08/2023

DHM

Seattle, WA 98101 ALS SAMPLE#: EV23040003-08

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 2:08:00 PM

CLIENT SAMPLE ID 5-W-19 WDOE ACCREDITATION: C601

109

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	Y I UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	ψ 🗸 👸	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

04/08/2023

DHM

 Seattle, WA 98101
 ALS SAMPLE#:
 EV23040003-09

 Kyle Haslam
 DATE RECEIVED:
 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023 3:10:00 PM

CLIENT SAMPLE ID 5-W-18 WDOE ACCREDITATION: C601

106

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	ΨluJ	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	1 1 23	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	

U - Analyte analyzed for but not detected at level above reporting limit

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-10

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/28/2023

CLIENT SAMPLE ID DUP-1 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Y \ UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	1 1	100	1	UG/L	04/08/2023	DHM
						ANALYSIS	ANALYSIS

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 107
 04/08/2023
 DHM

U - Analyte analyzed for but not detected at level above reporting limit.



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-11

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 5:02:00 PM

CLIENT SAMPLE ID EW-2A WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ\UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	U √ 33	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

SUR01 -One or more surrogate recoveries were above the upper control limits. The sample results may be biased high. U - Analyte analyzed for but not detected at level above reporting limit.

150 SUR01

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

 Seattle, WA 98101
 ALS SAMPLE#:
 EV23040003-12

 Kyle Haslam
 DATE RECEIVED:
 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 10:15:00 AM

CLIENT SAMPLE ID MW-4 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	140 ၂	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	160	100	1	UG/L	04/08/2023	DHM
						ANALYSIS A	ANALYSIS BY
SURROGATE	METHOD	%REC				DAIL	ы
C25	NWTPH-DX	105				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and light oil. Diesel range product results biased high due to oil range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-13

04/08/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 12:20:00 PM

CLIENT SAMPLE ID EW-1 WDOE ACCREDITATION: C601

110

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ\ υJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	11 00	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit..

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-14

Seattle, WA 98101 ALS SAMPLE#: EV2304000 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 12:50:00 PM

CLIENT SAMPLE ID 5-W-43 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	رں ا ا	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX		100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	111				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-15

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 2:45:00 PM

CLIENT SAMPLE ID 2-A-W-40 WDOE ACCREDITATION: C601

		O7 11111 EE	D/ (I/ (I/LEGGE I G				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	~L UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	280 J	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	106				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains weathered lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-16

> > 04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT:

BNSF Skykomish CLIENT PROJECT: COLLECTION DATE: 3/29/2023 12:10:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: GW-1 C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	41 00	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25

161 SUR01

SUR01 -One or more surrogate recoveries were above the upper control limits. The sample results may be biased high.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-17

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 5:00:00 PM

CLIENT SAMPLE ID GW-3 WDOE ACCREDITATION: C601

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX w/ SGA	160 J	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX w/ SGA	X UJ	100	1	UG/L	04/09/2023	DHM
TPH-Diesel Range	NWTPH-DX	490	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	140 🗸	100	1	UG/L	04/08/2023	DHM

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX w/ SGA	105	04/09/2023
C25	NWTPH-DX	106	04/08/2023

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product.

Oil range product results biased high due to diesel range product overlap.



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-18

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 1:45:00 PM

CLIENT SAMPLE ID GW-2 WDOE ACCREDITATION: C601

106

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	4 \ UJ	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	ψ V	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

04/08/2023

DHM

 Seattle, WA 98101
 ALS SAMPLE#:
 EV23040003-19

 Kyle Haslam
 DATE RECEIVED:
 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 1:00:00 PM

CLIENT SAMPLE ID 5W-51 WDOE ACCREDITATION: C601

95.7

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	270	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

Chromatogram indicates that it is likely that sample contains highly weathered an unidentified diesel range product and an unidentified oil range product

Oil range product results biased high due to diesel range product overlap.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-20

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 3:35:00 PM

CLIENT SAMPLE ID 1B-W-23 WDOE ACCREDITATION: C601

95.1

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	Ψ \ UJ	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	1 V 33	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-21

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 11:55:00 AM

CLIENT SAMPLE ID 2A-W-9 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	350	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	220 🗸	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	91.9				04/08/2023	DHM

Chromatogram indicates that it is likely that sample contains highly weathered diesel and lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-22

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: BNSF Skykomish COLLECTION DATE: 3/29/2023 2:10:00 PM **CLIENT PROJECT:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** 1C-W-7 C601

SAMPLE DATA RESULTS

		O/ (IVII EE	BATTAINEGGETG				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	100 J	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	# UJ	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS By
C25	NWTPH-DX	89.9				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-23

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 4:00:00 PM

CLIENT SAMPLE ID 2A-W-41 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX w/ SGA	110 J	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX w/ SGA	₩ UJ	100	1	UG/L	04/09/2023	DHM	
TPH-Diesel Range	NWTPH-DX	310 <mark>J</mark>	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	#\UJ	100	1	UG/L	04/08/2023	DHM	

			ANALYS
SURROGATE	METHOD	%REC	DATE
25	NWTPH-DX w/ SGA	91.1	04/09/202
C25	NWTPH-DX	92.9	04/08/2023

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains highly weathered diesel.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-24

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 5:50:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: GW-4 C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ΨΙυJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	1 1 02	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	92.1				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-25

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 2:49:00 PM

CLIENT SAMPLE ID S3-CD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ΨΙυJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	11	100	1	UG/L	04/08/2023	DHM
						ANALYSIS A	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	88.6				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-26

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 4:55:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: S4-CD C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ υ <u>J</u>	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	↓↓ 55	100	1	UG/L	04/08/2023	DHM
						ANALYSIS A	ANALYSIS

SURROGATE %REC **METHOD** C25 NWTPH-DX 90.9 04/08/2023 DHM

U - Analyte analyzed for but not detected at level above reporting limit.



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-27

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 3:49:00 PM

CLIENT SAMPLE ID S4-AD WDOE ACCREDITATION: C601

94.2

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	4 UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	<u> </u>	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-28

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023 4:24:00 PM

CLIENT SAMPLE ID S4-BD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By	
TPH-Diesel Range	NWTPH-DX	γUJ	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	⊌ 🗸	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	95.2				04/08/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-29

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:16:00 PM

CLIENT SAMPLE ID S3-AD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ų ∪J	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	J 🗸	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	91.4				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-30

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 12:05:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: S1-BU C601

94.0

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Y I UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	1 V 03	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-31

04/08/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 3:50:00 PM

CLIENT SAMPLE ID S4-AU WDOE ACCREDITATION: C601

80.4

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	Ψ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	υ ψ	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-32

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 12:35:00 PM

CLIENT SAMPLE ID S1-AU WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	υψ	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	92.7				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-33

04/08/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:55:00 PM

CLIENT SAMPLE ID S3-BD WDOE ACCREDITATION: C601

95.3

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ΨΙUJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	ΨΨ ⁰³	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-34

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 5:00:00 PM

CLIENT SAMPLE ID WDOE ACCREDITATION: S4-CU C601

		O,	2711711120210				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	130 J	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	# UJ	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS ANALYSIS DATE BY	
C25	NWTPH-DX	93.0				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-35

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 2:48:00 PM

CLIENT SAMPLE ID S3-CU WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ΨΙυJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	↓ ↓ ~ ~ ~	100	1	UG/L	04/08/2023	DHM
CURROCATE	METHOD	0/ DEC				ANALYSIS A	ANALYSIS BY

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 90.7
 04/08/2023
 DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-36

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 4:30:00 PM

CLIENT SAMPLE ID S4-BU WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS	3
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	Ψ ,,,	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	1 V 03	100	1	UG/L	04/08/2023	DHM	

 SURROGATE
 METHOD
 %REC
 ANALYSIS ANALYSIS DATE
 BY

 C25
 NWTPH-DX
 93.1
 04/08/2023
 DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-37

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023

CLIENT SAMPLE ID DUP-2 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		O/ tivii EE	DITTITUTE				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	₩ UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	330 J	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS By
C25	NWTPH-DX	101				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains weathered lube oil.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003

EV23040003-38

04/08/2023

DHM

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023
CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/29/2023

CLIENT SAMPLE ID DUP-3 WDOE ACCREDITATION: C601

96.9

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Y I UJ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	1 1 23	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-39

04/08/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 11:20:00 AM

CLIENT SAMPLE ID S1-BD WDOE ACCREDITATION: C601

101

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	ΨΙUJ	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	l V	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-4

 Seattle, WA 98101
 ALS SAMPLE#:
 EV23040003-40

 Kyle Haslam
 DATE RECEIVED:
 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:55:00 AM

CLIENT SAMPLE ID S2-BU WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	360	100	1	UG/L	04/08/2023	DHM	
TPH-Oil Range	NWTPH-DX	110 🗸 🥉	100	1	UG/L	04/08/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	91.4				04/08/2023	DHM	

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-41

04/08/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:07:00 AM

CLIENT SAMPLE ID S2-BD WDOE ACCREDITATION: C601

94.5

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	n nn	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-42

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:56:00 PM

CLIENT SAMPLE ID S3-AU WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		0, 22	27117111200210				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	160 J	100	1	UG/L	04/08/2023	DHM
TPH-Oil Range	NWTPH-DX	₩ UJ	100	1	UG/L	04/08/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	98.7				04/08/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-43

04/09/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 11:26:00 AM

CLIENT SAMPLE ID S1-AD WDOE ACCREDITATION: C601

100

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	↓↓ UJ	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-44

Seattle, WA 98101 ALS SAMPLE#: EV2304000 Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:21:00 PM

CLIENT SAMPLE ID S3-BU WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	Ų UJ	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX	J V	100	1	UG/L	04/09/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	93.0				04/09/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-45

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:05:00 AM

CLIENT SAMPLE ID S2-AD WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ΨΙυJ	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	ψ Ψ ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	100	1	UG/L	04/09/2023	DHM
						ANALYSIS A	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	93.8				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-46

04/09/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 6:18:00 PM

CLIENT SAMPLE ID 2A-W-42 WDOE ACCREDITATION: C601

96.9

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	Ψ Ι	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	↓ ↓ UJ	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT CONTACT:

C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-47

04/09/2023

DHM

Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 9:45:00 AM

CLIENT SAMPLE ID S2-AU WDOE ACCREDITATION: C601

96.1

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	¥ 1	100	1	UG/L	04/09/2023	DHM	
TPH-Oil Range	NWTPH-DX	1 1 02	100	1	UG/L	04/09/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23040003

Seattle, WA 98101 ALS SAMPLE#:

EV23040003-48 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 03/31/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 3/30/2023

WDOE ACCREDITATION: **CLIENT SAMPLE ID** DUP-4 C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	170 J	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	U UJ	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.7				04/09/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 4/12/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23040003 Seattle, WA 98101 ALS SAMPLE#: EV23040003-49

04/09/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 03/31/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 3/30/2023 1:00:00 PM

CLIENT SAMPLE ID EQUIPMENT BLANK WDOE ACCREDITATION: C601

92.9

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	ΨΙυJ	100	1	UG/L	04/09/2023	DHM
TPH-Oil Range	NWTPH-DX	↓ ↓ ~ ~ ~	100	1	UG/L	04/09/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



BNSF Skykomish

DATA REVIEW

Skykomish, Washington

Total Petroleum Hydrocarbon (TPH) Analyses

SDG #: EV23060093

Analyses Performed By: ALS Environmental Everett, Washington

Report #: 52031R Project: 30159458.02

1 Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # EV23060093 for samples collected in association with the BNSF Skykomish, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records. Analyses were performed on the following samples:

Commis ID	Lab ID	Madeire	Sample Collection	Down t Commis	Analysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	TPH
GW-1_06152023	EV23060093-01	Water	06/15/2023		Х
GW-2_06142023	EV23060093-02	Water	06/14/2023		Х
GW-3_06142023	EV23060093-03	Water	06/14/2023		Х
GW-4_06142023	EV23060093-04	Water	06/14/2023		Х
EW-1_06142023	EV23060093-05	Water	06/14/2023		Х
EW-2A_06152023	EV23060093-06	Water	06/15/2023		Х
S1-AD_06142023	EV23060093-07	Water	06/14/2023		Х
S1-AU_06142023	EV23060093-08	Water	06/14/2023		Х
S1-BD_06152023	EV23060093-09	Water	06/15/2023		Х
S1-BU_06152023	EV23060093-10	Water	06/15/2023		Х
S2-AD_06142023	EV23060093-11	Water	06/14/2023		Х
S2-AU_06142023	EV23060093-12	Water	06/14/2023		Х
S2-BD_06152023	EV23060093-13	Water	06/15/2023		Х
S2-BU_06152023	EV23060093-14	Water	06/15/2023		Х
S3-AD_06152023	EV23060093-15	Water	06/15/2023		Х
S3-AU_06152023	EV23060093-16	Water	06/15/2023		Х
S3-BD_06152023	EV23060093-17	Water	06/15/2023		Х
S3-BU_06152023	EV23060093-18	Water	06/15/2023		Х
S3-CD_06152023	EV23060093-19	Water	06/15/2023		Х
S3-CU_06152023	EV23060093-20	Water	06/15/2023		Х
S4-AD_06152023	EV23060093-21	Water	06/15/2023		Х
S4-AU_06152023	EV23060093-22	Water	06/15/2023		Х
S4-BD_06152023	EV23060093-23	Water	06/15/2023		Х
S4-BU_06152023	EV23060093-24	Water	06/15/2023		Х
S4-CD_06152023	EV23060093-25	Water	06/15/2023		Х
S4-CU_06152023	EV23060093-26	Water	06/15/2023		Х
2A-W-40_06142023	EV23060093-27	Water	06/14/2023		Х
2A-W-41_06142023	EV23060093-28	Water	06/14/2023		Х

Comple ID	Lab ID	Matrix	Sample Collection	Doront Comple	Analysis
Sample ID	Labib	Watrix	Date	Parent Sample	ТРН
2A-W-42_06142023	EV23060093-29	Water	06/14/2023		Х
1B-W-23_06152023	EV23060093-30	Water	06/15/2023		X
5-W-43_06142023	EV23060093-31	Water	06/14/2023		X
EB_06152023	EV23060093-32	Water	06/15/2023		X
FD-1_06142023	EV23060093-33	Water	06/14/2023	2A-W-40_06142023	X
FD-2_06152023	EV23060093-34	Water	06/15/2023	S2-BD_06152023	X
FD-3_06152023	EV23060093-35	Water	06/15/2023	S3-BU_06152023	Х

Note:

TPH = Total Petroleum Hydrocarbons

2 Analytical Data Package Documentation

The table below is the evaluation of the data package completeness.

Items Reviewed	Re	eported		rmance eptable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		X		X	
2. Requested analyses and sample results		Х		Х	
3. Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		X		Х	
6. Sample collection date		Х		Х	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
9. Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance (QA) or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

52031R_EV23060093

3 Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method NWTPH-DX. Data were reviewed in accordance with USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

4 Total Petroleum Hydrocarbons (TPH) Analyses

4.1 Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
NWTPH-DX	Water	14 days from collection to extraction and 40 days from extraction to analysis (preserved) 7 days from collection to extraction and 40 days from extraction to analysis (Unpreserved)	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

4.2 Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the reporting limit (RL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the RL, with the exception of the compounds listed in the following table. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
GW-3_06142023			
S1-AU_06142023			
S1-BD_06152023			
S2-BU_06152023	TPH-Oil Range (EB)	Detected sample results >RL and <bai< td=""><td>"UB" at detected sample concentration</td></bai<>	"UB" at detected sample concentration
2A-W-40_06142023		NDAL	Concentration
2A-W-41_06142023			
FD-1_06142023			

Notes:

RL = reporting limit EB = equipment blank

4.3 Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

MS/MSD analysis was performed on a samples S3-BD_06152023 and 2A-W-42_06142023. MS/MSD analysis exhibited recoveries and RPDs within the control limits.

4.5 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPD between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

4.6 Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
2A-W-40_06142023 / FD-1_06142023	All compounds	U	U	AC
S2-BD_06152023 / FD-2_06152023	All compounds	U	U	AC

Sample ID/Duplicate ID	Compound	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
S3-BU_06152023 / FD-3_06152023	All compounds	U	U	AC

Notes:

AC = acceptable

U = non-detect

The calculated RPDs between the parent sample and field duplicate were acceptable.

4.7 Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

4.8 System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for Total Petroleum Hydrocarbon (TPH)

TPH: NWTPH-DX	Repo	orted	Perfor Accep		Not
	No	Yes	No	Yes	Required
Gas Chromatography/Flame- and Photo- Ionization De	etectors (GC/F	ID/PID)			
Tier II Validation					
Holding Times/Preservation		Х		Х	
Reporting Limits (Units)		Х		Х	
Blanks			·	· · · · · · · · · · · · · · · · · · ·	
A. Method Blanks		Х		Х	
B. Trip Blanks	X				Х
C. Equipment Blanks		Х	Х		
Surrogates Accuracy (%R)		Х		Х	
Matrix Spike (MS) %R		Х		Х	
Matrix Spike Duplicate (MSD) %R		Х		Х	
MS/MSD Precision (RPD)		Х		Х	
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х	
LCS/LCSD RPD		Х		Х	
Laboratory Duplicate Sample RPD	X				Х
Field Duplicate Sample RPD		Х		Х	
Dilution Factor		Х		Х	
Moisture Content	Х				Х

Notes:

%R - percent recovery RPD - relative percent difference

52031R_EV23060093 9 Validation Performed By: Hareesha Naik

Signature: Halin

Date: November 29, 2023

Peer Review: Jennifer Singer

Date: November 29, 2023



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York, PA +1 717 505 5280

coc ID: 289098

ALS Project Manager: ALS Work Order # **Customer Information Project Information** Parameter/Method Request for Analysis Purchase Order 30159458 **Project Name** BNSF Skykomish A NWTPH-DX Work Order **Project Number** B NWTPH-DX w/ SGC Company Name Arcadis U.S., Inc. Bill To Company Arcadis U.S., Inc. C Kyle Haslam Send Report To Accounts Payable Invoice Attn D 1100 Olive Way 630 Plaza Drive E Address Address Suite 800 Suite 600 F Seattle, VVA 98101 City/State/Zip Highlands Ranch CO 80129 G City/State/Zip (206) 325-5254 Phone (303) 471-3699 Н Phone (206) 325-8218 Fax Fax kyle.haslam@arcadis.com accountspayable.administration@arcadig-us.com e-Mail Address e-Mail Address Sample Description Date Time Matrix Pres. # Bottles A B C D E F G Н J Hold GW-1_06152023 1006 6-15-2023 Water X GW-2 - 06142023 1121 6-14-2023 Water X GW-3 -176142023 1325 Water X X GW-4 06142623 1440 Water X EW-1 - 06142023 6-14-2023 1001 Water X EW-2A _06157023 1() [] 6-15-2073 Water X S1-AD - 0 6142023 Water X S1-AU _ ()6142023 Water X S1-BD _ 06152023 **VVater** X 10 S1-BU _ 06152072 16410 Water X Sampler(s) Please Print & Sign Shipment Method Required Turnaround Time: (Check Box) Other Results Due Date: ECTTAPATH JULIAN PORERTO PIEMONTESE STD 10 Wk Days 5 Wk Days 2 Wk Days 24 Hour Relinquished by: Received by:

Received by (Laboratory) Notes: ROBERTO PIEMONTERE 6/16/23 8:00 Relinquished by: Cooler ID Cooler Temp. QC Package: (Check One Box Below) Level II Std QC TRRP Checklist Logged by (Laboratory): Date: Time: Checked by (Laboratory): 130 Level III Std QC/Raw Date TRRP Level IV 2 200 Level IV SW846/CLP 1-HCI Preservative Key: 2-HNO 3-H2SO4 4-NaOH 5-Na₂S₂O₃ 6-NaHSO 7-Other 8-4°C 9-5035 Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Address	Address Suite 800 Address			630 Plaza Drive														
City/State/Zip	City/State/Zip Seattle, WA 98101 City/State/Zip			Highla	inds Ranch	CO 80129		G										
Phone (206) 325-5254 Phone				(303)	471-3699			Н										
Fax	Fax (206) 325-8218 Fax							ì										
e-Mail Address	kyle.haslam@arcadis.com	e-Mail Add	dress	accou	ntspayable.	administrat	ion@arcad	istu	s.com									
No. Sample Description Date				ime	Matrix	Pres.	# Bottles	Α	_	С	D	E	F	G	Н	I	J	Hold
1 S2-AD - 0	6142023	6-14-23	#	牛1703	Water	_	1041	Х										
12 S2-AU _ O	12 S2-AU _ 061412023 6-14-73			15	Water		1	Х										
13 S2-BD _ D	6152023 -MS/MSD	6-15-23		105	Water	_	3)	X										
14 S2-BU	6152023	6-15-23		05	Water	1	1	X										
15 S3-AD _ O		6-15-23	10		Water	_	1	X										
16 S3-AU _0 6		6-15-23	10.	58	Water	_	J	Х										
17 S3-BD _061	57023 M5/MSD	6-15-73	125	58 1142	Water	_	3 3	Х										
18 S3-BU _06	152023	6-15-23	113	37	Water	_	1	Х										
19 S3-CD - 06	157,023	6-15-73	123	34	Water	_	1	X		p								
20 S3-CU_06		115-73	12	25	\/Vater	_	1	Х										
Sampler(s) Please Print & Sign BERTO PIEMONTESS Shipment Meth				nod	-	iired Turnard D 10 Wk Days	und Time: (C		Detail	Othe			24 Ho	_	esults I	Due Da	te:	
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Logged by (Laboratory): Date: Time: Check				ed by (La	boratory):							X	Level		d QC/Raw Date TRRP Level IV			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-				6-NaHSO ₄ 7-Other 8-4°C 9-5035				Level IV SW846/CLP Other										

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York, PA +1 717 505 5280

COC ID: 289096

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	Customer Information			Proje	ct Informati	on				Pai	ramet	er/Me	thod I	Reque	st for	Analy	sis	
Purchase Order	30159458	Project	Name	BNSF	Skykomish			AN	IWTPH	-DX		,					8	
Work Order		Project Nu	ımber					вМ	IWTPH	-DX w	/ SGC	;						
Company Name	Arcadis U.S., Inc.	Bill To Con	npany	Arcadis U.S., Inc.				С										
Send Report To	Kyle Haslam	Invoice	e Attn	Accou	unts Payable	1		D										
	Address Suite 200 Add			630 P	laza Drive			Е										
Address	Suite aud			Suite	600			F										
City/State/Zip Seattle, WA 98101			e/Zip	Highla	ands Ranch	CO 80129		G										
Phone (206) 325-5254			hone	(303)	471-3699			Н										
Fax (206) 325-8218 Fax			Fax					1										
e-Mail Address	kyle.haslam@arcadis.com	e-Mail Ad	dress	accor	intspayable.a	admini strat	ion@arcad	istus.	com									
No.	Sample Description	Date	Т	ime	Matrix	Pres.	# Bottles	Α	В	С	D	Е	F	G	Н	1	J	Hold
1 S4-AD - 06	152023	6-15-23	13:	26	Water	~	1	X										
2 S4-AU - Ol	5157023	6-15-23	13		Water	-	1	Х										
3 S4-BD _ 66	152023	6-15-28		5 <u>%</u>	Water	Person	1	Х		-	5-							
4 S4-BU 6/5	157072	6-15-23		55	Water		i	Х										
5 S4-CD - 06	152023	6-1523			V/ater	-	1	Х										
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ogged by (Laboratory): Date: Time: Check				ed by (La	boratory):								Level II	Std QC Std QC/			TRRP L	Checklist Level IV
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-N					₄ 7-Other	8-4°C	9-5035						Level I	V SWB46/	CLP			
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Salt Lake City, UT York, PA +1 801 266 7700 +1 717 505 5280

COC ID: 289095

	163)					C	oc id: 2	8909	5					E	EVZ	131	06	60	93
							LS Project	Manager:	-1				ALS	Work	Order	#:			
	Customer Informatio	on			Proje	ct Informat	ion				Par	amete	r/Me	thod I	Reque	st for	Analy	sis	The state of the cases
Purchase Order	30159458		Project N	lame	BNSF	Skykomish	e e		Α	NWTPH	-DX								
Work Order			Project Nur	mber					В	NWTPH	-DX w/	SGC							70
Company Name	Arcadis U.S., Inc.		Bill To Com	pany	Arcad	is U.S., Inc.			С										
Send Report To	Kyle Haslam		Invoice	Attn	Accou	ints Payable			D										
Address	1100 Olive Way Suite 800		Add	Iress	630 P	laza Drive 600			E										
City/State/Zip	Seattle, WA 98101		City/State	e/Zip	Highla	ands Ranch	CO 80129		G										
Phone	(206) 325-5254		Pl	none	(303)	471-3699			Н										
Fax	(206) 325-8218			Fax					ı										
e-Mail Address	kyle.haslam@arcadis	s.com	e-Mail Add	lress	accou	ıntspayable.	administrat	ion@arcad	listu	s.com									
No.	Sample Description		Date	Т	Time	Matrix	Pres.	# Bottles	A	В	С	D	E	F	G	Н	1	J	Hold
31 5-W-43 _ 06	142023		6-14-2023	10	000	Water		3	X										Hold
32 EB _0615	2023		6-15-23		506	Water		1	Χ										
FD-1_0614	2073		6-14-23	,,,		Water		Theres	Х										
FD-2 _061	52023		6-15-23			Water		1	Х										
35 FD-3 -061	57023		6-15-23	_		Water	-	1	Х										
6			0 10 0)					•											
7																			
8																			
9																			<u></u>
10																			
Sampler(s) Please I	Print & Sign	B-A	Shipmer	nt Met	hod	Requ	uired Turnaro	und Time: (C	Chec	k Box)	Other				_ R	esults	Due Da	te:	
	ZIT CO	BERTS PIEM		,		Inspected	D 10 Wk Days	X 5 V	Vk Da	ys [2 Wk I	Days		24 Ho	ur				
Relinquished by: ROBERTO PIÈMO	NTELE	6/16/23	Time:	Receiv	ved by:	Quality:	= lef 16/2	3 0900	Note	es:									
Relinquished by:		Date:	Time:	Recei	ved by (La	aboratory):			С	ooler ID	Coole	er Temp.	QC	Package	: (Chec	k One E	ox Belov	N)	
ogged by (Laboratory	·):	Date:	Time:	Check	ked by (La	boratory):							X		Stal QC/I	Raw Date			Checklist Level IV
Preservative Key:	1-HCI 2-HNO ₃	3-H ₂ SO ₄ 4-Na	OH 5-Na ₂ S ₂ O	3 6	-NaHSO	7-Other	8-4°C	9-5035					H	Level IV	/ SVV846/	CLP	-		

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.



CLIENT CONTACT:

C25

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-0

06/21/2023

DHM

Seattle, WA 98101 ALS SAMPLE#: EV23060093-01

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:06:00 AM

CLIENT SAMPLE ID GW-1_06152023 WDOE ACCREDITATION: C601

105

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-02

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 11:21:00 AM

CLIENT SAMPLE ID GW-2 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	96.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-03

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 1:25:00 PM

CLIENT SAMPLE ID GW-3 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	400	50	1	UG/L	06/21/2023	DHM
TPH-Diesel Range	NWTPH-DX w/SGA	150	50	1	UG/L	06/23/2023	DHM
TPH-Oil Range	NWTPH-DX	110 UB	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	06/23/2023	DHM

			ANAL	YSIS ANALY	212
SURROGATE	METHOD	%REC	DA	TE BY	
C25	NWTPH-DX	111	06/21	/2023 DHM	ı i
C25	NWTPH-DX w/SGA	108	06/23	/2023 DHM	1

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-04

06/21/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 2:40:00 PM

CLIENT SAMPLE ID GW-4 06142023 WDOE ACCREDITATION: C601

88.3

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS DATE	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT SAMPLE ID

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-05

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 10:01:00 AM

WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	83.8				06/21/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.

EW-1 06142023



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-06

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:11:00 AM

CLIENT SAMPLE ID EW-2A 06152023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	76.3				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-07

06/21/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 3:55:00 PM

CLIENT SAMPLE ID S1-AD 06142023 WDOE ACCREDITATION: C601

86.6

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-08

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 4:00:00 PM

CLIENT SAMPLE ID S1-AU 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	140 UB	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	87.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT CONTACT:

CERTIFICATE OF ANALYSIS

CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-09

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 4:30:00 PM

CLIENT SAMPLE ID S1-BD 06152023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	100 UB	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	79.8				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-10

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 4:40:00 PM

CLIENT SAMPLE ID S1-BU_06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	69.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-11

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 5:05:00 PM

CLIENT SAMPLE ID S2-AD 06142023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
						ANALYSIS	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	77.5				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-12

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 5:15:00 PM

CLIENT SAMPLE ID S2-AU 06142023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	77.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-13

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 9:05:00 AM

CLIENT SAMPLE ID S2-BD 06152023 WDOE ACCREDITATION: C601

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	73.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-14

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 9:05:00 AM

CLIENT SAMPLE ID S2-BU 06152023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE TPH-Diesel Range	METHOD NWTPH-DX	RESULTS 330	REPORTING LIMITS 100	DILUTION FACTOR	UNITS UG/L	ANALYSIS A DATE 06/21/2023	ANALYSIS BY DHM
TPH-Oil Range	NWTPH-DX	130 UB	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

C25 NWTPH-DX **85.4** 06/21/2023 DHM

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-15

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:47:00 AM

CLIENT SAMPLE ID S3-AD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	84.0				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-16

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 10:58:00 AM

CLIENT SAMPLE ID S3-AU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	210	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
						ANALYSIS	
SURROGATE	METHOD	%REC				DATE	BY
C25	NWTPH-DX	70.4				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-17

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:42:00 AM

CLIENT SAMPLE ID S3-BD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	78.5				06/21/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-18

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:37:00 AM

CLIENT SAMPLE ID S3-BU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	82.7				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-19

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 12:34:00 PM

CLIENT SAMPLE ID S3-CD 06152023 WDOE ACCREDITATION: C601

		<u> </u>					
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	77 5				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-20

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 12:25:00 PM

CLIENT SAMPLE ID S3-CU 06152023 WDOE ACCREDITATION: C601

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	73.0				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-21

06/22/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:26:00 PM

CLIENT SAMPLE ID S4-AD 06152023 WDOE ACCREDITATION: C601

66.4

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-22

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:16:00 PM

CLIENT SAMPLE ID S4-AU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM	
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY	
C25	NWTPH-DX	78.4				06/22/2023	DHM	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-23

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:58:00 PM

CLIENT SAMPLE ID S4-BD 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	113				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-24

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 1:55:00 PM

CLIENT SAMPLE ID S4-BU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/21/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	110				06/21/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-25

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 2:32:00 PM

CLIENT SAMPLE ID S4-CD_06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	113				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-26

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 2:30:00 PM

CLIENT SAMPLE ID S4-CU 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	105				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-27

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 11:16:00 AM

CLIENT SAMPLE ID 2A-W-40 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	120 UB	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	109				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-28

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 12:22:00 PM

CLIENT SAMPLE ID 2A-W-41 06142023 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	250	50	1	UG/L	06/22/2023	DHM
TPH-Diesel Range	NWTPH-DX w/SGA	95	50	1	UG/L	06/23/2023	DHM
TPH-Oil Range	NWTPH-DX	120 UB	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	06/23/2023	DHM

			ANALYSIS A	NALYSI
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	112	06/22/2023	DHM
C25	NWTPH-DX w/SGA	99.2	06/23/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-29

06/22/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 1:50:00 PM

CLIENT SAMPLE ID 2A-W-42 06142023 WDOE ACCREDITATION: C601

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		SAMPLE	DATA RESULTS				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	110	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%RFC				ANALYSIS DATE	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

C25

NWTPH-DX

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-30

06/22/2023

DHM

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/15/2023 11:10:00 AM

CLIENT SAMPLE ID 1B-W-23 06152023 WDOE ACCREDITATION: C601

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SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY

U - Analyte analyzed for but not detected at level above reporting limit.

NWTPH-DX

C25



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-31

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT PROJECT: BNSF Skykomish COLLECTION DATE: 6/14/2023 10:00:00 AM

CLIENT SAMPLE ID 5-W-43 06142023 WDOE ACCREDITATION: C601

		C/ WIII EE	D/ (1/ (1 (2 0 0 2 1 0)				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	95.2				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23060093 Seattle, WA 98101 ALS SAMPLE#: EV23060093-32

Kyle Haslam DATE RECEIVED: 06/16/2023

CLIENT CONTACT: BNSF Skykomish CLIENT PROJECT: COLLECTION DATE: 6/15/2023 3:06:00 PM

EB 06152023 WDOE ACCREDITATION: **CLIENT SAMPLE ID** C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	98.4				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

> 1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

EV23060093-33 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 06/16/2023 **BNSF Skykomish CLIENT PROJECT: COLLECTION DATE:** 6/14/2023 **CLIENT SAMPLE ID** FD-1 06142023

WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	150 UB	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	101				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 06/16/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 6/15/2023 **CLIENT SAMPLE ID** FD-2 06152023

WDOE ACCREDITATION: C601

EV23060093-34

		O/ WITH 22	D/ (1/ (1/LEGGE 1 G				
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	115				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



Arcadis U.S., Inc. CLIENT: DATE: 6/23/2023

1100 Olive Way, Suite 800 ALS JOB#: EV23060093

Seattle, WA 98101 ALS SAMPLE#:

EV23060093-35 **CLIENT CONTACT:** Kyle Haslam DATE RECEIVED: 06/16/2023 **CLIENT PROJECT: BNSF Skykomish COLLECTION DATE:** 6/15/2023

CLIENT SAMPLE ID FD-3 06152023 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	06/22/2023	DHM
SURROGATE	METHOD	%REC				ANALYSIS A	ANALYSIS BY
C25	NWTPH-DX	111				06/22/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.



BNSF Skykomish

DATA REVIEW

Skykomish, Washington

Total Petroleum Hydrocarbon (TPH) Analyses

SDG #: EV23100004

Analyses Performed By: ALS Environmental Everett, Washington

Report #: 52032R Project: 30159458.02

1 Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # EV23100004 for samples collected in association with the BNSF Skykomish, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records. Analyses were performed on the following samples:

Ones la ID	Lability	Marketin	Sample Collection	Dament Commits	Analysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	TPH
GW-2_092823	EV23100004-01	Water	09/28/2023		Х
GW-3_092723	EV23100004-02	Water	09/27/2023		Х
GW-4_092723	EV23100004-03	Water	09/27/2023		Х
EW-1_092823	EV23100004-04	Water	09/28/2023		Х
EW-2A_092723	EV23100004-05	Water	09/27/2023		Х
S1-AD_092823	EV23100004-06	Water	09/28/2023		Х
S1-AU_092823	EV23100004-07	Water	09/28/2023		Х
S1-BD_092823	EV23100004-08	Water	09/28/2023		Х
S1-BU_092823	EV23100004-09	Water	09/28/2023		Х
S2-AD_092923	EV23100004-10	Water	09/29/2023		Х
S2-AU_092923	EV23100004-11	Water	09/29/2023		Х
S2-BD_092923	EV23100004-12	Water	09/29/2023		Х
S2-BU_092923 MS/MSD	EV23100004-13	Water	09/29/2023		Х
S3-AD_092723	EV23100004-14	Water	09/27/2023		Х
S3-AU_092723	EV23100004-15	Water	09/27/2023		Х
S3-BD_092823	EV23100004-16	Water	09/28/2023		Х
S3-BU_092823	EV23100004-17	Water	09/28/2023		Х
S3-CD_092723	EV23100004-18	Water	09/27/2023		Х
S3-CU_092723 MS/MD	EV23100004-19	Water	09/27/2023		Х
S4-AD_092723	EV23100004-20	Water	09/27/2023		Х
S4-AU_092723	EV23100004-21	Water	09/27/2023		Х
S4-BD_092723	EV23100004-22	Water	09/27/2023		Х
S4-BU_092723	EV23100004-23	Water	09/27/2023		Х
S4-CD_092723	EV23100004-24	Water	09/27/2023		Х
S4-CU_092723	EV23100004-25	Water	09/27/2023		Х
5-W-14_092623	EV23100004-26	Water	09/26/2023		Х
5-W-16_092623	EV23100004-27	Water	09/26/2023		Х
5-W-17_092923	EV23100004-28	Water	09/29/2023		Х

Commis ID	Lab ID Matrix		Sample Collection	Parent Sample	Analysis
Sample ID	Lab ID	Watrix	Date		ТРН
5-W-18_092923	EV23100004-29	Water	09/29/2023		Х
5-W-19_092923	EV23100004-30	Water	09/29/2023		Х
5-W-51_092923	EV23100004-31	Water	09/29/2023		Х
5-W-55_092823	EV23100004-32	Water	09/28/2023		Х
5-W-56_092823	EV23100004-33	Water	09/28/2023		Х
FD-3_092923	EV23100004-34	Water	09/29/2023	5-W-51_092923	Х
2A-W-40_092823	EV23100004-35	Water	09/28/2023		Х
2A-W-41_092823	EV23100004-36	Water	09/28/2023		Х
2A-W-42_092823	EV23100004-37	Water	09/28/2023		Х
1B-W-23_092723	EV23100004-38	Water	09/27/2023		Х
1C-W-7_092723	EV23100004-39	Water	09/27/2023		Х
1C-W-8_092723	EV23100004-40	Water	09/27/2023		Х
5-W-43_092923	EV23100004-41	Water	09/29/2023		Х
MW-4_092923	EV23100004-42	Water	09/29/2023		Х
FD-1_092723	EV23100004-43	Water	09/27/2023	S3-CU_092723 MS/MD	Х
EB-1_092723	EV23100004-44	Water	09/27/2023		Х
FD-2_092723	EV23100004-45	Water	09/27/2023		Х
FD-4_092923	EV23100004-46	Water	09/29/2023	5-W-43_092923	Х

Note:

TPH = Total Petroleum Hydrocarbons

Sample FD-2_092723 is a field duplicate sample. The parent sample could not be identified.

2 Analytical Data Package Documentation

The table below is the evaluation of the data package completeness.

Items Reviewed		Reported		rmance eptable	Not
		Yes	No	Yes	Required
Sample receipt condition		Х		Х	
2. Requested analyses and sample results		Х		X	
Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х	Х		
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
9. Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance (QA) or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

Note:

6. Sample ID mismatch observed between chain of custody and analysis report. Details are presented in the following table. Field sample id was considered as per chain of custody.

Field Sample ID on COC	Field Sample ID on Analysis Report
FD-2_092723	FD-2_092923

10. The Sample Receiving Checklist notes that there was disagreement between the collection times listed on the sample labels and chain of custody. The samples were logged in using the times listed on the chain of custody.

3 Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method NWTPH-DX. Data were reviewed in accordance with USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even

if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

4 Total Petroleum Hydrocarbons (TPH) Analyses

4.1 Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
NWTPH-DX	Water	14 days from collection to extraction and 40 days from extraction to analysis (preserved) 7 days from collection to extraction and 40 days from extraction to analysis (Unpreserved)	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

4.2 Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the reporting limit (RL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the RL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

4.3 Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits with the exceptions noted below.

Sample ID	Surrogate	Recovery
2A-W-41_092823	C25 (NWTPH-DX w/ SGA)	> UL

Note:

UL = upper control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
> UL	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
. 400/	Non-detect	R
< 10%	Detect	J
Surrogates diluted below the calibration curve due to the high	Non-detect	UJ ¹
concentration of a target compounds	Detect	J ¹

Note:

4.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

MS/MSD analysis was performed on samples S2-BU_092923 and S3-CU_092723. MS/MSD analysis exhibited recoveries and RPDs within the control limits with the exceptions noted below.

Sample ID	Compound	MS Recovery	MSD Recovery
S2-BU_092923	TPH-Diesel Range	>UL	>UL

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

Control Limit	Sample Result	Qualification
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	
	Non-detect	No Action

4.5 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPD between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

4.6 Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
S3-CU_092723 MS/MD / FD-1_092723	TPH-Diesel Range	100 U	100	AC
	TPH-Oil Range	100 U	220	AC
5-W-51_092923 / FD-3_092923	TPH-Diesel Range	530	590	10.7%
	TPH-Oil Range	220	290	AC
5-W-43_092923 / FD-4_092923	All compounds	U	U	AC

Notes:

AC = acceptable

U = non-detect

The calculated RPDs between the parent sample and field duplicate were acceptable.

4.7 Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

4.8 System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

52032R_EV23100004 10

Data Validation Checklist for Total Petroleum Hydrocarbon (TPH)

TPH: NWTPH-DX	Repo	orted	Perfor Accep		Not
	No	Yes	No	Yes	Required
Gas Chromatography/Flame- and Photo- Ionization Do	etectors (GC/F	ID/PID)			
Tier II Validation					
Holding Times/Preservation		Х		X	
Reporting Limits (Units)		Х		Х	
Blanks					
A. Method Blanks		Х		Х	
B. Trip Blanks	X				Х
C. Equipment Blanks		Х		Х	
Surrogates Accuracy (%R)		Х	Х		
Matrix Spike (MS) %R		Х	X		
Matrix Spike Duplicate (MSD) %R		Х	X		
MS/MSD Precision (RPD)		Х		X	
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х	
LCS/LCSD RPD		Х		Х	
Laboratory Duplicate Sample RPD	X				Х
Field Duplicate Sample RPD		Х		Х	
Dilution Factor		Х		Х	
Moisture Content	X				Х

Notes:

%R - percent recovery RPD - relative percent difference

Validation Performed By: Hareesha Naik

Signature: Halin L

Date: November 28, 2023

Peer Review: Jennifer Singer

Date: November 29, 2023

52032R_EV23100004 12



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+1 801 266 7700

F1173100004

COC ID: 289093

5 6 EW-2A_092723 9/27/23 13:50 Water 1 1 X 5 7 S1-AD_092823 9/28/23 17:25 Water 1 1 X 5 8 S1-AU_M2723 9/28/23 17:25 Water 1 1 X 5 9/28/23 17:25 Water 1 X 5 9/28/23 1					1												,,,,	00		
Purchase Order		Customan Informati							Manager:											
Work Order Project Number Project		Customer information	on			Project	Informa	ition				Pai	ramete	r/Me	thod I	Reque	st for A	Analys	sis	
Company Name				Project Na	ame	BNSFS	kykomi	s h PN 30159	9457.01	A 2	10_D>	_W								
Send Report To Michelle Nguyen				Project Num	nber				h	В										
Address	Company Name	Arcadis U.S., Inc.		Bill To Comp	any	Arcadis	U.S., In	nc.		C 2	10_D>	(SGA	W							
Address Unit 2400	Send Report To	Michelle Nguyen		Invoice	Attn	Accoun	ts Payal	ble		D										
Unit 24U City/State/Zip	0.1.1	1420 - 5th Ave				630 Pla	za Drive	9		Е										
Phone (206) 326-5254	Address	Unit 2400		Addı	ress	Suite 60	00			F										
Fax (206) .32-5.82	City/State/Zip	Seattle, WA 98101		City/State	/Zip	Highlan	ds Rand	ch CO 8012	9	G										
e-Mail Address Michelle Nguyen@arcadis.com Date Time Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold Matrix Pres. # Bottles A B C D E F G H I J Hold H	Phone	(206) 325-5254		Ph	one	(303) 47	71-3699	1		Н										
No. Sample Description Date Time Matrix Pres. # Bottles A B C D E F G H I J Hold	Fax	(206) .32-5.82			Fax					1										
GW4 No T S1MPL	e-Mail Address	Michelle.Nguyen@a	arcadis.com	e-Mail Addı	ess	invoices	_us@a	rcadis.com		J										
	No.	Sample Description	12.2	Date	Т	ime	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	Н	ŀ	J	Hold
	1 SWH NO	OT SAMPLE	0			V	Vater	1	(Х										
GW-3	12 GW-2 _ O	92823		9/28/23	14	:05 V	Vater	1	(Х								_	١	
GW-4							Vater	1	2	Х		Х						_	2	
S EW-1			н		-			1		Х										
SI-AD09 28 23	\$ EW-1_()						Vater	1	i	Х										
S1-AD092823							Vater	1	1										-	
8 S1-AU								1	1											
9 S1-BD		17973		1 1	•			1	1										φ	
Sampler(s) Please Print & Sign Shipment Method Required Turnaround Time: (Check Box) STD 10 Wk Days STD 10 Wk Days Relinquished by: Cooler ID Cooler Temp. Cooler ID Std QC TRRP Checklist Checked by (Laboratory): Condend to the content of the content	9 S1-BD(592873						1	í											
Sampler(s) Please Print & Sign Kyle Johnson Kull Mile Belinquished by: Date:		1 2						1	i	-										
Relinquished by: Date: Da	Sampler(s) Please F	Print & Sign					Red	guired Turnard	ound Time: ((Box)	Oth	or			I R	aculte F	Jue Dai	to:	
Relinquished by: Date: Time: Received by (Laboratory): Cooler ID Cooler Temp. QC Package: (Check One Box Below) Logged by (Laboratory): Time: Checked by (Laboratory): Checked by (Laboratory): Time: Checked by (Laboratory): Cooler ID Cooler Temp. QC Package: (Check One Box Below)				Drop			1							Г] 24 H	_	Joures E	ruo Dal		
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Logged by (Laboratory): Date: Time: Checked by (Laboratory): X Level II Std QC TRRP Checklist	Relinquished by:		Date:	Time:	Recen	ved by (Labor	ratory):		14/71	Coc	ler ID	Cool	er Temp.	QC	Package	: (Chec	k One Br	ox Belov	v)	
Logged by (Laboratory): Time: Checked by (Laboratory):	Lauradh (f. 1	λ.	Deter		21	A	4	arm						_ [X	7			Г	7	2 Checklist
	Logged by (Laborator)	/):	Date:	Time:	Check	red by (Labor	atory):					-		- É	-			te -	-	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035	Preservative Key	1-HCI 2-HNO	3-H-SO 4-N	aOH 5-Na S O	6	-NaHeN	7. O+h	or 9.4°C	0.5025			+ -		-	Level	IV SW84	6/CLP	-		

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COC ID: 289092

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						Manager:	- F				ALS	Work	Order i	# :	THE RESERVE TO THE PERSON NAMED IN COLUMN TO THE PERSON NAMED IN C		
	Customer Information		Projec	t Informati	on				Par	amete	er/Me	thod F	Reques	t for /	Analys	is	
Purchase Order		Project Name	BNSF	- Skykomist	n PN 3015	9457.01	A 2	210_DX	_W								
Work Order		Project Number					В										
Company Name	Arcadis U.S., Inc.	Bill To Company	Arcad	dis U.S., Inc			C 2	210 DX	(SGA	W							
Send Report To	Michelle Nguyen	Invoice Attn	Accou	unts Payabl	е		D	- manual	-	<u> </u>							
Address	1420 - 5th Ave Unit 2400	Address	630 P Suite	Plaza Drive 600			E F										
City/State/Zip	Seattle, WA 98101	City/State/Zip	Highla	ands Ranch	CO 8012	9	G										
Phone	(206) 325-5254	Phone	(303)	471-3699			Н										
Fax	(206) .32-5.82	Fax					1										
e-Mail Address	Michelle.Nguyen@arcadis.com	e-Mail Address	invoic	ces_us@arc	adis.com		J										
No.	Sample Description	Date T	ime	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	Н	1	J	Hold
1 S2-AD	42923	9/29/23 1	542	Water	1	Ì	Х								_	10	
2 S2-AU	192923		18	Water	1	1	Х								-	()	
3 S2-BD 60	929.23	9/29/23 15	42	Water	1	1	Х									12	
S2-BU O	928239/27 - 092923	0 4/29/23 1	203	Water	1	i	Х									12	
5 S3-AD_ 0	91713	9/27/23 16:		Water	1	1	Х										
6 S3-AU_0	12723		-26	Water	1	1	Х									14	
		-	:30	Water	1	1	Х							-		15	
S3-BU	92823			Water	1	i	Х								*****	16	
9 S3-CD 0	1/28/23	9/28/23 10		Water	1	,	Х									17	
\$3-CU0	12723 MS/MSD	9/27/23 15		Water	1	7	Х							_		-18	
Sampler(s) Please P		9/27/23 L6 Shipment Meti	:25			3 ound Time: (0		Day)	1 04				l D.	- U - D		19	
		drossed	-		GTD 10 Wk Day	process.	Wk Da		Othe	Days	Г	7 24 H		suits D	ue Dat	e;	
Relinquished by:	1501 Date: 10/2/23	Time: 1220 Receiv	/ed by:		5 1	- Lineard	Notes:	- 1		100,0		2-11	oui				
Relinquished by: Kyle To M Relinquished by:	1511 Date:	Time: Receiv	ved by (Lab	boratory):	> 10kk	3 12-34A	Con	oler ID	Coole	r Temp.	loc	Package	e: (Check	One Br	ov Belou	v)	27
			AU	Even	5				50016	. iompi	_ IX	nug.	II Std QC	One bo	A Delow	7	Checklist
Logged by (Laboratory)	: Date:	Time: Check	ced by (Lab	oratory):					-			Level	III Std QC/		e _	-	Level IV
Preservative Key:	1-HCI 2-HNO ₃ 3-H ₂ SO ₄ 4-Na	OH 5-Na ₂ S ₂ O ₃ 6	-NaHSO₄	7-Other	8-4°C	9-5035						Level	IV SWB46/	CLP			

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Purchase Order

Company Name

Send Report To

City/State/Zip

Logged by (Laboratory):

Preservative Kev:

1-HCI

2-HNO

Work Order

Address

Customer Information

Arcadis U.S., Inc.

Michelle Nguyen

Seattle, WA 98101

1420 - 5th Ave

Unit 2400

Cincinnati, OH +1 513 733 5336

Everett, WA +1 425 356 2600 Holland, MI +1 616 399 6070

Project Name

Project Number

Bill To Company

Invoice Attn

City/State/Zip

Address

Fort Collins, CO +1 970 490 1511

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Page 3 of S

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Middletown, PA Salt Lake City, UT +1 801 266 7700

York, PA +1 717 505 5280

+1 717 944 5541 COC ID: 289091 100001 **ALS Project Manager:** ALS Work Order #: Project Information Parameter/Method Request for Analysis BNSF Skykomish F'N 30159457.01 210 DX W В Arcadis U.S., Inc. C 210 DXSGA W Accounts Payable D

E

F

G

Phone (206) 325-5254 Н Phone (303) 471-3699 Fax (206) .32-5.82 Fax Michelle.Nguyen@arcadis.com e-Mail Address invoices us@arcadis.com J e-Mail Address Sample Description Date Time Matrix Pres. # Bottles A В E C D G H J Hold S4-AD Water 1 X 20 S4-AU Water X 1 21 21 S4-BD Water 1 X 22 S4-BU Water 1 X Water X 1 Water 1 X 10:30 X Water 1 27 5-W-16 Water 1 X -27 Water X 7/29/23 28 29 Water X 9/29/23 29 **Shipment Method** Required Turnaround Time: (Check Box) Results Due Date: Other Kyle Johnson Ke drop STD 10 Wk Days 5 Wk Davs 2 Wk: Days 24 Hour Relinquished by: Date: Received by: Notes: Date: ived by (Laboratory): Relinquished by: Time: Cooler ID Cooler Temp. QC Package: (Check One Box Below)

7-Other

8-4°C

9-5035

Highlands Ranch C:O 80129

630 Plaza Drive

Suite 600

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4-NaOH

Time:

5-Na,S,O,

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Checked by (Laboratory):

6-NaHSO4

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Date:

3-H2SO4

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TRRP Checklist

TRRP Level IV

Level II Std QC

Level III Std QC/Raw Date

Level IV SW846/CLP



3

31

83

3\$

34

3

Preservative Kev:

1-HCI

2-HNO

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Page ____of ____

coc ID: 289090 00000 **ALS Project Manager:** ALS Work Order #: **Customer Information Project Information** Parameter/Method Request for Analysis Purchase Order **Project Name** BNSF Skykomish PN 30159457.01 210 DX W Work Order **Project Number** В Company Name Arcadis U.S., Inc. Bill To Company Arcadis U.S., Inc. C 210 DXSGA W Send Report To Michelle Nguyen Accounts Payable Invoice Attn D 1420 - 5th Ave 630 Plaza Drive E Address Address Unit 2400 Suite 600 F City/State/Zip Seattle, WA 98101 City/State/Zip Highlands Ranch CO 80129 G (206) 325-5254 Phone H Phone (303) 471-3699 (206) .32-5.82 Fax Fax Michelle.Nguyen@arcadis.com e-Mail Address invoices us@arcadis.com J e-Mail Address Sample Description Date Time Matrix Pres. # Bottles Α В C D E G F Н J Hold Water 1 X 30 5-W-51 Water 1 X 5-W-55 Water 1 X 5-W-56 Water 1 X FD-3-012924 Water 1 X 1 Water X Water X 1 X -36 Water 1 X Water X Water X Shipment Method Required Turnaround Time: (Check Box) Other Results Due Date: Byle Johnson le STD 10 Wk Days 5 Wk Days 2 Wk Days 24 Hour Relinquished by: Time: 1220 Date; Received by: Notes: Relinquished by: Beceived by (Laboratory): Cooler ID Cooler Temp. QC Package: (Check One Box Below) Level II Std QC TRRP Checklist Logged by (Laboratory): Date: Time: Checked by (Laboratory): Level III Std QC/Raw Date TRRP Level IV Level IV SW846/CLP

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4-NaOH

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

6-NaHSO4

7-Other

8-4°C

9-5035

5-Na₂S₂O₃

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3-H2SO4

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South Charleston, WV

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Page 5 of 5

COC ID: 289089

ALS Project Manager: ALS Work Order #: **Customer Information** Project Information Parameter/Method Request for Analysis Purchase Order Project Name BNSF Skykomish PN 30159457.01 210 DX W Work Order **Project Number** В Company Name Arcadis U.S., Inc. Bill To Company Arcadis U.S., Inc. 210 DXSGA W Send Report To Michelle Nguyen Invoice Attn Accounts Payable D 1420 - 5th Ave 630 Plaza Drive Address Address Unit 2400 Suite 600 F City/State/Zip Seattle, WA 98101 G City/State/Zip Highlands Ranch CO 80129 Phone (206) 325-5254 Phone Н (303) 471-3699 (206) .32-5.82 Fax Fax Michelle.Nguyen@arcadis.com e-Mail Address invoices_us@arcadis.com e-Mail Address J No. Sample Description Date Time Matrix Pres. # Bottles A B C D E G Н J Hold 1C-W-7 Water X 1C-W-8 1 X 40 Water X 1 Water X 1 -4) Water mater 9/29/23 water Shipment Method Required Turnaround Time: (Check Box) Results Due Date: Other of STD 10 Wk Davs 5 Wk Davs 2 Wk Davs 24 Hour Time: 1228 Relinguished by Date: Received by: Notes: Received by (Laboratory): Relinguished by Time: Cooler ID Cooler Temp. QC Package: (Check One Box Below) EVENDOR Level II Std QC TRRP Checkist Logged by (Laboratory): Checked by (Laboratory): Time: Level III Std QC/Raw Date TRRP Level IV Level IV SW846/CLP Preservative Key: 1-HCI 2-HNO₂ 3-H2SO4 4-NaOH 5-Na₂S₂O₂ 6-NaHSO4 7-Other 8-4°C 9-5035

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CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-

Seattle, WA 98101 ALS SAMPLE#: EV23100004-01
Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023
CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 2:05:00 PM

CLIENT SAMPLE ID GW-2_092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	93.8	10/09/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-02

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:55:00 PM

CLIENT SAMPLE ID GW-3 092723 WDOE ACCREDITATION: C601

		O/	27117111233213					4
ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	i
TPH-Diesel Range	NWTPH-DX	250	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Diesel Range	NWTPH-DX w/ SGA	110	100	1	UG/L	10/16/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	10/16/2023	DHM	

SAMPLE DATA RESULTS

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS DATE BY	j
C25	NWTPH-DX	90.4	10/09/2023 DHM	
CAS: 629-99-2 C25	NWTPH-DX w/ SGA	101	10/16/2023 DHM	
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

CAS: ARC-TPH-ORO

Chromatogram indicates that it is likely that sample contains highly weathered diesel.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 12:30:00 PM

CLIENT SAMPLE ID GW-4 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	130	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	690	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANAI YSIS

SURROGATE METHOD %REC

C25 NWTPH-DX 93.8 10/09/2023 DHM

CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-04

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 4:42:00 PM

CLIENT SAMPLE ID EW-1 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	95.0	10/09/2023
S- 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-05

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:50:00 PM

CLIENT SAMPLE ID EW-2A 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	250	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS	ANALIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	115	10/09/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-06

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:25:00 PM

CLIENT SAMPLE ID S1-AD_092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

		ANALYS	
URROGATE	METHOD	%REC	DATE
25	NWTPH-DX	93.0	10/09/202
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-07

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:25:00 PM

CLIENT SAMPLE ID S1-AU 092823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAI YSIS	ANAI YSIS	

SURROGATE METHOD %REC

C25 NWTPH-DX 82.6

CAS: 629-99-2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-08

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:50:00 PM

CLIENT SAMPLE ID S1-BD 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 93.3 10/09/202:					ANALYSI
NWTPH-DX 93.3 10/09/2023	URROGATE	METHOD	METHOD	%REC	DATE
		NWTPH-DX	NWTPH-DX	93.3	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-09

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 5:55:00 PM

CLIENT SAMPLE ID S1-BU 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSI	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	86.3	10/09/2023	B DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-10

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 3:42:00 PM

CLIENT SAMPLE ID S2-AD 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

SURROGATE			ANALYSIS A	ANALYSIS ANALYSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	96.9	10/09/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-11

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 3:18:00 PM

CLIENT SAMPLE ID S2-AU 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI: BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 1/010		_

			ANALYSIS A	ANALYSIS ANALYSIS		
SURROGATE	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	94.5	10/09/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-12

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 12:42:00 PM

CLIENT SAMPLE ID S2-BD 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	FACTOR	UNITS	ANALYSIS . DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	140	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ΔΝΔΙ ΥSIS	ΔΝΔΙ ΥSIS

			ANALYSIS A	ANALTOIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	93.7	10/09/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-13

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 12:03:00 PM

CLIENT SAMPLE ID S2-BU 092923 MS/MSD WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	1000 J	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	200	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 97.6
 10/09/2023
 DHM

 CAS: 629-99-2
 CAS: 629-99-2</t

Chromatogram indicates that it is likely that sample contains weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-14

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:51:00 PM

CLIENT SAMPLE ID S3-AD_092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	i
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 92.8 10/09/2023				ANALYSI
NWTPH-DX 92.8 10/09/2023	URROGATE	METHOD	%REC	DATE
		NWTPH-DX	92.8	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-15

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:26:00 PM

CLIENT SAMPLE ID S3-AU 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	;
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYS
URROGATE	METHOD	%REC	DATE
5	NWTPH-DX	95.0	10/09/202
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-16

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 9:30:00 AM

CLIENT SAMPLE ID S3-BD 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC		
	METHOD	URROGATE
NWTPH-DX 91.7	NWTPH-DX	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-17

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 10:45:00 AM

CLIENT SAMPLE ID S3-BU 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	97.7	10/09/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-18

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 3:55:00 PM

CLIENT SAMPLE ID S3-CD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A	ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	100	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-19

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 4:25:00 PM

CLIENT SAMPLE ID S3-CU 092723 MS/MD WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								
						ANIAL VOIC	ANIAL VOI	_

			ANALYSIS A	SIS ANALYSIS	
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	95.1	10/09/2023	DHM	
CAS: 629-99-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-20

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 9:28:00 AM

CLIENT SAMPLE ID S4-AD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

				ANALYSI
NWTPH-DX 100 10/09/2023	IRROGATE	METHOD	%REC	DATE
		NWTPH-DX	100	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-21

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 10:24:00 AM

CLIENT SAMPLE ID S4-AU 092723 WDOE ACCREDITATION: C601

			REPORTING	DILUTION		ANALYSIS A	ANALYSI	S
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 95.9 10/09/202				ANALYS
NWTPH-DX 95.9 10/09/202:	OGATE	METHOD	%REC	DATE
		NWTPH-DX	95.9	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-22

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 11:37:00 AM

CLIENT SAMPLE ID S4-BD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYS BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM	
CAS: ARC-TPH-ORO								

				ANALYS
NWTPH-DX 101 10/09/202	URROGATE	METHOD	%REC	DATE
		NWTPH-DX	101	10/09/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-23

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:10:00 PM

CLIENT SAMPLE ID S4-BU 092723 WDOE ACCREDITATION: C601

			REPORTING LIMITS	DILUTION FACTOR		ANALYSIS A	ANALYSIS BY
ANALYTE	METHOD	RESULTS	LIMITS	TACTOR	UNITS	DAIL	о.
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYS
JRROGATE	METHOD	%REC	DATE
	NWTPH-DX	97.2	10/09/202
29-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-24

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 9:35:00 AM

CLIENT SAMPLE ID S4-CD 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A	ANALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	105	10/09/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-25

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 10:30:00 AM

CLIENT SAMPLE ID S4-CU 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/09/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSI	S ANALYSI
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	95.1	10/09/2023	3 DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-26

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/26/2023 3:08:00 PM

CLIENT SAMPLE ID 5-W-14 092623 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

OGATE METHOD %REC		
	METHOD	TE
NWTPH-DX 98.4	NWTPH-DX	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-27

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/26/2023 5:00:00 PM

CLIENT SAMPLE ID 5-W-16 092623 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By	i
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A	NALYSIS	3
SURROGATE	METHOD	%REC	DATE	BY	
C25	NWTPH-DX	100	10/10/2023	DHM	
CAS: 620-00-2					

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-28

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 11:10:00 AM

CLIENT SAMPLE ID 5-W-17 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANIAL VOIC	ANIAI VOIC	

			ANALYS	IS ANALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	98.0	10/10/202	23 DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-29

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 11:55:00 AM

CLIENT SAMPLE ID 5-W-18_092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAI YSIS	ANAI YSIS	

SURROGATE METHOD %REC

C25 NWTPH-DX 103

CAS: 629-99-2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-30

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 12:40:00 PM

CLIENT SAMPLE ID 5-W-19_092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 97.0 10/10/202			ANALYS	
NWTPH-DX 97.0 10/10/2023	DGATE	METHOD	%REC	DATE
		NWTPH-DX	97.0	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-31

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 10:30:00 AM

CLIENT SAMPLE ID 5-W-51 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	530	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	220	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANAL VCIC	ANIAI VOIC	

SURROGATE			ANALYSIS A	ANALYSIS ANALYSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	98.6	10/10/2023	DHM		
CAS: 629-99-2						

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-32

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 3:50:00 PM

CLIENT SAMPLE ID 5-W-55 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALYSIS	ANALYSIS ANALYSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	97.1	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-33

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 3:30:00 PM

CLIENT SAMPLE ID 5-W-56 092823 WDOE ACCREDITATION: C601

SAM	1PL	E D/	ΑТА	١RE	ESU	LTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	1400	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	710	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						ANALYSIS	ANALYSI	s

SURROGATE METHOD %REC

C25 NWTPH-DX 81.2 10/10/2023 DHM

CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-34

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/29/2023

CLIENT SAMPLE ID FD-3 092923 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	590	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	290	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALISIS	ANALISIS ANALIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	100	10/10/2023	DHM		
CAS: 629-99-2						

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product. Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-35

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 1:02:00 PM

CLIENT SAMPLE ID 2A-W-40 092823 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 7/010	*****	_

			ANALYSIS A	NALYSI:
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	106	10/10/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-36

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/28/2023 11:05:00 AM

CLIENT SAMPLE ID 2A-W-41 092823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING LIMITS	DILUTION FACTOR		ANALYSIS ANALYSIS DATE BY		
ANALYTE	METHOD NWTPH-DX	RESULTS		FACTOR	UNITS UG/L		BY DHM	
TPH-Diesel Range CAS: ARC-DRO	NW I PH-DX	400	100	1	UG/L	10/10/2023	DUIN	
TPH-Diesel Range	NWTPH-DX w/ SGA	240 J	50	1	UG/L	10/16/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO TPH-Oil Range	NWTPH-DX w/ SGA	U	100	1	UG/L	10/16/2023	DHM	
CAS: ARC-TPH-ORO								

SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	104	10/10/2023	DHM
CAS: 629-99-2 C25	NWTPH-DX w/ SGA	132 SUR11	10/16/2023	DHM
CAS: 629-99-2				

ANIAI VOIC ANIAI VOIC

SUR11 - Surrogate outside of control limits due to sporadic marginal failure. No corrective action taken.

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains highly weathered diesel and an unidentified oil range product.

Oil range product results biased high due to diesel range product overlap.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-37

Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: CLIENT PROJECT: BNSF Skykomish PN 30159457.01 9/28/2023 10:01:00 AM **COLLECTION DATE:**

CLIENT SAMPLE ID 2A-W-42 092823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

SURROGATE			ANALTSIS	ANALTSIS ANALTSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	103	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-38

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:30:00 PM

CLIENT SAMPLE ID 1B-W-23 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI VSIS	ANAI VSIS

SURROGATE			ANALYSI
	METHOD	%REC	DATE
	NWTPH-DX	86.5	10/10/2023
19-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-39

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 1:00:00 PM

CLIENT SAMPLE ID 1C-W-7 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI VCIC	ANAI VEIE

SURROGATE			ANAL 1313	ANALTSIS ANALTSIS		
	METHOD	%REC	DATE	BY		
C25	NWTPH-DX	97.0	10/10/2023	DHM		
CAS: 629-99-2						

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-40

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 2:45:00 PM

CLIENT SAMPLE ID 1C-W-8 092723 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI BY	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A	anai
SURROGATE	METHOD	%REC	DATE	ı
C25	NWTPH-DX	96.7	10/10/2023	D
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-41

Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT CONTACT: BNSF Skykomish PN 30159457.01 9/29/2023 11:30:00 AM **CLIENT PROJECT: COLLECTION DATE:**

CLIENT SAMPLE ID 5-W-43 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY	3
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								
						41141 7/010	*****	_

			ANALYSIS	S ANALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	93.3	10/10/2023	B DHM
CAS: 620-00-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-42

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/29/2023 4:03:00 PM

CLIENT SAMPLE ID MW-4_092923 WDOE ACCREDITATION: C601

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ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	290	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	100	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	95.2	10/10/202
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-43

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/27/2023

CLIENT SAMPLE ID FD-1 092723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	220	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

ANALYSIS ANALYSIS DATE BY **SURROGATE** %REC **METHOD** C25 NWTPH-DX 115 10/10/2023 DHM CAS: 629-99-2

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.

Environmental 🗦



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100004 Seattle, WA 98101 ALS SAMPLE#: EV23100004-44

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023

CLIENT PROJECT: BNSF Skykomish PN 30159457.01 COLLECTION DATE: 9/27/2023 5:10:00 PM

CLIENT SAMPLE ID EB-1_092723 WDOE ACCREDITATION: C601

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC DATE NWTPH-DX 88.2 10/10/2023				ANALYSI
NWTPH-DX 88.2 10/10/2023	OGATE	METHOD	%REC	DATE
		NWTPH-DX	88.2	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-45

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **CLIENT PROJECT: COLLECTION DATE:** 9/27/2023

FD-2_092723 FD-2 092923 **CLIENT SAMPLE ID** WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY	}
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO								
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

ANALYSIS ANALYSIS DATE BY **SURROGATE METHOD** %REC C25 NWTPH-DX 89.2 10/10/2023 DHM CAS: 629-99-2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 10/16/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23100004 EV23100004-46

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 10/02/2023 BNSF Skykomish PN 30159457.01 **COLLECTION DATE:** 9/29/2023 **CLIENT PROJECT:**

CLIENT SAMPLE ID FD-4 092923 WDOE ACCREDITATION: C601

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSI By	S
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	10/10/2023	DHM	
CAS: ARC-TPH-ORO								

METHOD %REC DATE NWTPH-DX 93.2 10/10/2023				ANALYSI
NWTPH-DX 93.2 10/10/2023	JRROGATE	METHOD	%REC	DATE
		NWTPH-DX	93.2	10/10/2023

U - Analyte analyzed for but not detected at level above reporting limit.



BNSF Skykomish

DATA REVIEW

Skykomish, Washington

Total Petroleum Hydrocarbon (TPH) Analyses

SDG #: EV23100095

Analyses Performed By: ALS Environmental Everett, Washington

Report #: 52033R Project: 30159458.02

1 Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # EV23100095 for samples collected in association with the BNSF Skykomish, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection	Parent Sample	Analysis
Sample 10	Labib	Wattix	Date	Farent Sample	TPH
GW-1_101723	EV23100095-01	Water	10/17/2023		Х
DUP-1	EV23100095-02	Water	10/17/2023	GW-1_101723	Х

Note:

TPH = Total Petroleum Hydrocarbons

2 Analytical Data Package Documentation

The table below is the evaluation of the data package completeness.

Items Reviewed	Re	Reported		rmance eptable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		X		X	
2. Requested analyses and sample results		Х		Х	
Master tracking list		X		Х	
4. Methods of analysis		X		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х		Х	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		X		Х	
Sample preparation/extraction/analysis dates		X		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance (QA) or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

3 Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method NWTPH-DX. Data were reviewed in accordance with USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

4 Total Petroleum Hydrocarbons (TPH) Analyses

4.1 Holding Times

The specified holding times for the following methods are presented in the following table.

	Method	Matrix	Holding Time	Preservation
N	WTPH-DX	Water	14 days from collection to extraction and 40 days from extraction to analysis (preserved) 7 days from collection to extraction and 40 days from extraction to analysis (Unpreserved)	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

4.2 Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the reporting limit (RL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the RL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

4.3 Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

MS/MSD analysis was not performed on samples from this SDG.

4.5 Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analyses exhibited recoveries within the control limits.

4.6 Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compounds	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
GW-1_101723 / DUP-1	TPH-Diesel Range	150	140	AC
	TPH-Oil Range	110	130	AC

Note:

AC = acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

4.7 Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

4.8 System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

4.9 Data Validation Checklist for Total Petroleum Hydrocarbon (TPH)

TPH: NWTPH-DX	Rep	orted	Perfor Accep	Not	
	No	Yes	No	Yes	Required
Gas Chromatography/Flame- and Photo- Ionization De	etectors (GC/F	ID/PID)			
Tier II Validation					
Holding Times/Preservation		X		Х	
Reporting Limits (Units)		X		Х	
Blanks					
A. Method Blanks		Х		X	
B. Trip Blanks	X				Х
C. Equipment Blanks	X				Х
Surrogates Accuracy (%R)		Х		X	
Matrix Spike (MS) %R	X				Х
Matrix Spike Duplicate (MSD) %R	X				Х
MS/MSD Precision (RPD)	X				Х
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R	X				Х
LCS/LCSD RPD	X				Х
Laboratory Duplicate Sample RPD	X				Х
Field Duplicate Sample RPD		Х		Х	
Dilution Factor		Х		Х	
Moisture Content	Х				Х

Notes:

%R = percent recovery RPD = relative percent difference

Validation Performed By: Hareesha Naik

Signature: Halin L

Date: November 28, 2023

Peer Review: Jennifer Singer

Date: November 29, 2023

ALS

ALS Environmental

8620 Holly Drive, Suite 100 Everett, WA 98208 Phone (425) 356-2600 Fax (425) 356-2626 http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

Ex

ALS Job#

(Laboratory Use Only)

EV23100095

Date 10-17 Page 1 Of 1

*Turnaround request less than standard may incur Rush Charges

PROJECT ID: 3015945	7.				ANALYSIS REQUESTED (OTHER (Specify)														
PROJECT ID: 30159457. REPORT TO COMPANY: Areadis PROJECT Kyle claslem ADDRESS: 1420 Sth Are. 98101 Ste. 2400 PHONE: 206-7(9-699(PO.#: E-MAIL: Kyle-thislan Qurealis.com INVOICE TO COMPANY: ATTENTION: ADDRESS:					NWTPH-HCID	10 SGC 1L	•	BTEX by EPA 8021 BTEX by EPA 8260	MTBE by EPA 8021 MTBE by EPA 8260	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082 Pesticides by EPA 8081	Metals-MTCA-5 RCRA-8 Pri Pol TAL	Metals Other (Specify)	Aetals VOA Semi-Vol Pest Herbs						NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPI	NWTPH-DX	NWTPH-GX	BTEX	MTBE	Haloge	Volatile	EDB/E	EDB/E	Semivo	Polycyc	PCB by	Metals-	Metals	TCLP-Metals						NUME	RECE
1.6w-1_101723 2. DvP-1 3. 4. 5. 6. 7. 8. 9.	10-13	1240	₩ ₩	1 2		X																				
SPECIAL INSTRUCTIONS	· · · · · · · · · · · · · · · · · · ·			1		<u>.</u> !																		4,8	, _	
SIGNATURES (Name, Compand 1. Relinquished By:	ny, Date, Tim Johnson Va Roba	e):	alis [0-17 10/17/	1. 123	5 i	2 51°	<u></u>		Splandard F	uels	5	als & 3 ydro	carb	rgan 2	ic A	naly: SA D /SiS	JND sis	REG			isines OTI	HER:	ays*		



CLIENT: Arcadis U.S., Inc. DATE: 10/24/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100095 Seattle, WA 98101 ALS SAMPLE#: EV23100095-

Seattle, WA 98101 ALS SAMPLE#: EV23100095-01

Kyle Haslam DATE RECEIVED: 10/17/2023

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 10/17/2023 CLIENT PROJECT: 30159457 COLLECTION DATE: 10/17/2023 12:40:00 PM

CLIENT SAMPLE ID GW-1 101723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	150	100	1	UG/L	10/23/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	110	100	1	UG/L	10/23/2023	DHM
CAS: ARC-TPH-ORO							

SURROGATE	METHOD	%REC	ANALYSIS ANALYSI DATE BY
C25	NWTPH-DX	100	10/23/2023 DHM
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 10/24/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23100095

EV23100095-02

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Kyle Haslam DATE RECEIVED: 10/17/2023 CLIENT PROJECT: 30159457 COLLECTION DATE: 10/17/2023

CLIENT SAMPLE ID DUP-1 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	140	100	1	UG/L	10/23/2023	DHM
CAS: ARC-DRO	NIMTOLLOV	100	400		110/	40/00/0000	DUM
TPH-Oil Range	NWTPH-DX	130	100	1	UG/L	10/23/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ANAI YSIS

			ANALYSIS A	MALYS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	101	10/23/2023	DHM
CAS: 629-99-2				

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



BNSF Skykomish

DATA REVIEW

Skykomish, Washington

Total Petroleum Hydrocarbon (TPH) Analyses

SDG #: EV23120075

Analyses Performed By: ALS Environmental Everett, Washington

Report #: 52456R Project: 30159458.02

1 Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # EV23120075 for samples collected in association with the BNSF Skykomish, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records. Analyses were performed on the following samples:

Commis ID	LabilD	Madulio	Sample Collection	Donant Commis	Analysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	TPH
GW-1_120523	EV23120075-01	Water	12/05/2023		Х
GW-2_120523	EV23120075-02	Water	12/05/2023		Х
GW-3_120623	EV23120075-03	Water	12/06/2023		Х
EW-1_120623	EV23120075-04	Water	12/06/2023		Х
EW-2A_120623	EV23120075-05	Water	12/06/2023		Х
S1-AD_120623	EV23120075-06	Water	12/06/2023		Х
S1-AU_120623	EV23120075-07	Water	12/06/2023		Х
S1-BD_120623	EV23120075-08	Water	12/06/2023		Х
S1-BU_120623	EV23120075-09	Water	12/06/2023		Х
S2-AD_120623	EV23120075-10	Water	12/06/2023		Х
S2-AU_120623	EV23120075-11	Water	12/06/2023		Х
S2-BD_120723	EV23120075-12	Water	12/07/2023		Х
S2-BU_120723	EV23120075-13	Water	12/07/2023		Х
S3-AD_120723	EV23120075-14	Water	12/07/2023		Х
S3-AU_120723	EV23120075-15	Water	12/07/2023		Х
S3-BD_120723	EV23120075-16	Water	12/07/2023		Х
S3-BU_120723	EV23120075-17	Water	12/07/2023		Х
S3-CD_120723	EV23120075-18	Water	12/07/2023		Х
S3-CU_120723	EV23120075-19	Water	12/07/2023		Х
S4-AD_120723	EV23120075-20	Water	12/07/2023		Х
S4-AU_120723	EV23120075-21	Water	12/07/2023		Х
S4-BD_120723	EV23120075-22	Water	12/07/2023		Х
S4-BU_120723	EV23120075-23	Water	12/07/2023		Х
S4-CD_120723	EV23120075-24	Water	12/07/2023		Х
S4-CU_120723	EV23120075-25	Water	12/07/2023		Х
2A-W-40_120623	EV23120075-26	Water	12/06/2023		Х
2A-W-41_120623	EV23120075-27	Water	12/06/2023		Х
2A-W-42_120623	EV23120075-28	Water	12/06/2023		Х

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Comple ID	Lab ID	Blatniv	Matrix Sample Collection Pa		Analysis
Sample ID	Lab ID	Watrix	Date	Parent Sample	TPH
1B-W-23_120623	EV23120075-29	Water	12/06/2023		Х
5-W-43_120523	EV23120075-30	Water	12/05/2023		Х
FD-1_120623	EV23120075-31	Water	12/06/2023	2A-W-40_120623	Х
FD-2_120623	EV23120075-32	Water	12/06/2023	S2-AD_120623	Х
FD-3_120723	EV23120075-33	Water	12/07/2023	S3-BU_120723	Х
FD-4_120723	EV23120075-34	Water	12/07/2023	S4-BU_120723	Х
EB-1_120823	EV23120075-35	Water	12/08/2023		X

Note:

TPH = Total Petroleum Hydrocarbons

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2 Analytical Data Package Documentation

The table below is the evaluation of the data package completeness.

Items Reviewed	Re	eported		rmance eptable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		Х		Х	
2. Requested analyses and sample results		Х		Х	
Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х		Х	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
9. Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х	Х		
Narrative summary of Quality Assurance (QA) or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

Note:

10. Sample receiving checklist noted that received two FD1 sample, one on 120623 and other one on 120723. Laboratory labelled the 120723 as the missing FD3 sample.

52456R_EV23120075

3 Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method NWTPH-DX. Data were reviewed in accordance with USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

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4 Total Petroleum Hydrocarbons (TPH) Analyses

4.1 Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
NWTPH-DX	Water	14 days from collection to extraction and 40 days from extraction to analysis (preserved) 7 days from collection to extraction and 40 days from extraction to analysis (Unpreserved)	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

4.2 Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the reporting limit (RL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the RL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

4.3 Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

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MS/MSD analysis was performed on samples S1-AU_120623 and S3-CD_120723. MS/MSD analysis exhibited recoveries within the control limits.

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than the control limit is presented in the following table.

Sample ID	Compound	
S3-CD_120723	TPH-Diesel Range	

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

4.5 Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the accuracy and precision of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery and RPDs within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

4.6 Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compounds	Sample Result (UG/L)	Duplicate Result (UG/L)	RPD
2A-W-40_120623 / FD-1_120623	All compounds	U	U	AC
S2-AD_120623 / FD-2_120623	All compounds	U	U	AC
S3-BU_120723 / FD-3_120723	TPH-Diesel Range	110	100 U	AC
S4-BU_120723 / FD-4_120723	All compounds	U	U	AC

Note:

AC = acceptable

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The calculated RPDs between the parent sample and field duplicate were acceptable.

4.7 Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

4.8 System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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4.9 Data Validation Checklist for Total Petroleum Hydrocarbon (TPH)

TPH: NWTPH-DX	Repo	orted	Perfor Accep	Not	
	No	Yes	No	Yes	Required
Gas Chromatography/Flame- and Photo- Ionization Do	etectors (GC/F	ID/PID)			
Tier II Validation					
Holding Times/Preservation		Х		Х	
Reporting Limits (Units)		Х		Х	
Blanks			·		
A. Method Blanks		Х		Х	
B. Trip Blanks	X				Х
C. Equipment Blanks		Х		Х	
Surrogates Accuracy (%R)		Х		Х	
Matrix Spike (MS) %R		Х		Х	
Matrix Spike Duplicate (MSD) %R		Х		Х	
MS/MSD Precision (RPD)		Х	Х		
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х	
LCS/LCSD RPD		Х		Х	
Laboratory Duplicate Sample RPD	X				Х
Field Duplicate Sample RPD		Х		Х	
Dilution Factor		Х		Х	
Moisture Content	X				Х

Notes:

%R = percent recovery RPD = relative percent difference

52456R_EV23120075 9

Validation Performed By: Hareesha Naik

Signature: Halin L

Date: January 2, 2024

Peer Review: Jennifer Singer

Date: January 3, 2024

52456R_EV23120075 10



Everett, WA +1 425 356 2600 Fort Collins, CO +1 970 490 1511 Holland, MI +1 616 399 6070

Chain of Custody Form

of 4

Page

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York, PA +1 717 505 5280

COC ID: 20000

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	Phone	(206) 325-5254	Ph	none (303) 471-3699			Н										
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e-	Mail Address	Michelle.Nguyen@arcadis.com	e-Mail Add	ress ir	nvoices_us@a	rcadis.com		J										
No.		Sample Description	Date	Time	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	Н	-1	J	Hold
. , 1	GW-1_120		12-05-23	1505	5 Water	1	1	Х										
2	GW-2 _ 17	.6523	12-05-23	154	g Water	1	1	Х		4						T		
3	GW-3 _ 12	.0623	12-06-23	115		4	Z	Х		Х								
-4	GW4	15.7 Million			Water	1		X										
5	EW-1 _ 120	0623	12-06-23	0906	Water	1	1	X										
6	EW-2A _ 12	_0623	12-06-23	1045		:1	1	X										
7	S1-AD _ 17		12-06-23	1448	Water	1	1	Х										
8	S1-AU _\7	10623 MS/MSD	12-06-23	1400		+	3	Х			E							
9	S1-BD _12	.0623	12-06-23	152		+	1	Х										
10	S1-BU _ 12		12-06-23	1517	Water	4	(X										
Sam	pler(s) Please P	rint & Sign	Shipmer	nt Method	Rec	uired Turnar	ound Time: (0	Check	k Box)	Oth	er			_ R	Results D	Due Da	te:	
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	ed by (Laboratory)		Time:	Checked b	y (Laboratory):								Leve	III Std QC IIII Std Q IV SW84	C/Raw Dat	ite E	_	Checklist Level IV
Pres	servative Key:	3 6-Nal	6-NaHSO ₄ 7-Other 8-4°C 9-5035								Othe		WCLF					

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Fort Collins, CO

Chain of Custody Form

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York, PA +1 717 505 5280

¥173120075

Page 2 of 4

COC ID: 289087

								0300	-							12	-00	10	
					LS Project	Manager:					ALS	Work	Order	#:					
		Customer Information			Pro	ject Informa	tion	*			Pai	ramete	r/Me	thod F	Reque	st for	Analy	sis	
Pı	urchase Order			Project N	ame BN	SF Skykomis	h 4Q23 GV	PVI	Α	210_DX	W								
	Work Order			Project Nur	nber Sky	/komish			В										
Co	mpany Name	Arcadis U.S., Inc.		Bill To Comp	oany Arc	adis U.S., Inc	2		С	210_DX	SGA 1	W							
Se	end Report To	Michelle Nguyen		Invoice	Attn Acc	counts Payab	le		D	-									
	Address	1420 - 5th Ave Unit 2400		Add	ress) Plaza Drive te 600			E F										
(City/State/Zip	Seattle, WA 98101		City/State	/Zip Hig	hlands Rand	1 CO 80129	9	G										
	Phone	(206) 325-5254		Ph	ione (30	3) 471-3699			Н										
	Fax	(206) 325-8218			Fax				I										
e-	Mail Address	Mi chelle.Nguyen@arca	dis.com	e-Mail Add	ress inve	oices_us@arc	cadis.com		J										
No.		Sample Description	i itar	Date	Time	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	Н	1	J	Hold
0	S2-AD _ 12			12-06-23	1556	- Water	1	1	Х										
12	S2-AU _ 17	,0623		12-06-23	1557		1_	1	Х										
12	S2-BD _ 12	.0723		12-07-73	(1855	Water €	+	1	Х										
13	S2-BU _ 12			12073	()857	2 Water	4	1	Х										
14	S3-AD _12			12-07-23	09.412		1	1	Х										
师	S3-AU _120			12-07-23	0941	Water	1	1	Х										
16	S3-BD _ 12			12-07-23	1017	Water	1	1	Х										
18	S3-BUI	20723		12-07-73	1614	Water	1	1	Х										
8	S3-CD -12		MSD	12-07-23		Water .	1-	3	Х										
	S3-CU _124			12-07-23	1048	Water	1	1	X										
Sampler(s) Please Print & Sign Shipment Method Required Turnaround Time: (Check Box)							k Box)	Othe	or			R	esults [ue Da	te:				
						X	STD 10 Wk Day	5	Wk D	ays	2 Wk	Days		24 H	our				
Reli	nguished by:	of In Da	2/8/23	Time: 12:30	Received by	not Ac	SE 12			2:35	The state of the s		December 1						
Relinquished by: Date: Time: Received to					(Laboratory):		1 1		Cooler ID		er Temp.	QC	Package	: (Chec	k One B	ox Belo	w)		
Logged by (Laboratory): Date: Time: Checke				Checked by	ecked by (Laboratory):							X	-	II Std QC	YRaw Dat	e F	-1	Checklist Level IV	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-						SO ₄ 7-Othe	er 8-4°C	9-5035					F	Level	V SWB46	B/CLP		-	

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Page 3 of

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+1 801 266 7700 1/2 3/2 0C 770

	4L3)			C	COC ID: 2	28908	6				E	EV:	23	120	20	75	,
				-	ALS Projec	t Manager:					ALS	Work	Order	#:			
	Customer Information		Proj	ect Informa	ation				Pa	ramet	er/Me	thod	Reque	st for	Analy	sis	A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Purchase Order	1	Project N	ame BNS	SF Skykomi:	sh 4Q23 G\	₩	А	210_D>	_W								
Work Order		Project Nun	nber Sky	komish			В										
Company Name	Arcadis U.S., Inc.	Bill To Comp	cany Arc	adis U.S., In	c.		С	210 DX	(SGA	W							
Send Report To	Michelle Nguyen	Invoice	Attn Acc	ounts Payat	ole		D										
Address	1420 - 5th Ave Unit 2400	Add	ress	Plaza Drive te 600)		E F										
City/State/Zip	Seattle, WA 98101	City/State	/Zip Higi	hlands Rand	th CO 8012	29	G										
Phone	(206) 325-5254	Ph	none (303	3) 471-3699			Н										
Fax	(206) 325-8218		Fax				1									_	
e-Mail Address	Michelle.Nguyen@arcadis.com	e-Mail Add	ress invo	oices_us@aı	rcadis.com		J										
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	В	С	D	Е	F	G	Н	Î	J	Hold
20 S4-AD _ 12		12-67-23	1205	Water	1	1	X										
24 S4-AU _1	20723	12-07-23	1152	Water	4	1	Х										
3 S4-BD _ \	20723	12-07-23	1240	Water	+	1	Х										
S4-BU -1	20723	12-07-23	1223	V/ater	1	1	Х										
S4-BU - 1	120723	12-07-23	1315	Water	1	1	Х										
	.12073	12-07-73	1301	Water	+		Х										
6 2A-W-40_	12.0623	12-06-23	0857	Water	1-		Х										
2A-W-41_	17.0623	12-06-23	1430	Water	1	2	Х		Х								
8 2A-W-42 _	120623	12-06-13	1033	Water	1	1	X										
1B-W-23_	120623	12-06-23	1202	Water	1	(Х										
Sampler(s) Please	Print & Sign	Shipmer	nt Method	Red	quired Turnar	ound Time: (0	Check	k Box)	Oth	er			R	esults E	ue Da	te:	
Relinquished by:	X	STD 10 Wk Da	ys 5	Wk Da		2 VVI	k Days		24 F	lour							
Relinguished by:	Date: 12/9/23	Time:	Received by:	wit A	USE 12	1823	Note	2.3	0								
riemiquisned by.	v Date.	rime:	Received by (Laboratory):			C	ooler ID	Cool	er Temp	. QC	Packag	e: (Chec	k One Bo	ox Belov	N)	
Logged by (Laborator	ogged by (Laboratory): Date: Time: Check				Checked by (Laboratory):						/Raw Date TRRP Checklist TRRP Level IV						
Preservative Key:	1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-N	laOH 5-Na ₂ S ₂ O ₃	6-NaHS	60 ₄ 7-0the	er 8-4°C	9-5035			-			man (IV SWB48			1 inde	FEAGUA
		3 O Halle	7-0111	0-40	9-0000						Other					1	

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York, PA +1 717 505 5280

					LS Project	Manager:					ALS		Order	#:			
	Customer Information		Proje	ct Informa	tion				Pa	ramete	er/Me	thod I	Reque	st for	Analy	sis	
Purchase Order		Project Na	me BNSF	Skykomisl	h 4Q23 GW	M	A 2	10_DX	_w								
Work Order		Project Num	ber Skyko	omish			В										
Company Name	Arcadis U.S., Inc.	Bill To Compa	any Arcad	lis U.S., Inc			C 2	10 DX	SGA_	W							
Send Report To	Michelle Nguyen	Invoice A	Accou	ınts Payabl	е		D	_									
Address	1420 - 5th Ave Unit 2400	Addre		Plaza Drive 600			E F										
City/State/Zip	Seattle, WA 98101	City/State/2	Zip Highl a	ands Ranch	CO 80129)	G	-									
Phone	(206) 325-5254	Pho	ne (303)	471-3699			Н										
Fax	(206) 325-8218	F	ax				1										
e-Mail Address	Michelle.Nguyen@arcadis.com	e-Mail Addre	ess invoic	es_us@arc	adis.com		J							-			
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	В	С	D	E	F	G	Н	1	J	Hold
30 5-W-43 _ 1		12-05-23	1529	Water	1	1	X										riola
3 p FD-1 _ 12	0623	12-06-23		Water	i	4	Х										
32 FD-2 - 12		12-06-23		Water		1	X							,			
33 FD-3 -1Z	07-23	1207-23		V∕ater		- 1	Х										
34 FD-4 - 12	0723	12-07-23		Water		-1	Х										
EB-1 - 12	0823	12-08-23	0800	Water .		1	Χ										
7			000														
8																	
9																	
10																	
Sampler(s) Please F		Shipment	Method	para .	juired Turnard	-		-	Othe 2 Wk			24 Ho	-	esults I	Due Da	te:	
Relinquished by: Relinquished by:	Date: 12/9/23	Time: 2:30 [Received by:	207	AUSE				100		Isomol	24110	01				
Relinquished by:	Date:	Time:	Received by (L	aboratory):	1100	1-1012		ler ID	7	er Temp.	QC	Package	e: (Chec	k One B	ox Belo	w)	
Logged by (Laboratory Preservative Key:		Checked by (Laboratory): X					Į.	Checklist Level IV									

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CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-

Seattle, WA 98101 ALS SAMPLE#: EV23120075-01
Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023
CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:05:00 PM

CLIENT SAMPLE ID GW-1_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	120	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							

			ANAI	LYSIS AN
SURROGATE	METHOD	%REC	D.	ATE
C25	NWTPH-DX	100	12/12	2/2023
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-02

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:48:00 PM

CLIENT SAMPLE ID GW-2_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	120	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	200	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
ROGATE	METHOD	%REC	DATE
	NWTPH-DX	108	12/12/2023
329-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 11:56:00 AM

CLIENT SAMPLE ID GW-3_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS / DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	81	50	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS	ANALY
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	107	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-03

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 11:56:00 AM

CLIENT SAMPLE ID GW-3_120623_SG WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX w/SGA	U	50	1	UG/L	12/18/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	12/18/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSI
URROGATE	METHOD	%REC	DATE
	NWTPH-DX w/SGA	116	12/18/2023
629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit..



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-04

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM 12/6/2023 9:06:00 AM **COLLECTION DATE:**

EW-1_120623 WDOE ACCREDITATION: CLIENT SAMPLE ID C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	100	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS AN	IALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	107	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-05

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 10:45:00 AM

CLIENT SAMPLE ID EW-2A_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	106	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-06

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

BNSF Skykomish 4Q23 GWM 12/6/2023 2:48:00 PM **CLIENT PROJECT: COLLECTION DATE:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** S1-AD_120623 C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ANAI YSIS

			ANALYSIS AI	NALTOIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	99.6	12/13/2023	DHM
CAS: 620-00-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-07

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:00:00 PM

CLIENT SAMPLE ID S1-AU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSI
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	99.6	12/13/2023
CAS: 620-00-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-08

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:21:00 PM

CLIENT SAMPLE ID S1-BD_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANIAL VOIO	ANIAL VOIO

ROGATE METHOD %REC NWTPH-DX 87.4 12/12/2023				ANALYSIS
NWTPH-DX 87.4 12/12/2023	URROGATE	METHOD	%REC	DATE
	25	NWTPH-DX	87.4	12/12/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-09

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:17:00 PM

CLIENT SAMPLE ID S1-BU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	390	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ANAI YSIS

			ANALISIS	MALISIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	96.3	12/12/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-10

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:56:00 PM

CLIENT SAMPLE ID S2-AD_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/12/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	96.9	12/12/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-11

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 3:57:00 PM

CLIENT SAMPLE ID S2-AU_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION	ANALYSIS ANALYS			
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	500	100	1	UG/L	12/12/2023	DHM	
CAS: ARC-DRO	NWTPH-DX	140	100	4	UG/L	12/12/2023	DHM	
TPH-Oil Range CAS: ARC-TPH-ORO	NW IPH-DX	140	100	ı	UG/L	12/12/2023	DUM	

			ANALYSIS
RROGATE	METHOD	%REC	DATE
	NWTPH-DX	89.3	12/12/2023
CAS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-12

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 8:55:00 AM

CLIENT SAMPLE ID S2-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION	ANALYSIS ANALY		
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

DATE 12/13/2023		
12/13/2023 DH		

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-13

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 8:52:00 AM

CLIENT SAMPLE ID S2-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		ANALYSIS A		
FACTOR	UNITS	DATE	BY	
1	UG/L	12/13/2023	DHM	
4	LIC/I	40/40/0000	DUM	
ı	UG/L	12/13/2023	DHM	
	FACTOR 1	UNITS	1 UG/L 12/13/2023	

			ANALYSIS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	93.8	12/13/2023
AS: 629-99-2			

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-14

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 9:42:00 AM

CLIENT SAMPLE ID S3-AD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range CAS: ARC-TPH-ORO	NWTPH-DX	270	100	1	UG/L	12/13/2023	DHM

RROGATE	METHOD	%REC	DATE
	NWTPH-DX	109	12/13/2023
-99-2			

U - Analyte analyzed for but not detected at level above reporting limit. Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-15

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 9:41:00 AM

CLIENT SAMPLE ID S3-AU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANIAL VOIO	ANIAL VOIO

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	91.0	12/13/2023
CAS: 629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-16

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:17:00 AM

CLIENT SAMPLE ID S3-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

ANALYSIS
DATE
12/13/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-17

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:14:00 AM

CLIENT SAMPLE ID S3-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	110	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAL VOIC	ANIAL VOIC

				ANALY
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	89.7	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-18

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:52:00 AM

CLIENT SAMPLE ID S3-CD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS By
TPH-Diesel Range	NWTPH-DX	─₩ UJ	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range CAS: ARC-TPH-ORO	NWTPH-DX	300	100	1	UG/L	12/13/2023	DHM

			ANALYSIS
OGATE	METHOD	%REC	DATE
	NWTPH-DX	102	12/13/2023
1-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-19

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 10:48:00 AM

CLIENT SAMPLE ID S3-CU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION	ANALYSIS ANALY			
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY	
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM	
CAS: ARC-DRO	NIME TO A DOC		400			40/40/0000	5	
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM	
CAS: ARC-TPH-ORO								

			ANALYSIS A
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	103	12/13/2023
CAS: 620-00-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-20

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:05:00 PM

CLIENT SAMPLE ID S4-AD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS ANALYSIS	
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

		ANALYSIS
METHOD	%REC	DATE
NWTPH-DX	104	12/13/2023
INVV I FII-DX	104	

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-21

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 11:52:00 AM

CLIENT SAMPLE ID S4-AU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	260	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS ANALYSIS	

SURROGATE			ANALYSIS AN	IALYSIS
	METHOD	%REC	DATE	BY
C25	NWTPH-DX	110	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-22

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:40:00 PM

CLIENT SAMPLE ID S4-BD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION	ANALYSIS ANALYSIS		
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

%REC	ГНОД	ME
	95.2	NWTPH-DX 95.2

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-23

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 12:23:00 PM

CLIENT SAMPLE ID S4-BU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		REPORTING		DILUTION	ANALYSIS ANALYSIS		
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
•							

			ANALYS
URROGATE	METHOD	%REC	DATE
	NWTPH-DX	66.4	12/13/2023

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-24

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 1:15:00 PM

CLIENT SAMPLE ID S4-CD_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

		REPORT	REPORTING	DILUTION	ANALYSIS ANAL		
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	150	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	150	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO	NWIFIFDA	130	100	'	UG/L	12/13/2023	

 SURROGATE
 METHOD
 %REC
 DATE
 BY

 C25
 NWTPH-DX
 98.9
 12/13/2023
 DHM

 _ CAS: 629-99-2
 CAS: 629-99-2<

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-25

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 1:01:00 PM

CLIENT SAMPLE ID S4-CU_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	330	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	180	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

SURROGATE			ANALYSIS A	ANALY
	METHOD	%REC	DATE	BY
C25	NWTPH-DX	90.5	12/13/2023	DHM
CAS: 629-99-2				

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-26

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 8:57:00 AM

CLIENT SAMPLE ID 2A-W-40_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
RROGATE	METHOD	%REC	DATE
	NWTPH-DX	95.1	12/13/2023
629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-27

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:30:00 PM

CLIENT SAMPLE ID 2A-W-41_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	230	50	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	270	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

			ANALYSIS A	NALYSIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	90.0	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-27

REPORTING

DILUTION

ANALYSIS ANALYSIS

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 2:30:00 PM

CLIENT SAMPLE ID 2A-W-41_120623_SG WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX w/SGA	55	50	1	UG/L	12/18/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX w/SGA	U	100	1	UG/L	12/18/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS ANALYSIS	

SURROGATE	METHOD	%REC	ANALYSIS A	ANAL 1 SI
			DATE	BY
C25	NWTPH-DX w/SGA	116	12/18/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-28

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 10:33:00 AM

CLIENT SAMPLE ID 2A-W-42_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS .	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	170	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	130	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

METHOD %REC	ROGATE
	METHOD %REC
	NWTPH-DX 73.4

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product and an unidentified oil range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-29

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/6/2023 12:02:00 PM

CLIENT SAMPLE ID 1B-W-23_120623 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

%REC		METHOD	
	97.9		

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-30

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/5/2023 3:29:00 PM

CLIENT SAMPLE ID 5-W-43_120523 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANAI YSIS	ΔΝΔΙ ΥSIS

			ANAL 1919 A	AINAL I SIS
SURROGATE	METHOD	%REC	DATE	BY
C25	NWTPH-DX	96.8	12/13/2023	DHM
CAS: 629-99-2				

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 EV23120075-31

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM **CLIENT PROJECT: COLLECTION DATE:** 12/6/2023

WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-1_120623 C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
GATE	METHOD	%REC	DATE
	NWTPH-DX	85.8	12/13/2023
0.00.2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

> 1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 EV23120075-32

Seattle, WA 98101 ALS SAMPLE#:

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM 12/6/2023 **CLIENT PROJECT: COLLECTION DATE:**

WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-2_120623 C601

SAMPLE DATA RESULTS

		REPORTING	DILUTION		ANALYSIS A	ANALYSIS
METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
	NWTPH-DX	NWTPH-DX U	METHODRESULTSLIMITSNWTPH-DXU100	METHODRESULTSLIMITSFACTORNWTPH-DXU1001	METHODRESULTSLIMITSFACTORUNITSNWTPH-DXU1001UG/L	METHODRESULTSLIMITSFACTORUNITSDATENWTPH-DXU1001UG/L12/13/2023

			ANALYSIS
ROGATE	METHOD	%REC	DATE
	NWTPH-DX	108	12/13/2023
9-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-33

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/7/2023 CLIENT SAMPLE ID FD-3_120723 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION		ANALYSIS A	ANALYSIS
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

			ANALYSIS
SURROGATE	METHOD	%REC	DATE
	NWTPH-DX	105	12/13/2023
629-99-2			

U - Analyte analyzed for but not detected at level above reporting limit.

Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave, Unit 2400 ALS JOB#: EV23120075 ALS SAMPLE#: EV23120075-34

Seattle, WA 98101

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023 BNSF Skykomish 4Q23 GWM **CLIENT PROJECT: COLLECTION DATE:** 12/7/2023

WDOE ACCREDITATION: **CLIENT SAMPLE ID** FD-4_120723 C601

SAMPLE DATA RESULTS

			REPORTING	DILUTION	ANALYSIS ANALYSIS		
ANALYTE	METHOD	RESULTS	LIMITS	FACTOR	UNITS	DATE	BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO							
TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							

)	METHOD
102	NWTPH-DX 102
	METHOD

U - Analyte analyzed for but not detected at level above reporting limit.



CLIENT: Arcadis U.S., Inc. DATE: 12/21/2023

1420 - 5th Ave , Unit 2400 ALS JOB#: EV23120075 Seattle, WA 98101 ALS SAMPLE#: EV23120075-35

CLIENT CONTACT: Michelle Nguyen DATE RECEIVED: 12/08/2023

CLIENT PROJECT: BNSF Skykomish 4Q23 GWM COLLECTION DATE: 12/8/2023 8:00:00 AM

CLIENT SAMPLE ID EB-1_120823 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS A	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-DRO TPH-Oil Range	NWTPH-DX	U	100	1	UG/L	12/13/2023	DHM
CAS: ARC-TPH-ORO							
						ANALYSIS	ANALYSIS

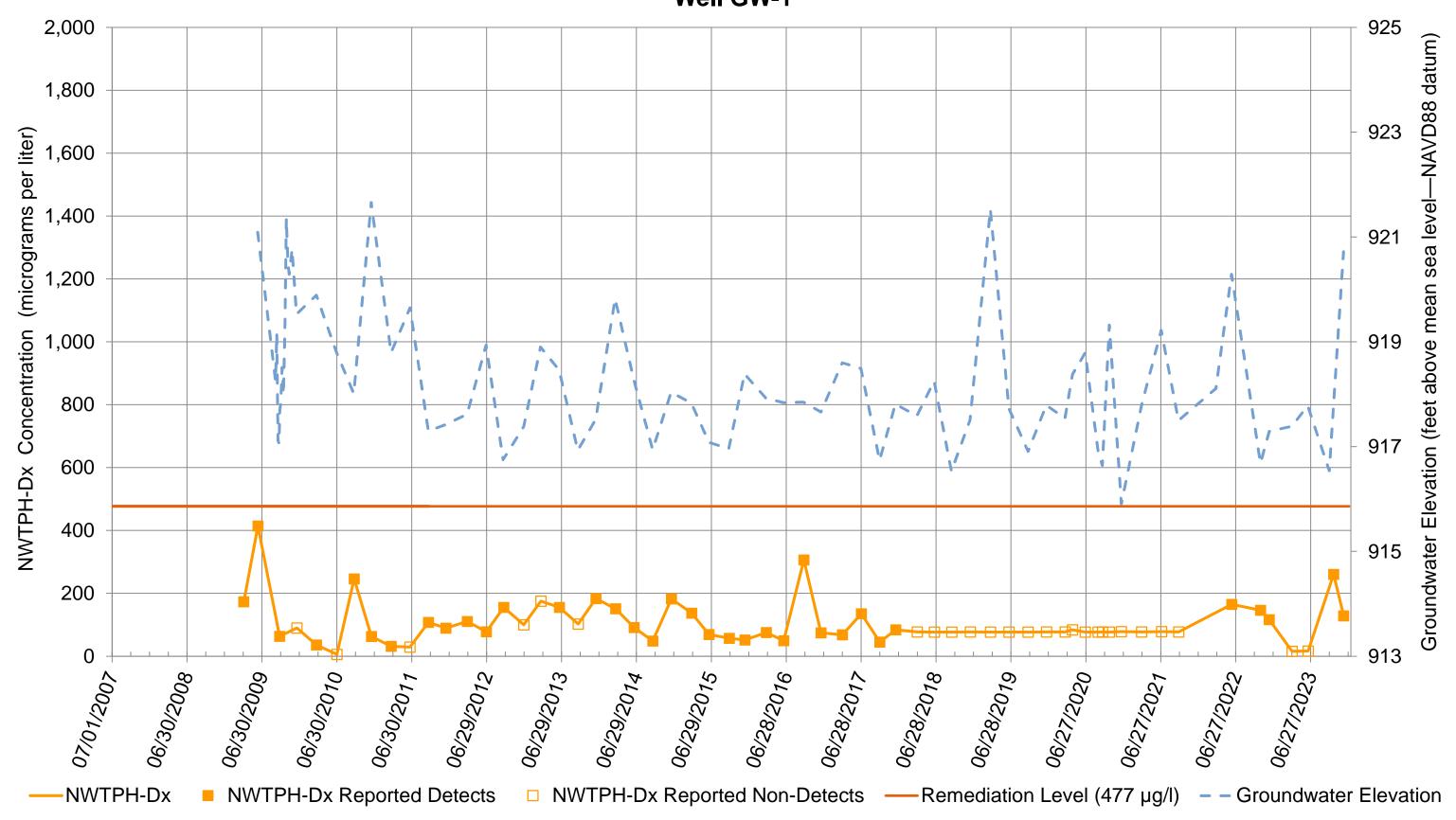
			ANAL 1919 AN
SURROGATE	METHOD	%REC	DATE
C25	NWTPH-DX	102	12/13/2023
CAS: 629-99-2			

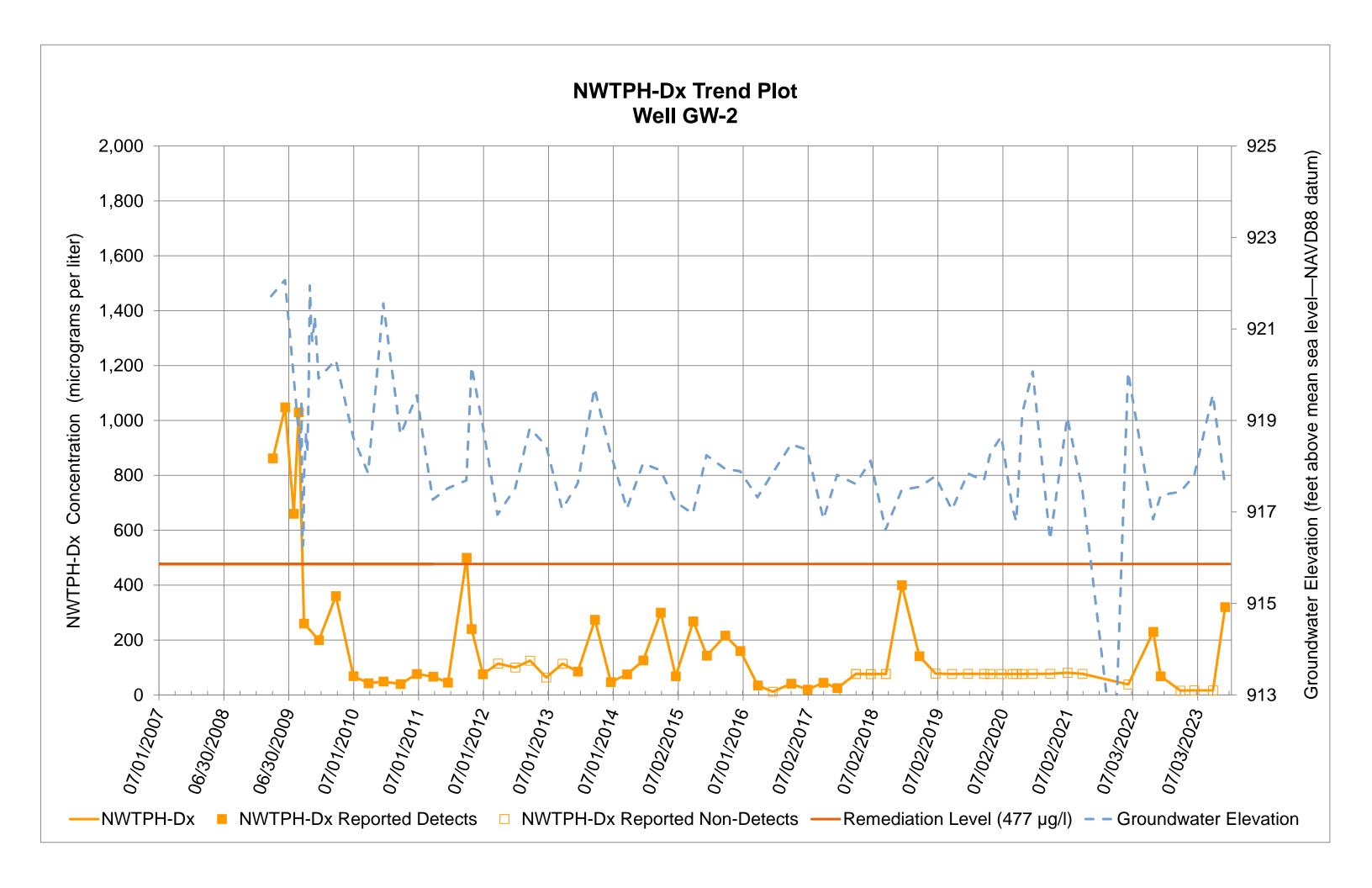
U - Analyte analyzed for but not detected at level above reporting limit.

Appendix C

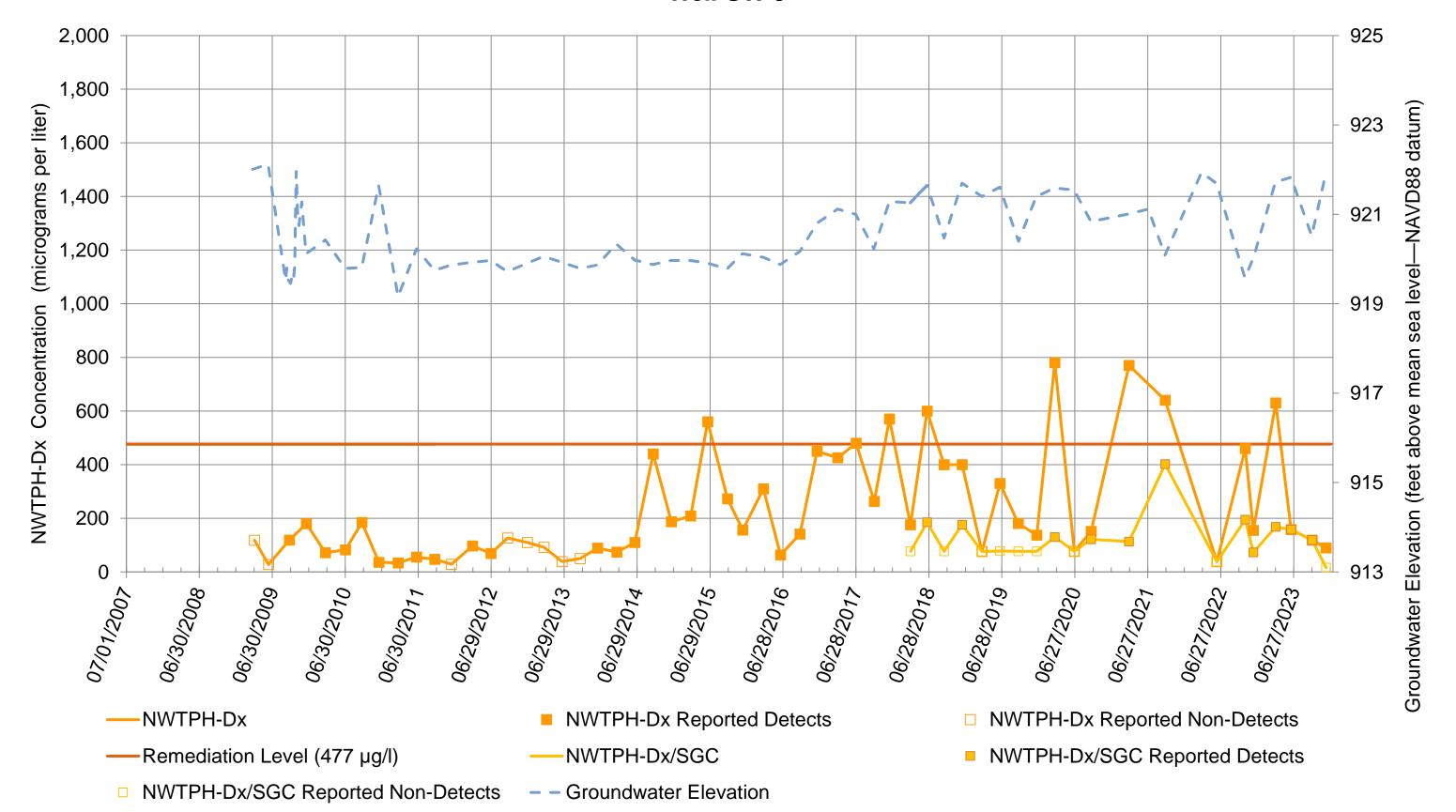
NWTPH-Dx Trend Plots

NWTPH-Dx Trend Plot Well GW-1

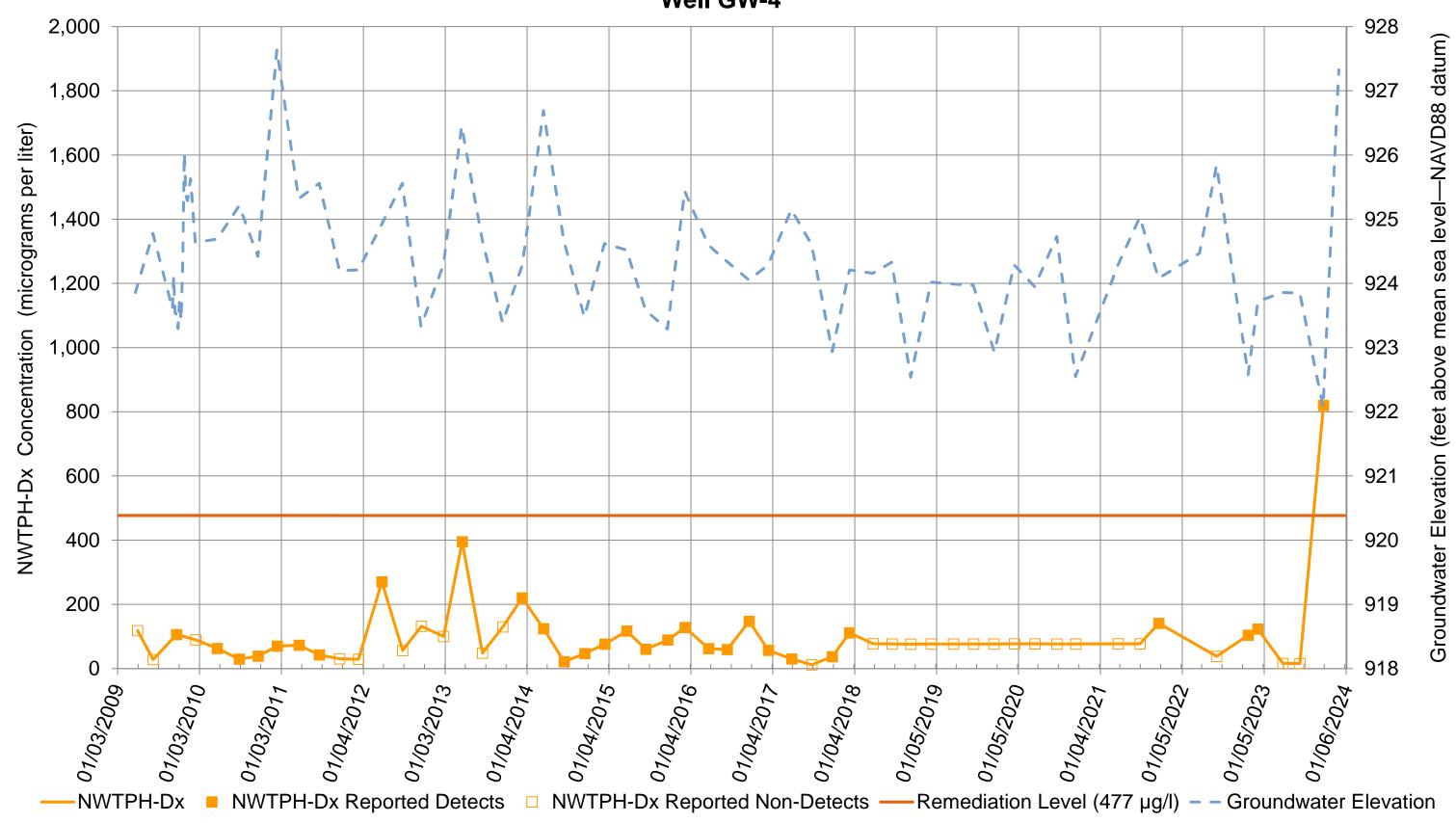




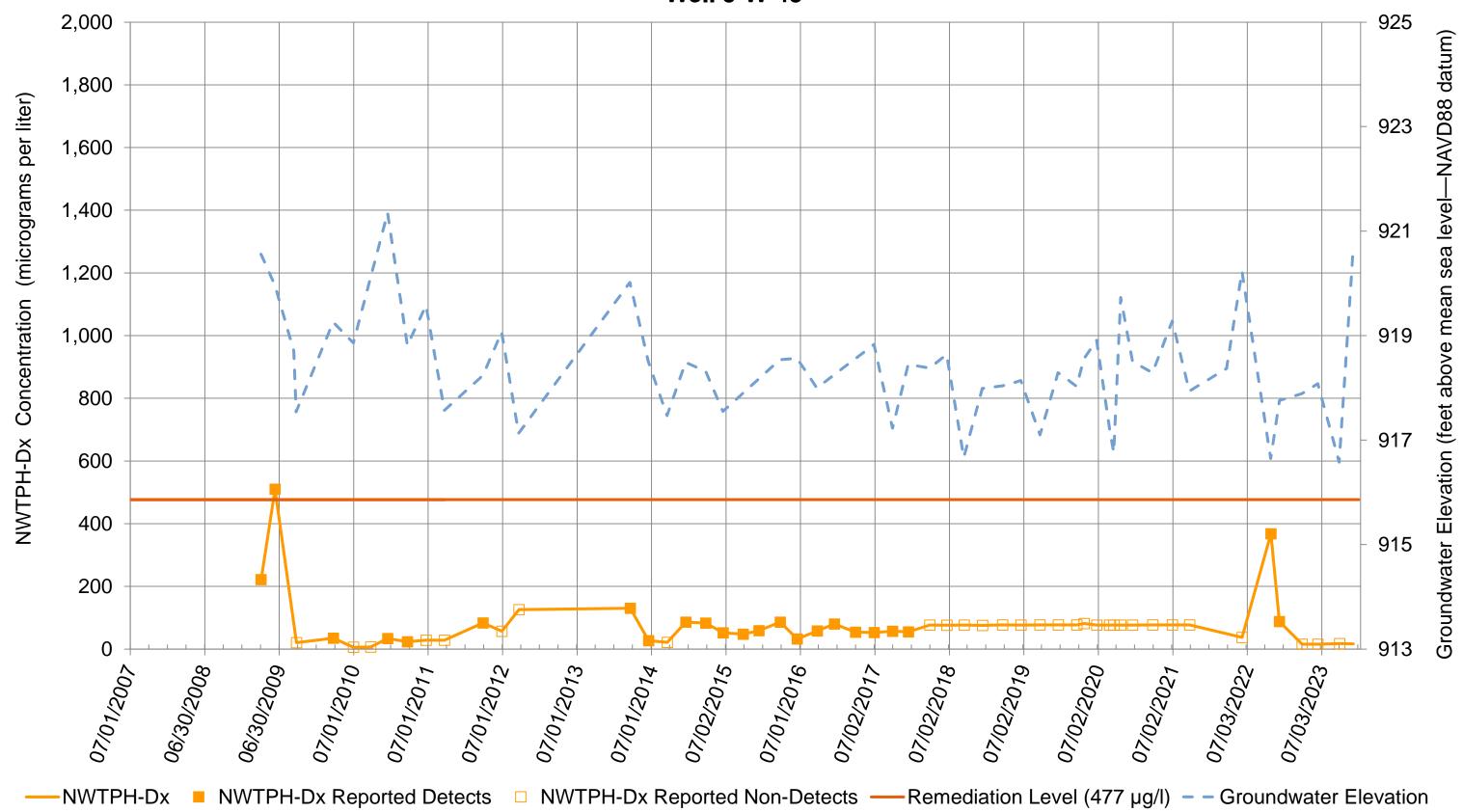
NWTPH-Dx Trend Plot Well GW-3



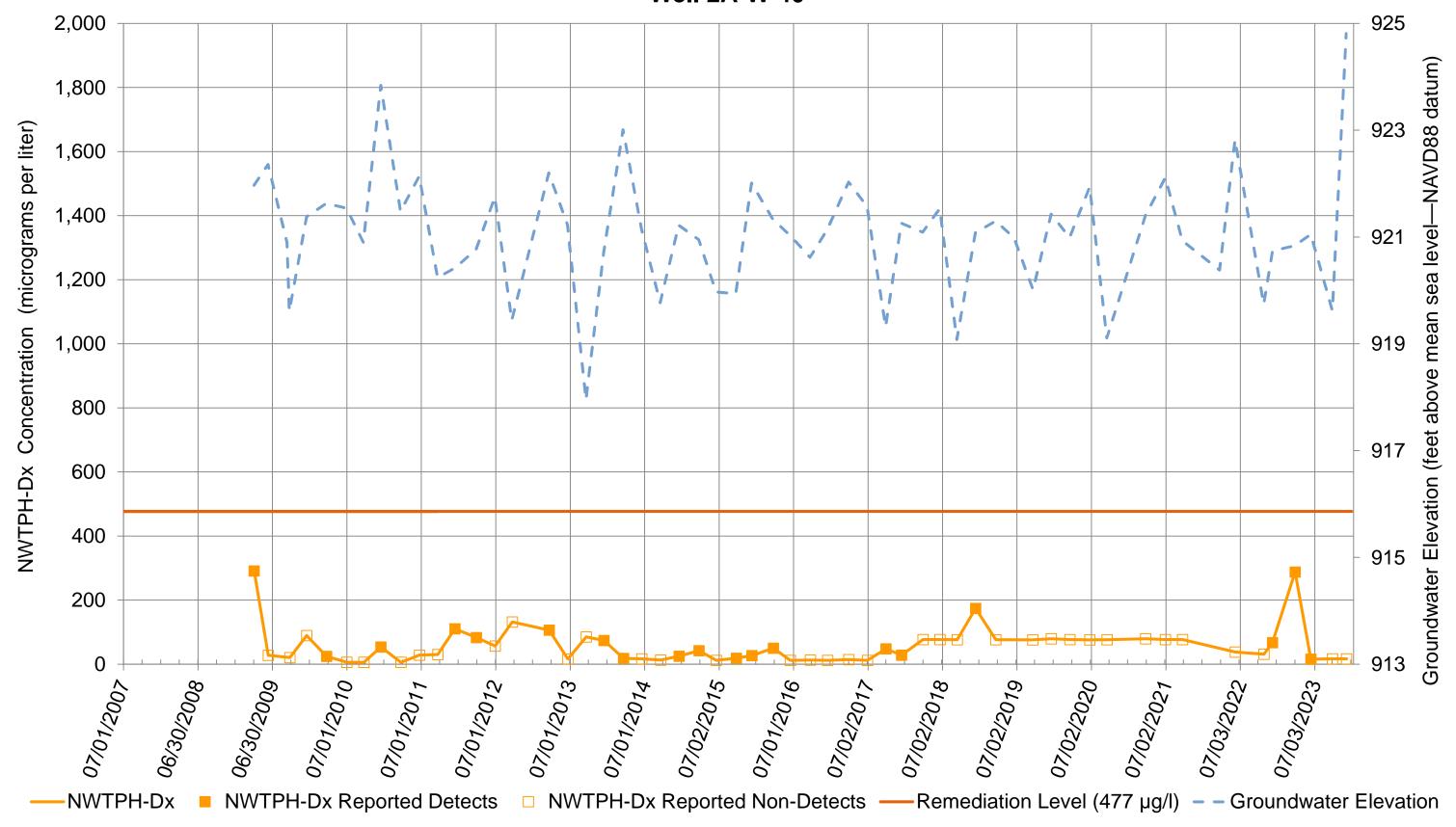
NWTPH-Dx Trend Plot Well GW-4



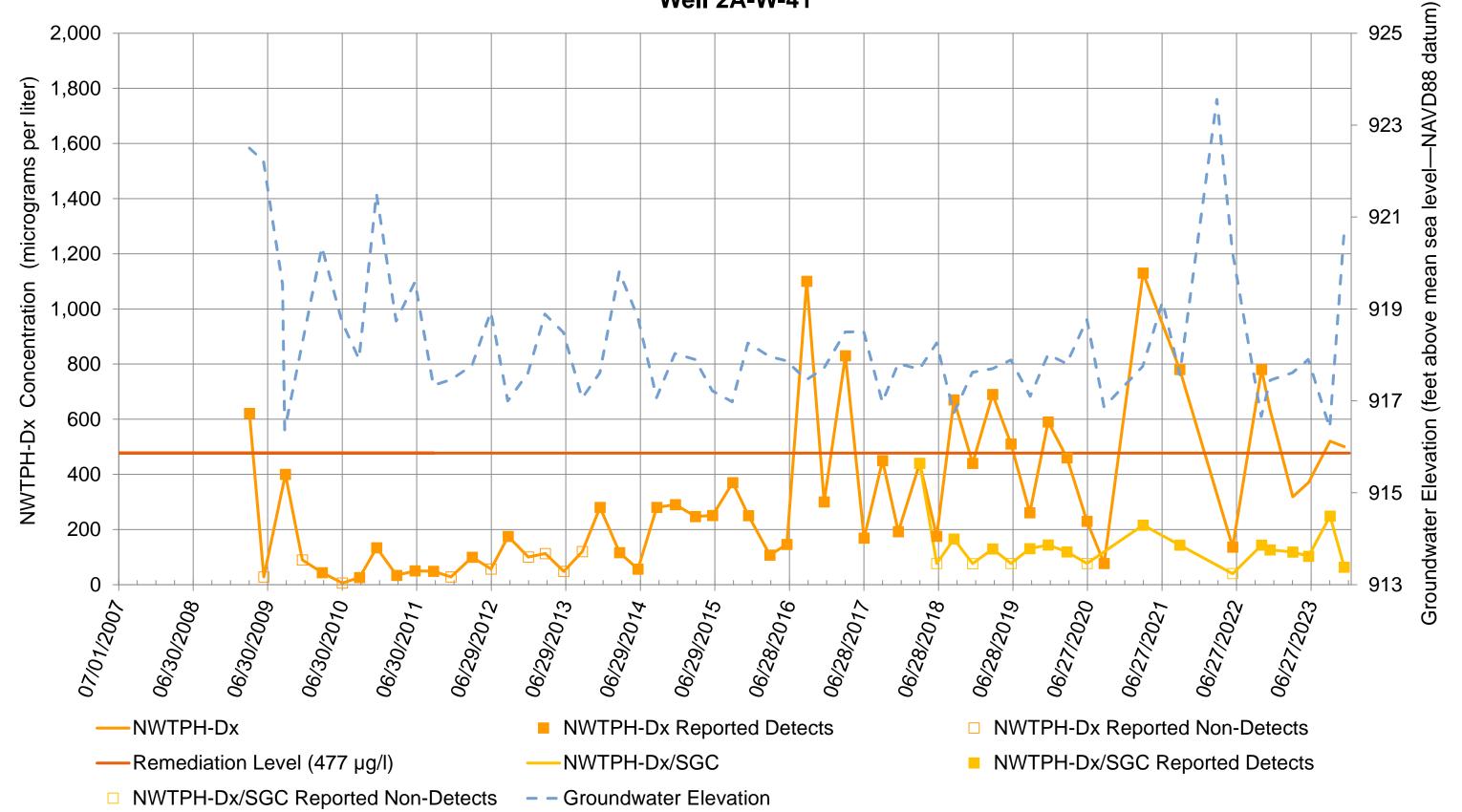
NWTPH-Dx Trend Plot Well 5-W-43



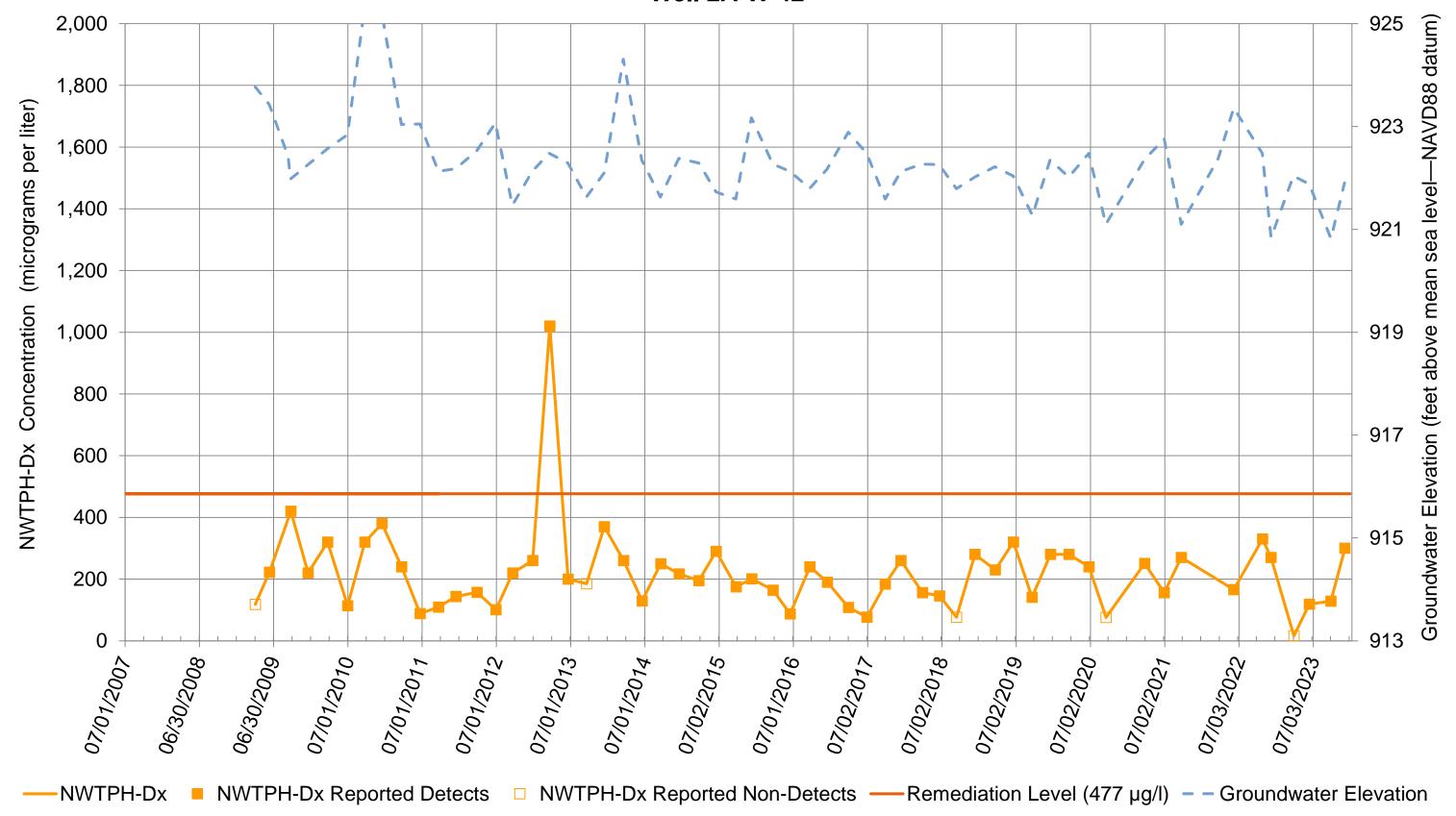
NWTPH-Dx Trend Plot Well 2A-W-40



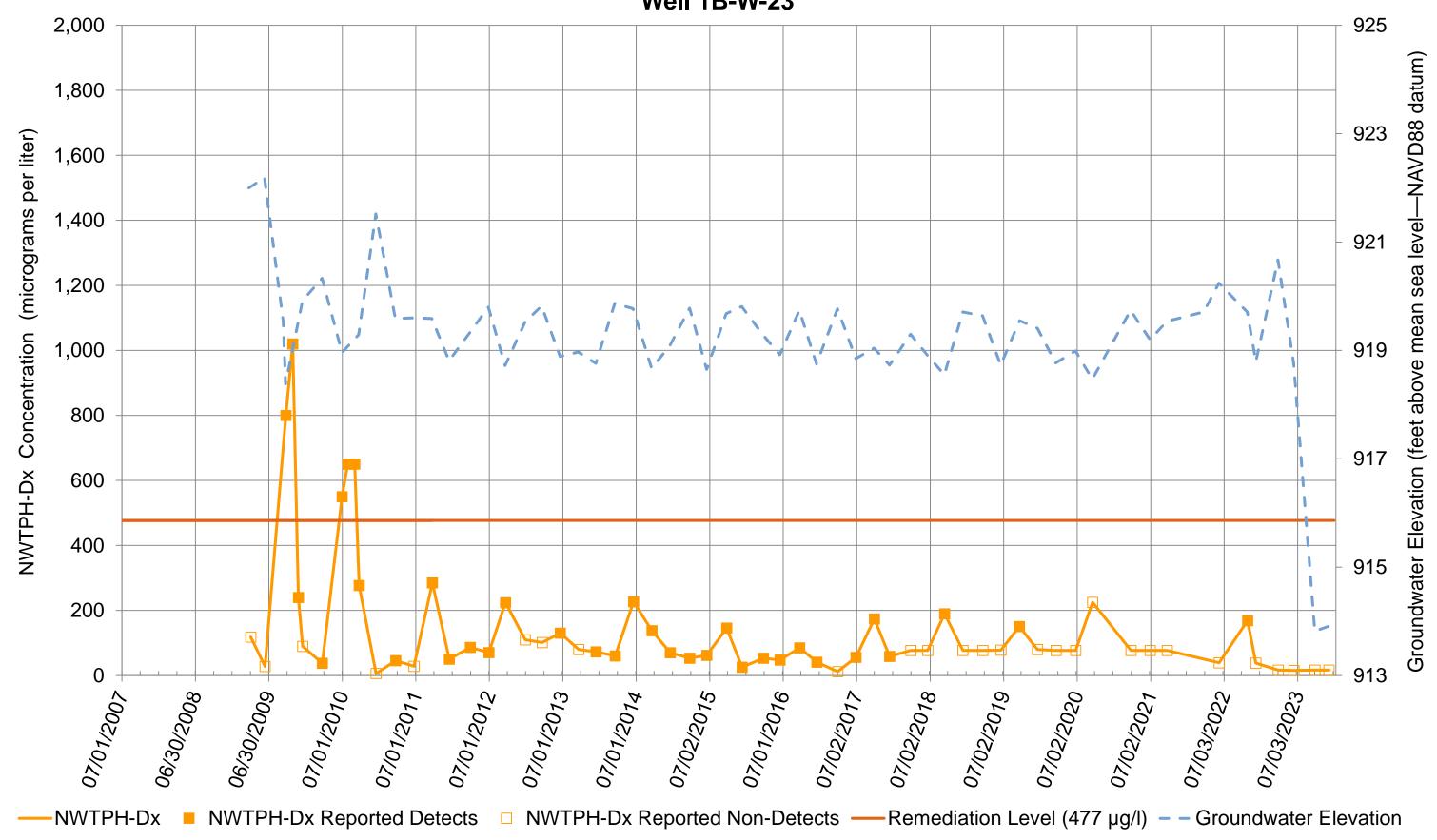
NWTPH-Dx Trend Plot Well 2A-W-41



NWTPH-Dx Trend Plot Well 2A-W-42



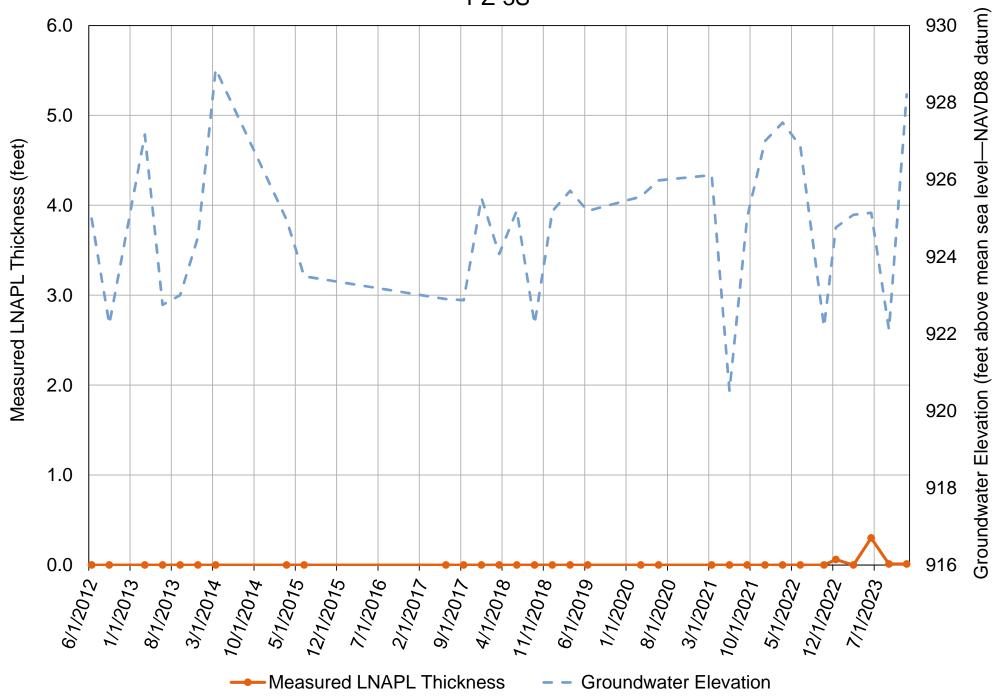
NWTPH-Dx Trend Plot Well 1B-W-23



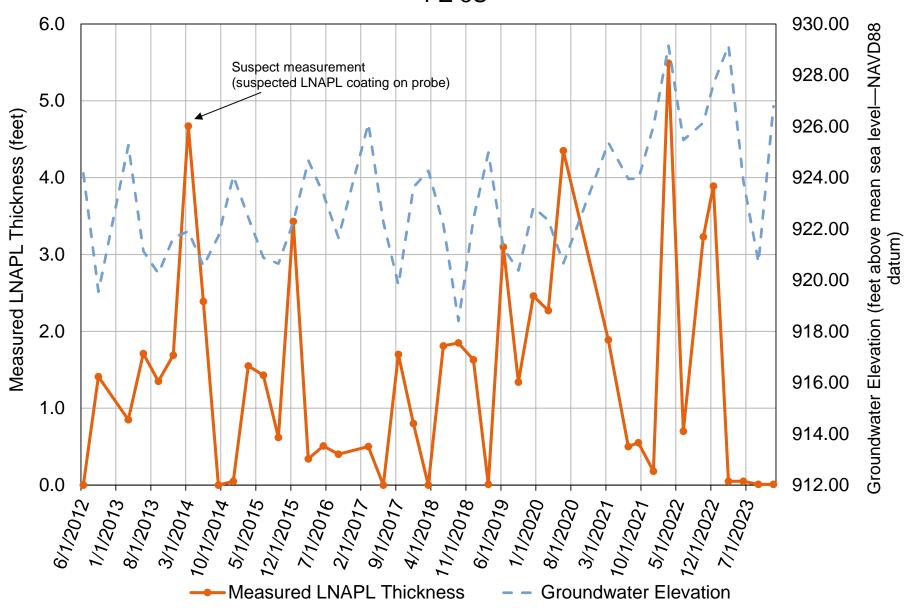
Appendix D

LNAPL Trend Plots

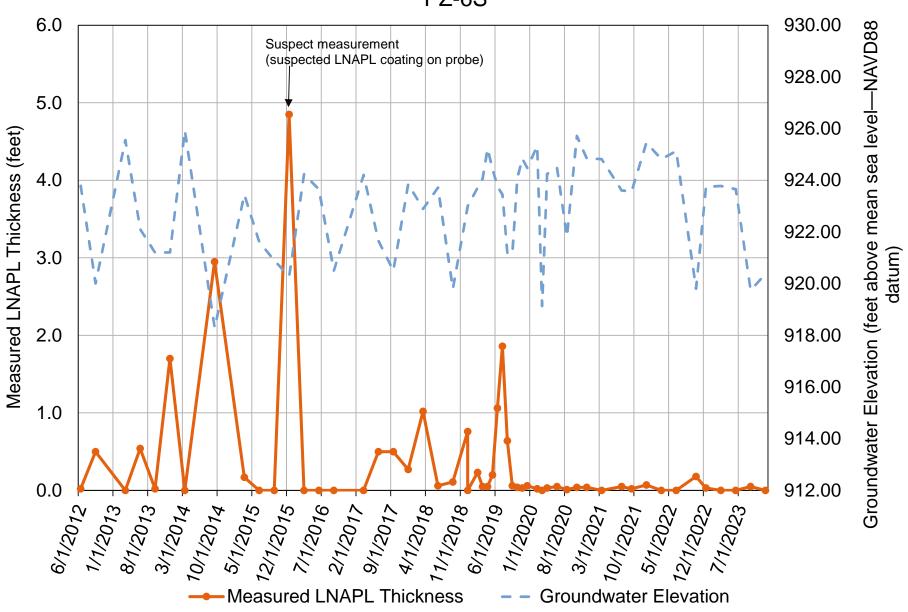
LNAPL Thickness Trend Plot PZ-3S



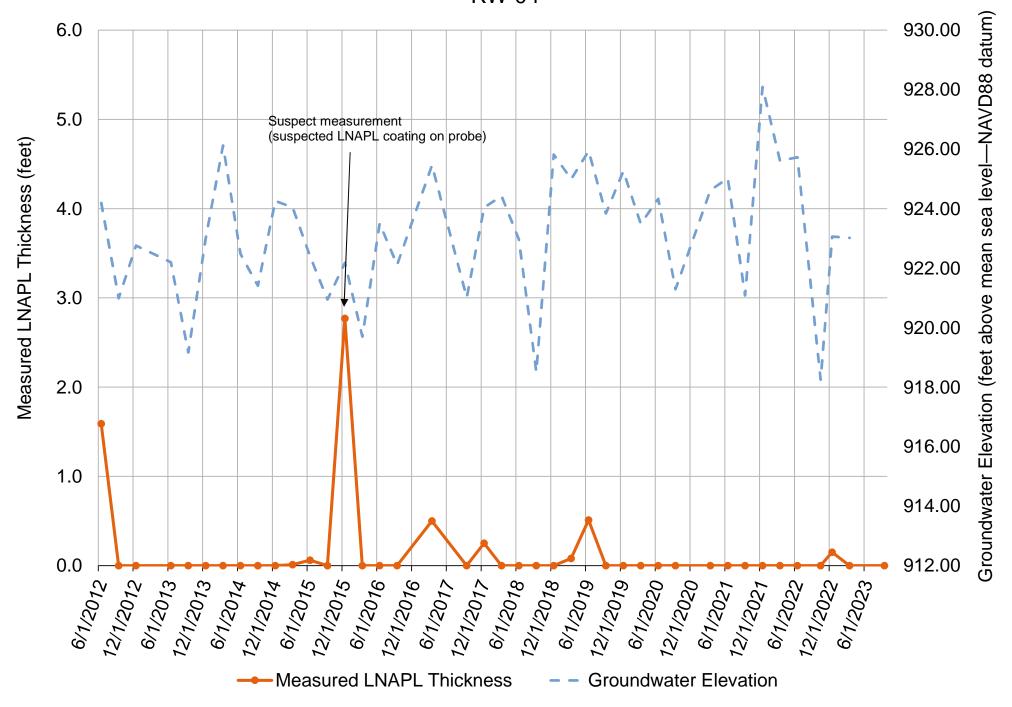
LNAPL Thickness Trend Plot PZ-5S



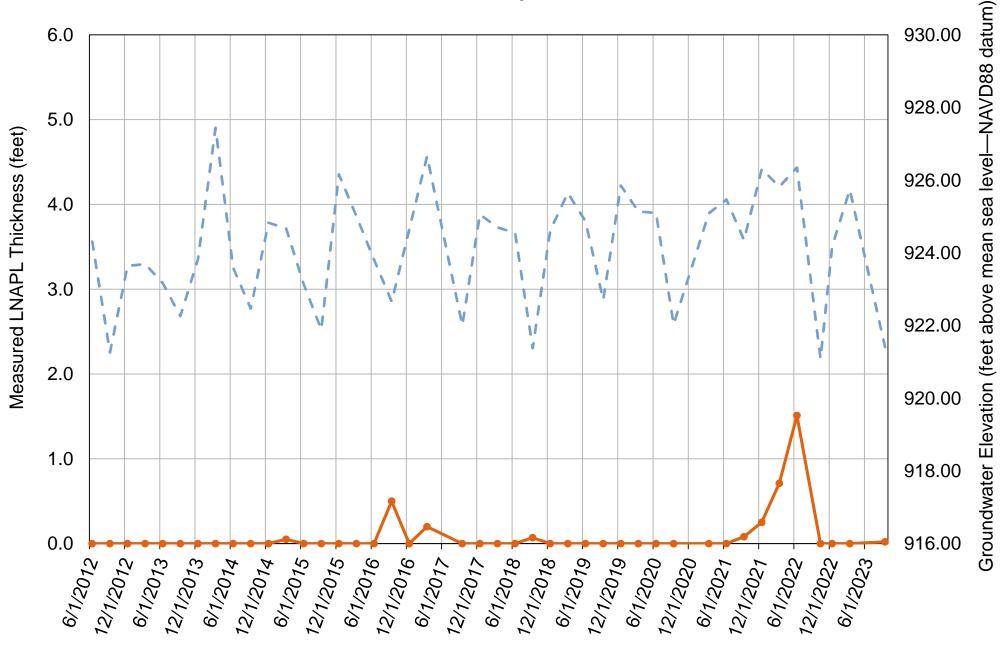
LNAPL Thickness Trend Plot PZ-6S

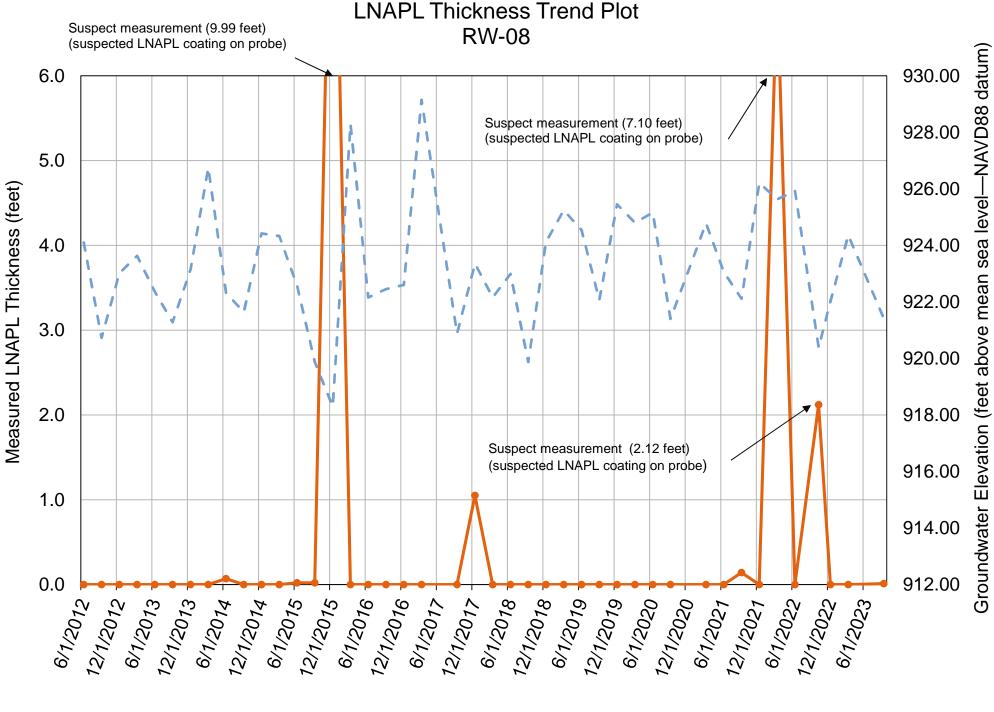


LNAPL Thickness Trend Plot RW-04



LNAPL Thickness Trend Plot RW-07





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