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May 19, 2020

Ronald Timm
Toxics Cleanup Program
Dept. of Ecology
3190 160th Ave SE
Bellevue, WA 98008-5452

RE: Final 2019 Annual Hydraulic Control and Containment System Operations Report Transmittal
Consent Decree No. 07-2-33672-9 SEA:
Site Name: BNSF Former Maintenance and Fueling Facility
Site Address: Skykomish, WA
Facility/Site ID No.: 2104
Cleanup Site ID No.: 34

Dear Mr. Timm:

Enclosed is the Final 2019 Annual Hydraulic Control and Containment System Operations Report for Ecology's records.

Sincerely,

Shane C. DeGross
Manager Environmental Remediation, BNSF Railway

cc: Ms. Amy Essig Desai, Farallon Consulting

FARALLON CONSULTING

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California
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2019 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT SYSTEM OPERATIONS REPORT

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

Submitted by:
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For:
BNSF Railway Company
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May 19, 2020

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EXECUTIVE SUMMARY

This 2019 Annual Hydraulic Control and Containment (HCC) System Operations Report describes the HCC system operation and the performance monitoring conducted during 2019 at the BNSF Railway Company (BNSF) Former Maintenance and Fueling Facility in Skykomish, Washington (herein referred to as the Site). The HCC system operated for approximately 462 hours, and approximately 20 gallons of light nonaqueous-phase liquid (LNAPL) was recovered from three groundwater extraction/LNAPL recovery wells.

The reported concentrations of lead, arsenic, and total petroleum hydrocarbons (quantified as NWTPH-Dx, defined herein as the sum of total petroleum hydrocarbons as diesel- and oil-range organics) in HCC water treatment system effluent samples were less than the respective discharge limits specified in National Pollutant Discharge Elimination System Permit No. WA0032123.

A pilot study was initiated in 2019 to evaluate an alternative HCC operational approach that uses the HCC system barrier wall and passive groundwater flow through the treatment gates to meet the cleanup objective, with active groundwater pumping as the backup redundant system. The pilot study was conducted in accordance with the 2018 HCC System Passive Operation Pilot Study Work Plan (Farallon 2018b) (Pilot Study Work Plan). The Pilot Study Work Plan was approved by the Washington State Department of Ecology (Ecology) on December 5, 2018. The pilot study began on January 18, 2019 and continued through the end of the year. The pilot study was initiated when the recovery well pumps and groundwater treatment system were turned off. The treatment system was tested each month by operating the pumps and groundwater treatment equipment as necessary (approximately 4 hours) to prevent biofouling buildup and ensure the system is operational and can be activated to reverse the hydraulic gradient across the West Gate, if needed.

Liquid level gauging and groundwater sampling were performed to assess HCC system performance in March, June, September, and December 2019. North of the HCC system barrier wall, groundwater is inferred to generally flow toward the west and roughly parallel to the Skykomish River. South of the barrier wall, groundwater is inferred to generally flow toward the west/northwest. The inferred groundwater flow directions in 2019 were consistent with previous years subsequent to construction of the barrier wall. Based on groundwater elevations and previous HCC system pilot testing near the flow-through treatment gates in the barrier wall, groundwater is inferred to flow from south to north through three of the four gates. Previous pilot testing has shown that the Center Gate is blocked to groundwater flow due to biofouling.

LNAPL was observed in monitoring wells and piezometers up-gradient of and adjacent to the HCC system barrier wall, between the West Gate and Center Gate consistent with previous years; measured LNAPL thicknesses ranged from a light trace (i.e., less than 0.01 foot) to 3.1 feet. A heavy trace of LNAPL was observed in recovery well RW-09 during the December 2019 groundwater monitoring event. LNAPL was not observed at nearby locations, including piezometer PZ-1, located east of recovery well RW-09, and the east, central, and west oil-water separator chambers (north and south) of the East Gate, indicating an isolated occurrence. Over the

lifecycle of the data record, measured LNAPL thicknesses in these and other piezometers and wells have exhibited an overall decreasing or stable trend, with minor variability. LNAPL measurements at the Site are subject to uncertainty due to the viscous nature of the LNAPL. Piezometers and recovery wells will continue to be monitored for LNAPL.

Reported concentrations of NWTPH-Dx in groundwater samples collected from monitoring wells immediately north of the HCC system barrier wall were less than the Site-specific groundwater remediation level of 477 micrograms per liter (µg/l) and absence of sheen (RL), with the exception of select samples collected from HCC system monitoring well 2A-W-41. Reported NWTPH-Dx concentrations in well 2A-W-41 have been variable since December 2013. Well 2A-W-41 is down-gradient of monitoring well GW-3, which is immediately north and down-gradient of the Center Gate, where substantial biofouling by iron bacteria has been observed. Quarterly groundwater samples collected from wells 2A-W-41 and GW-3 in 2019 were analyzed by Ecology Method NWTPH-Dx both with and without a silica gel cleanup preparation process. The March, June, September, and December 2019 samples collected from well 2A-W-41 and analyzed without silica gel cleanup had reported concentrations of 690, 510, 261, and 590 µg/l, respectively. Reported NWTPH-Dx concentrations in all of the silica gel-prepared samples collected from well 2A-W-41 were less than the RL. The results of the analyses performed with and without silica gel cleanup suggest that the results from the non-silica-gel–prepared samples are biased high due to biogenic or petroleum metabolite interferences.

The groundwater monitoring results from 2019 and previous years indicate that the HCC system has generally been effective in meeting the cleanup objective of preventing LNAPL and groundwater with NWTPH-Dx concentrations exceeding the RL from migrating from the BNSF railyard. The HCC system operated in conformance with National Pollutant Discharge Elimination System Permit No. WA0032123.

1.0 INTRODUCTION

This 2019 Annual Hydraulic Control and Containment (HCC) System Operations Report describes the HCC system operation and the performance monitoring conducted during 2019 at the BNSF Railway Company (BNSF) Former Maintenance and Fueling Facility in Skykomish, Washington (herein referred to as the Site). The Site includes BNSF property and public and private properties within the Town of Skykomish in King County, Washington, and encompasses an area of approximately 40 acres (Figure 1).

The HCC system is part of an integrated and comprehensive cleanup action being undertaken by BNSF at the Site, 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 Special Design Report (ENSR Corporation 2008b) and the 2008 Construction Plans and Specifications (ENSR Corporation 2008a). The HCC system was constructed as described in the 2008 As-Built Completion Report (AECOM 2009) and the 2009 As-Built Completion Report (AECOM 2010c). Compliance monitoring is described in the 2010 Compliance Monitoring Plan Update (AECOM 2010b) (2010 CMP). HCC system operations monitoring is conducted in accordance with the 2011 Operation and Maintenance Manual (O&M Manual) (AECOM 2011a) and 2014 Addendum (Farallon 2014). The HCC system was operated in accordance with these documents until January 18, 2019, when the HCC system was placed into passive operation in accordance with the 2018 HCC System Passive Operations Pilot Study Work Plan (Farallon 2018b) (Pilot Study Work Plan). The Pilot Study Work Plan was approved by the Washington State Department of Ecology (Ecology) on December 5, 2018. During the pilot study, the system start-up and shut-down, and sampling of treatment system effluent during the monthly system test was performed in accordance with the procedures described in the HCC O&M Manual and the 2014 Addendum. These reports have been prepared in accordance with Consent Decree No. 07-2-33672-9 SEA between Ecology and BNSF.

1.1 CLEANUP OBJECTIVE

The HCC system was designed to meet the cleanup objective of preventing light nonaqueous-phase liquid (LNAPL) and groundwater with total petroleum hydrocarbon concentrations (quantified as NWTPH-Dx) exceeding the Site-specific remediation level (RL) of 477 micrograms per liter (µg/l) from migrating from the BNSF railyard (Ecology 2007). NWTPH-Dx is defined herein as the sum of total petroleum hydrocarbons as diesel-range organics (DRO) and as oil-range organics (ORO) based on analysis using Ecology Method NWTPH-Dx.

1.2 REPORT ORGANIZATION

The remainder of this report is organized as follows:

- **Section 2, HCC System Description and Performance Monitoring**, provides a general description of the HCC system and a summary of the performance monitoring activities conducted during 2019, including the monitoring parameters, schedule, and results;

- **Section 3, Conclusions**, presents conclusions based on the HCC system operations and groundwater monitoring activities;
- **Section 4, Planned 2020 Operations and Activities**, describes HCC system operation, maintenance, and monitoring activities planned for 2020; and
- **Section 5, Bibliography**, provides a list of the documents used in preparing this report.

2.0 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 2019, including the monitoring parameters, schedule, and results. HCC system performance monitoring is conducted to facilitate optimal system performance, assess performance relative to the cleanup objective, and document compliance with the discharge limits specified in National Pollutant Discharge Elimination System (NPDES) Permit No. WA0032123 (NPDES Permit). During 2019, performance monitoring included HCC system operations and groundwater monitoring as required by the 2010 CMP. The HCC system performance monitoring activities and results are described in Sections 2.2 through 2.5.

The HCC System Passive Operation Pilot Study (Pilot Study) was initiated on January 18, 2019, and the system began operating under the Pilot Study Work Plan. Operations and maintenance were conducted in accordance with the Pilot Study Work Plan for the remainder of 2019. The Pilot Study included the following activities:

- Collecting baseline groundwater samples at select monitoring locations near the western end of the HCC barrier wall, prior to turning off the recovery well pumps, for laboratory analysis for NWTPH-Dx;
- Turning off the recovery well pumps to initiate passive operation of the HCC system;
- Conducting monthly groundwater sampling and liquid level gauging at the monitoring locations sampled during the baseline sampling event;
- Evaluating the monitoring results monthly to assess the effectiveness of passive operation; and
- Operating the recovery well pumps and groundwater treatment system as necessary (approximately 4 hours) each month to ensure all components of the redundant HCC system can be activated to reverse the hydraulic gradient across the West Gate, if needed.

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 2017 Annual HCC System Operations Report (Farallon 2018a).

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 (OWS) and a mixture of granular activated carbon (GAC) and pea gravel media, along the northern boundary of the BNSF railyard;
- 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 (PLC) 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 up-gradient 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 (per the NPDES Permit), which discharges to the Skykomish River (Farallon 2018a).

2.2 HCC SYSTEM OPERATIONS MONITORING

HCC system operations monitoring was conducted in accordance with the 2011 O&M Manual (AECOM 2011a) and 2014 Addendum (Farallon 2014) until initiating the Pilot Study on January 18, 2019. Upon initiating the Pilot Study, HCC system operations monitoring was conducted in accordance with the Pilot Study Work Plan.

HCC system operations monitoring during the Pilot Study consisted of monitoring the following operational parameters and conducting inspections and sampling at the frequencies noted:

- System run-time (daily);
- Groundwater extraction and treated water discharge flow (daily);
- Influent equalization tank water level (daily);
- Effluent equalization tank water level (daily);
- Backwash-water holding tank water level (daily);
- Visual inspection of the effluent equalization tank for sheen (monthly);
- Visual inspection of the recovery wells and recovery well oil skimmer tanks for accumulation of LNAPL (monthly);

- Water treatment system influent monitoring:
    - Sampling of primary GAC vessel influent and analysis by Ecology Method NWTPH-Dx (monthly);
    - Sampling of secondary GAC vessel influent and analysis by Ecology Method NWTPH-Dx (monthly) (Note: secondary GAC vessel influent samples are collected to assess petroleum hydrocarbon loading of primary GAC vessel, and are not further discussed in this report);
- Water treatment system effluent monitoring:
    - Sampling of treatment system effluent and analysis by Ecology Method NWTPH-Dx (monthly);
    - Monitoring of treatment system effluent pH (monthly);
    - Sampling of treatment system effluent and analysis for total lead and total arsenic by U.S. Environmental Protection Agency Method 200.8 (monthly); and
- Groundwater elevations in piezometers and recovery wells (daily).

2.3 HCC SYSTEM GROUNDWATER MONITORING

The performance of the HCC system is assessed by monitoring the following wells, piezometers, and barrier wall gate OWS chambers (Figures 1 and 2):

- The 20 sentry wells (well groups S1 through S4, containing four to six wells each) installed in the GAC/pea gravel chambers of the barrier wall treatment gates;
- The 11 HCC system monitoring wells:
    - Gate wells GW-1 through GW-4, installed immediately north of the barrier wall gates;
    - End wells EW-1 and EW-2A, installed near the western and eastern ends of the barrier wall, respectively;
    - Monitoring wells 5-W-43, 2A-W-40, 2A-W-41, 1B-W-23, and 2A-W-42, installed along Railroad Avenue on the northern (down-gradient) side of the barrier wall;
- The six piezometer pairs (piezometers PZ-2S/PZ-2N through PZ-7S/PZ-7N) installed along the barrier wall and the two piezometers (piezometers PZ-1 and PZ-8) installed at the western and eastern ends of the barrier wall;
- The nine groundwater extraction/LNAPL recovery wells (wells RW-01 through RW-09) installed on the southern (up-gradient) side of the barrier wall; and
- The OWS chambers in each vault of each barrier wall gate (Figure 2).

The HCC system monitoring wells are gauged and sampled quarterly; the sentry wells are sampled semiannually. The piezometers, recovery wells, and barrier wall gate OWS chambers are gauged quarterly for the presence or absence of LNAPL or sheen and are not sampled. Site-wide

groundwater monitoring events are conducted in March, June, September, and December. The March and September monitoring events are referred to as semiannual monitoring events. The June and December monitoring events are referred to as quarterly monitoring events.

The Pilot Study performance was assessed by monthly monitoring at the following locations:

- Piezometers PZ-7S and PZ-8.
- Monitoring wells EW-1, 5-W-43, GW-1, and GW-2.
- West Gate sentry wells S2-AU, S2-AD, S2-BU, and S2-BD.
- The west and east vault OWS chambers of the West Gate and Far West Gate (locations WG-WV, WG-EV, FWG-WV, and FWG-EV). The groundwater samples collected from the OWS chambers were obtained from the northern (down-gradient) side of the baffle walls in the OWS chambers.

Results from the Pilot Study will be provided to Ecology under separate cover (Farallon pending).

2.4 RESULTS OF HCC SYSTEM OPERATIONS MONITORING

2.4.1 System Run-Time

The HCC water treatment system operated continuously until January 18, 2019, when the system was shut down and placed into passive operation for the Pilot Study. The HCC system was then operated for approximately 4 hours per month for the remainder of 2019. In total, the HCC water treatment system operated for approximately 462 hours.

2.4.2 Groundwater Extraction and Treated Water Discharge Flow

Approximately 331,000 gallons of groundwater was extracted and treated prior to initiating the Pilot Study. Approximately 71,000 gallons of groundwater was extracted and treated after initiating the Pilot Study. Nearly all of the HCC system groundwater pumping in 2019 was from recovery wells RW-04 through RW-08. HCC system discharge flow rate data are summarized in Table 1.

2.4.3 Tank Water Levels

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

2.4.4 Visual Inspection of Effluent Equalization Tank for Sheen

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 water in the effluent equalization tank.

2.4.5 Visual Inspection of Recovery Wells and Recovery Well Oil Skimmer Tanks for Accumulation of LNAPL

Recovery wells and recovery well oil skimmer tanks were inspected monthly for accumulation of LNAPL. The recovery well oil skimmer tanks were pumped out as required (see Section 2.4.8, Recovered Light Nonaqueous-Phase Liquid Volumes).

2.4.6 Water Treatment System Influent Monitoring

Water treatment system influent was sampled monthly at the inlet to the primary GAC vessel and analyzed for NWTPH-Dx. Reported influent NWTPH-Dx concentrations ranged from less than the method detection limit (MDL) (i.e., not detected) to 1,050 µg/l; the average reported influent NWTPH-Dx concentration was 706 µg/l. Influent NWTPH-Dx data are summarized in Table 2; laboratory analytical reports are provided in Appendix A.

2.4.7 Water Treatment System Effluent Monitoring

Water treatment system effluent was sampled weekly in January until the Pilot Study was initiated on January 18, 2019, and then monthly thereafter, at the outlet of the secondary GAC vessel. The effluent samples were analyzed for NWTPH-Dx; one effluent sample collected each month also was analyzed for total lead and total arsenic. In addition, the pH of the treatment system effluent was monitored weekly until the Pilot Study was initiated on January 18, 2019, and then monthly thereafter, using a digital pH meter. The results of the effluent monitoring are summarized below.

- **NWTPH-Dx:** Reported NWTPH-Dx concentrations in the monthly treatment system effluent samples were less than the NPDES Permit discharge limit of 208 µg/l. Effluent NWTPH-Dx data are summarized in Table 2; laboratory analytical reports are provided in Appendix A.
- **pH:** Measured effluent pH ranged from 7.23 to 8.50 standard units; the average measured effluent pH was 7.58. The NPDES Permit discharge limit for pH is 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 treatment system effluent samples were less than the respective NPDES Permit discharge limits of 17.5 and 360 µg/l. Effluent lead and arsenic data are summarized in Table 4; laboratory analytical reports are provided in Appendix A.

2.4.8 Recovered Light Nonaqueous-Phase Liquid Volumes

The belt-type oil skimmers in recovery wells RW-01 and RW-03 through RW-08 were operated with approximate 2-minute run-times four to six times per day.

A total of approximately 20 gallons of LNAPL was recovered from the oil skimmer storage tanks at recovery wells RW-04 (approximately 4 gallons), RW-07 (approximately 8 gallons), and RW-08 (approximately 8 gallons). LNAPL was removed from the skimmer tanks during 2019 using a manual diaphragm pump and vacuum truck. Oily water was removed from the east vault of the West Gate using a vacuum truck; no measurable thickness of LNAPL was present in the east vault at the time of removal. Figures 3 through 6 depict the estimated areal extent of LNAPL at the Site.

2.4.9 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 (up-gradient) side of the barrier wall (designated PZ-2S, PZ-3S, etc.), and the other piezometer is on the northern (down-gradient) side of the barrier wall (designated PZ-2N, PZ-3N, etc.).

Historical groundwater elevation data for the Site indicate that groundwater mounding occurs on the southern (up-gradient) side of the barrier wall. Daily 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 2019 reporting period, including calculated elevation differentials at piezometer pairs, are presented in Table 5.

Average groundwater elevation differentials at the six piezometer pairs during 2019 ranged from 2.23 to 6.00 feet. Piezometer pair PZ-6S/PZ-6N, immediately east of the West Gate, had the largest average elevation differential of 6.00 feet. Piezometer pair PZ-2S/PZ-2N, between the East Gate and Center Gate, had the smallest average elevation differential of 2.23 feet. The differential groundwater elevation data and previous HCC system pilot testing (Farallon 2017b) suggest that groundwater flow occurred from south (up-gradient) to north (down-gradient) through the East Gate, West Gate, and Far West Gate during 2019. Previous pilot testing has shown that the Center Gate is blocked to groundwater flow due to the presence of iron bacteria biofouling in the up-gradient portions of the GAC/pea gravel media in this gate (Farallon 2017b).

Passive operation of the HCC system in 2019 did not appear to impact the average groundwater elevation differentials measured along the barrier wall compared to previous years when the system was active. The average differential in 2019 was slightly less at PZ-3 and PZ-5 (0.25 feet and 0.29 feet, respectively), slightly greater at PZ-6 (0.26 feet), and the same for the other piezometer pairs compared to 2017 and 2018.

2.4.10 Service Interruptions

There were no service interruptions while the water treatment system was operational between January 1 and January 18, 2019. The system was then shut down and operated passively in accordance with the Pilot Study Work Plan. There were no service interruptions during the 4-hour monthly tests conducted during the Pilot Study.

2.5 RESULTS OF HCC SYSTEM GROUNDWATER MONITORING

The results of Site-wide groundwater monitoring conducted in 2019 were presented in the draft 2019 Site-Wide Groundwater Monitoring Report (Farallon 2020). Figures 3 through 6 show reported groundwater NWTPH-Dx concentrations and measured LNAPL thicknesses at the monitoring locations used to assess HCC system performance. Groundwater elevation contours

and interpreted groundwater flow directions derived from the quarterly and semiannual groundwater monitoring data also are shown on Figures 3 through 6.

The groundwater monitoring results for the locations used to monitor HCC system performance are summarized below. Groundwater field parameter data are summarized in Table 6. Groundwater analytical results for DRO, ORO, and NWTPH-Dx (i.e., the sum of DRO and ORO) are summarized in Table 7. Groundwater elevation and LNAPL thickness data from the quarterly and semiannual monitoring events are summarized in Table 8. LNAPL thickness trend plots for HCC system monitoring locations that historically have contained measurable LNAPL are included in Appendix B.

2.5.1 Sentry Wells

The 20 sentry wells (wells S1-AU, S2-BD, etc.) were sampled during the March and September semiannual groundwater monitoring events. Reported NWTPH-Dx concentrations in the groundwater samples collected from sentry wells ranged from less than the MDL (i.e., not detected) to 370 µg/l, with two exceptions:

- NWTPH-Dx was reported at a concentration of 620 µg/l in the September 2019 groundwater sample collected from up-gradient sentry well S2-BU in the east vault of the West Gate (Table 7; Figure 5). NWTPH-Dx was not reported at concentrations exceeding the MDL in the September 2019 groundwater sample collected from down-gradient sentry well S2-BD in the east vault of the West Gate.
- NWTPH-Dx was reported at a concentration of 701 µg/l in the September 2019 groundwater sample collected from up-gradient sentry well S4-BU in the central vault of the East Gate (Table 7). NWTPH-Dx was not reported at concentrations exceeding the MDL in the September 2019 groundwater sample collected from down-gradient sentry well S4-BD in the central vault of the East Gate.

The two sentry wells noted above are in the up-gradient GAC/pea gravel chamber within their respective vaults. All up-gradient sentry wells are paired with a down-gradient sentry well located in the down-gradient GAC/pea gravel chamber in the same vault to evaluate the effectiveness of groundwater treatment. NWTPH-Dx was not reported at concentrations exceeding the MDL in the sentry wells situated down-gradient of S2-BU and S4-BU in September 2019, confirming the effectiveness of the GAC in treating groundwater.

2.5.2 Gate Wells

The four gate wells (wells GW-1 through GW-4) were gauged and sampled during the Site-wide quarterly and semiannual groundwater monitoring events. Reported NWTPH-Dx concentrations in groundwater samples collected from the gate wells were less than the RL and no sheen was observed.

2.5.3 End Wells

The two end wells (wells EW-1 and EW-2A) were gauged and sampled during the Site-wide quarterly and semiannual groundwater monitoring events. Reported NWTPH-Dx concentrations in groundwater samples collected from the end wells were less than the RL and no LNAPL or sheen was observed in these wells.

2.5.4 Monitoring Wells 5-W-43, 2A-W-40, 2A-W-41, 1B-W-23, and 2A-W-42

Monitoring wells 5-W-43, 2A-W-41, 1B-W-23, and 2A-W-42 were sampled quarterly. Monitoring well 2A-W-40 was sampled in March, September, and December 2019. Reported NWTPH-Dx concentrations in the groundwater samples collected from these wells were less than the RL, with the exception of the March, June, and December 2019 samples collected from well 2A-W-41, which had reported concentrations of 690, 510, and 590 µg/l, respectively (Table 7; Figures 3, 4 and 6). LNAPL or sheen was not observed in any of these monitoring wells.

Reported NWTPH-Dx concentrations in well 2A-W-41 have been variable since December 2013. Well 2A-W-41 is west and down-gradient of well GW-3 and the Center Gate. To evaluate whether the variable NWTPH-Dx concentrations reported in wells GW-3 and 2A-W-41 since June 2014 and December 2013, respectively, may be the result of interference from biogenic substances or petroleum metabolites, groundwater samples collected from each of these wells in 2019 were analyzed by NWTPH-Dx both with and without a silica gel cleanup preparation process. Reported NWTPH-Dx concentrations in the silica gel-prepared samples were less than the RL, and significantly less than the reported NWTPH-Dx concentrations in all eight associated non-silica-gel–prepared samples. The results of the analyses performed with and without a silica gel cleanup preparation process suggest that the NWTPH-Dx results from the non-silica-gel–prepared samples are biased high due to biogenic or petroleum metabolite interferences.

2.5.5 Piezometers

The 14 piezometers were gauged for the presence or absence of LNAPL or sheen during the Site-wide quarterly and semiannual groundwater monitoring events. LNAPL was observed in piezometers PZ-5S and PZ-6S on the southern (up-gradient) side of the barrier wall during one or more monitoring events (Table 8):

- **PZ-5S.** Measurable LNAPL was observed in March (0.01 feet), June (3.1 feet), September (1.34 feet), and December 2019 (2.46 feet). The measured LNAPL thicknesses in piezometer PZ-5S in June and December 2019 represent an overall slight increase in LNAPL thickness compared to 2018.
- **PZ-6S.** Measurable LNAPL was observed in March (0.05 foot), June (1.06 foot), September (0.06 foot), and December 2019 (0.06 foot). The measured LNAPL thicknesses in piezometer PZ-6S in June 2019 represents a slight increase in LNAPL thickness compared to 2018.

LNAPL thickness trend plots for HCC system monitoring locations that historically have contained measurable LNAPL are included in Appendix B. LNAPL recovery from piezometers

will continue along with continued monitoring and evaluation for the need for additional actions to prevent LNAPL migration.

2.5.6 Recovery Wells

The nine recovery wells were gauged for the presence or absence of LNAPL or sheen during the Site-wide quarterly and semiannual groundwater monitoring events. LNAPL was observed in recovery wells RW-01 through RW-09 during one or more monitoring events (Table 8):

- **RW-01.** A light trace of LNAPL was observed in June, September, and December 2019.
- **RW-02.** A light trace of LNAPL was observed in September and December 2019.
- **RW-03.** A light trace of LNAPL was observed in September and December 2019.
- **RW-04.** A light trace of LNAPL was observed in December 2019, a heavy trace of LNAPL was observed in September 2019, and measurable LNAPL was observed in March (0.08 foot) and June (0.51 foot) 2019. This represents an overall increase in LNAPL thickness in recovery well RW-04 compared to 2018.
- **RW-05.** A light trace of LNAPL was observed in September 2019, and a heavy trace of LNAPL was observed in June and December 2019.
- **RW-06.** A light trace of LNAPL was observed in September 2019.
- **RW-07.** A light trace of LNAPL was observed in June 2019, and a heavy trace of LNAPL was observed in March, September, and December 2019.
- **RW-08.** A heavy trace of LNAPL was observed in March, September, and December 2019.
- **RW-09.** A heavy trace of LNAPL was observed in December 2019.

LNAPL thickness trend plots for HCC system monitoring locations that historically have contained measurable LNAPL are included in Appendix B. The recovery wells will continue to be monitored for LNAPL, and oil skimmer run-time and frequency will be evaluated and adjusted as needed to optimize LNAPL recovery.

2.5.7 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, and each vault contains an OWS chamber (Figure 2). During the March, June, September, and December 2019 monitoring events, all 10 gate vault OWS chambers shown on Figure 2 were monitored for LNAPL or sheen (Table 8).

A sheen or trace LNAPL was observed in two gate vault OWS chambers as described below and in Table 8:

- A light trace of LNAPL was observed in June 2019, a heavy trace of LNAPL was observed in March and December, and measurable LNAPL was observed in September (0.02 foot)

in the south (up-gradient) chamber of the east vault OWS of the West Gate (location WG-EV-South Chamber); and

- A light trace of LNAPL was observed in March and December 2019, and a heavy trace of LNAPL was observed in September 2019 in the north (down-gradient) chamber of the east vault OWS of the West Gate (location WG-EV-North Chamber).

No measurable thickness of LNAPL was present in any gate vault OWS chambers in 2019 requiring removal. The gate vault OWS chambers will continue to be monitored and LNAPL will be removed by a vacuum truck or hand pump as needed.

3.0 CONCLUSIONS

The groundwater monitoring results from 2019 and previous years indicate that the HCC system continues to be effective in meeting the cleanup objective. In general, with the exceptions noted below, the groundwater monitoring data indicate that LNAPL thicknesses and NWTPH-Dx concentrations in groundwater remained stable or decreased in 2019.

LNAPL was observed in monitoring wells and piezometers up-gradient of and adjacent to the HCC system barrier wall, between the West Gate and Center Gate; measured LNAPL thicknesses ranged from a light trace to 3.1 feet. The locations where LNAPL was observed were generally consistent with prior years with the exception of recovery well RW-09, where a heavy trace of LNAPL was observed in December 2019. LNAPL was not observed at locations near RW-09 during the December 2019 monitoring event, including piezometer PZ-1, located east of RW-09, or in the east, central, or west oil-water separator chambers (north and south) of the East Gate, indicating an isolated occurrence.

Measured LNAPL thicknesses increased slightly in piezometer PZ-5S and recovery well RW-04; and were generally stable to decreasing in piezometer PZ-6S and the other recovery wells compared to 2018. Measured LNAPL thicknesses in these piezometers and wells have exhibited an overall decreasing or stable trend, with minor variability. LNAPL measurements at the Site are subject to uncertainty due to the viscous nature of the LNAPL. Piezometers, recovery wells, and HCC system barrier wall gate vaults will continue to be inspected quarterly for the presence of LNAPL, and LNAPL will be removed as needed.

4.0 PLANNED 2020 OPERATIONS AND ACTIVITIES

According to the January 24, 2020 email from Ecology (2020), the HCC system will continue to operate in passive mode through June 2020 pending completion of Ecology review of the 12-month Pilot Study results. In accordance with the procedures described in the Pilot Study Work Plan, the following scope of work will be conducted every 2 months starting in February 2020:

- Groundwater sampling and liquid-level gauging at the monitoring locations sampled during the Pilot Study, including sampling and inspecting the west and east vault OWS chambers of the West Gate and the Far West Gate; and
- Operating the recovery well pumps and groundwater treatment system as necessary every 2 months (approximately 4 hours) to ensure all components of the redundant HCC system can be activated to reverse the hydraulic gradient across the West Gate, if needed.

Recovery wells and piezometers will continue to be monitored for LNAPL, recovery well oil skimmer run-time and frequency will be evaluated and adjusted as needed to optimize LNAPL recovery, and LNAPL will continue to be removed from piezometers as needed.

5.0 BIBLIOGRAPHY

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FIGURES

2019 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT SYSTEM OPERATIONS REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-067

HIGHWAY-2

SKYKOMISH RIVER

SKYKOMISH RIVER

FIFTH STREET

FOURTH STREET

THIRD STREET

SIXTH STREET

RAILROAD AVENUE

OLD CASCADE HIGHWAY

MALONEY CREEK

FAR WEST GATE

WEST GATE

CENTER GATE

EAST GATE

HCC TREATMENT BUILDING

5-W-43

EW-1

PZ-8

PZ-7N

PZ-7S

GW-1

GW-2

PZ-6N

PZ-6S

RW-06

RW-05

2A-W-40

PZ-5N

PZ-5S

RW-04

2A-W-41

IW-02

RW-08

PZ-4N

PZ-4S

RW-07

1B-W-23

GW-3

RW-03

RW-02

PZ-3N

PZ-3S

RW-01

2A-W-42

PZ-2N

PZ-2S

GW-4

IW-01

EW-2A

PZ-1

RW-09

N

0 160

SCALE IN FEET

LEGEND

2A-W-41	MONITORING WELL (SAMPLED QUARTERLY)
RW-04	RECOVERY WELL
PZ-5S	PIEZOMETER
IW-02	INJECTION WELL

HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATES

BNSF RAILYARD BOUNDARY

MECHANICALLY STABILIZED EARTH WALL

★SKYKOMISH

NOTE
HYDRAULIC CONTROL AND CONTAINMENT SYSTEM (HCC) SENTRY WELLS AND BARRIER WALL GATE VAULT LOCATIONS NOT SHOWN. SEE FIGURE 2 FOR BARRIER WALL GATE DETAILS.
IMAGERY SOURCE: KING COUNTY PICTOMETRY 2015.

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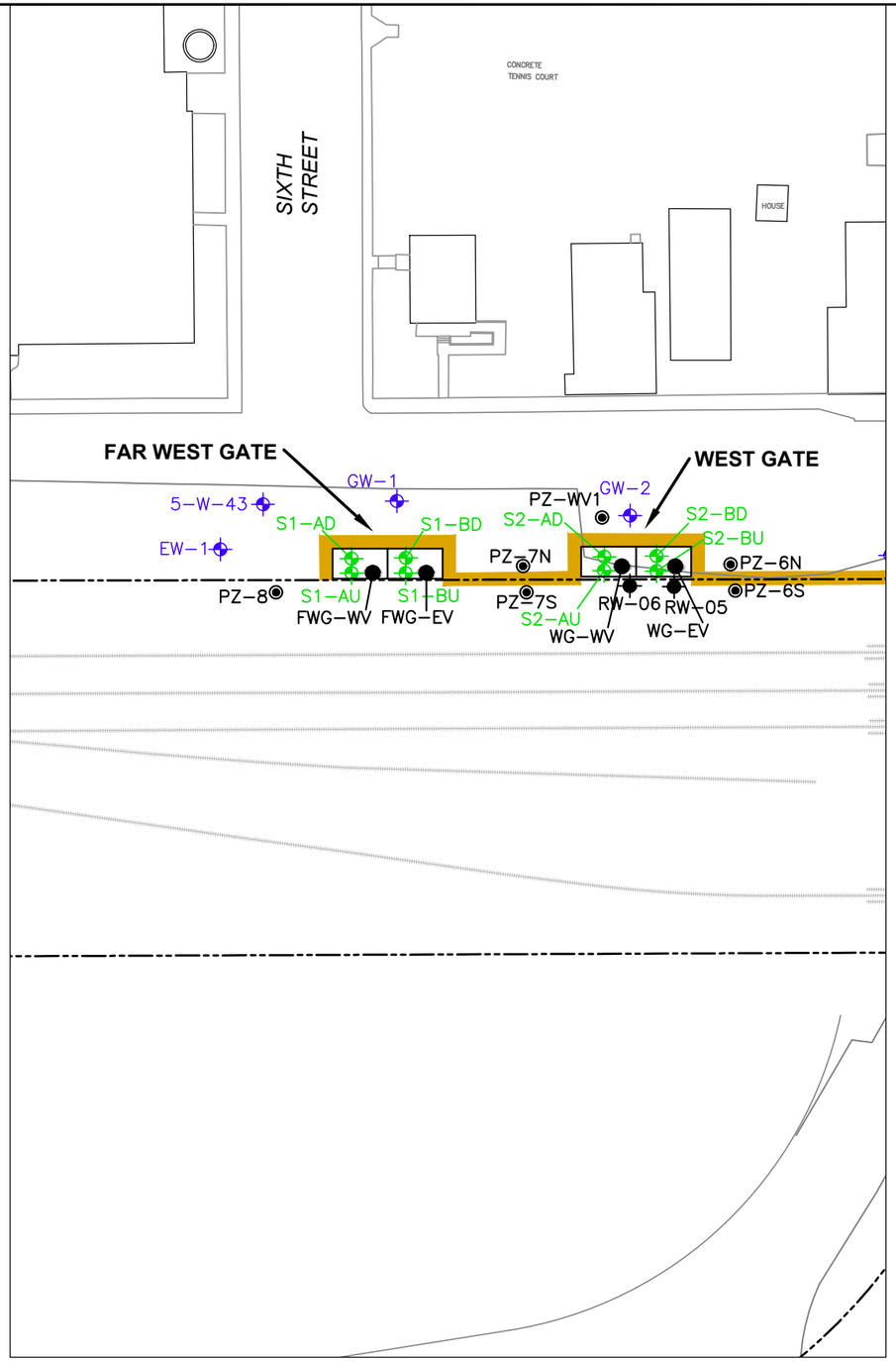
FIGURE 1

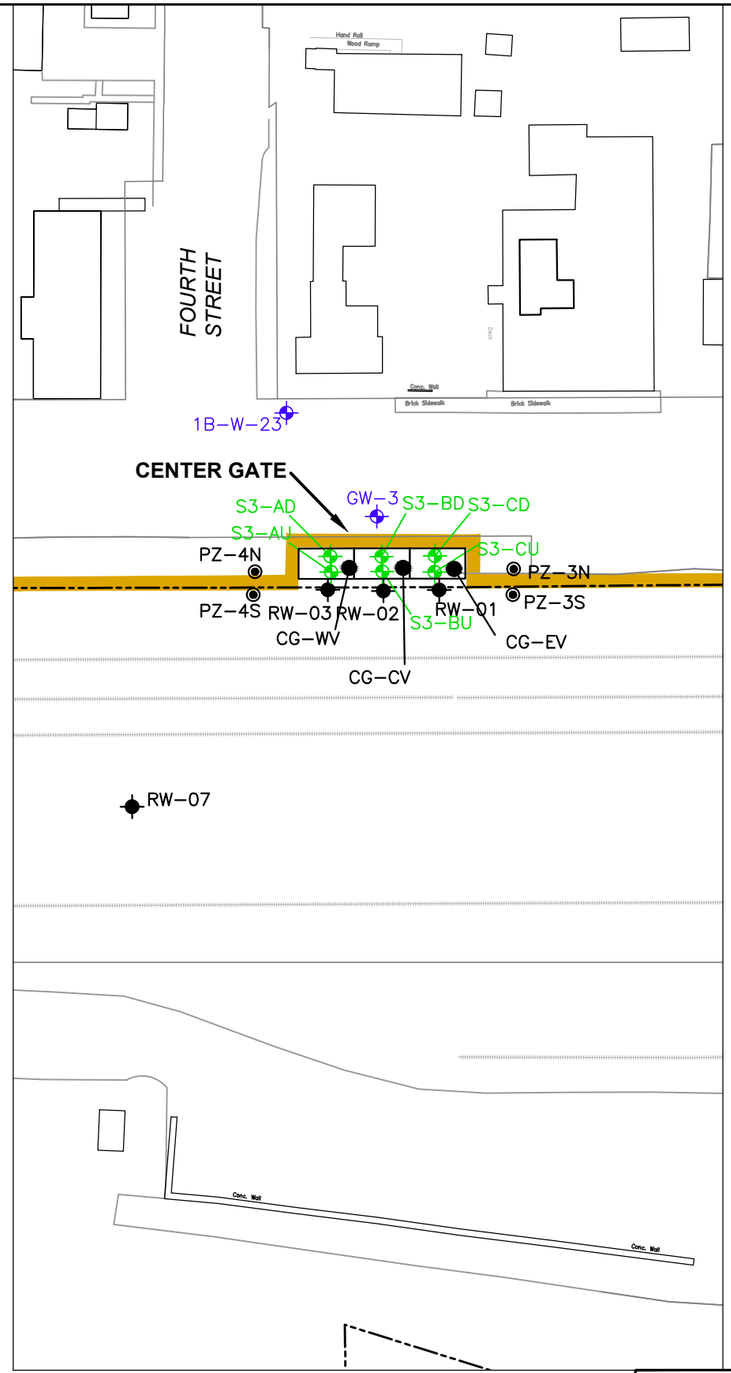
SITE PLAN SHOWING 2019
HCC SYSTEM MONITORING NETWORK
BNSF FORMER MAINTENANCE
AND FUELING FACILITY
SKYKOMISH, WASHINGTON

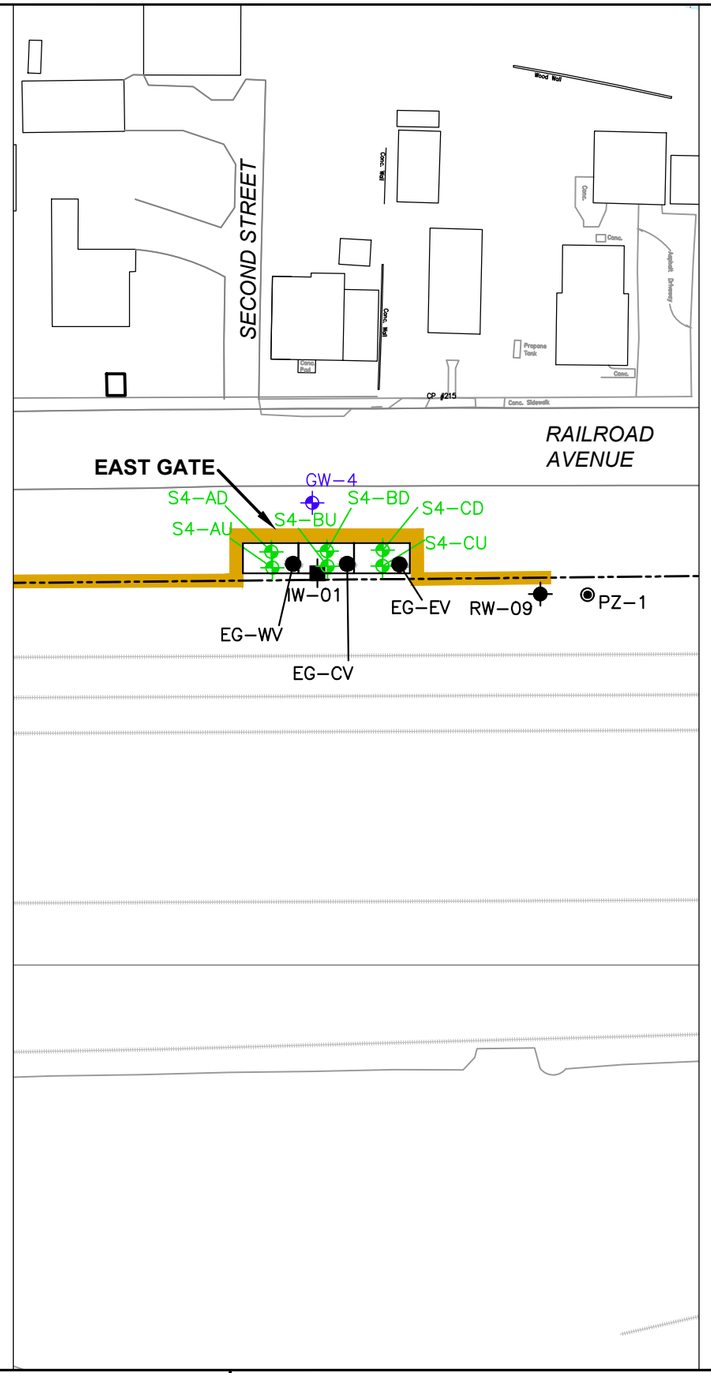
FARALLON PN: 683-067

Drawn By: tperrin | Checked By: RL | Date: 1/30/2020 | Disc Reference:

Document Path: Q:\Projects\683 BNSF\067 GROUNDWATER_HCC\Mapfiles\HCC_Report_2019\HCC FIGURE 01_TPH-GW_2019.mxd







LEGEND

2A–W–41	MONITORING WELL
RW–04	RECOVERY WELL
PZ–5S	PIEZOMETER
IW–02	TREATED-WATER REINJECTION WELL
WG–WV	BARRIER WALL GATE VAULT
GW–2	WELLS SAMPLED QUARTERLY
S1–AU	WELLS SAMPLED SEMIANNUALLY

HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATE SYSTEM

BNSF RAILYARD BOUNDARY

30 0 60

SCALE IN FEET

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FIGURE 2

HYDRAULIC CONTROL AND CONTAINMENT SYSTEM
BARRIER WALL GATE DETAIL
BNSF FORMER MAINTENANCE
AND FUELING FACILITY
SKYKOMISH, WASHINGTON

FARALLON PN: 683-067

Drawn By: MB Checked By: PK Date: 1/28/2020 Disk Reference: 683-067-2019-HCC

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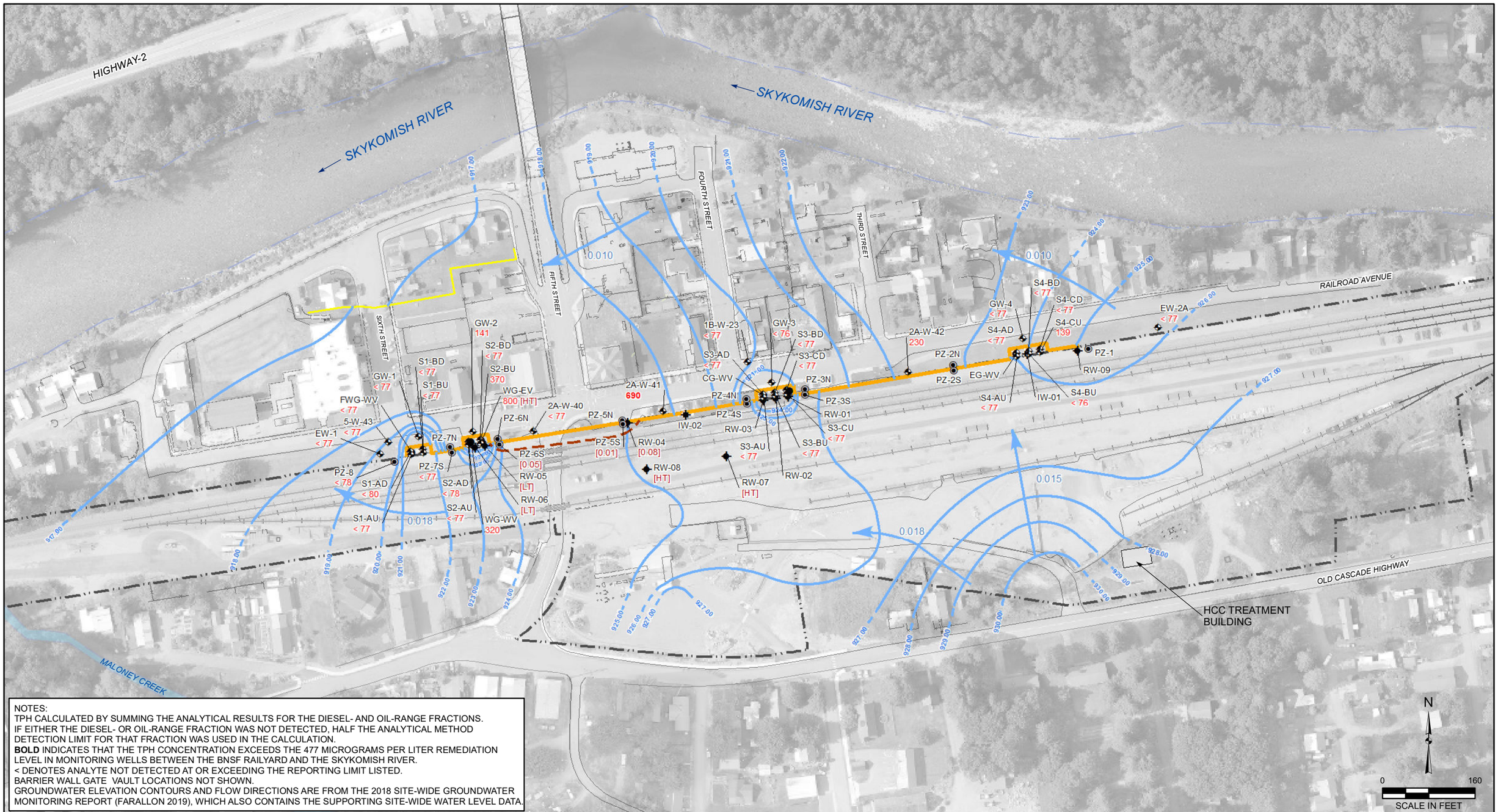

NOTES:
TPH CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL- AND OIL-RANGE FRACTIONS. IF EITHER THE DIESEL- OR OIL-RANGE FRACTION WAS NOT DETECTED, HALF THE ANALYTICAL METHOD DETECTION LIMIT FOR THAT FRACTION WAS USED IN THE CALCULATION.
BOLD INDICATES THAT THE TPH CONCENTRATION EXCEEDS THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN MONITORING WELLS BETWEEN THE BNSF RAILYARD AND THE SKYKOMISH RIVER.
< DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED.
BARRIER WALL GATE VAULT LOCATIONS NOT SHOWN.
GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTIONS ARE FROM THE 2018 SITE-WIDE GROUNDWATER MONITORING REPORT (FARALLON 2019), WHICH ALSO CONTAINS THE SUPPORTING SITE-WIDE WATER LEVEL DATA.

LEGEND

- 2A-W-41 — MONITORING WELL
- RW-04 — RECOVERY WELL
- PZ-5S — PIEZOMETER
- IW-02 — INJECTION WELL
- 927.00 — APPROXIMATE INTERPRETED GROUNDWATER ELEVATION CONTOUR FEET NAVD88 (INFERRED WHERE DASHED)
- 0.011 — APPROXIMATE INTERPRETED DIRECTION OF GROUNDWATER FLOW AND GRADIENT (UNITS IN FOOT PER FOOT)
- HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATES
- BNSF RAILYARD BOUNDARY
- MECHANICALLY STABILIZED EARTH WALL
- 117 — TOTAL PETROLEUM HYDROCARBONS (TPH) IN MICROGRAMS PER LITER
- ESTIMATED EXTENT OF LNAPL AS INDICATED BY MEASURABLE LNAPL THICKNESS ON GROUNDWATER SURFACE
- [HT] — HEAVY TRACE - OBSERVED ON INTERFACE PROBE BY FIELD STAFF; NO MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT
- [LT] — LIGHT TRACE - OBSERVED ON INTERFACE PROBE BY FIELD STAFF; NO MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT
- [1.15'] — MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT
- * = FORMER HOT WATER FLUSHING SYSTEM RECOVERY WELL
- LNAPL = LIGHT NONAQUEOUS-PHASE LIQUID
- NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
- IMAGERY SOURCE: KING COUNTY PICTOMETRY 2015

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FIGURE 3

MARCH 2019 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
BNSF FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON

FARALLON PN: 683-067

Drawn By: tperrin | Checked By: PK | Date: 3/24/2020 | Disc Reference:
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HIGHWAY-2
SKYKOMISH RIVER
SKYKOMISH RIVER
FOURTH STREET
FIFTH STREET
SIXTH STREET
THIRD STREET
RAILROAD AVENUE
OLD CASCADE HIGHWAY
MALONEY CREEK
HCC TREATMENT BUILDING
0.004
0.010
0.019
0.011
0.019
GW-3 330
S3-BD
S3-BU
S3-CD
S3-CU
S3-AD
CG-WV
S3-AU
1B-W-23 < 78
2A-W-41 510
2A-W-42 320
PZ-2N
PZ-3N
PZ-4N
PZ-3S
PZ-4S
PZ-2S
GW-4 < 77
S4-BD
S4-BU
S4-AD
EG-WV
S4-AU
W-01
S4-CD
S4-CU
PZ-1
RW-09
EW-2A < 77
GW-2 < 78
WG-WV 130
S2-BD < 77
S2-AD < 77
S2-AU < 80
WG-EV 730 [LT]
GW-1 < 77
S1-AD
S1-AU
5-W-43 < 77
EW-1 < 77
PZ-8 < 77
PZ-7N
PZ-7S < 78
PZ-6N
PZ-6S [1.06]
PZ-5N
PZ-5S [3.10]
2A-W-40
IW-02
RW-04 [0.51]
RW-03
RW-02
RW-01 [LT]
RW-08
RW-07 [LT]
RW-05 [HT]
RW-06
S1-BD
S1-BU
S2-BU 350
FWG-WV < 77
917.00
918.00
919.00
920.00
921.00
922.00
923.00
924.00
925.00
926.00
927.00
928.00

NOTES:
TPH CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL- AND OIL-RANGE FRACTIONS.
IF EITHER THE DIESEL- OR OIL-RANGE FRACTION WAS NOT DETECTED, HALF THE ANALYTICAL METHOD DETECTION LIMIT FOR THAT FRACTION WAS USED IN THE CALCULATION.
BOLD INDICATES THAT THE TPH CONCENTRATION EXCEEDS THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN MONITORING WELLS BETWEEN THE BNSF RAILYARD AND THE SKYKOMISH RIVER.
< DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED.
BARRIER WALL GATE VAULT LOCATIONS NOT SHOWN.
GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTIONS ARE FROM THE 2018 SITE-WIDE GROUNDWATER MONITORING REPORT (FARALLON 2019), WHICH ALSO CONTAINS THE SUPPORTING SITE-WIDE WATER LEVEL DATA.

N

0 160
SCALE IN FEET

LEGEND

- 2A-W-41 — MONITORING WELL
- RW-04 — RECOVERY WELL
- PZ-5S — PIEZOMETER
- IW-02 — INJECTION WELL
- 927.00 — APPROXIMATE INTERPRETED GROUNDWATER ELEVATION CONTOUR FEET NAVD88 (INFERRED WHERE DASHED)
- 0.011 — APPROXIMATE INTERPRETED DIRECTION OF GROUNDWATER FLOW AND GRADIENT (UNITS IN FOOT PER FOOT)
- HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATES
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- [HT] — HEAVY TRACE - OBSERVED ON INTERFACE PROBE BY FIELD STAFF; NO MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT
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- LNAPL = LIGHT NONAQUEOUS-PHASE LIQUID
- NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
- IMAGERY SOURCE: KING COUNTY PICTOMETRY 2015

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FIGURE 4

JUNE 2019 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
BNSF FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON

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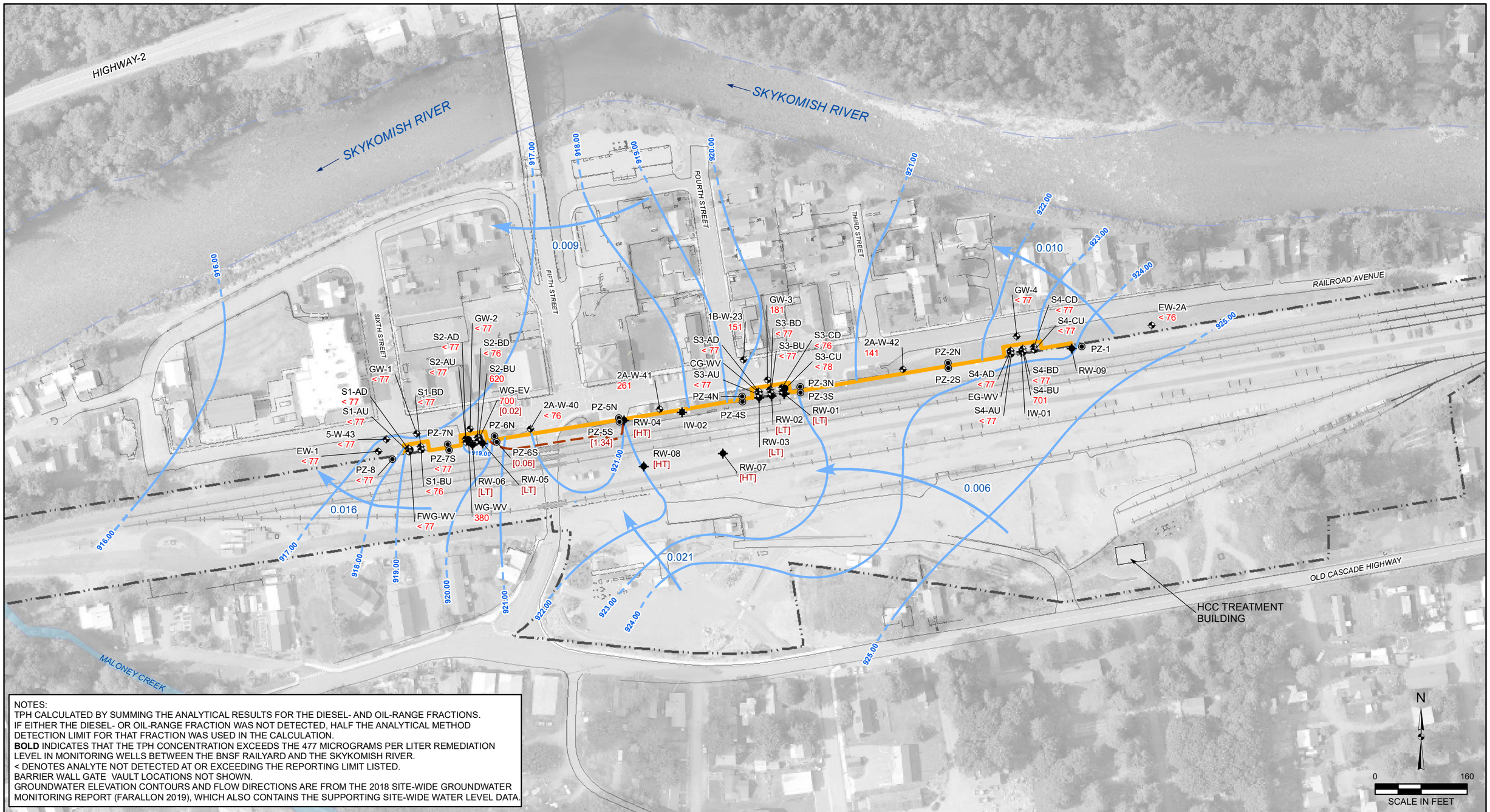

NOTES:
TPH CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL- AND OIL-RANGE FRACTIONS.
IF EITHER THE DIESEL- OR OIL-RANGE FRACTION WAS NOT DETECTED, HALF THE ANALYTICAL METHOD DETECTION LIMIT FOR THAT FRACTION WAS USED IN THE CALCULATION.
BOLD INDICATES THAT THE TPH CONCENTRATION EXCEEDS THE 477 MICROGRAMS PER LITER REMEDIATION LEVEL IN MONITORING WELLS BETWEEN THE BNSF RAILYARD AND THE SKYKOMISH RIVER.
< DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED.
BARRIER WALL GATE VAULT LOCATIONS NOT SHOWN.
GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTIONS ARE FROM THE 2018 SITE-WIDE GROUNDWATER MONITORING REPORT (FARALLON 2019), WHICH ALSO CONTAINS THE SUPPORTING SITE-WIDE WATER LEVEL DATA.

LEGEND

- 2A-W-41 — MONITORING WELL
- RW-04 — RECOVERY WELL
- PZ-5S — PIEZOMETER
- IW-02 — INJECTION WELL
- 927.00 — APPROXIMATE INTERPRETED GROUNDWATER ELEVATION CONTOUR FEET NAVD88 (INFERRED WHERE DASHED)
- 0.011 — APPROXIMATE INTERPRETED DIRECTION OF GROUNDWATER FLOW AND GRADIENT (UNITS IN FOOT PER FOOT)
- HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATES
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- [1.15'] — MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT
- * = FORMER HOT WATER FLUSHING SYSTEM RECOVERY WELL
- LNAPL = LIGHT NONAQUEOUS-PHASE LIQUID
- NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
- IMAGERY SOURCE: KING COUNTY PICTOMETRY 2015

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FIGURE 5

SEPTEMBER 2019 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
BNSF FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON

FARALLON PN: 683-067

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HIGHWAY-2

SKYKOMISH RIVER

SKYKOMISH RIVER

FOURTH STREET

FIFTH STREET

SIXTH STREET

THIRD STREET

RAILROAD AVENUE

OLD CASCADE HIGHWAY

MALONEY CREEK

HCC TREATMENT BUILDING

GW-1 < 77
GW-2 < 77
GW-3 137
GW-4 < 77
EW-1 < 78
EW-2A < 79
FWG-WV < 77
WG-WV 201
WG-EV 900 [HT]
5-W-43 < 77
1B-W-23 < 80
2A-W-40 < 79
2A-W-41 590
2A-W-42 280
S1-AD
S1-AU
S1-BD
S1-BU
S2-AD < 77
S2-AU < 77
S2-BD < 77
S2-BU 210
S3-AD
S3-AU
S3-BD
S3-BU
S3-CD
S3-CU
S4-AD
S4-AU
S4-BD
S4-BU
S4-CD
S4-CU
CG-WV
EG-WV
IW-01
IW-02
PZ-1
PZ-2N
PZ-2S
PZ-3N
PZ-3S
PZ-4N
PZ-4S
PZ-5N
PZ-5S [2.46]
PZ-6N
PZ-6S [0.06]
PZ-7N
PZ-7S 142
PZ-8 < 78
RW-01 [LT]
RW-02 [LT]
RW-03 [LT]
RW-04 [LT]
RW-05 [HT]
RW-06
RW-07 [HT]
RW-08 [HT]
RW-09 [HT]

0.007
0.011
0.011
0.014
0.027

917.00
918.00
919.00
920.00
921.00
922.00
923.00
924.00
925.00
926.00
927.00
928.00
929.00
930.00

NOTES:
TPH CALCULATED BY SUMMING THE ANALYTICAL RESULTS FOR THE DIESEL- AND OIL-RANGE FRACTIONS.
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< DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED.
BARRIER WALL GATE VAULT LOCATIONS NOT SHOWN.
GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTIONS ARE FROM THE 2018 SITE-WIDE GROUNDWATER MONITORING REPORT (FARALLON 2019), WHICH ALSO CONTAINS THE SUPPORTING SITE-WIDE WATER LEVEL DATA.

N

0 160

SCALE IN FEET

LEGEND

2A-W-41 MONITORING WELL
RW-04 RECOVERY WELL
PZ-5S PIEZOMETER
IW-02 INJECTION WELL

927.00 APPROXIMATE INTERPRETED GROUNDWATER ELEVATION CONTOUR FEET NAVD88 (INFERRED WHERE DASHED)

0.011 APPROXIMATE INTERPRETED DIRECTION OF GROUNDWATER FLOW AND GRADIENT (UNITS IN FOOT PER FOOT)

HYDRAULIC CONTROL AND CONTAINMENT SYSTEM SHEET PILE BARRIER WALL AND GATES

BNSF RAILYARD BOUNDARY

MECHANICALLY STABILIZED EARTH WALL

117 TOTAL PETROLEUM HYDROCARBONS (TPH) IN MICROGRAMS PER LITER

ESTIMATED EXTENT OF LNAPL AS INDICATED BY MEASURABLE LNAPL THICKNESS ON GROUNDWATER SURFACE

[HT] HEAVY TRACE - OBSERVED ON INTERFACE PROBE BY FIELD STAFF; NO MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT

[LT] LIGHT TRACE - OBSERVED ON INTERFACE PROBE BY FIELD STAFF; NO MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT

[1.15'] MEASURABLE LNAPL THICKNESS GREATER THAN 0.01 FOOT

* = FORMER HOT WATER FLUSHING SYSTEM RECOVERY WELL
LNAPL = LIGHT NONAQUEOUS-PHASE LIQUID
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
IMAGERY SOURCE: KING COUNTY PICTOMETRY 2015

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Oregon
Portland | Baker City

California
Oakland | Folsom | Irvine

FIGURE 6

DECEMBER 2019 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
BNSF FORMER MAINTENANCE AND FUELING FACILITY
SKYKOMISH, WASHINGTON

FARALLON PN: 683-067

Drawn By: tperrin | Checked By: PK | Date: 3/24/2020 | Disc Reference:
Document Path: Q:\Projects\683 BNSF\067 GROUNDWATER_HCC\Mapfiles\HCC_Report_2019\HCC_Figure-03_06_TPH-GW_2019.mxd

TABLES

2019 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT SYSTEM OPERATIONS REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-067

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
1/1/2019	135,444,675	16
1/2/2019	135,466,555	15
1/3/2019	135,488,027	15
1/4/2019	135,509,443	15
1/5/2019	135,529,887	14
1/6/2019	135,550,079	14
1/7/2019	135,570,367	14
1/8/2019	135,590,847	14
1/9/2019	135,611,307	13
1/10/2019	135,631,415	14
1/11/2019	135,650,763	13
1/12/2019	135,669,191	13
1/13/2019	135,687,395	13
1/14/2019	135,705,595	13
1/15/2019	135,723,859	13
1/16/2019	135,742,103	13
1/17/2019	135,760,379	13
1/18/2019	135,775,531	11
1/19/2019	135,775,531	0
1/20/2019	135,775,531	0
1/21/2019	135,775,531	0
1/22/2019	135,775,531	0
1/23/2019	135,775,647	0
1/24/2019	135,775,647	0
1/25/2019	135,775,647	0
1/26/2019	135,775,647	0
1/27/2019	135,775,647	0
1/28/2019	135,775,647	0
1/29/2019	135,775,647	0
1/30/2019	135,775,647	0
1/31/2019	135,775,647	0
2/1/2019	135,775,647	0
2/2/2019	135,775,647	0
2/3/2019	135,775,647	0
2/4/2019	135,775,647	0
2/5/2019	135,775,647	0
2/6/2019	135,775,647	0
2/7/2019	135,775,647	0
2/8/2019	135,775,647	0
2/9/2019	135,775,647	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
2/10/2019	135,775,647	0
2/11/2019	135,775,647	0
2/12/2019	135,775,647	0
2/13/2019	135,775,647	0
2/14/2019	135,775,647	0
2/15/2019	135,775,647	0
2/16/2019	135,775,647	0
2/17/2019	135,775,647	0
2/18/2019	135,775,647	0
2/19/2019	135,775,647	0
2/20/2019	135,775,647	0
2/21/2019	135,784,783	6
2/22/2019	135,786,763	1
2/23/2019	135,786,763	0
2/24/2019	135,786,763	0
2/25/2019	135,786,763	0
2/26/2019	135,786,763	0
2/27/2019	135,786,763	0
2/28/2019	135,786,763	0
3/1/2019	135,786,763	0
3/2/2019	135,786,763	0
3/3/2019	135,786,763	0
3/4/2019	135,786,763	0
3/5/2019	135,786,763	0
3/6/2019	135,786,763	0
3/7/2019	135,786,763	0
3/8/2019	135,786,763	0
3/9/2019	135,786,763	0
3/10/2019	135,786,763	0
3/11/2019	135,786,763	0
3/12/2019	135,786,763	0
3/13/2019	135,786,763	0
3/14/2019	135,786,763	0
3/15/2019	135,786,763	0
3/16/2019	135,786,763	0
3/17/2019	135,786,763	0
3/18/2019	135,786,763	0
3/19/2019	135,786,763	0
3/20/2019	135,786,763	0
3/21/2019	135,786,763	0
3/22/2019	135,786,763	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
3/23/2019	135,786,763	0
3/24/2019	135,786,763	0
3/25/2019	135,794,647	5
3/26/2019	135,794,647	0
3/27/2019	135,794,647	0
3/28/2019	135,794,647	0
3/29/2019	135,794,647	0
3/30/2019	135,794,647	0
3/31/2019	135,794,647	0
4/1/2019	135,794,647	0
4/2/2019	135,794,647	0
4/3/2019	135,794,647	0
4/4/2019	135,794,647	0
4/5/2019	135,794,647	0
4/6/2019	135,794,647	0
4/7/2019	135,794,647	0
4/8/2019	135,794,647	0
4/9/2019	135,794,647	0
4/10/2019	135,794,647	0
4/11/2019	135,794,647	0
4/12/2019	135,794,647	0
4/13/2019	135,794,647	0
4/14/2019	135,794,647	0
4/15/2019	135,794,647	0
4/16/2019	135,794,647	0
4/17/2019	135,794,647	0
4/18/2019	135,794,647	0
4/19/2019	135,794,647	0
4/20/2019	135,794,647	0
4/21/2019	135,794,647	0
4/22/2019	135,794,647	0
4/23/2019	135,794,647	0
4/24/2019	135,795,031	0
4/25/2019	135,798,147	2
4/26/2019	135,798,147	0
4/27/2019	135,798,147	0
4/28/2019	135,798,147	0
4/29/2019	135,798,147	0
4/30/2019	135,798,147	0
5/1/2019	135,798,147	0
5/2/2019	135,798,147	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
5/3/2019	135,798,147	0
5/4/2019	135,798,147	0
5/5/2019	135,798,147	0
5/6/2019	135,798,147	0
5/7/2019	135,798,147	0
5/8/2019	135,798,147	0
5/9/2019	135,798,147	0
5/10/2019	135,798,147	0
5/11/2019	135,798,147	0
5/12/2019	135,798,147	0
5/13/2019	135,798,147	0
5/14/2019	135,798,147	0
5/15/2019	135,798,795	0
5/16/2019	135,798,795	0
5/17/2019	135,798,795	0
5/18/2019	135,798,795	0
5/22/2019	135,798,795	0
5/23/2019	135,798,795	0
5/24/2019	135,798,795	0
5/25/2019	135,798,795	0
5/26/2019	135,798,795	0
5/27/2019	135,798,795	0
5/28/2019	135,798,795	0
5/29/2019	135,798,795	0
5/30/2019	135,798,795	0
5/31/2019	135,798,795	0
6/1/2019	135,798,795	0
6/2/2019	135,798,795	0
6/3/2019	135,798,795	0
6/4/2019	135,798,795	0
6/5/2019	135,798,795	0
6/6/2019	135,798,795	0
6/7/2019	135,798,795	0
6/8/2019	135,798,795	0
6/9/2019	135,798,795	0
6/10/2019	135,798,795	0
6/11/2019	135,798,795	0
6/12/2019	135,798,795	0
6/13/2019	135,798,795	0
6/14/2019	135,798,795	0
6/15/2019	135,798,795	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
6/16/2019	135,798,795	0
6/17/2019	135,798,795	0
6/18/2019	135,798,795	0
6/19/2019	135,798,795	0
6/20/2019	135,798,795	0
6/21/2019	135,798,795	0
6/22/2019	135,798,795	0
6/23/2019	135,798,795	0
6/24/2019	135,798,795	0
6/25/2019	135,803,011	3
6/26/2019	135,803,011	0
6/27/2019	135,803,011	0
6/28/2019	135,803,011	0
6/29/2019	135,803,011	0
6/30/2019	135,803,011	0
7/1/2019	135,803,011	0
7/2/2019	135,803,011	0
7/3/2019	135,803,011	0
7/4/2019	135,803,011	0
7/5/2019	135,803,011	0
7/6/2019	135,803,011	0
7/7/2019	135,803,011	0
7/8/2019	135,803,011	0
7/9/2019	135,803,011	0
7/10/2019	135,803,011	0
7/11/2019	135,803,011	0
7/12/2019	135,803,011	0
7/13/2019	135,803,011	0
7/14/2019	135,803,011	0
7/15/2019	135,803,015	0
7/16/2019	135,803,015	0
7/17/2019	135,803,015	0
7/18/2019	135,803,015	0
7/19/2019	135,803,019	0
7/20/2019	135,803,035	0
7/21/2019	135,803,059	0
7/22/2019	135,803,091	0
7/23/2019	135,803,099	0
7/24/2019	135,803,099	0
7/25/2019	135,803,099	0
7/26/2019	135,810,055	5

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
7/27/2019	135,810,055	0
7/28/2019	135,810,055	0
7/29/2019	135,810,055	0
7/30/2019	135,810,059	0
7/31/2019	135,810,059	0
8/1/2019	135,810,059	0
8/2/2019	135,810,067	0
8/3/2019	135,810,067	0
8/4/2019	135,810,075	0
8/5/2019	135,810,083	0
8/6/2019	135,810,095	0
8/7/2019	135,810,107	0
8/8/2019	135,810,123	0
8/9/2019	135,810,131	0
8/10/2019	135,810,131	0
8/11/2019	135,810,135	0
8/12/2019	135,810,139	0
8/13/2019	135,810,147	0
8/14/2019	135,810,155	0
8/15/2019	135,810,167	0
8/16/2019	135,810,179	0
8/17/2019	135,810,187	0
8/18/2019	135,810,191	0
8/19/2019	135,810,199	0
8/20/2019	135,810,211	0
8/21/2019	135,810,219	0
8/22/2019	135,814,367	3
8/23/2019	135,814,367	0
8/24/2019	135,814,367	0
8/25/2019	135,814,367	0
8/26/2019	135,814,371	0
8/27/2019	135,814,371	0
8/28/2019	135,814,379	0
8/29/2019	135,814,387	0
8/30/2019	135,814,391	0
8/31/2019	135,814,399	0
9/1/2019	135,814,407	0
9/2/2019	135,814,411	0
9/3/2019	135,814,419	0
9/4/2019	135,814,427	0
9/5/2019	135,814,435	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
9/6/2019	135,814,443	0
9/7/2019	135,814,455	0
9/8/2019	135,814,459	0
9/9/2019	135,814,459	0
9/10/2019	135,814,459	0
9/11/2019	135,814,459	0
9/12/2019	135,814,459	0
9/13/2019	135,814,459	0
9/14/2019	135,814,459	0
9/15/2019	135,814,459	0
9/16/2019	135,814,459	0
9/17/2019	135,814,459	0
9/18/2019	135,814,459	0
9/19/2019	135,814,459	0
9/20/2019	135,814,459	0
9/21/2019	135,814,459	0
9/22/2019	135,814,463	0
9/23/2019	135,814,463	0
9/24/2019	135,820,743	4
9/25/2019	135,820,743	0
9/26/2019	135,820,743	0
9/27/2019	135,820,743	0
9/28/2019	135,820,743	0
9/29/2019	135,820,743	0
9/30/2019	135,820,743	0
10/1/2019	135,820,743	0
10/2/2019	135,820,743	0
10/3/2019	135,820,743	0
10/4/2019	135,820,743	0
10/5/2019	135,820,743	0
10/6/2019	135,820,743	0
10/7/2019	135,820,743	0
10/8/2019	135,820,743	0
10/9/2019	135,820,743	0
10/10/2019	135,820,743	0
10/11/2019	135,820,743	0
10/12/2019	135,820,743	0
10/13/2019	135,820,743	0
10/14/2019	135,820,743	0
10/15/2019	135,820,743	0
10/16/2019	135,820,743	0

Table 1
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BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
10/17/2019	135,820,743	0
10/18/2019	135,820,743	0
10/19/2019	135,820,743	0
10/20/2019	135,820,743	0
10/21/2019	135,820,743	0
10/22/2019	135,830,927	7
10/23/2019	135,830,927	0
10/24/2019	135,830,927	0
10/25/2019	135,830,927	0
10/26/2019	135,830,927	0
10/27/2019	135,830,927	0
10/28/2019	135,830,927	0
10/29/2019	135,830,927	0
10/30/2019	135,830,927	0
10/31/2019	135,830,927	0
11/1/2019	135,830,927	0
11/2/2019	135,830,927	0
11/3/2019	135,830,927	0
11/4/2019	135,830,927	0
11/5/2019	135,830,927	0
11/6/2019	135,830,927	0
11/7/2019	135,830,927	0
11/8/2019	135,830,927	0
11/9/2019	135,830,927	0
11/10/2019	135,830,927	0
11/11/2019	135,830,927	0
11/12/2019	135,830,927	0
11/13/2019	135,830,927	0
11/14/2019	135,830,927	0
11/15/2019	135,830,927	0
11/16/2019	135,830,927	0
11/17/2019	135,830,927	0
11/18/2019	135,830,927	0
11/19/2019	135,830,927	0
11/20/2019	135,830,927	0
11/22/2019	135,840,659	3
11/23/2019	135,840,659	0
11/24/2019	135,840,659	0
11/25/2019	135,840,659	0
11/26/2019	135,840,659	0
11/27/2019	135,840,659	0

Table 1
HCC Water Treatment System Discharge Flow Rates
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Date	Cumulative Discharge Volume Since Water Treatment System Start-Up (gallons)	Calculated Average Daily Flow Rate[1] (gallons per minute)
11/28/2019	135,840,659	0
11/29/2019	135,840,659	0
11/30/2019	135,840,659	0
12/1/2019	135,840,659	0
12/2/2019	135,840,659	0
12/3/2019	135,840,659	0
12/4/2019	135,840,659	0
12/5/2019	135,840,659	0
12/6/2019	135,840,659	0
12/7/2019	135,840,659	0
12/8/2019	135,840,659	0
12/9/2019	135,840,659	0
12/10/2019	135,840,659	0
12/11/2019	135,840,659	0
12/12/2019	135,840,659	0
12/13/2019	135,840,659	0
12/14/2019	135,840,659	0
12/15/2019	135,840,659	0
12/16/2019	135,840,659	0
12/17/2019	135,840,659	0
12/18/2019	135,840,659	0
12/19/2019	135,840,659	0
12/20/2019	135,840,659	0
12/21/2019	135,840,659	0
12/22/2019	135,840,659	0
12/23/2019	135,840,659	0
12/24/2019	135,840,659	0
12/25/2019	135,840,659	0
12/26/2019	135,846,443	4
12/27/2019	135,846,443	0
12/28/2019	135,846,443	0
12/29/2019	135,846,443	0
12/30/2019	135,846,443	0
12/31/2019	135,846,443	0
NPDES Permit Discharge Limit[1]		**100**

NOTES:

[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.

HCC = Hydraulic Control and Containment

NAVD88 = North American Vertical Datum of 1988

NPDES = National Pollutant Discharge Elimination System

Table 2
Total Petroleum Hydrocarbon Concentrations in HCC Water Treatment System Influent and Effluent
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Sample Location	Sample Date	Sample Identification	DRO[1] (micrograms per liter)			ORO[1] (micrograms per liter)			Calculated NWTPH-Dx[2] (micrograms per liter)
			Result	MDL	MRL	Result	MDL	MRL	
Treatment System Influent (Primary GAC Vessel Influent)	1/3/2019	BEFORE GAC-1319	< 62	62	62	< 91	91	91	< 77
	1/9/2019	BEFORE GAC-010919	630	61	61	290	91	91	920
	1/18/2019	BEFORE GAC-11819	570	62	62	480	91	91	1,050
	2/21/2019	BEFORE GAC-22119	520	62	62	420	91	91	940
	3/25/2019	BEFORE GAC-32519	450	62	62	200	91	91	650
	4/24/2019	BEFORE GAC- 42419	540	62	62	330	91	91	870
	5/22/2019	BEFORE GAC-52219	490	62	62	490	91	91	980
	6/25/2019	BEFORE GAC - 62519	440	62	62	200	91	91	640
	7/26/2019	BEFORE GAC-72619	380	62	62	210	91	91	590
	8/22/2019	BEFORE GAC-82219	390	62	62	210	91	91	600
	9/24/2019	BEFORE GAC-92419	470	62	62	280	91	91	750
	10/22/2019	BEFORE GAC-102219	320	62	62	230	91	91	550
	11/22/2019	BEFORE GAC-112219	380	62	62	330	91	91	710
	12/26/2019	BEFORE GAC-122619	390	62	62	200	91	91	590

Table 2
Total Petroleum Hydrocarbon Concentrations in HCC Water Treatment System Influent and Effluent
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Sample Location	Sample Date	Sample Identification	DRO[1] (micrograms per liter)			ORO[1] (micrograms per liter)			Calculated NWTPH-Dx[2] (micrograms per liter)
			Result	MDL	MRL	Result	MDL	MRL	
Treatment System Effluent (Secondary GAC Vessel Effluent)	1/3/2019	HCC EFF-1319	< 62	62	62	< 91	91	91	< 77
	1/9/2019	HCC EFF-010919	< 61	61	61	< 91	91	91	< 76
	1/18/2019	HCC EFF-11819	< 62	62	62	< 91	91	91	< 77
	2/21/2019	HCC EFF-22119	< 62	62	62	< 91	91	91	< 77
	3/25/2019	HCC EFF-32519	< 62	62	62	< 91	91	91	< 77
	4/24/2019	HCC EFF-42419	73	62	62	94	91	91	167
	5/22/2019	HCC EFF-52219	< 62	62	62	< 91	91	91	< 77
	6/25/2019	HCC EFF - 62519	< 62	62	62	< 91	91	91	< 77
	7/26/2019	HCC EFF-72619	< 62	62	62	< 92	92	92	< 77
	8/22/2019	HCC EFF-82219	< 62	62	62	< 91	91	91	< 77
	9/24/2019	HCC EFF-92419	< 62	62	62	< 91	91	91	< 77
	10/22/2019	HCC EFF-102219	< 62	62	62	< 91	91	91	< 77
	11/22/2019	HCC EFF-112219	< 62	62	62	< 91	91	91	< 77
	12/26/2019	HCC EFF-122619	< 62	62	62	< 92	92	92	< 77
NPDES Permit Discharge Limit[3]									**208**

NOTES:

"<" denotes analyte not detected at or exceeding the reported concentration.

[1]Analyzed by Washington State Department of Ecology Method NWTPH-Dx.

[2]Sum of DRO and ORO, using half the method detection limit for non-detect results. Data reported previously in NPDES Discharge Monitoring Reports pursuant to NPDES Permit No. WA0032123.

[3]Discharge limit specified in NPDES Permit No. WA0032123.

DRO = total petroleum hydrocarbons as diesel-range organics

HCC = Hydraulic Control and Containment

MDL = method detection limit

MRL = method reporting limit

NPDES = National Pollutant Discharge Elimination System

ORO = total petroleum hydrocarbons as oil-range organics

Table 3
pH in HCC Water Treatment System Effluent
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Sample Date	pH[1] (Standard Units)
1/3/2019	7.66
1/9/2019	7.74
1/18/2019	7.79
2/21/2019	7.30
3/25/2019	8.50
4/24/2019	7.25
5/22/2019	7.23
6/25/2019	7.30
7/26/2019	7.54
8/22/2019	7.63
9/24/2019	7.42
10/22/2019	7.57
11/22/2019	7.53
12/26/2019	7.59
NPDES Permit Discharge Limit[2]	**6.5-8.5**

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.
HCC = Hydraulic Control and Containment
NPDES = National Pollutant Discharge Elimination System

Table 4
Metal Concentrations in HCC Water Treatment System Effluent
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Sample Date	Sample Identification	Analytical Results (micrograms per liter)	
		Total Lead[1]	Total Arsenic[1]
01/03/2019	HCC EFF-1319	< 0.80	< 1.0
02/21/2019	HCC EFF-22119	< 0.80	1.1
03/25/2019	HCC EFF-32519	< 0.80	1.3
04/24/2019	HCC EFF-42419	< 0.80	1.8
05/22/2019	HCC EFF-52219	< 0.80	1.9
06/25/2019	HCC EFF - 62519	< 4.0	< 5.0
07/26/2019	HCC EFF-72619	< 0.80	< 1.0
08/22/2019	HCC EFF-82219	< 0.80	< 1.0
09/24/2019	HCC EFF-92419	< 0.80	< 1.0
10/22/2019	HCC EFF-102219	< 0.80	< 1.0
11/22/2019	HCC EFF-112219	< 0.80	< 1.0
12/26/2019	HCC EFF-122619	< 0.80	< 1.0
NPDES Permit Discharge Limit[2]		**17.5**	**360**

NOTES:

"<" denotes analyte not detected at or exceeding the method reporting limit listed.

[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.

HCC = Hydraulic Control and Containment
NPDES = National Pollutant Discharge Elimination System

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
1/1/2019	926.84	927.72	924.25	3.47	927.15	921.18	5.97	926.70	921.31	5.39	923.74	919.69	4.05	925.69	918.39	7.30	924.69	918.68	6.01	920.49
1/2/2019	926.64	927.43	923.99	3.44	926.83	921.18	5.65	926.38	921.31	5.07	923.54	919.50	4.04	925.41	918.45	6.96	924.36	918.46	5.90	920.26
1/3/2019	927.13	927.50	924.23	3.27	927.4	921.17	6.23	926.98	921.31	5.67	924.18	919.73	4.45	925.78	918.67	7.11	924.61	919.21	5.40	920.68
1/4/2019	927.73	928.06	925.56	2.50	927.81	921.16	6.65	927.33	921.31	6.02	924.17	921.28	2.89	926.28	919.84	6.44	925.38	920.28	5.10	921.43
1/5/2019	927.41	928.18	925.17	3.01	927.65	921.16	6.49	927.12	921.31	5.81	924.01	920.71	3.30	926.11	919.64	6.47	925.19	919.70	5.49	921.10
1/6/2019	927.14	927.94	924.63	3.31	927.33	921.17	6.16	926.85	921.31	5.54	923.82	920.20	3.62	925.82	918.78	7.04	924.83	919.22	5.61	920.73
1/7/2019	926.91	927.62	924.25	3.37	927.01	921.16	5.85	926.58	921.32	5.26	923.64	919.89	3.75	925.52	918.71	6.81	924.50	918.90	5.60	920.48
1/8/2019	926.72	927.43	924.08	3.35	926.86	921.19	5.67	926.44	921.33	5.11	923.56	919.68	3.88	925.41	918.59	6.82	924.36	918.69	5.67	920.34
1/9/2019	926.55	927.16	923.92	3.24	926.63	921.15	5.48	926.17	921.29	4.88	923.40	919.54	3.86	925.21	918.16	7.05	924.13	918.52	5.61	920.18
1/10/2019	926.59	927.14	923.96	3.18	926.73	921.17	5.56	926.35	921.30	5.05	923.55	919.57	3.98	925.33	918.22	7.11	924.22	918.60	5.62	920.29
1/11/2019	926.54	927.10	923.96	3.14	926.65	921.19	5.46	926.23	921.32	4.91	923.43	919.54	3.89	925.24	918.11	7.13	924.17	918.53	5.64	920.21
1/12/2019	926.45	926.94	923.84	3.10	926.45	921.18	5.27	926.02	921.33	4.69	923.29	919.45	3.84	925.07	918.00	7.07	923.97	918.42	5.55	920.08
1/13/2019	926.33	926.73	923.72	3.01	926.26	921.17	5.09	925.80	921.33	4.47	923.17	919.37	3.80	924.90	918.22	6.68	923.77	918.33	5.44	919.95
1/14/2019	926.20	926.57	923.63	2.94	926.08	921.19	4.89	925.61	921.32	4.29	923.07	919.31	3.76	924.74	918.13	6.61	923.60	918.26	5.34	919.84
1/15/2019	926.09	926.36	923.54	2.82	925.9	921.19	4.71	925.45	921.32	4.13	922.97	919.25	3.72	924.60	918.15	6.45	923.45	918.19	5.26	919.75
1/16/2019	925.97	926.19	923.47	2.72	925.74	921.18	4.56	925.29	921.32	3.97	922.88	919.20	3.68	924.46	918.12	6.34	923.31	918.13	5.18	919.67
1/17/2019	925.89	926.05	923.41	2.64	925.6	921.18	4.42	925.15	921.31	3.84	922.80	919.17	3.63	924.34	917.97	6.37	923.15	918.08	5.07	919.57
1/18/2019	925.90	925.95	923.42	2.53	925.73	921.15	4.58	925.36	921.30	4.06	922.99	919.21	3.78	924.44	918.06	6.38	923.22	918.13	5.09	919.65
1/19/2019	926.14	926.28	923.63	2.65	926.15	921.16	4.99	925.88	921.32	4.56	923.32	919.31	4.01	924.84	918.26	6.58	923.64	918.30	5.34	919.95
1/20/2019	926.22	926.49	923.72	2.77	926.29	921.18	5.11	925.93	921.32	4.61	923.29	919.36	3.93	924.94	917.95	6.99	923.82	918.33	5.49	920.01
1/21/2019	926.15	926.49	923.63	2.86	926.15	921.18	4.97	925.79	921.31	4.48	923.22	919.29	3.93	924.85	917.87	6.98	923.71	918.23	5.48	919.91
1/22/2019	926.06	926.39	923.57	2.82	926.03	921.18	4.85	925.66	921.31	4.35	923.14	919.22	3.92	924.73	917.80	6.93	923.58	918.16	5.42	919.84
1/23/2019	926.76	927.20	924.40	2.80	927.26	921.16	6.10	927.00	921.31	5.69	924.06	919.85	4.21	925.80	918.54	7.26	924.76	918.90	5.86	920.66
1/24/2019	926.80	927.48	924.35	3.13	927.18	921.2	5.98	926.84	921.31	5.53	923.88	919.92	3.96	925.76	918.81	6.95	924.80	918.93	5.87	920.66
1/25/2019	926.66	927.37	924.07	3.30	926.97	921.19	5.78	926.62	921.30	5.32	923.70	919.65	4.05	925.53	918.40	7.13	924.55	918.65	5.90	920.45
1/26/2019	926.49	927.16	923.91	3.25	926.76	921.19	5.57	926.38	921.30	5.08	923.57	919.49	4.08	925.34	918.30	7.04	924.31	918.46	5.85	920.26
1/27/2019	926.36	926.92	923.75	3.17	926.54	921.18	5.36	926.15	921.31	4.84	923.43	919.41	4.02	925.14	918.25	6.89	924.09	918.36	5.73	920.10
1/28/2019	926.24	926.69	923.65	3.04	926.33	921.18	5.15	925.92	921.31	4.61	923.29	919.34	3.95	924.98	918.28	6.70	923.87	918.29	5.58	919.99
1/29/2019	926.13	926.46	923.54	2.92	926.13	921.18	4.95	925.74	921.31	4.43	923.18	919.29	3.89	924.80	918.03	6.77	923.68	918.22	5.46	919.89
1/30/2019	926.01	926.28	923.50	2.78	925.96	921.19	4.77	925.58	921.31	4.27	923.09	919.22	3.87	924.66	917.87	6.79	923.50	918.17	5.33	919.79
1/31/2019	925.92	926.12	923.43	2.69	925.82	921.2	4.62	925.44	921.31	4.13	923.00	919.20	3.80	924.53	917.99	6.54	923.37	918.12	5.25	919.71
2/1/2019	925.87	925.98	923.37	2.61	925.71	921.19	4.52	925.33	921.31	4.02	922.95	919.17	3.78	924.42	917.93	6.49	923.24	918.11	5.13	919.68
2/2/2019	926.18	926.22	923.61	2.61	926.13	921.2	4.93	925.84	921.31	4.53	923.26	919.44	3.82	924.81	918.23	6.58	923.62	918.41	5.21	920.00
2/3/2019	926.20	926.34	923.63	2.71	926.11	921.19	4.92	925.75	921.30	4.45	923.19	919.40	3.79	924.82	918.16	6.66	923.66	918.36	5.30	919.97
2/4/2019	926.11	926.30	923.60	2.70	926.01	921.18	4.83	925.63	921.30	4.33	923.12	919.33	3.79	924.71	918.11	6.60	923.57	918.27	5.30	919.88
2/5/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/6/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/7/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/8/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/9/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/10/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/11/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/12/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2/13/2019	925.77	925.66	923.23	2.43	925.38	921.18	4.20	924.98	921.30	3.68	922.70	919.09	3.61	924.09	917.64	6.45	922.78	917.93	4.85	919.45
2/14/2019	925.78	925.73	923.25	2.48	925.44	921.16	4.28	925.04	921.31	3.73	922.74	919.07	3.67	924.13	917.92	6.21	922.87	917.93	4.94	919.46
2/15/2019	925.73	925.68	923.23	2.45	925.39	921.18	4.21	925.00	921.30	3.70	922.74	919.07	3.67	924.14	917.59	6.55	922.79	917.88	4.91	919.43
2/16/2019	925.63	925.59	923.20	2.39	925.3	921.19	4.11	924.94	921.30	3.64	922.70	919.08	3.62	924.10	917.86	6.24	922.78	917.87	4.91	919.40
2/17/2019	925.52	925.47	923.17	2.30	925.18	921.18	4.00	924.84	921.29	3.55	922.63	919.08	3.55	924.00	917.61	6.39	922.68	917.85	4.83	919.36

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
2/18/2019	925.44	925.33	923.15	2.18	925.09	921.18	3.91	924.73	921.29	3.44	922.58	919.08	3.50	923.94	917.85	6.09	922.59	917.83	4.76	919.31
2/19/2019	925.42	925.25	923.13	2.12	925	921.19	3.81	924.66	921.31	3.35	922.54	919.08	3.46	923.86	917.69	6.17	922.49	917.79	4.70	919.28
2/20/2019	925.40	925.18	923.11	2.07	924.94	921.18	3.76	924.62	921.30	3.32	922.49	919.09	3.40	923.78	917.66	6.12	922.41	917.79	4.62	919.25
2/21/2019	925.36	925.11	923.10	2.01	924.77	921.18	3.59	924.30	921.30	3.00	922.26	919.08	3.18	923.69	917.72	5.97	922.32	917.76	4.56	919.20
2/22/2019	925.34	925.05	923.11	1.94	924.81	921.18	3.63	924.45	921.29	3.16	922.39	919.07	3.32	923.65	917.67	5.98	922.29	917.73	4.56	919.17
2/23/2019	925.31	925.00	923.09	1.91	924.76	921.18	3.58	924.42	921.29	3.13	922.37	919.08	3.29	923.61	917.73	5.88	922.24	917.74	4.50	919.14
2/24/2019	925.28	924.95	923.07	1.88	924.73	921.17	3.56	924.38	921.30	3.08	922.34	919.08	3.26	923.56	917.72	5.84	922.22	917.72	4.50	919.13
2/25/2019	925.28	924.93	923.06	1.87	924.69	921.17	3.52	924.37	921.30	3.07	922.32	919.08	3.24	923.55	917.71	5.84	922.16	917.74	4.42	919.10
2/26/2019	925.23	924.89	923.06	1.83	924.68	921.18	3.50	924.31	921.31	3.00	922.29	919.08	3.21	923.50	917.54	5.96	922.12	917.68	4.44	919.07
2/27/2019	925.22	924.85	923.04	1.81	924.63	921.18	3.45	924.29	921.30	2.99	922.26	919.08	3.18	923.46	917.51	5.95	922.07	917.67	4.40	919.04
2/28/2019	925.21	924.83	923.02	1.81	924.6	921.18	3.42	924.27	921.30	2.97	922.25	919.07	3.18	923.43	917.66	5.77	922.06	917.66	4.40	919.03
3/1/2019	925.18	924.81	923.01	1.80	924.6	921.18	3.42	924.23	921.30	2.93	922.23	919.07	3.16	923.41	917.40	6.01	922.04	917.64	4.40	919.01
3/2/2019	925.15	924.77	923.00	1.77	924.56	921.17	3.39	924.20	921.29	2.91	922.20	919.07	3.13	923.37	917.44	5.93	921.97	917.64	4.33	918.98
3/3/2019	925.12	924.72	922.98	1.74	924.5	921.17	3.33	924.16	921.28	2.88	922.18	919.08	3.10	923.33	917.54	5.79	921.97	917.63	4.34	918.96
3/4/2019	925.09	924.69	922.96	1.73	924.49	921.16	3.33	924.13	921.28	2.85	922.15	919.08	3.07	923.29	917.37	5.92	921.90	917.59	4.31	918.92
3/5/2019	925.11	924.67	922.97	1.70	924.45	921.16	3.29	924.11	921.28	2.83	922.14	919.07	3.07	923.26	917.55	5.71	921.87	917.59	4.28	918.91
3/6/2019	925.14	924.69	922.95	1.74	924.49	921.17	3.32	924.11	921.29	2.82	922.13	919.07	3.06	923.25	917.52	5.73	921.86	917.60	4.26	918.91
3/7/2019	925.11	924.66	922.94	1.72	924.46	921.17	3.29	924.09	921.28	2.81	922.13	919.08	3.05	923.24	917.43	5.81	921.85	917.60	4.25	918.90
3/8/2019	925.09	924.64	922.93	1.71	924.44	921.17	3.27	924.07	921.28	2.79	922.12	919.08	3.04	923.23	917.38	5.85	921.83	917.58	4.25	918.90
3/9/2019	925.08	924.62	922.92	1.70	924.41	921.16	3.25	924.04	921.29	2.75	922.10	919.07	3.03	923.21	917.40	5.81	921.81	917.57	4.24	918.88
3/10/2019	925.04	924.60	922.91	1.69	924.38	921.17	3.21	924.02	921.29	2.73	922.08	919.07	3.01	923.17	917.50	5.67	921.78	917.56	4.22	918.86
3/11/2019	925.05	924.57	922.93	1.64	924.39	921.17	3.22	924.02	921.32	2.70	922.07	919.07	3.00	923.16	917.34	5.82	921.77	917.56	4.21	918.86
3/12/2019	925.09	924.59	922.97	1.62	924.45	921.18	3.27	924.09	921.30	2.79	922.11	919.08	3.03	923.22	917.49	5.73	921.83	917.62	4.21	918.91
3/13/2019	925.15	924.70	923.09	1.61	924.59	921.16	3.43	924.25	921.31	2.94	922.19	919.07	3.12	923.35	917.41	5.94	921.96	917.63	4.33	919.00
3/14/2019	925.24	924.93	923.24	1.69	924.78	921.15	3.63	924.44	921.31	3.13	922.32	919.06	3.26	923.52	917.65	5.87	922.15	917.67	4.48	919.08
3/15/2019	925.26	925.04	923.22	1.82	924.81	921.18	3.63	924.45	921.31	3.14	922.35	919.06	3.29	923.58	917.63	5.95	922.21	917.67	4.54	919.09
3/16/2019	925.32	925.15	923.22	1.93	924.92	921.15	3.77	924.57	921.31	3.26	922.41	919.07	3.34	923.67	917.71	5.96	922.29	917.72	4.57	919.16
3/17/2019	925.43	925.28	923.25	2.03	925.05	921.18	3.87	924.68	921.30	3.38	922.49	919.07	3.42	923.78	917.70	6.08	922.42	917.78	4.64	919.24
3/18/2019	925.89	925.54	923.30	2.24	925.26	921.18	4.08	924.87	921.30	3.57	922.60	919.07	3.53	923.94	917.90	6.04	922.60	917.88	4.72	919.37
3/19/2019	926.12	925.96	923.43	2.53	925.61	921.17	4.44	925.22	921.29	3.93	922.80	919.09	3.71	924.25	917.97	6.28	922.95	918.00	4.95	919.57
3/20/2019	926.07	926.25	923.51	2.74	925.93	921.17	4.76	925.56	921.32	4.24	923.03	919.17	3.86	924.57	917.85	6.72	923.37	918.10	5.27	919.74
3/21/2019	926.23	926.40	923.56	2.84	926.08	921.18	4.90	925.71	921.31	4.40	923.13	919.25	3.88	924.75	918.08	6.67	923.56	918.20	5.36	919.85
3/22/2019	926.23	926.41	923.55	2.86	926.07	921.18	4.89	925.67	921.31	4.36	923.12	919.27	3.85	924.68	918.08	6.60	923.59	918.22	5.37	919.88
3/23/2019	926.21	926.36	923.51	2.85	926	921.18	4.82	925.60	921.31	4.29	923.10	919.28	3.82	924.75	918.18	6.57	923.56	918.24	5.32	919.88
3/24/2019	926.17	926.29	923.47	2.82	925.94	921.18	4.76	925.53	921.31	4.22	923.05	919.30	3.75	924.60	918.12	6.48	923.50	918.24	5.26	919.85
3/25/2019	926.10	926.21	923.42	2.79	925.77	921.18	4.59	925.30	921.31	3.99	922.96	919.27	3.69	924.60	918.05	6.55	923.41	918.20	5.21	919.78
3/26/2019	926.05	926.10	923.39	2.71	925.77	921.18	4.59	925.36	921.28	4.08	922.95	919.28	3.67	924.42	918.01	6.41	923.34	918.22	5.12	919.82
3/27/2019	926.01	926.05	923.38	2.67	925.73	921.18	4.55	925.32	921.28	4.04	922.93	919.28	3.65	924.46	918.06	6.40	923.29	918.20	5.09	919.73
3/28/2019	925.91	925.96	923.32	2.64	925.64	921.18	4.46	925.24	921.29	3.95	922.88	919.22	3.66	924.38	917.94	6.44	923.21	918.12	5.09	919.67
3/29/2019	925.82	925.86	923.27	2.59	925.55	921.18	4.37	925.15	921.29	3.86	922.82	919.18	3.64	924.27	917.93	6.34	923.08	918.08	5.00	919.61
3/30/2019	925.79	925.78	923.25	2.53	925.48	921.19	4.29	925.08	921.29	3.79	922.75	919.18	3.57	924.23	917.84	6.39	922.96	918.07	4.89	919.59
3/31/2019	925.76	925.72	923.22	2.50	925.42	921.19	4.23	925.01	921.30	3.71	922.73	919.19	3.54	924.18	918.07	6.11	922.90	918.08	4.82	919.55
4/1/2019	925.77	925.68	923.21	2.47	925.38	921.18	4.20	924.98	921.29	3.69	922.70	919.21	3.49	924.10	917.80	6.30	922.86	918.10	4.76	919.56
4/2/2019	925.80	925.67	923.22	2.45	925.36	921.18	4.18	924.96	921.30	3.66	922.69	919.24	3.45	924.12	918.16	5.96	922.85	918.15	4.70	919.56
4/3/2019	925.81	925.65	923.22	2.43	925.36	921.18	4.18	924.95	921.29	3.66	922.68	919.26	3.42	924.12	918.12	6.00	922.82	918.17	4.65	919.59
4/4/2019	926.01	925.74	923.31	2.43	925.49	921.18	4.31	925.07	921.30	3.77	922.74	919.41	3.33	924.19	918.19	6.00	922.95	918.36	4.59	919.72
4/5/2019	926.09	925.84	923.37	2.47	925.54	921.19	4.35	925.12	921.30	3.82	922.77	919.44	3.33	924.26	918.08	6.18	923.03	918.38	4.65	919.76
4/6/2019	926.19	925.91	923.45	2.46	925.67	921.19	4.48	925.29	921.29	4.00	922.88	919.54	3.34	924.36	918.38	5.98	923.21	918.49	4.72	919.86

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
4/7/2019	926.25	926.06	923.52	2.54	925.82	921.19	4.63	925.45	921.29	4.16	923.03	919.54	3.49	924.53	918.20	6.33	923.34	918.48	4.86	919.95
4/8/2019	926.23	926.18	923.53	2.65	925.91	921.18	4.73	925.53	921.30	4.23	923.03	919.50	3.53	924.61	918.18	6.43	923.48	918.44	5.04	919.96
4/9/2019	926.36	926.32	923.60	2.72	926.1	921.19	4.91	925.77	921.29	4.48	923.21	919.57	3.64	924.77	918.44	6.33	923.62	918.53	5.09	920.05
4/10/2019	926.48	926.61	923.78	2.83	926.38	921.19	5.19	926.03	921.29	4.74	923.33	919.65	3.68	924.98	918.44	6.54	923.91	918.61	5.30	920.23
4/11/2019	926.79	927.37	924.30	3.07	927.18	921.18	6.00	926.88	921.31	5.57	923.89	919.86	4.03	925.75	918.47	7.28	924.78	918.84	5.94	920.69
4/12/2019	926.84	927.55	924.24	3.31	927.19	921.18	6.01	926.84	921.30	5.54	923.86	919.89	3.97	925.76	918.63	7.13	924.81	918.87	5.94	920.69
4/13/2019	926.91	927.48	924.11	3.37	927.06	921.17	5.89	926.70	921.29	5.41	923.79	919.83	3.96	925.58	918.50	7.08	924.66	918.80	5.86	920.59
4/14/2019	926.84	927.58	924.19	3.39	927.19	921.18	6.01	926.85	921.30	5.55	923.85	919.83	4.02	925.76	918.79	6.97	924.81	918.82	5.99	920.68
4/15/2019	926.73	927.42	924.01	3.41	926.98	921.17	5.81	926.62	921.31	5.31	923.69	919.72	3.97	925.52	918.32	7.20	924.59	918.68	5.91	920.51
4/16/2019	926.61	927.19	923.85	3.34	926.74	921.17	5.57	926.36	921.30	5.06	923.55	919.60	3.95	925.32	918.51	6.81	924.35	918.55	5.80	920.35
4/17/2019	926.54	926.95	923.74	3.21	926.58	921.18	5.40	926.20	921.29	4.91	923.45	919.56	3.89	925.13	918.19	6.94	924.15	918.51	5.64	920.25
4/18/2019	926.51	926.81	923.69	3.12	926.46	921.18	5.28	926.06	921.28	4.78	923.36	919.59	3.77	925.10	918.57	6.53	924.05	918.55	5.50	920.20
4/19/2019	926.61	926.74	923.80	2.94	926.43	921.19	5.24	926.03	921.29	4.74	923.34	919.75	3.59	925.09	918.73	6.36	924.00	918.75	5.25	920.27
4/20/2019	926.90	926.93	924.27	2.66	926.64	921.17	5.47	926.22	921.28	4.94	923.43	920.32	3.11	925.18	918.92	6.26	924.20	919.27	4.93	920.59
4/21/2019	926.82	926.97	924.16	2.81	926.6	921.19	5.41	926.16	921.29	4.87	923.40	920.10	3.30	925.15	919.05	6.10	924.19	919.07	5.12	920.49
4/22/2019	926.71	926.88	923.98	2.90	926.47	921.19	5.28	926.04	921.29	4.75	923.32	919.94	3.38	925.05	918.57	6.48	924.07	918.91	5.16	920.35
4/23/2019	926.64	926.76	923.88	2.88	926.37	921.19	5.18	925.93	921.30	4.63	923.26	919.86	3.40	924.96	918.56	6.40	923.94	918.83	5.11	920.28
4/24/2019	926.62	926.68	923.87	2.81	926.28	921.18	5.10	925.84	921.29	4.55	923.15	919.92	3.23	924.88	918.58	6.30	923.87	918.89	4.98	920.26
4/25/2019	926.60	926.59	923.83	2.76	926.19	921.16	5.03	925.74	921.30	4.44	923.16	919.87	3.29	924.81	918.44	6.37	923.79	918.83	4.96	920.22
4/26/2019	926.53	926.47	923.71	2.76	926.11	921.18	4.93	925.68	921.29	4.39	923.11	919.76	3.35	924.74	918.44	6.30	923.71	918.73	4.98	920.14
4/27/2019	926.47	926.39	923.64	2.75	926.03	921.17	4.86	925.60	921.29	4.31	923.07	919.73	3.34	924.67	918.67	6.00	923.63	918.68	4.95	920.08
4/28/2019	926.37	926.28	923.57	2.71	925.95	921.19	4.76	925.54	921.30	4.24	923.03	919.64	3.39	924.61	918.35	6.26	923.54	918.57	4.97	920.02
4/29/2019	926.24	926.20	923.51	2.69	925.85	921.19	4.66	925.44	921.30	4.14	922.98	919.56	3.42	924.54	918.33	6.21	923.46	918.49	4.97	919.92
4/30/2019	926.16	926.07	923.42	2.65	925.75	921.16	4.59	925.35	921.30	4.05	922.93	919.48	3.45	924.46	918.35	6.11	923.37	918.40	4.97	919.84
5/1/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/2/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/3/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/4/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/5/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/6/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/7/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/8/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/9/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/10/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/11/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/12/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/13/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/14/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/15/2019	926.42	926.15	923.76	2.39	925.79	921.16	4.63	925.36	921.31	4.05	922.93	919.89	3.04	924.49	918.56	5.93	923.41	918.84	4.57	920.05
5/16/2019	926.38	926.08	923.69	2.39	925.74	921.16	4.58	925.31	921.31	4.00	922.90	919.85	3.05	924.43	918.48	5.95	923.37	918.79	4.58	920.02
5/17/2019	926.61	926.12	923.96	2.16	925.84	921.17	4.67	925.42	921.32	4.10	922.96	920.21	2.75	924.51	918.86	5.65	923.46	919.16	4.30	920.20
5/18/2019	926.60	926.22	923.99	2.23	925.91	921.16	4.75	925.47	921.31	4.16	923.01	920.13	2.88	924.61	918.79	5.82	923.55	919.07	4.48	920.23
5/19/2019	926.54	926.22	923.92	2.30	925.88	921.17	4.71	925.45	921.31	4.14	922.99	920.03	2.96	924.49	918.63	5.86	923.54	918.99	4.55	920.16
5/20/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/21/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/22/2019	926.29	926.03	923.58	2.45	925.63	921.17	4.46	925.22	921.29	3.93	922.92	919.73	3.19	924.51	918.67	5.84	923.36	918.66	4.70	919.95
5/23/2019	926.23	925.98	923.52	2.46	925.64	921.18	4.46	925.25	921.31	3.94	922.89	919.67	3.22	924.44	918.59	5.85	923.32	918.60	4.72	919.91
5/24/2019	926.28	925.95	923.56	2.39	925.67	921.16	4.51	925.25	921.29	3.96	922.88	919.75	3.13	924.43	918.42	6.01	923.30	918.71	4.59	919.96

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
5/25/2019	926.29	925.99	923.58	2.41	925.67	921.17	4.50	925.28	921.32	3.96	922.91	919.77	3.14	924.48	918.56	5.92	923.33	918.69	4.64	919.96
5/26/2019	926.24	925.95	923.51	2.44	925.63	921.18	4.45	925.24	921.27	3.97	922.89	919.72	3.17	924.45	918.66	5.79	923.31	918.62	4.69	919.91
5/27/2019	926.20	925.92	923.49	2.43	925.62	921.18	4.44	925.21	921.27	3.94	922.86	919.67	3.19	924.36	918.27	6.09	923.26	918.58	4.68	919.89
5/28/2019	926.23	925.90	923.51	2.39	925.59	921.18	4.41	925.19	921.27	3.92	922.84	919.72	3.12	924.31	918.30	6.01	923.25	918.63	4.62	919.92
5/29/2019	926.25	925.93	923.55	2.38	925.58	921.18	4.40	925.21	921.28	3.93	922.84	919.78	3.06	924.39	918.52	5.87	923.27	918.67	4.60	919.92
5/30/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5/31/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/1/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/2/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/3/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/4/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/5/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/6/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/7/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/8/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/9/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/10/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/11/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/12/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/13/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/14/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/15/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/16/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/17/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/18/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/19/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/20/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/21/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/22/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/23/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/24/2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6/25/2019	925.50	925.17	923.09	2.08	924.9	921.17	3.73	924.50	921.29	3.21	922.46	919.11	3.35	923.79	917.73	6.06	922.47	917.95	4.52	919.32
6/26/2019	925.49	925.13	923.08	2.05	924.9	921.16	3.74	924.53	921.28	3.25	922.45	919.11	3.34	923.78	917.82	5.96	922.48	917.97	4.51	919.31
6/27/2019	925.52	925.13	923.11	2.02	924.97	921.15	3.82	924.59	921.27	3.32	922.50	919.13	3.37	923.81	918.03	5.78	922.51	918.00	4.51	919.37
6/28/2019	925.51	925.17	923.10	2.07	924.99	921.16	3.83	924.61	921.28	3.33	922.52	919.10	3.42	923.82	918.00	5.82	922.54	917.98	4.56	919.35
6/29/2019	925.48	925.13	923.10	2.03	924.92	921.17	3.75	924.55	921.28	3.27	922.47	919.08	3.39	923.81	917.88	5.93	922.50	917.93	4.57	919.32
6/30/2019	925.43	925.09	923.07	2.02	924.86	921.18	3.68	924.51	921.28	3.23	922.44	919.03	3.41	923.77	917.69	6.08	922.44	917.90	4.54	919.28
7/1/2019	925.40	925.06	923.05	2.01	924.87	921.19	3.68	924.49	921.29	3.20	922.43	919.08	3.35	923.72	917.71	6.01	922.40	917.90	4.50	919.28
7/2/2019	925.36	925.01	923.05	1.96	924.8	921.17	3.63	924.43	921.29	3.14	922.40	919.09	3.31	923.69	917.87	5.82	922.35	917.88	4.47	919.27
7/3/2019	925.33	924.97	923.00	1.97	924.74	921.18	3.56	924.39	921.28	3.11	922.38	919.09	3.29	923.64	917.72	5.92	922.31	917.84	4.47	919.22
7/4/2019	925.30	924.93	922.98	1.95	924.7	921.17	3.53	924.35	921.28	3.07	922.33	919.09	3.24	923.61	917.68	5.93	922.25	917.83	4.42	919.20
7/5/2019	925.26	924.87	922.96	1.91	924.64	921.18	3.46	924.29	921.27	3.02	922.30	919.09	3.21	923.54	917.62	5.92	922.19	917.83	4.36	919.16
7/6/2019	925.23	924.82	922.96	1.86	924.6	921.18	3.42	924.25	921.27	2.98	922.27	919.08	3.19	923.50	917.73	5.77	922.14	917.79	4.35	919.15
7/7/2019	925.18	924.77	922.94	1.83	924.55	921.18	3.37	924.21	921.28	2.93	922.24	919.11	3.13	923.43	917.73	5.70	922.07	917.78	4.29	919.10
7/8/2019	925.15	924.69	922.92	1.77	924.49	921.18	3.31	924.11	921.29	2.82	922.20	919.10	3.10	923.38	917.61	5.77	922.01	917.74	4.27	919.06
7/9/2019	925.09	924.66	922.91	1.75	924.43	921.18	3.25	924.06	921.30	2.76	922.15	919.10	3.05	923.32	917.53	5.79	921.94	917.73	4.21	919.02
7/10/2019	925.07	924.60	922.89	1.71	924.38	921.19	3.19	924.01	921.29	2.72	922.11	919.10	3.01	923.22	917.59	5.63	921.86	917.71	4.15	919.01
7/11/2019	925.21	924.59	922.91	1.68	924.43	921.19	3.24	924.04	921.29	2.75	922.11	919.11	3.00	923.24	917.54	5.70	921.89	917.76	4.13	919.06

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
7/12/2019	925.25	924.68	922.94	1.74	924.5	921.19	3.31	924.11	921.30	2.81	922.18	919.12	3.06	923.32	917.80	5.52	921.97	917.77	4.20	919.08
7/13/2019	925.22	924.73	922.95	1.78	924.5	921.19	3.31	924.11	921.29	2.82	922.20	919.11	3.09	923.36	917.59	5.77	921.98	917.74	4.24	919.05
7/14/2019	925.13	924.67	922.92	1.75	924.44	921.18	3.26	924.07	921.29	2.78	922.17	919.11	3.06	923.33	917.55	5.78	921.93	917.71	4.22	919.01
7/15/2019	925.08	924.61	922.89	1.72	924.38	921.19	3.19	924.01	921.29	2.72	922.13	919.11	3.02	923.25	917.48	5.77	921.87	917.68	4.19	918.98
7/16/2019	925.05	924.55	922.87	1.68	924.32	921.19	3.13	923.95	921.29	2.66	922.09	919.12	2.97	923.20	917.61	5.59	921.80	917.67	4.13	918.94
7/17/2019	925.03	924.50	922.86	1.64	924.29	921.18	3.11	923.91	921.30	2.61	922.05	919.11	2.94	923.12	917.47	5.65	921.73	917.65	4.08	918.90
7/18/2019	925.26	924.61	922.96	1.65	924.52	921.18	3.34	924.18	921.30	2.88	922.19	919.12	3.07	923.31	917.86	5.45	921.96	917.85	4.11	919.13
7/19/2019	925.43	924.87	923.04	1.83	924.71	921.18	3.53	924.32	921.27	3.05	922.28	919.12	3.16	923.50	917.65	5.85	922.15	917.89	4.26	919.25
7/20/2019	925.44	925.00	923.06	1.94	924.81	921.17	3.64	924.41	921.27	3.14	922.39	919.13	3.26	923.63	917.70	5.93	922.27	917.84	4.43	919.24
7/21/2019	925.39	925.04	923.04	2.00	924.83	921.16	3.67	924.44	921.28	3.16	922.42	919.11	3.31	923.68	917.58	6.10	922.31	917.79	4.52	919.23
7/22/2019	925.33	925.00	923.02	1.98	924.79	921.16	3.63	924.42	921.27	3.15	922.41	919.12	3.29	923.69	917.77	5.92	922.31	917.75	4.56	919.20
7/23/2019	925.32	924.96	923.00	1.96	924.76	921.16	3.60	924.38	921.27	3.11	922.39	919.11	3.28	923.64	917.70	5.94	922.26	917.74	4.52	919.18
7/24/2019	925.21	924.90	922.97	1.93	924.71	921.15	3.56	924.33	921.26	3.07	922.35	919.11	3.24	923.60	917.54	6.06	922.19	917.70	4.49	919.15
7/25/2019	925.19	924.86	922.96	1.90	924.65	921.17	3.48	924.29	921.27	3.02	922.33	919.10	3.23	923.53	917.69	5.84	922.19	917.68	4.51	919.01
7/26/2019	925.13	924.78	922.94	1.84	924.49	921.16	3.33	924.08	921.27	2.81	922.26	919.09	3.17	923.49	917.50	5.99	922.09	917.63	4.46	919.07
7/27/2019	925.07	924.70	922.88	1.82	924.48	921.16	3.32	924.12	921.25	2.87	922.22	919.10	3.12	923.41	917.59	5.82	921.99	917.63	4.36	919.01
7/28/2019	925.08	924.64	922.87	1.77	924.45	921.17	3.28	924.08	921.27	2.81	922.18	919.09	3.09	923.36	917.46	5.90	921.97	917.62	4.35	919.01
7/29/2019	925.01	924.61	922.85	1.76	924.38	921.17	3.21	924.03	921.26	2.77	922.15	919.10	3.05	923.31	917.49	5.82	921.89	917.61	4.28	918.96
7/30/2019	924.96	924.53	922.84	1.69	924.32	921.18	3.14	923.95	921.28	2.67	922.10	919.10	3.00	923.23	917.61	5.62	921.79	917.59	4.20	918.93
7/31/2019	924.90	924.46	922.82	1.64	924.24	921.17	3.07	923.87	921.27	2.60	922.05	919.11	2.94	923.15	917.59	5.56	921.70	917.55	4.15	918.88
8/1/2019	924.85	924.38	922.80	1.58	924.17	921.17	3.00	923.81	921.28	2.53	921.98	919.11	2.87	923.05	917.49	5.56	921.60	917.53	4.07	918.84
8/2/2019	924.80	924.29	922.75	1.54	924.08	921.17	2.91	923.73	921.27	2.46	921.92	919.10	2.82	922.96	917.36	5.60	921.51	917.50	4.01	918.78
8/3/2019	924.80	924.24	922.73	1.51	924.04	921.17	2.87	923.68	921.27	2.41	921.86	919.11	2.75	922.86	917.49	5.37	921.44	917.51	3.93	918.75
8/4/2019	924.75	924.19	922.72	1.47	923.97	921.15	2.82	923.62	921.27	2.35	921.85	919.11	2.74	922.81	917.52	5.29	921.33	917.50	3.83	918.71
8/5/2019	924.72	924.13	922.71	1.42	923.89	921.17	2.72	923.54	921.29	2.25	921.80	919.11	2.69	922.75	917.47	5.28	921.24	917.47	3.77	918.64
8/6/2019	924.68	924.07	922.69	1.38	923.84	921.18	2.66	923.48	921.28	2.20	921.75	919.12	2.63	922.65	917.49	5.16	921.15	917.46	3.69	918.60
8/7/2019	924.64	924.01	922.66	1.35	923.76	921.17	2.59	923.40	921.28	2.12	921.69	919.12	2.57	922.56	917.45	5.11	921.03	917.44	3.59	918.55
8/8/2019	924.59	923.96	922.63	1.33	923.7	921.17	2.53	923.33	921.27	2.06	921.62	919.11	2.51	922.45	917.33	5.12	920.91	917.41	3.50	918.47
8/9/2019	924.55	923.87	922.61	1.26	923.63	921.16	2.47	923.26	921.27	1.99	921.57	919.09	2.48	922.36	917.31	5.05	920.83	917.38	3.45	918.42
8/10/2019	924.61	923.83	922.60	1.23	923.61	921.19	2.42	923.24	921.28	1.96	921.53	919.12	2.41	922.28	917.41	4.87	920.76	917.42	3.34	918.43
8/11/2019	924.70	923.90	922.60	1.30	923.67	921.19	2.48	923.26	921.28	1.98	921.54	919.12	2.42	922.32	917.35	4.97	920.81	917.46	3.35	918.48
8/12/2019	924.69	923.90	922.62	1.28	923.67	921.19	2.48	923.28	921.27	2.01	921.55	919.11	2.44	922.34	917.30	5.04	920.83	917.44	3.39	918.48
8/13/2019	924.65	923.91	922.60	1.31	923.64	921.19	2.45	923.26	921.28	1.98	921.55	919.12	2.43	922.33	917.33	5.00	920.80	917.42	3.38	918.46
8/14/2019	924.57	923.83	922.59	1.24	923.58	921.18	2.40	923.20	921.27	1.93	921.52	919.11	2.41	922.29	917.27	5.02	920.73	917.39	3.34	918.40
8/15/2019	924.53	923.78	922.57	1.21	923.52	921.19	2.33	923.13	921.28	1.85	921.49	919.12	2.37	922.22	917.39	4.83	920.63	917.38	3.25	918.33
8/16/2019	924.49	923.72	922.55	1.17	923.47	921.19	2.28	923.07	921.28	1.79	921.44	919.10	2.34	922.15	917.22	4.93	920.54	917.34	3.20	918.29
8/17/2019	924.45	923.67	922.53	1.14	923.4	921.19	2.21	923.01	921.28	1.73	921.39	919.13	2.26	922.05	917.27	4.78	920.48	917.32	3.16	918.24
8/18/2019	924.41	923.62	922.50	1.12	923.35	921.18	2.17	922.94	921.28	1.66	921.34	919.12	2.22	921.96	917.22	4.74	920.39	917.28	3.11	918.19
8/19/2019	924.38	923.56	922.45	1.11	923.28	921.19	2.09	922.88	921.27	1.61	921.28	919.12	2.16	921.89	917.19	4.70	920.27	917.26	3.01	918.13
8/20/2019	924.33	923.52	922.45	1.07	923.23	921.2	2.03	922.82	921.27	1.55	921.21	919.12	2.09	921.78	917.23	4.55	920.14	917.25	2.89	918.06
8/21/2019	924.28	923.47	922.43	1.04	923.15	921.19	1.96	922.74	921.28	1.46	921.16	919.13	2.03	921.71	917.24	4.47	920.09	917.24	2.85	917.99
8/22/2019	924.37	923.45	922.41	1.04	923.11	921.19	1.92	922.66	921.28	1.38	921.10	919.14	1.96	921.61	917.18	4.43	920.00	917.26	2.74	917.98
8/23/2019	924.39	923.49	922.41	1.08	923.19	921.19	2.00	922.74	921.28	1.46	921.15	919.15	2.00	921.62	917.31	4.31	920.05	917.28	2.77	918.01
8/24/2019	924.33	923.48	922.38	1.10	923.17	921.18	1.99	922.73	921.29	1.44	921.12	919.13	1.99	921.62	917.20	4.42	920.01	917.24	2.77	917.99
8/25/2019	924.28	923.43	922.40	1.03	923.13	921.2	1.93	922.68	921.29	1.39	921.11	919.14	1.97	921.55	917.20	4.35	919.98	917.23	2.75	917.96
8/26/2019	924.26	923.39	922.37	1.02	923.07	921.21	1.86	922.62	921.29	1.33	921.08	919.14	1.94	921.56	917.18	4.38	919.91	917.20	2.71	917.92
8/27/2019	924.21	923.34	922.37	0.97	923.02	921.2	1.82	922.58	921.30	1.28	921.04	919.13	1.91	921.45	917.16	4.29	919.82	917.24	2.58	917.88
8/28/2019	924.17	923.30	922.32	0.98	922.96	921.19	1.77	922.53	921.29	1.24	921.00	919.15	1.85	921.38	917.18	4.20	919.74	917.26	2.48	917.81

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
8/29/2019	924.14	923.25	922.30	0.95	922.91	921.2	1.71	922.46	921.28	1.18	920.94	919.14	1.80	921.28	917.17	4.11	919.61	917.25	2.36	917.70
8/30/2019	924.08	923.20	922.28	0.92	922.85	921.2	1.65	922.41	921.29	1.12	920.90	919.11	1.79	921.24	917.18	4.06	919.51	917.22	2.29	917.60
8/31/2019	924.07	923.16	922.26	0.90	922.8	921.19	1.61	922.37	921.29	1.08	920.86	919.12	1.74	921.14	917.17	3.97	919.41	917.26	2.15	917.54
9/1/2019	924.07	923.12	922.24	0.88	922.76	921.22	1.54	922.31	921.29	1.02	920.81	919.10	1.71	921.08	917.18	3.90	919.33	917.21	2.12	917.51
9/2/2019	924.04	923.08	922.22	0.86	922.72	921.2	1.52	922.27	921.29	0.98	920.77	919.13	1.64	921.00	917.18	3.82	919.24	917.23	2.01	917.47
9/3/2019	924.00	923.05	922.19	0.86	922.67	921.2	1.47	922.22	921.28	0.94	920.74	919.11	1.63	920.96	917.20	3.76	919.19	917.23	1.96	917.44
9/4/2019	923.97	923.02	922.18	0.84	922.63	921.18	1.45	922.18	921.28	0.90	920.68	919.12	1.56	920.91	917.19	3.72	919.09	917.22	1.87	917.38
9/5/2019	923.95	922.98	922.17	0.81	922.6	921.18	1.42	922.13	921.29	0.84	920.66	919.11	1.55	920.83	917.19	3.64	919.04	917.23	1.81	917.34
9/6/2019	923.92	922.95	922.13	0.82	922.55	921.18	1.37	922.08	921.26	0.82	920.62	919.12	1.50	920.80	917.19	3.61	918.99	917.21	1.78	917.30
9/7/2019	923.91	922.90	922.13	0.77	922.52	921.17	1.35	922.03	921.29	0.74	920.59	919.12	1.47	920.73	917.19	3.54	918.92	917.22	1.70	917.29
9/8/2019	923.92	922.88	922.12	0.76	922.48	921.18	1.30	922.01	921.28	0.73	920.56	919.12	1.44	920.67	917.18	3.49	918.87	917.22	1.65	917.25
9/9/2019	923.97	922.89	922.11	0.78	922.51	921.17	1.34	922.02	921.28	0.74	920.55	919.11	1.44	920.68	917.19	3.49	918.90	917.21	1.69	917.30
9/10/2019	924.07	922.98	922.14	0.84	922.61	921.18	1.43	922.12	921.28	0.84	920.61	919.12	1.49	920.75	917.19	3.56	919.01	917.23	1.78	917.37
9/11/2019	924.10	923.05	922.16	0.89	922.68	921.18	1.50	922.19	921.26	0.93	920.67	919.12	1.55	920.82	917.19	3.63	919.09	917.23	1.86	917.41
9/12/2019	924.05	923.06	922.16	0.90	922.69	921.17	1.52	922.20	921.26	0.94	920.69	919.12	1.57	920.94	917.19	3.75	919.10	917.22	1.88	917.40
9/13/2019	924.05	923.04	922.17	0.87	922.68	921.18	1.50	922.19	921.26	0.93	920.70	919.11	1.59	920.96	917.19	3.77	919.11	917.21	1.90	917.41
9/14/2019	924.12	923.08	922.18	0.90	922.73	921.18	1.55	922.25	921.26	0.99	920.71	919.12	1.59	920.87	917.19	3.68	919.17	917.22	1.95	917.44
9/15/2019	924.16	923.14	922.22	0.92	922.81	921.18	1.63	922.34	921.27	1.07	920.80	919.12	1.68	921.00	917.19	3.81	919.26	917.22	2.04	917.52
9/16/2019	924.52	923.37	922.34	1.03	923.18	921.19	1.99	922.67	921.27	1.40	920.96	919.12	1.84	921.29	917.33	3.96	919.69	917.38	2.31	917.88
9/17/2019	924.60	923.64	922.44	1.20	923.39	921.18	2.21	922.86	921.26	1.60	921.16	919.13	2.03	921.59	917.45	4.14	920.00	917.39	2.61	918.09
9/18/2019	924.72	923.81	922.54	1.27	923.6	921.18	2.42	923.11	921.26	1.85	921.38	919.12	2.26	921.95	917.35	4.60	920.28	917.48	2.80	918.25
9/19/2019	924.78	923.97	922.61	1.36	923.73	921.19	2.54	923.28	921.25	2.03	921.56	919.14	2.42	922.24	917.55	4.69	920.52	917.50	3.02	918.35
9/20/2019	924.69	924.03	922.66	1.37	923.78	921.19	2.59	923.35	921.27	2.08	921.65	919.12	2.53	922.42	917.27	5.15	920.63	917.45	3.18	918.36
9/21/2019	924.62	923.99	922.63	1.36	923.71	921.2	2.51	923.34	921.26	2.08	921.68	919.13	2.55	922.47	917.52	4.95	920.67	917.43	3.24	918.32
9/22/2019	924.54	923.93	922.61	1.32	923.67	921.19	2.48	923.29	921.26	2.03	921.65	919.13	2.52	922.42	917.53	4.89	920.61	917.42	3.19	918.26
9/23/2019	924.62	923.91	922.58	1.33	923.66	921.2	2.46	923.25	921.26	1.99	921.62	919.13	2.49	922.37	917.52	4.85	920.60	917.44	3.16	918.27
9/24/2019	924.76	923.98	922.59	1.39	923.7	921.2	2.50	923.23	921.25	1.98	921.63	919.13	2.50	922.41	917.46	4.95	920.68	917.48	3.20	918.38
9/25/2019	924.89	924.11	922.65	1.46	923.91	921.2	2.71	923.46	921.25	2.21	921.72	919.13	2.59	922.54	917.61	4.93	920.84	917.51	3.33	918.48
9/26/2019	924.98	924.25	922.73	1.52	924.16	921.19	2.97	923.74	921.25	2.49	921.94	919.12	2.82	922.79	917.36	5.43	921.04	917.53	3.51	918.60
9/27/2019	925.21	924.49	922.84	1.65	924.41	921.2	3.21	923.97	921.25	2.72	922.07	919.12	2.95	923.08	917.41	5.67	921.41	917.75	3.66	918.81
9/28/2019	925.58	925.18	923.18	2.00	925.26	921.21	4.05	924.86	921.27	3.59	922.67	919.14	3.53	923.92	917.79	6.13	922.27	917.96	4.31	919.23
9/29/2019	925.71	925.64	923.28	2.36	925.45	921.19	4.26	925.03	921.25	3.78	922.83	919.13	3.70	924.21	917.82	6.39	922.69	918.00	4.69	919.35
9/30/2019	925.65	925.75	923.24	2.51	925.43	921.2	4.23	924.99	921.27	3.72	922.85	919.13	3.72	924.30	917.90	6.40	922.82	917.89	4.93	919.33
10/1/2019	925.57	925.64	923.18	2.46	925.32	921.22	4.10	924.90	921.27	3.63	922.82	919.14	3.68	924.24	917.85	6.39	922.75	917.81	4.94	919.25
10/2/2019	925.46	925.52	923.14	2.38	925.22	921.2	4.02	924.81	921.27	3.54	922.76	919.13	3.63	924.18	917.43	6.75	922.62	917.73	4.89	919.18
10/3/2019	925.39	925.38	923.08	2.30	925.12	921.21	3.91	924.71	921.26	3.45	922.70	919.13	3.57	924.06	917.39	6.67	922.51	917.69	4.82	919.11
10/4/2019	925.33	925.27	923.03	2.24	925.02	921.21	3.81	924.61	921.26	3.35	922.65	919.13	3.52	923.97	917.55	6.42	922.40	917.66	4.74	919.07
10/5/2019	925.34	925.20	923.02	2.18	925.03	921.22	3.81	924.65	921.26	3.39	922.65	919.14	3.51	923.96	917.38	6.58	922.39	917.69	4.70	919.10
10/6/2019	925.35	925.21	923.03	2.18	925.01	921.2	3.81	924.60	921.26	3.34	922.64	919.14	3.50	923.97	917.64	6.33	922.39	917.72	4.67	919.10
10/7/2019	925.31	925.19	923.03	2.16	924.97	921.21	3.76	924.61	921.27	3.34	922.62	919.14	3.48	923.94	917.68	6.26	922.38	917.69	4.69	919.08
10/8/2019	926.27	925.92	923.43	2.49	926.04	921.2	4.84	925.83	921.26	4.57	923.60	919.33	4.27	924.72	917.83	6.89	923.21	918.42	4.79	919.78
10/9/2019	926.23	926.48	923.69	2.79	926.28	921.19	5.09	925.99	921.24	4.75	923.47	919.37	4.10	925.11	918.06	7.05	923.98	918.32	5.66	919.97
10/10/2019	926.07	926.40	923.54	2.86	926.09	921.2	4.89	925.71	921.22	4.49	923.32	919.23	4.09	924.95	917.69	7.26	923.80	918.15	5.65	919.82
10/11/2019	925.93	926.22	923.44	2.78	925.88	921.19	4.69	925.50	921.24	4.26	923.20	919.17	4.03	924.80	918.13	6.67	923.58	918.07	5.51	919.68
10/12/2019	925.79	926.04	923.32	2.72	925.72	921.19	4.53	925.31	921.24	4.07	923.09	919.12	3.97	924.59	917.61	6.98	923.35	918.00	5.35	919.57
10/13/2019	925.69	925.85	923.27	2.58	925.56	921.19	4.37	925.14	921.27	3.87	922.99	919.13	3.86	924.46	917.94	6.52	923.15	917.97	5.18	919.49
10/14/2019	925.62	925.71	923.20	2.51	925.42	921.19	4.23	925.01	921.26	3.75	922.90	919.14	3.76	924.32	917.86	6.46	922.95	917.95	5.00	919.41
10/15/2019	925.57	925.60	923.18	2.42	925.33	921.18	4.15	924.90	921.26	3.64	922.82	919.13	3.69	924.23	917.52	6.71	922.79	917.90	4.89	919.35

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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
10/16/2019	925.52	925.50	923.13	2.37	925.24	921.21	4.03	924.82	921.26	3.56	922.77	919.13	3.64	924.13	917.97	6.16	922.70	917.89	4.81	919.32
10/17/2019	925.67	925.50	923.19	2.31	925.34	921.22	4.12	924.94	921.26	3.68	922.83	919.14	3.69	924.18	917.62	6.56	922.74	918.04	4.70	919.42
10/18/2019	926.03	925.83	923.38	2.45	925.7	921.19	4.51	925.34	921.27	4.07	923.03	919.42	3.61	924.50	917.84	6.66	923.16	918.36	4.80	919.75
10/19/2019	926.58	926.83	923.96	2.87	926.76	921.18	5.58	926.48	921.23	5.25	923.82	919.74	4.08	925.35	918.31	7.04	924.18	918.75	5.43	920.40
10/20/2019	926.75	927.26	924.16	3.10	926.96	921.17	5.79	926.65	921.25	5.40	923.85	919.81	4.04	925.64	918.52	7.12	924.62	918.77	5.85	920.56
10/21/2019	926.97	927.49	924.24	3.25	927.18	921.18	6.00	926.88	921.25	5.63	924.05	919.98	4.07	925.79	918.69	7.10	924.77	918.97	5.80	920.71
10/22/2019	928.76	928.50	926.81	1.69	928.19	922.12	6.07	927.59	922.51	5.08	924.47	923.24	1.23	926.70	921.95	4.75	925.92	922.03	3.89	922.69
10/23/2019	927.58	928.35	925.64	2.71	927.79	921.17	6.62	927.31	921.34	5.97	924.21	921.34	2.87	926.29	920.00	6.29	925.45	920.22	5.23	921.50
10/24/2019	927.21	928.05	924.75	3.30	927.46	921.18	6.28	927.04	921.32	5.72	924.01	920.42	3.59	925.98	918.90	7.08	925.05	919.33	5.72	920.92
10/25/2019	927.01	927.77	924.34	3.43	927.2	921.17	6.03	926.81	921.33	5.48	923.88	920.05	3.83	925.75	918.96	6.79	924.79	919.01	5.78	920.64
10/26/2019	926.86	927.44	924.12	3.32	926.93	921.17	5.76	926.56	921.31	5.25	923.73	919.96	3.77	925.53	918.38	7.15	924.52	918.91	5.61	920.47
10/27/2019	926.68	927.16	923.92	3.24	926.72	921.18	5.54	926.33	921.32	5.01	923.59	919.73	3.86	925.35	918.72	6.63	924.29	918.71	5.58	920.31
10/28/2019	926.52	926.90	923.78	3.12	926.49	921.19	5.30	926.11	921.32	4.79	923.46	919.55	3.91	925.17	918.04	7.13	924.05	918.52	5.53	920.14
10/29/2019	926.35	926.65	923.64	3.01	926.27	921.19	5.08	925.89	921.31	4.58	923.34	919.47	3.87	924.99	918.35	6.64	923.84	918.38	5.46	919.98
10/30/2019	926.18	926.44	923.55	2.89	926.08	921.2	4.88	925.70	921.32	4.38	923.23	919.36	3.87	924.82	918.10	6.72	923.65	918.29	5.36	919.84
10/31/2019	926.05	926.24	923.47	2.77	925.91	921.2	4.71	925.53	921.31	4.22	923.13	919.30	3.83	924.69	917.81	6.88	923.48	918.21	5.27	919.74
11/1/2019	925.93	926.08	923.40	2.68	925.75	921.21	4.54	925.37	921.31	4.06	923.02	919.26	3.76	924.54	917.76	6.78	923.30	918.15	5.15	919.63
11/2/2019	925.82	925.95	923.34	2.61	925.62	921.2	4.42	925.23	921.31	3.92	922.94	919.21	3.73	924.39	918.08	6.31	923.14	918.11	5.03	919.56
11/3/2019	925.73	925.80	923.30	2.50	925.49	921.18	4.31	925.13	921.31	3.82	922.87	919.17	3.70	924.31	917.98	6.33	922.97	918.06	4.91	919.48
11/4/2019	925.67	925.69	923.26	2.43	925.39	921.19	4.20	925.00	921.31	3.69	922.81	919.15	3.66	924.21	918.09	6.12	922.87	918.03	4.84	919.43
11/5/2019	925.62	925.62	923.23	2.39	925.3	921.19	4.11	924.93	921.31	3.62	922.74	919.12	3.62	924.14	917.59	6.55	922.74	918.00	4.74	919.40
11/6/2019	925.55	925.53	923.19	2.34	925.22	921.18	4.04	924.85	921.31	3.54	922.70	919.09	3.61	924.06	918.03	6.03	922.66	917.97	4.69	919.35
11/7/2019	925.53	925.45	923.18	2.27	925.16	921.19	3.97	924.77	921.31	3.46	922.65	919.13	3.52	924.01	918.00	6.01	922.58	917.94	4.64	919.28
11/8/2019	925.49	925.39	923.15	2.24	925.1	921.18	3.92	924.73	921.30	3.43	922.62	919.13	3.49	923.95	917.68	6.27	922.51	917.90	4.61	919.25
11/9/2019	925.45	925.34	923.12	2.22	925.05	921.18	3.87	924.67	921.30	3.37	922.58	919.12	3.46	923.90	917.92	5.98	922.44	917.88	4.56	919.20
11/10/2019	925.45	925.28	923.10	2.18	925	921.18	3.82	924.61	921.31	3.30	922.54	919.13	3.41	923.84	917.85	5.99	922.39	917.89	4.50	919.21
11/11/2019	925.42	925.24	923.09	2.15	924.95	921.18	3.77	924.58	921.32	3.26	922.52	919.13	3.39	923.80	917.89	5.91	922.35	917.87	4.48	919.18
11/12/2019	925.40	925.20	923.08	2.12	924.91	921.18	3.73	924.52	921.32	3.20	922.49	919.12	3.37	923.76	917.60	6.16	922.32	917.86	4.46	919.17
11/13/2019	925.40	925.17	923.08	2.09	924.91	921.19	3.72	924.51	921.33	3.18	922.49	919.12	3.37	923.74	917.95	5.79	922.30	917.87	4.43	919.16
11/14/2019	925.38	925.14	923.06	2.08	924.86	921.18	3.68	924.47	921.31	3.16	922.47	919.12	3.35	923.72	917.49	6.23	922.26	917.84	4.42	919.13
11/15/2019	925.36	925.11	923.05	2.06	924.83	921.18	3.65	924.45	921.33	3.12	922.45	919.11	3.34	923.69	917.63	6.06	922.23	917.83	4.40	919.12
11/16/2019	925.62	925.30	923.23	2.07	925.26	921.18	4.08	924.94	921.32	3.62	922.70	919.24	3.46	924.03	917.77	6.26	922.61	918.08	4.53	919.39
11/17/2019	926.11	925.75	923.40	2.35	925.88	921.18	4.70	925.63	921.32	4.31	923.17	919.27	3.90	924.41	917.92	6.49	922.96	918.27	4.69	919.66
11/18/2019	926.33	926.17	923.74	2.43	926.07	921.18	4.89	925.73	921.32	4.41	923.18	919.66	3.52	924.75	918.47	6.28	923.60	918.60	5.00	920.02
11/19/2019	926.46	926.46	923.81	2.65	926.35	921.18	5.17	926.04	921.32	4.72	923.35	919.68	3.67	924.96	918.15	6.81	923.79	918.65	5.14	920.13
11/20/2019	926.44	926.61	923.81	2.80	926.31	921.18	5.13	925.93	921.30	4.63	923.34	919.64	3.70	924.97	918.37	6.60	923.90	918.56	5.34	920.14
11/21/2019	926.32	926.54	923.70	2.84	926.17	921.18	4.99	925.77	921.31	4.46	923.26	919.51	3.75	924.86	917.99	6.87	923.76	918.40	5.36	920.01
11/22/2019	926.18	926.38	923.58	2.80	925.89	921.18	4.71	925.41	921.33	4.08	923.13	919.39	3.74	924.71	917.99	6.72	923.56	918.28	5.28	919.86
11/23/2019	926.04	926.22	923.49	2.73	925.83	921.18	4.65	925.42	921.32	4.10	923.06	919.35	3.71	924.58	917.99	6.59	923.43	918.21	5.22	919.76
11/24/2019	926.09	926.10	923.48	2.62	925.9	921.17	4.73	925.54	921.32	4.22	923.11	919.38	3.73	924.61	917.90	6.71	923.40	918.27	5.13	919.80
11/25/2019	926.16	926.24	923.55	2.69	926.08	921.18	4.90	925.74	921.33	4.41	923.20	919.42	3.78	924.73	918.01	6.72	923.51	918.33	5.18	919.89
11/26/2019	926.11	926.29	923.58	2.71	926.01	921.18	4.83	925.63	921.33	4.30	923.17	919.41	3.76	924.73	918.33	6.40	923.56	918.29	5.27	919.85
11/27/2019	926.03	926.20	923.53	2.67	925.88	921.19	4.69	925.48	921.33	4.15	923.09	919.35	3.74	924.63	918.27	6.36	923.45	918.21	5.24	919.77
11/28/2019	925.91	926.07	923.46	2.61	925.73	921.19	4.54	925.34	921.31	4.03	923.00	919.28	3.72	924.50	918.20	6.30	923.31	918.15	5.16	919.69
11/29/2019	925.82	925.97	923.40	2.57	925.62	921.2	4.42	925.22	921.31	3.91	922.92	919.24	3.68	924.28	917.73	6.55	923.17	918.09	5.08	919.61
11/30/2019	925.73	925.83	923.33	2.50	925.5	921.19	4.31	925.11	921.31	3.80	922.85	919.20	3.65	924.16	917.67	6.49	922.99	918.04	4.95	919.53
12/1/2019	925.66	925.72	923.29	2.43	925.39	921.2	4.19	925.00	921.32	3.68	922.79	919.17	3.62	924.17	918.07	6.10	922.87	918.01	4.86	919.47
12/2/2019	925.60	925.61	923.24	2.37	925.29	921.2	4.09	924.89	921.32	3.57	922.72	919.15	3.57	924.10	917.72	6.38	922.74	917.97	4.77	919.41

Table 5
HCC System Barrier Wall Groundwater Elevations
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

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**
12/3/2019	925.59	925.53	923.21	2.32	925.23	921.18	4.05	924.82	921.31	3.51	922.67	919.16	3.51	923.95	917.66	6.29	922.67	917.97	4.70	919.39
12/4/2019	925.61	925.48	923.21	2.27	925.2	921.21	3.99	924.79	921.31	3.48	922.64	919.18	3.46	924.12	918.14	5.98	922.63	918.02	4.61	919.41
12/5/2019	925.71	925.53	923.24	2.29	925.25	921.19	4.06	924.85	921.31	3.54	922.67	919.26	3.41	923.90	917.92	5.98	922.69	918.11	4.58	919.49
12/6/2019	925.68	925.55	923.24	2.31	925.25	921.2	4.05	924.86	921.30	3.56	922.68	919.23	3.45	924.06	918.21	5.85	922.69	918.07	4.62	919.47
12/7/2019	925.67	925.53	923.24	2.29	925.24	921.2	4.04	924.83	921.30	3.53	922.68	919.21	3.47	924.03	917.74	6.29	922.68	918.06	4.62	919.46
12/8/2019	925.70	925.53	923.25	2.28	925.27	921.2	4.07	924.86	921.29	3.57	922.70	919.23	3.47	924.07	918.10	5.97	922.73	918.10	4.63	919.52
12/9/2019	925.70	925.57	923.27	2.30	925.29	921.2	4.09	924.89	921.30	3.59	922.71	919.23	3.48	924.10	917.78	6.32	922.75	918.10	4.65	919.51
12/10/2019	925.68	925.57	923.26	2.31	925.28	921.19	4.09	924.89	921.30	3.59	922.70	919.20	3.50	924.09	917.74	6.35	922.72	918.06	4.66	919.47
12/11/2019	925.68	925.55	923.26	2.29	925.27	921.19	4.08	924.88	921.29	3.59	922.69	919.19	3.50	924.06	917.75	6.31	922.72	918.05	4.67	919.50
12/12/2019	925.81	925.64	923.34	2.30	925.48	921.19	4.29	925.17	921.29	3.88	922.84	919.24	3.60	924.26	917.94	6.32	922.90	918.14	4.76	919.61
12/13/2019	926.25	926.28	923.73	2.55	926.26	921.19	5.07	925.98	921.30	4.68	923.29	919.43	3.86	924.82	918.04	6.78	923.65	918.41	5.24	920.03
12/14/2019	926.38	926.66	923.87	2.79	926.41	921.19	5.22	926.10	921.29	4.81	923.40	919.47	3.93	925.06	918.24	6.82	923.96	918.43	5.53	920.15
12/15/2019	926.31	926.64	923.75	2.89	926.28	921.19	5.09	925.90	921.29	4.61	923.32	919.42	3.90	924.98	918.34	6.64	923.90	918.32	5.58	920.07
12/16/2019	926.19	926.51	923.62	2.89	926.11	921.19	4.92	925.74	921.29	4.45	923.22	919.37	3.85	924.85	918.19	6.66	923.75	918.25	5.50	919.95
12/17/2019	926.10	926.37	923.52	2.85	925.98	921.18	4.80	925.60	921.30	4.30	923.13	919.32	3.81	924.75	918.18	6.57	923.57	918.21	5.36	919.84
12/18/2019	925.97	926.23	923.44	2.79	925.84	921.18	4.66	925.46	921.30	4.16	923.09	919.29	3.80	924.59	917.96	6.63	923.43	918.18	5.25	919.76
12/19/2019	925.88	926.06	923.36	2.70	925.7	921.18	4.52	925.32	921.29	4.03	922.98	919.27	3.71	924.58	918.22	6.36	923.32	918.13	5.19	919.70
12/20/2019	927.51	927.41	924.98	2.43	928.44	921.17	7.27	927.80	921.29	6.51	924.66	920.37	4.29	926.33	919.42	6.91	925.13	919.77	5.36	921.13
12/21/2019	928.45	928.56	926.52	2.04	928.49	921.43	7.06	927.85	921.83	6.02	924.60	922.48	2.12	926.81	921.02	5.79	926.02	921.43	4.59	922.45
12/22/2019	927.63	928.49	925.67	2.82	928.01	921.2	6.81	927.47	921.33	6.14	924.27	921.15	3.12	926.26	919.73	6.53	925.55	920.15	5.40	921.53
12/23/2019	927.25	928.18	924.85	3.33	927.63	921.16	6.47	927.17	921.34	5.83	924.02	920.35	3.67	926.01	918.86	7.15	925.11	919.34	5.77	920.96
12/24/2019	927.00	927.88	924.35	3.53	927.31	921.2	6.11	926.91	921.34	5.57	923.86	919.91	3.95	925.75	918.85	6.90	924.81	918.93	5.88	920.64
12/25/2019	926.80	927.54	924.07	3.47	927	921.17	5.83	926.63	921.32	5.31	923.70	919.67	4.03	925.51	918.48	7.03	924.49	918.66	5.83	920.41
12/26/2019	926.61	927.22	923.87	3.35	926.7	921.19	5.51	926.25	921.32	4.93	923.52	919.51	4.01	925.27	918.04	7.23	924.24	918.48	5.76	920.22
12/27/2019	926.48	926.93	923.73	3.20	926.5	921.18	5.32	926.10	921.32	4.78	923.39	919.44	3.95	925.10	918.23	6.87	924.01	918.37	5.64	920.07
12/28/2019	926.34	926.70	923.60	3.10	926.31	921.18	5.13	925.89	921.31	4.58	923.26	919.40	3.86	924.90	918.25	6.65	923.79	918.31	5.48	919.96
12/29/2019	926.23	926.49	923.52	2.97	926.15	921.19	4.96	925.71	921.32	4.39	923.16	919.36	3.80	924.75	917.86	6.89	923.62	918.26	5.36	919.85
12/30/2019	926.12	926.30	923.45	2.85	925.98	921.18	4.80	925.56	921.32	4.24	923.07	919.31	3.76	924.63	917.82	6.81	923.46	918.19	5.27	919.75
12/31/2019	926.32	926.19	923.44	2.75	926.09	921.18	4.91	925.60	921.33	4.27	923.11	919.31	3.80	924.63	918.05	6.58	923.42	918.19	5.23	919.80
Average Elevation Differential				2.23			4.05			3.54			3.26			6.00			4.54	
Maximum Elevation Differential				3.53			7.27			6.51			4.45			7.3			6.01	

NOTES:
Groundwater elevations are measured using dedicated water-level transducers installed in the piezometers and are referenced to North American Vertical Datum of 1988 (NAVD88).
"-" denotes no data available

HCC = Hydraulic Control and Containment

Table 6
Stabilized Field Parameter Values at HCC System Monitoring Wells
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Monitoring Well	Sample Date	Sample Identification	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard Units)	Specific Conductivity (mS/cm)	Temperature (degrees Celsius)
GW-1	3/19/2019	GW-1-031919	3.25	45.9	6.26	0.067	5.70
	6/18/2019	GW-1-061819	1.34	113.4	5.99	0.109	10.3
	9/19/2019	GW-1-091919	2.03	170.7	6.11	0.082	11.6
	12/18/2019	GW-1-121819	0.64	139.8	6.34	0.132	9.2
GW-2	3/19/2019	GW-2-031919	7.30	289.4	5.93	0.047	7.9
	6/18/2019	GW-2-061819	1.17	138.1	6.19	0.085	10.6
	9/19/2019	GW-2-091919	4.94	91.4	5.89	0.115	12
	12/18/2019	GW-2-121819	0.16	85.5	6.23	0.098	8.8
GW-3	3/20/2019	GW-3-032019	6.13	215.8	6.20	0.091	12.4
	6/18/2019	GW-3-061819	3.06	143.7	5.79	0.083	12.1
	9/18/2019	GW-3-091819	6.21	116.4	5.85	0.088	12.4
	12/19/2019	GW-3-121919	5.00	126.1	5.82	0.103	7.4
GW-4	3/21/2019	GW-4-032119	3.71	151.1	6.16	0.086	7.13
	6/19/2019	GW-4-061919	3.62	130.0	6.28	0.096	8.8
	9/17/2019	GW-4-091719	7.68	167.1	5.93	0.072	9.4
	12/18/2019	GW-4-121819	5.42	-107.8	6.23	0.124	8.4
EW-1	3/19/2019	EW-1-031919	3.53	247.8	6.16	0.072	7.7
	6/18/2019	EW-1-061819	2.40	228.5	5.88	0.074	8.3
	9/19/2019	EW-1-091919	0.80	240.9	6.00	0.069	10.0
	12/18/2019	EW-1-121819	0.99	242.2	6.11	0.086	9.5
EW-2A	3/21/2019	EW-2A-032119	-9.42	261.6	6.01	0.056	6.1
	6/19/2019	EW-2A-061919	5.71	190.0	5.78	0.050	9.7
	9/17/2019	EW-2A-091719	14.07	142.4	5.82	0.061	9.1
	12/17/2019	EW-2A-121719	4.52	266.0	6.00	0.058	8.4
5-W-43	3/19/2019	5-W-43-031919	6.01	290.1	5.89	0.077	7.5
	6/18/2019	S-W-43-061819	2.67	209.1	5.87	0.077	8.9
	9/19/2019	5-W-43-091919	1.79	243.6	5.89	0.087	10.7
	12/18/2019	5-W-43-121819	1.68	244.7	6.14	0.088	8.9
2A-W-40	3/20/2019	2A-W-40-032019	8.92	105.5	6.41	0.046	7.40
	6/18/2019	Not Sampled					
	9/17/2019	2A-W-40-091719	7.86	158.6	7.20	0.058	11.2
	12/17/2019	2A-W-40-121719	5.56	255.7	6.64	0.058	8.5

Table 6
Stabilized Field Parameter Values at HCC System Monitoring Wells
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Monitoring Well	Sample Date	Sample Identification	Dissolved Oxygen (milligrams per liter)	Oxidation Reduction Potential (millivolts)	pH (Standard Units)	Specific Conductivity (mS/cm)	Temperature (degrees Celsius)
2A-W-41	3/20/2019	2A-W-41-032019	2.42	14.6	6.46	0.171	9.87
	6/18/2019	2A-W-41-061819	4.86	25.7	6.19	0.146	11.9
	9/18/2019	2A-W-41-091819	6.46	30.3	6.23	0.156	11.4
	12/17/2019	2A-W-41-121719	0.49	-17.2	6.42	0.180	9.4
1B-W-23	3/20/2019	1B-W-23-032019	10.01	171.2	6.13	0.072	13.20
	6/18/2019	1B-W-23-061819	8.88	165.4	6.10	0.093	14.4
	9/18/2019	1B-W-23-091819	8.07	188.4	5.97	0.088	15.8
	12/17/2019	1B-W-23-121719	5.76	242.0	5.95	0.071	8.9
2A-W-42	3/21/2019	2A-W-42-032119	-8.62	281.1	5.89	0.150	7.8
	6/18/2019	2A-W-42-061819	1.62	121.3	5.85	0.143	10.3
	9/18/2019	2A-W-42-091819	6.58	162.5	5.84	0.137	10.9
	12/18/2019	2A-W-42-121819	3.23	200.0	5.98	0.157	9.1
PZ-7S	3/19/2019	PZ-75-031919	8.59	11.1	6.18	0.054	6.44
	6/18/2019	PZ-7S-061819	4.04	277.8	5.95	0.083	10.3
	9/19/2019	PZ-7S-091919	7.43	213.5	5.15	0.098	11.3
	12/18/2019	PZ-7S-121819	3.45	259.3	6.10	0.090	8.7
PZ-8	3/19/2019	PZ-8-031919	5.52	257.3	6.30	0.081	8.7
	6/18/2019	PZ-8-061819	2.56	239.5	6.00	0.082	9.2
	9/19/2019	PZ-8-091919	3.84	199.4	5.64	0.102	11.16
	12/18/2019	PZ-80-121819	1.92	262.5	6.05	0.094	9.2

NOTES:

Field parameters are not measured at sentry wells in barrier wall treatment gates.

HCC = Hydraulic Control and Containment

mS/cm = milliSiemens per centimeter

Table 7
Total Petroleum Hydrocarbon Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Well	Date	Sample Identification	DRO (µg/l)[1]			ORO (µg/l)[1]			Calculated NWTPH-Dx[2] (µg/l)
			Result	MDL	MRL	Result	MDL	MRL	
Sentry Wells									
S1-AD	3/21/2019	S1-AD-032119	< 64	64	64	< 95	95	95	< 80
	9/19/2019	S1-AD-091919	< 62	62	62	< 91	91	91	< 77
S1-AU	3/21/2019	S1-AU-032119	< 62	62	62	< 91	91	91	< 77
	9/19/2019	S1-AU-091919	< 62	62	62	< 91	91	91	< 77
S1-BD	3/21/2019	S1-BD-032119	< 62	62	62	< 92	92	92	< 77
	9/19/2019	S1-BD-091919	< 62	62	62	< 91	91	91	< 77
S1-BU	3/21/2019	S1-BU-032119	< 62	62	62	< 91	91	91	< 77
	9/19/2019	S1-BU-091919	< 61	61	61	< 91	91	91	< 76
S2-AD	3/19/2019	S2-AD-031919	< 63	63	63	< 93	93	93	< 78
	9/19/2019	S2-AD-091919	< 62	62	62	< 91	91	91	< 77
S2-AU	3/19/2019	S2-AU-031919	< 62	62	62	< 92	92	92	< 77
	9/19/2019	S2-AU-091919	< 62	62	62	< 91	91	91	< 77
S2-BD	3/19/2019	S2-BD-031919	< 62	62	62	< 91	91	91	< 77
	9/19/2019	S2-BD-091919	< 61	61	61	< 91	91	91	< 76
S2-BU	3/19/2019	S2-BU-031919	250	62	62	120	91	91	370
	9/19/2019	S2-BU-091919	420	62	62	200	91	91	620
S3-AD	3/22/2019	S3-AD-032219	< 62	62	62	< 92	92	92	< 77
	9/18/2019	S3-AD-091819	< 62	62	62	< 92	92	92	< 77
S3-AU	3/22/2019	S3-AU-032219	< 62	62	62	< 91	91	91	< 77
	9/17/2019	S3-AU-091719	< 62	62	62	< 91	91	91	< 77
S3-BD	3/22/2019	S3-BD-032219	< 62	62	62	< 92	92	92	< 77
	9/18/2019	S3-BD-091819	< 62	62	62	< 91	91	91	< 77
S3-BU	3/22/2019	S3-BU-032219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S3-BU-091819	< 62	62	62	< 92	92	92	< 77
S3-CD	3/22/2019	S3-CD-0322219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S3-CD-091819	< 61	61	61	< 91	91	91	< 76
S3-CU	3/22/2019	S3-CU-032219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S3-CU-091819	< 63	63	63	< 93	93	93	< 78

Table 7
Total Petroleum Hydrocarbon Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Well	Date	Sample Identification	DRO (µg/l)[1]			ORO (µg/l)[1]			Calculated NWTPH-Dx[2] (µg/l)
			Result	MDL	MRL	Result	MDL	MRL	
S4-AD	3/22/2019	S4-AD-032219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S4-AD-091819	< 62	62	62	< 91	91	91	< 77
S4-AU	3/22/2019	S4-AU-032219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S4-AU-091819	< 62	62	62	< 91	91	91	< 77
S4-BD	3/22/2019	S4-BD-032219	< 62	62	62	< 92	92	92	< 77
	9/18/2019	S4-BD-091819	< 62	62	62	< 91	91	91	< 77
S4-BU	3/22/2019	S4-BU-032219	< 61	61	61	< 91	91	91	< 76
	9/18/2019	S4-BU-091819	< 62	62	62	670	92	92	701
S4-CD	3/22/2019	S4-CD-032219	< 62	62	62	< 91	91	91	< 77
	9/18/2019	S4-CD-091819	< 62	62	62	< 92	92	92	< 77
S4-CU	3/22/2019	S4-CU-032219	93	62	62	< 91	91	91	139
	9/18/2019	S4-CU-091819	< 62	62	62	< 91	91	91	< 77
Up-Gradient Monitoring Locations (Within West Gate and Far West Gate)									
WG-WV	3/19/2019	WG-WV-031919	190	62	62	130	91	91	320
	6/18/2019	WG-WV-061819	< 62	62	62	99	91	91	130
	9/19/2019	WG-WV-091919	240	62	62	140	91	91	380
	12/18/2019	WG-WV-121819	< 61	61	61	170	91	91	201
WG-EV	3/19/2019	WG-EV-031919	520	62	62	280	92	92	800
	6/18/2019	WG-EV-061819	390	63	63	340	92	92	730
	9/19/2019	WG-EV-091919	470	62	62	230	91	91	700
	12/18/2019	WG-EV-121819	450	61	61	450	91	91	900
FWG-WV	3/19/2019	FGW-WV-031919	< 62	62	62	< 92	92	92	< 77
	6/18/2019	FWG-WV-061819	< 62	62	62	< 92	92	92	< 77
	9/19/2019	FWG-WV-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	FWG-WV-121819	< 62	62	62	< 91	91	91	< 77
FWG-EV	3/19/2019	FWG-EV-031919	< 62	62	62	< 91	91	91	< 77
	6/18/2019	FWG-EV-061819	68	62	62	200	92	92	268
	9/19/2019	FWG-EV-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	FWG-EV-121819	< 62	62	62	< 91	91	91	< 77

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Total Petroleum Hydrocarbon Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Well	Date	Sample Identification	DRO (µg/l)[1]			ORO (µg/l)[1]			Calculated NWTPH-Dx[2] (µg/l)
			Result	MDL	MRL	Result	MDL	MRL	
Hydraulic Control and Containment System Monitoring Wells									
GW-1	3/19/2019	GW-1-031919	< 62	62	62	< 91	91	91	< 77
	6/18/2019	GW-1-061819	< 62	62	62	< 91	91	91	< 77
	9/19/2019	GW-1-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	GW-1-121819	< 62	62	62	< 92	92	92	< 77
GW-2	3/19/2019	GW-2-031919	< 62	62	62	110	91	91	141
	6/18/2019	GW-2-061819	< 63	63	63	< 93	93	93	< 78
	9/19/2019	GW-2-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	GW-2-121819	< 62	62	62	< 91	91	91	< 77
GW-3	3/20/2019	GW-3-032019	< 61 < 61[3]	61 61	61 61	< 91 < 91[3]	91 91	91 91	< 76 < 76[3]
	6/18/2019	GW-3-061819	180 < 63[3]	63 63	63 63	150 < 92[3]	92 92	92 92	330 < 78[3]
	9/18/2019	GW-3-091819	< 62 < 62[3]	62 62	62 62	150 < 91[3]	91 91	91 91	181 < 77[3]
	12/19/2019	GW-3-121919	91 < 62[3]	62 62	62 62	< 92 < 92[3]	92 92	92 92	137 < 77[3]
GW-4	3/21/2019	GW-4-032119	< 62	62	62	< 91	91	91	< 77
	6/19/2019	GW-4-061919	< 62	62	62	< 91	91	91	< 77
	9/17/2019	GW-4-091719	< 62	62	62	< 91	91	91	< 77
	12/18/2019	GW-4-121819	< 62	62	62	< 91	91	91	< 77
PZ-7S	3/19/2019	PZ-75-031919	< 62	62	62	< 91	91	91	< 77
	6/18/2019	PZ-7S-061819	< 63	63	63	< 92	92	92	< 78
	9/19/2019	PZ-75-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	PZ-7S-121819	< 63	63	63	110	92	92	142
PZ-8	3/19/2019	PZ-8-031919	< 63	63	63	< 92	92	92	< 78
	6/18/2019	PZ-8-061819	< 62	62	62	< 91	91	91	< 77
	9/19/2019	PZ-8-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	PZ-80-121819	< 63	63	63	< 93	93	93	< 78
Site-Specific Remediation Level									**477**

Table 7
Total Petroleum Hydrocarbon Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Well	Date	Sample Identification	DRO (µg/l)[1]			ORO (µg/l)[1]			Calculated NWTPH-Dx[2] (µg/l)
			Result	MDL	MRL	Result	MDL	MRL	
EW-1	3/19/2019	EW-1-031919	< 62	62	62	< 92	92	92	< 77
	6/18/2019	EW-1-061819	< 62	62	62	< 91	91	91	< 77
	9/19/2019	EW-1-091919	< 62	62	62	< 91	91	91	< 77
	12/18/2019	EW-1-121819	< 63	63	63	< 93	93	93	< 78
EW-2A	3/21/2019	EW-2A-032119	< 62	62	62	< 91	91	91	< 77
	6/19/2019	EW-2A-061919	< 62	62	62	< 92	92	92	< 77
	9/17/2019	EW-2A-091719	< 61	61	61	< 91	91	91	< 76
	12/17/2019	EW-2A-121719	< 63	63	63	< 94	94	94	< 79
5-W-43	3/19/2019	5-W-43-031919	< 62	62	62	< 92	92	92	< 77
	6/18/2019	S-W-43-061819	< 62	62	62	< 91	91	91	< 77
	9/19/2019	5-W-43-091919	< 62	62	62	< 92	92	92	< 77
	12/18/2019	5-W-43-121819	< 62	62	62	< 92	92	92	< 77
2A-W-40	3/20/2019	2A-W-40-032019	< 62	62	62	< 91	91	91	< 77
	6/18/2019	Not Sampled							
	9/17/2019	2A-W-40-091719	< 61	61	61	< 90	90	90	< 76
	12/17/2019	2A-W-40-121719	< 63	63	63	< 94	94	94	< 79
2A-W-41	3/20/2019	2A-W-41-032019	430 84[3]	62 62	62 62	260 < 91[3]	91 91	91 91	**690** 130[3]
	6/18/2019	2A-W-41-061819	280 < 62[3]	62 62	62 62	230 < 92[3]	92 92	92 92	**510** < 77[3]
	9/18/2019	2A-W-41-091819	< 61 85[3]	61 61	61 61	230 < 91[3]	91 91	91 91	261 131[3]
	12/17/2019	2A-W-41-121719	310 98[3]	62 62	62 62	280 < 92[3]	92 92	92 92	**590** 144[3]
Site-Specific Remediation Level									**477**

Table 7
Total Petroleum Hydrocarbon Concentrations in Groundwater
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Well	Date	Sample Identification	DRO (µg/l)[1]			ORO (µg/l)[1]			Calculated NWTPH-Dx[2] (µg/l)
			Result	MDL	MRL	Result	MDL	MRL	
1B-W-23	3/20/2019	1B-W-23-032019	< 62	62	62	< 92	92	92	< 77
	6/18/2019	1B-W-23-061819	< 63	63	63	< 93	93	93	< 78
	9/18/2019	1B-W-23-091819	< 61	61	61	120	91	91	151
	12/17/2019	1B-W-23-121719	< 64	64	64	< 95	95	95	< 80
2A-W-42	3/21/2019	2A-W-42-032119	120	62	62	110	91	91	230
	6/18/2019	2A-W-42-061819	160	62	62	160	91	91	320
	9/18/2019	2A-W-42-091819	< 62	62	62	110	91	91	141
	12/18/2019	2A-W-42-121819	150	62	62	130	91	91	280
Site-Specific Remediation Level									**477**

NOTES:

Bold denotes the reported concentration exceeds the Site-specific remediation level. The remediation level is not applicable to the sentry wells or vaults in the barrier wall treatment gates.

< denotes analyte not reported as detected at or exceeding the listed laboratory MRL.

[1]Analyzed by Washington State Department of Ecology (Ecology) Method NWTPH-Dx without silica gel cleanup unless otherwise noted.

[2]Sum of DRO and ORO, using half the method detection limit for non-detect results.

[3]Sample analyzed by Ecology Method NWTPH-Dx with silica gel cleanup.

DRO = total petroleum hydrocarbons as diesel-range organics

J = reported concentration is an estimated value

MDL = method detection limit

MRL = method reporting limit

µg/l = micrograms per liter

ORO = total petroleum hydrocarbons as oil-range organics

Table 8
Groundwater Elevations and LNAPL Thicknesses
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Location	Measuring Point Elevation[1] (feet NAVD88)	Date	Depth to Water[2] (feet)	Water Level Elevation[1] (feet NAVD88)	LNAPL Thickness (feet)
GW-1	928.24	3/19/2019	6.71	921.53	—
		6/17/2019	10.51	917.73	—
		9/16/2019	11.33	916.91	—
		12/16/2019	10.45	917.79	—
GW-2	930.29	3/19/2019	12.74	917.55	—
		6/17/2019	12.51	917.78	—
		9/16/2019	13.24	917.05	—
		12/16/2019	12.45	917.84	—
GW-3	935.82	3/19/2019	14.42	921.40	—
		6/17/2019	14.21	921.61	—
		9/16/2019	15.42	920.40	—
		12/16/2019	14.42	921.40	—
GW-4	934.68	3/19/2019	10.69	923.99	—
		6/17/2019	10.71	923.97	—
		9/16/2019	11.75	922.93	—
		12/16/2019	10.39	924.29	—
EW-1	928.72	3/19/2019	9.35	919.37	—
		6/17/2019	10.30	918.42	—
		9/16/2019	11.42	917.30	—
		12/16/2019	10.10	918.62	—
EW-2A	936.2	3/19/2019	10.31	925.89	—
		6/17/2019	10.41	925.79	—
		9/16/2019	11.67	924.53	—
		12/16/2019	9.94	926.26	—
5-W-43	926.18	3/19/2019	8.14	918.04	—
		6/17/2019	8.04	918.14	—
		9/16/2019	9.08	917.10	—
		12/16/2019	7.89	918.29	—
2A-W-40	933.34	3/19/2019	12.04	921.30	—
		6/17/2019	12.35	920.99	—
		9/16/2019	13.33	920.01	—
		12/16/2019	11.91	921.43	—
2A-W-41	935.22	3/19/2019	17.52	917.70	—
		6/17/2019	17.33	917.89	—
		9/16/2019	18.12	917.10	—
		12/16/2019	17.21	918.01	—
1B-W-23	936.25	3/19/2019	16.61	919.64	—
		6/17/2019	17.52	918.73	—
		9/16/2019	16.70	919.55	—
		12/16/2019	16.84	919.41	—
2A-W-42	935.37	3/19/2019	13.15	922.22	—
		6/17/2019	13.33	922.04	—
		9/16/2019	14.10	921.27	—
		12/16/2019	13.02	922.35	—
PZ-1	935.38	3/19/2019	17.76	917.62	—
		6/17/2019	9.83	925.55	—
		9/16/2019	11.1	924.28	—
		12/16/2019	9.32	926.06	—
PZ-2N	934.35	3/19/2019	11.76	922.59	—
		6/17/2019	12.03	922.32	—
		9/16/2019	12.95	921.40	—
		12/16/2019	11.61	922.74	—

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Groundwater Elevations and LNAPL Thicknesses
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Location	Measuring Point Elevation[1] (feet NAVD88)	Date	Depth to Water[2] (feet)	Water Level Elevation[1] (feet NAVD88)	LNAPL Thickness (feet)
PZ-2S	934.94	3/19/2019	8.28	926.66	—
		6/17/2019	8.84	926.10	—
		9/16/2019	11.01	923.93	—
		12/16/2019	7.77	927.17	—
PZ-3N	934.41	3/19/2019	14.03	920.38	—
		6/17/2019	14.05	920.36	—
		9/16/2019	14.07	920.34	—
		12/16/2019	14.00	920.41	—
PZ-3S	934.45	3/19/2019	8.74	925.71	—
		6/17/2019	9.26	925.19	—
		9/16/2019	11.31	923.14	—
		12/16/2019	9.27	925.18	—
PZ-4N	935.27	3/19/2019	13.61	921.66	—
		6/17/2019	14.65	920.62	—
		9/16/2019	14.70	920.57	—
		12/16/2019	14.66	920.61	—
PZ-4S	935.31	3/19/2019	10.03	925.28	—
		6/17/2019	10.52	924.79	—
		9/16/2019	12.69	922.62	—
		12/16/2019	9.61	925.70	—
PZ-5N	933.15	3/19/2019	15.49	917.66	—
		6/17/2019	15.27	917.88	—
		9/16/2019	15.65	917.50	—
		12/16/2019	15.21	917.94	—
PZ-5S	933.46	3/20/2019	8.48	924.98	0.01
		6/17/2019	12.21	921.25	3.10
		9/16/2019	13.08	920.38	1.34
		12/16/2019	10.61	922.85	2.46
PZ-6N	931.17	3/19/2019	13.51	917.66	—
		6/17/2019	13.32	917.85	—
		9/16/2019	14.04	917.13	—
		12/16/2019	13.27	917.90	—
PZ-6S	931.41	3/19/2019	7.34	924.07	0.05
		6/17/2019	7.65	923.76	1.06
		9/16/2019	10.23	921.18	0.06
		12/16/2019	6.93	924.48	0.06
PZ-7N	930.37	3/19/2019	12.60	917.77	—
		6/17/2019	12.49	917.88	—
		9/16/2019	13.31	917.06	—
		12/16/2019	12.43	917.94	—
PZ-7S	930.4	3/19/2019	7.43	922.97	—
		6/17/2019	7.60	922.80	—
		9/16/2019	10.73	919.67	—
		12/16/2019	6.65	923.75	—
PZ-8	929.48	3/19/2019	9.73	919.75	—
		6/17/2019	9.81	919.67	—
		9/16/2019	11.51	917.97	—
		12/16/2019	9.40	920.08	—
RW-01	932.84	3/19/2019	8.89	923.95	Organic Sheen
		6/17/2019	9.21	923.63	Light Trace
		9/16/2019	10.75	922.09	Light Trace
		12/16/2019	9.69	923.15	Light Trace

Table 8
Groundwater Elevations and LNAPL Thicknesses
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Location	Measuring Point Elevation[1] (feet NAVD88)	Date	Depth to Water[2] (feet)	Water Level Elevation[1] (feet NAVD88)	LNAPL Thickness (feet)
RW-02	933.84	3/19/2019	9.90	923.94	Organic Sheen
		6/17/2019	10.21	923.63	—
		9/16/2019	11.75	922.09	Light Trace
		12/16/2019	9.69	924.15	Light Trace
RW-03	933.80	3/19/2019	9.84	923.96	Organic Sheen
		6/17/2019	10.23	923.57	—
		9/16/2019	11.79	922.01	Light Trace
		12/16/2019	9.69	924.11	Light Trace
RW-04	931.86	3/20/2019	6.87	924.99	0.08
		6/17/2019	5.92	925.94	0.51
		9/16/2019	8.02	923.84	Heavy Trace
		12/16/2019	6.60	925.26	Light Trace
RW-05	928.53	3/19/2019	8.98	919.55	—
		6/17/2019	7.83	920.70	Heavy Trace
		9/16/2019	10.36	918.17	Light Trace
		12/16/2019	7.52	921.01	Heavy Trace
RW-06	928.53	3/19/2019	8.97	919.56	—
		6/17/2019	8.03	920.50	—
		9/16/2019	10.27	918.26	Light Trace
		12/16/2019	7.53	921.00	—
RW-07	933.06	3/20/2019	7.41	925.65	Heavy Trace
		6/17/2019	8.19	924.87	Light Trace
		9/16/2019	10.35	922.71	Heavy Trace
		12/16/2019	7.21	925.85	Heavy Trace
RW-08	931.85	3/20/2019	6.61	925.24	Heavy Trace
		6/17/2019	7.31	924.54	—
		9/16/2019	9.78	922.07	Heavy Trace
		12/16/2019	6.40	925.45	Heavy Trace
RW-09	933.96	3/19/2019	8.74	925.22	—
		6/17/2019	8.89	925.07	—
		9/16/2019	10.21	923.75	—
		12/16/2019	8.52	925.44	Heavy Trace
S2-AD	930	3/19/2019	13.82	916.18	—
		6/17/2019	13.59	916.41	—
		9/16/2019	14.23	915.77	—
		12/16/2019	13.56	916.44	—
S2-AU	930	3/19/2019	13.78	916.59	—
		6/17/2019	13.58	916.79	—
		9/16/2019	14.24	916.13	—
		12/16/2019	13.53	916.47	—
S2-BD	930	3/19/2019	12.24	917.76	—
		6/17/2019	12.48	917.52	—
		9/16/2019	13.23	916.77	—
		12/16/2019	12.27	917.73	—
S2-BU	930	3/19/2019	12.24	917.76	—
		6/17/2019	12.48	917.52	—
		9/16/2019	13.09	916.91	—
		12/16/2019	12.27	917.73	—
EG-EV-South Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	10.86	NA	—
		12/16/2019	9.22	NA	—

Table 8
Groundwater Elevations and LNAPL Thicknesses
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Location	Measuring Point Elevation[1] (feet NAVD88)	Date	Depth to Water[2] (feet)	Water Level Elevation[1] (feet NAVD88)	LNAPL Thickness (feet)
EG-EV-North Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	10.86	NA	—
		12/16/2019	9.23	NA	—
EG-CV-South Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	11.13	NA	—
		12/16/2019	9.76	NA	—
EG-CV-North Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	11.13	NA	—
		12/16/2019	9.75	NA	—
EG-WV-South Chamber (formerly EG-WV)	934.31	3/19/2019	8.61	925.70	—
		6/17/2019	10.17	924.14	—
		9/16/2019	11.13	923.18	—
		12/16/2019	9.86	924.45	—
EG-WV-North Chamber	934.31	3/19/2019	8.60	925.71	—
		6/17/2019	10.19	924.12	—
		9/16/2019	11.13	923.18	—
		12/16/2019	9.86	924.45	—
CG-EV-South Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	9.61	NA	—
		12/16/2019	8.41	NA	Organic Sheen
CG-EV-North Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	9.61	NA	—
		12/16/2019	8.40	NA	—
CG-CV-South Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	9.71	NA	—
		12/16/2019	8.49	NA	—
CG-CV-North Chamber[3]	NA	3/19/2019	NA	NA	—
		6/17/2019	NA	NA	—
		9/16/2019	9.71	NA	—
		12/16/2019	8.49	NA	—
CG-WV-South Chamber (formerly CG-WV)	937.09	3/19/2019	8.75	928.34	Organic Sheen
		6/17/2019	9.07	928.02	—
		9/16/2019	10.60	926.49	—
		12/16/2019	8.49	928.60	—
CG-WV-North Chamber	937.09	3/19/2019	8.76	928.33	—
		6/17/2019	9.09	928.00	—
		9/16/2019	10.60	926.49	—
		12/16/2019	8.49	928.60	—
WG-EV-South Chamber (formerly WG-EV)	931.84	3/19/2019	8.80	923.04	Heavy Trace
		6/17/2019	8.02	923.82	Light Trace
		9/16/2019	9.13	922.71	0.02
		12/16/2019	7.52	924.32	Heavy Trace
WG-EV-North Chamber	931.84	3/19/2019	8.80	923.04	Light Trace
		6/17/2019	8.02	923.82	—
		9/16/2019	9.15	922.69	Heavy Trace
		12/16/2019	7.52	924.32	Light Trace

Table 8
Groundwater Elevations and LNAPL Thicknesses
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Farallon PN: 683-067

Location	Measuring Point Elevation[1] (feet NAVD88)	Date	Depth to Water[2] (feet)	Water Level Elevation[1] (feet NAVD88)	LNAPL Thickness (feet)
WG-WV-South Chamber[3]	NA	3/19/2019	7.85	NA	—
		6/17/2019	8.03	NA	—
		9/16/2019	9.11	NA	—
		12/16/2019	7.45	NA	—
WG-WV-North Chamber[3]	NA	3/19/2019	7.85	NA	—
		6/17/2019	8.03	NA	—
		9/16/2019	9.11	NA	—
		12/16/2019	7.45	NA	—
FWG-EV-South Chamber[3]	NA	3/19/2019	4.97	NA	—
		6/17/2019	5.25	NA	—
		9/16/2019	7.59	NA	—
		12/16/2019	4.76	NA	—
FWG-EV-North Chamber[3]	NA	3/19/2019	4.97	NA	—
		6/17/2019	5.25	NA	—
		9/16/2019	7.59	NA	—
		12/16/2019	4.76	NA	—
FWG-WV-South Chamber (formerly FWG-WV)	930.76	3/19/2019	4.87	925.89	—
		6/17/2019	5.23	925.53	—
		9/16/2019	7.56	923.20	—
		12/16/2019	4.72	926.04	—
FWG-WV-North Chamber	930.76	3/19/2019	4.87	925.89	—
		6/17/2019	5.23	925.53	—
		9/16/2019	7.56	923.20	—
		12/16/2019	4.72	926.04	—

NOTES:

— denotes LNAPL was not observed.

[1]In feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2]In feet below measuring point (top of well casing, vault, etc.).

[3]Vault oil-water separator chamber is visually inspected for presence LNAPL during monitoring events. LNAPL thickness measured only if measurable LNAPL is present.

LNAPL = light nonaqueous-phase liquid

NA = not applicable

NM = not measured

APPENDIX A
LABORATORY ANALYTICAL REPORTS (PROVIDED ON COMPACT DISC IN HARDCOPY REPORT)

2019 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT SYSTEM OPERATIONS REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

Farallon PN: 683-067

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83044-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
1809 7th Ave. Suite 1111
Seattle, Washington 98101

Attn: Rob Leet

Kristine D. Allen

Authorized for release by:
1/8/2019 2:27:21 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Job ID: 580-83044-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-83044-1

Comments
No additional comments.

Receipt
The samples were received on 1/3/2019 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

Receipt Exceptions
A custody seal was not present on the cooler containing the following samples: Before GAC-1319 (580-83044-1) and HCC EFF-1319 (580-83044-2)

GC Semi VOA
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Client Sample ID: Before GAC-1319
Date Collected: 01/03/19 08:30
Date Received: 01/03/19 15:30

Lab Sample ID: 580-83044-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		01/04/19 06:51	01/04/19 14:02	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		01/04/19 06:51	01/04/19 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*01/04/19 06:51*	*01/04/19 14:02*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Client Sample ID: HCC EFF-1319
Date Collected: 01/03/19 08:30
Date Received: 01/03/19 15:30

Lab Sample ID: 580-83044-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		01/04/19 06:51	01/04/19 14:22	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		01/04/19 06:51	01/04/19 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*01/04/19 06:51*	*01/04/19 14:22*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		01/04/19 09:30	01/07/19 15:43	1
Lead	ND		0.00080		mg/L		01/04/19 09:30	01/07/19 15:43	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-292523/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292562 — **Prep Batch: 292523**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		01/04/19 06:51	01/04/19 13:02	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		01/04/19 06:51	01/04/19 13:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*99*		*50 - 150*	*01/04/19 06:51*	*01/04/19 13:02*	*1*

Lab Sample ID: LCS 580-292523/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292562 — **Prep Batch: 292523**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.478		mg/L		96	50 - 120
Motor Oil (>C24-C36)	0.500	0.541		mg/L		108	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*85*		*50 - 150*

Lab Sample ID: LCSD 580-292523/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292562 — **Prep Batch: 292523**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.451		mg/L		90	50 - 120	6	26
Motor Oil (>C24-C36)	0.500	0.494		mg/L		99	64 - 120	9	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*78*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-292537/14-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		01/04/19 09:30	01/07/19 15:30	1
Lead	ND		0.00080		mg/L		01/04/19 09:30	01/07/19 15:30	1

Lab Sample ID: LCS 580-292537/15-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.978		mg/L		98	85 - 115
Lead	1.00	0.926		mg/L		93	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-292537/16-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.01		mg/L		101	85 - 115	3	20
Lead			1.00	0.936		mg/L		94	85 - 115	1	20

Lab Sample ID: 580-83044-2 MS — **Client Sample ID: HCC EFF-1319**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		1.00	1.02		mg/L		102	70 - 130
Lead	ND		1.00	0.982		mg/L		98	70 - 130

Lab Sample ID: 580-83044-2 MSD — **Client Sample ID: HCC EFF-1319**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.991		mg/L		99	70 - 130	3	20
Lead	ND		1.00	0.964		mg/L		96	70 - 130	2	20

Lab Sample ID: 580-83044-2 DU — **Client Sample ID: HCC EFF-1319**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 292679 — **Prep Batch: 292537**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Client Sample ID: Before GAC-1319

Lab Sample ID: 580-83044-1

Date Collected: 01/03/19 08:30

Matrix: Water

Date Received: 01/03/19 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			292523	01/04/19 06:51	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	292562	01/04/19 14:02	Z1R	TAL SEA

Client Sample ID: HCC EFF-1319

Lab Sample ID: 580-83044-2

Date Collected: 01/03/19 08:30

Matrix: Water

Date Received: 01/03/19 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			292523	01/04/19 06:51	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	292562	01/04/19 14:22	Z1R	TAL SEA
Total/NA	Prep	200.8			292537	01/04/19 09:30	JKM	TAL SEA
Total/NA	Analysis	200.8		1	292679	01/07/19 15:43	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83044-1	Before GAC-1319	Water	01/03/19 08:30	01/03/19 15:30
580-83044-2	HCC EFF-1319	Water	01/03/19 08:30	01/03/19 15:30

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐DW ☑NPDES ☐RCRA ☐Other:

83044

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 1-3-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 Day			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 1319	1/3/19	8:30	Grab	W	2			X		***See instructions below
HCC EFF- 1319	1/3/19	8:30	Grab	W	3			X	X	***See instructions below
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	4	1

580-83044 Chain of Custody

Therm. ID: A2 Cor: 1.0 ° Unc: 1.2 °
Cooler Dsc: Mud Black
Packing: Bubble
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: X
Other: ___

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐Return to Client ☑Disposal by Lab ☐Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica gel cleanup needed for Dx

Custody Seals Intact: ☐Yes ☐No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.: ___

	Company	Date/Time		Company	Date/Time
Relinquished by:	Glacier	1/3/19 10:50	Received by:		1/3/19 1045
Relinquished by:	Company:	Date/Time:	Received by:	Company: TA-SEA-H	Date/Time: 1/3/19 1530
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-83044-1

Login Number: 83044

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83231-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
1809 7th Ave. Suite 1111
Seattle, Washington 98101

Attn: Rob Leet

Kristine D. Allen

Authorized for release by:
1/15/2019 5:03:30 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Case Narrative

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Job ID: 580-83231-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-83231-1

Comments
No additional comments.

Receipt
The samples were received on 1/10/2019 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 0.3º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Client Sample ID: Before GAC-010919
Date Collected: 01/09/19 11:05
Date Received: 01/10/19 14:30

Lab Sample ID: 580-83231-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.63		0.061		mg/L		01/14/19 12:22	01/15/19 14:57	1
Motor Oil (>C24-C36)	0.29		0.091		mg/L		01/14/19 12:22	01/15/19 14:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*100*		*50 - 150*	*01/14/19 12:22*	*01/15/19 14:57*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Client Sample ID: HCC EFF-010919
Date Collected: 01/09/19 11:15
Date Received: 01/10/19 14:30

Lab Sample ID: 580-83231-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.061		mg/L		01/14/19 12:22	01/15/19 15:24	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		01/14/19 12:22	01/15/19 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*99*		*50 - 150*	*01/14/19 12:22*	*01/15/19 15:24*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293032/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293108 — **Prep Batch: 293032**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		01/14/19 12:22	01/15/19 13:36	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		01/14/19 12:22	01/15/19 13:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*01/14/19 12:22*	*01/15/19 13:36*	*1*

Lab Sample ID: LCS 580-293032/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293108 — **Prep Batch: 293032**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			0.500	0.514		mg/L		103	50 - 120		
Motor Oil (>C24-C36)			0.500	0.570		mg/L		114	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*98*		*50 - 150*

Lab Sample ID: LCSD 580-293032/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293108 — **Prep Batch: 293032**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.467		mg/L		93	50 - 120	10	26
Motor Oil (>C24-C36)			0.500	0.542		mg/L		108	64 - 120	5	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*93*		*50 - 150*

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Client Sample ID: Before GAC-010919

Lab Sample ID: 580-83231-1

Date Collected: 01/09/19 11:05

Matrix: Water

Date Received: 01/10/19 14:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			293032	01/14/19 12:22	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293108	01/15/19 14:57	Z1R	TAL SEA

Client Sample ID: HCC EFF-010919

Lab Sample ID: 580-83231-2

Date Collected: 01/09/19 11:15

Matrix: Water

Date Received: 01/10/19 14:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			293032	01/14/19 12:22	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293108	01/15/19 15:24	Z1R	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83231-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83231-1	Before GAC-010919	Water	01/09/19 11:05	01/10/19 14:30
580-83231-2	HCC EFF-010919	Water	01/09/19 11:15	01/10/19 14:30

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date:	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler:
Issaquah, Washington	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 DAY			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Loc: 580
83231

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Sample Specific Notes:
Before GAC- 010919	1/9/19	1105	Grab	W	2			X	***See instructions below
HCC EFF- 010919	1/9/19	1115	Grab	W	2			X	***See instructions below

580-83231 Chain of Custody

Therm. ID: A7 Cor: 0.3 ° Unc: 0.5 °
Cooler Dsc: Mtl Blue
Packing: Bubble
Cust. Seal: Yes ☑ No
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Cour: X
Other:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: Farallon	Date/Time: 1/9/19 1330	Received by:	Company: TASEH	Date/Time: 1/10/19 1430
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-83231-1

Login Number: 83231

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83469-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
1809 7th Ave. Suite 1111
Seattle, Washington 98101

Attn: Rob Leet

Kristine D. Allen

Authorized for release by:
1/25/2019 10:45:59 AM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-83469-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-83469-1

Comments
No additional comments.

Receipt
The samples were received on 1/23/2019 2:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 0.6° C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83469-1

Client Sample ID: Before GAC-11819
Date Collected: 01/18/19 08:45
Date Received: 01/23/19 14:10

Lab Sample ID: 580-83469-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.57		0.062		mg/L		01/24/19 08:19	01/24/19 18:06	1
Motor Oil (>C24-C36)	0.48		0.091		mg/L		01/24/19 08:19	01/24/19 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*01/24/19 08:19*	*01/24/19 18:06*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83469-1

Client Sample ID: HCC EFF-11819
Date Collected: 01/18/19 08:45
Date Received: 01/23/19 14:10

Lab Sample ID: 580-83469-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		01/24/19 08:19	01/24/19 18:28	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		01/24/19 08:19	01/24/19 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*01/24/19 08:19*	*01/24/19 18:28*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293568/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293617 — **Prep Batch: 293568**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		01/24/19 08:19	01/24/19 16:17	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		01/24/19 08:19	01/24/19 16:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*01/24/19 08:19*	*01/24/19 16:17*	*1*

Lab Sample ID: LCS 580-293568/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293617 — **Prep Batch: 293568**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			0.500	0.427		mg/L		85	50 - 120		
Motor Oil (>C24-C36)			0.500	0.518		mg/L		104	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*76*		*50 - 150*

Lab Sample ID: LCSD 580-293568/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293617 — **Prep Batch: 293568**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.442		mg/L		88	50 - 120	3	26
Motor Oil (>C24-C36)			0.500	0.502		mg/L		100	64 - 120	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*74*		*50 - 150*

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83469-1

Client Sample ID: Before GAC-11819

Lab Sample ID: 580-83469-1

Date Collected: 01/18/19 08:45

Matrix: Water

Date Received: 01/23/19 14:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			293568	01/24/19 08:19	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293617	01/24/19 18:06	T1W	TAL SEA

Client Sample ID: HCC EFF-11819

Lab Sample ID: 580-83469-2

Date Collected: 01/18/19 08:45

Matrix: Water

Date Received: 01/23/19 14:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			293568	01/24/19 08:19	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293617	01/24/19 18:28	T1W	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83469-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-83469-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83469-1	Before GAC-11819	Water	01/18/19 08:45	01/23/19 14:10
580-83469-2	HCC EFF-11819	Water	01/18/19 08:45	01/23/19 14:10

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

Loc: 580
83469

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 1-18-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Sample Specific Notes:
Before GAC- 11819	1/18/19	8:45	Grab	W	2			X	***See instructions below
HCC EFF- 11819	1/18/19	8:45	Grab	W	2			X	***See instructions below

Therm. ID: #2 Cor: 0.6 ° Unc: 0.8 °
Cooler Dsc: Red Blue
Packing: Bubble
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Courr: X
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___

580-83469 Chain of Custody

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample ir
Comments Section if the lab is to dispose of the sample.

(If samples are retained longer than 1 month)

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica gel cleanup needed for Dx

Custody Seals Intact? ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.: ___

	Company	Date/Time		Company	Date/Time
Relinquished by:	6ES	1-23-19 13:30	Received by:		1/22/19
Relinquished by:	Company:	Date/Time:	Received by:	TASEA	1/23/19 1410
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-83469-1

Login Number: 83469

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84102-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
2/28/2019 6:00:49 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Job ID: 580-84102-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-84102-1

Comments
No additional comments.

Receipt
The samples were received on 2/25/2019 2:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3º C.

Receipt Exceptions

The cooler was received without a custody seal. Before GAC-22119 (580-84102-1) and HCC EFF-22119 (580-84102-2)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Client Sample ID: Before GAC-22119
Date Collected: 02/21/19 13:20
Date Received: 02/25/19 14:10

Lab Sample ID: 580-84102-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.52		0.062		mg/L		02/26/19 08:34	02/27/19 22:24	1
Motor Oil (>C24-C36)	0.42		0.091		mg/L		02/26/19 08:34	02/27/19 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*50*		*50 - 150*	*02/26/19 08:34*	*02/27/19 22:24*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Client Sample ID: HCC EFF-22119
Date Collected: 02/21/19 13:20
Date Received: 02/25/19 14:10

Lab Sample ID: 580-84102-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		02/28/19 11:46	02/28/19 16:33	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		02/28/19 11:46	02/28/19 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*108*		*50 - 150*	*02/28/19 11:46*	*02/28/19 16:33*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0011**		0.0010		mg/L		02/26/19 14:36	02/27/19 09:43	1
Lead	ND		0.00080		mg/L		02/26/19 14:36	02/27/19 09:43	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-295158/1-A
Matrix: Water
Analysis Batch: 295226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295158

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		02/26/19 08:34	02/27/19 21:19	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		02/26/19 08:34	02/27/19 21:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*115*		*50 - 150*	*02/26/19 08:34*	*02/27/19 21:19*	*1*

Lab Sample ID: LCS 580-295158/2-A
Matrix: Water
Analysis Batch: 295226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295158

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.512		mg/L		102	50 - 120
Motor Oil (>C24-C36)	0.500	0.585		mg/L		117	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*108*		*50 - 150*

Lab Sample ID: LCSD 580-295158/3-A
Matrix: Water
Analysis Batch: 295226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295158

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.518		mg/L		104	50 - 120	1	26
Motor Oil (>C24-C36)	0.500	0.566		mg/L		113	64 - 120	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*108*		*50 - 150*

Lab Sample ID: MB 580-295352/1-A
Matrix: Water
Analysis Batch: 295372

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295352

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		02/28/19 11:46	02/28/19 15:27	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		02/28/19 11:46	02/28/19 15:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*109*		*50 - 150*	*02/28/19 11:46*	*02/28/19 15:27*	*1*

Lab Sample ID: LCS 580-295352/2-A
Matrix: Water
Analysis Batch: 295372

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295352

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.530		mg/L		106	50 - 120
Motor Oil (>C24-C36)	0.500	0.584		mg/L		117	64 - 120

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-295352/2-A
Matrix: Water
Analysis Batch: 295372

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295352

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	119		50 - 150

Lab Sample ID: LCSD 580-295352/3-A
Matrix: Water
Analysis Batch: 295372

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295352

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.495		mg/L		99	50 - 120	7	26
Motor Oil (>C24-C36)			0.500	0.575		mg/L		115	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	119		50 - 150

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-295218/14-A
Matrix: Water
Analysis Batch: 295263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295218

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		02/26/19 14:36	02/27/19 09:30	1
Lead	ND		0.00080		mg/L		02/26/19 14:36	02/27/19 09:30	1

Lab Sample ID: LCS 580-295218/15-A
Matrix: Water
Analysis Batch: 295263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295218

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			1.00	0.996		mg/L		100	85 - 115		
Lead			1.00	0.971		mg/L		97	85 - 115		

Lab Sample ID: LCSD 580-295218/16-A
Matrix: Water
Analysis Batch: 295263

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295218

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	0.987		mg/L		99	85 - 115	1	20
Lead			1.00	0.974		mg/L		97	85 - 115	0	20

Lab Sample ID: 580-84102-2 MS
Matrix: Water
Analysis Batch: 295263

Client Sample ID: HCC EFF-22119
Prep Type: Total/NA
Prep Batch: 295218

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	0.0011		1.00	1.01		mg/L		101	70 - 130		
Lead	ND		1.00	0.999		mg/L		100	70 - 130		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-84102-2 MSD
Matrix: Water
Analysis Batch: 295263

Client Sample ID: HCC EFF-22119
Prep Type: Total/NA
Prep Batch: 295218

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0011		1.00	0.953		mg/L		95	70 - 130	6	20
Lead	ND		1.00	0.956		mg/L		96	70 - 130	4	20

Lab Sample ID: 580-84102-2 DU
Matrix: Water
Analysis Batch: 295263

Client Sample ID: HCC EFF-22119
Prep Type: Total/NA
Prep Batch: 295218

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.0011			0.00106		mg/L				1	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Client Sample ID: Before GAC-22119

Lab Sample ID: 580-84102-1

Date Collected: 02/21/19 13:20

Matrix: Water

Date Received: 02/25/19 14:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			295158	02/26/19 08:34	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	295226	02/27/19 22:24	JCM	TAL SEA

Client Sample ID: HCC EFF-22119

Lab Sample ID: 580-84102-2

Date Collected: 02/21/19 13:20

Matrix: Water

Date Received: 02/25/19 14:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			295352	02/28/19 11:46	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	295372	02/28/19 16:33	JCM	TAL SEA
Total/NA	Prep	200.8			295218	02/26/19 14:36	JKM	TAL SEA
Total/NA	Analysis	200.8		1	295263	02/27/19 09:43	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

TestAmerica Job ID: 580-84102-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84102-1	Before GAC-22119	Water	02/21/19 13:20	02/25/19 14:10
580-84102-2	HCC EFF-22119	Water	02/21/19 13:20	02/25/19 14:10

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

84102

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TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 2/21/19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 days			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 22119	2/21/19	13:20	Grab	W	2			X		***See instructions below
HCC EFF- 22119	2/21/19	13:20	Grab	W	3			X	X	***See instructions below

580-84102 Chain of Custody

Therm. ID: #7 Cor: 0.3 ° Unc: 0.5 °
Cooler Dsc: Insulated Blue
Packing: Bubble
Cust. Seal: Yes ___ No ✓
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Courr: ✓
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ Therm ID No.: ___		
Relinquished by:	Company: Glacier	Date/Time: 2/25/19 11:10	Received by:	Company: Date/Time: 2/25/19 @1110
Relinquished by:	Company:	Date/Time:	Received by:	Company: TH-SEA Date/Time: 2/25/19 1410
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-84102-1

Login Number: 84102
List Number: 1
Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	CS not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84925-1
Client Project/Site: BNSF Skykomish NPDES
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
3/29/2019 3:12:27 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-84925-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-84925-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2019 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

TestAmerica Job ID: 580-84925-1

Client Sample ID: Before GAC-32519
Date Collected: 03/25/19 11:20
Date Received: 03/26/19 15:50

Lab Sample ID: 580-84925-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.45		0.062		mg/L		03/28/19 08:40	03/29/19 09:17	1
Motor Oil (>C24-C36)	0.20		0.091		mg/L		03/28/19 08:40	03/29/19 09:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*03/28/19 08:40*	*03/29/19 09:17*	*1*

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

TestAmerica Job ID: 580-84925-1

Client Sample ID: HCC EFF-32519
Date Collected: 03/25/19 11:20
Date Received: 03/26/19 15:50

Lab Sample ID: 580-84925-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		03/28/19 08:40	03/29/19 09:38	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		03/28/19 08:40	03/29/19 09:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*03/28/19 08:40*	*03/29/19 09:38*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0013**		0.0010		mg/L		03/27/19 19:17	03/28/19 12:30	1
Lead	ND		0.00080		mg/L		03/27/19 19:17	03/28/19 12:30	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-297319/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297341 — **Prep Batch: 297319**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		03/28/19 08:40	03/29/19 08:17	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		03/28/19 08:40	03/29/19 08:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*110*		*50 - 150*	*03/28/19 08:40*	*03/29/19 08:17*	*1*

Lab Sample ID: LCS 580-297319/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297341 — **Prep Batch: 297319**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.423		mg/L		85	50 - 120
Motor Oil (>C24-C36)	0.500	0.455		mg/L		91	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*87*		*50 - 150*

Lab Sample ID: LCSD 580-297319/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297341 — **Prep Batch: 297319**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.407		mg/L		81	50 - 120	4	26
Motor Oil (>C24-C36)	0.500	0.436		mg/L		87	64 - 120	4	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*88*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-297316/14-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		03/27/19 19:17	03/28/19 11:38	1
Lead	ND		0.00080		mg/L		03/27/19 19:17	03/28/19 11:38	1

Lab Sample ID: LCS 580-297316/15-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.05		mg/L		105	85 - 115
Lead	1.00	1.04		mg/L		104	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-297316/16-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.05		mg/L		105	85 - 115	0	20
Lead			1.00	1.03		mg/L		103	85 - 115	0	20

Lab Sample ID: 580-84681-A-4-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		1.00	1.04		mg/L		104	70 - 130
Lead	0.0032		1.00	1.04		mg/L		103	70 - 130

Lab Sample ID: 580-84681-A-4-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	1.08		mg/L		108	70 - 130	3	20
Lead	0.0032		1.00	1.06		mg/L		105	70 - 130	2	20

Lab Sample ID: 580-84681-A-4-B DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 297402 — **Prep Batch: 297316**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		ND		mg/L		NC	20
Lead	0.0032		0.00315		mg/L		2	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

TestAmerica Job ID: 580-84925-1

Client Sample ID: Before GAC-32519

Lab Sample ID: 580-84925-1

Date Collected: 03/25/19 11:20

Matrix: Water

Date Received: 03/26/19 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			297319	03/28/19 08:40	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	297341	03/29/19 09:17	TL1	TAL SEA

Client Sample ID: HCC EFF-32519

Lab Sample ID: 580-84925-2

Date Collected: 03/25/19 11:20

Matrix: Water

Date Received: 03/26/19 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			297319	03/28/19 08:40	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	297341	03/29/19 09:38	TL1	TAL SEA
Total/NA	Prep	200.8			297316	03/27/19 19:17	T1H	TAL SEA
Total/NA	Analysis	200.8		1	297402	03/28/19 12:30	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

TestAmerica Job ID: 580-84925-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

TestAmerica Job ID: 580-84925-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84925-1	Before GAC-32519	Water	03/25/19 11:20	03/26/19 15:50
580-84925-2	HCC EFF-32519	Water	03/25/19 11:20	03/26/19 15:50

Loc: 580
84925

Chain of Custody Record

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 3-25-2019	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 Days			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 32519	3/25/19	11:24	Grab	W	2			X		***See instructions below
HCC EFF- 32519	3/25/19	11:20	Grab	W	3			X	X	***See instructions below

580-84925 Chain of Custody

Therm. ID: A2 Cor: 0.6 ° Unc: 1.0 °
Cooler Dsc: Red Blue
Packing: Bubble FedEx:
Cust. Seal: Yes ___ No ✓ UPS:
Blue Ice, Wet, Dry, None Lab Courr: ✓
Other:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.:

Relinquished by:	Company: Glacier	Date/Time: 3/25/19 13:45	Received by:	Company:	Date/Time: 3/25/19 1340
Relinquished by:	Company:	Date/Time:	Received by:	Company: TA-SEA	Date/Time: 3/26/19 1550
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-84925-1

Login Number: 84925

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85727-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
5/3/2019 10:55:14 AM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Case Narrative

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-85727-1

Job ID: 580-85727-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-85727-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 2:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8º C.

GC Semi VOA
Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC- 42419 (580-85727-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-85727-1

Client Sample ID: Before GAC- 42419

Lab Sample ID: 580-85727-1

Date Collected: 04/24/19 15:30

Matrix: Water

Date Received: 04/25/19 14:35

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.54		0.062		mg/L		04/26/19 07:36	04/30/19 17:55	1
Motor Oil (>C24-C36)	0.33		0.091		mg/L		04/26/19 07:36	04/30/19 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*04/26/19 07:36*	*04/30/19 17:55*	*1*

Client Sample Results

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-85727-1

Client Sample ID: HCC EFF-42419

Date Collected: 04/24/19 15:30
Date Received: 04/25/19 14:35

Lab Sample ID: 580-85727-2

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.073		0.062		mg/L		04/26/19 07:36	04/30/19 18:15	1
Motor Oil (>C24-C36)	0.094		0.091		mg/L		04/26/19 07:36	04/30/19 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*109*		*50 - 150*	*04/26/19 07:36*	*04/30/19 18:15*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0018		0.0010		mg/L		04/26/19 09:48	04/29/19 11:44	1
Lead	ND		0.00080		mg/L		04/26/19 09:48	04/29/19 11:44	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-299414/1-A
Matrix: Water
Analysis Batch: 299706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		04/26/19 07:36	04/30/19 16:54	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		04/26/19 07:36	04/30/19 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*104*		*50 - 150*	*04/26/19 07:36*	*04/30/19 16:54*	*1*

Lab Sample ID: LCS 580-299414/2-A
Matrix: Water
Analysis Batch: 299706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299414

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			0.500	0.494		mg/L		99	50 - 120		
Motor Oil (>C24-C36)			0.500	0.557		mg/L		111	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*86*		*50 - 150*

Lab Sample ID: LCSD 580-299414/3-A
Matrix: Water
Analysis Batch: 299706

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 299414

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.511		mg/L		102	50 - 120	3	26
Motor Oil (>C24-C36)			0.500	0.578		mg/L		116	64 - 120	4	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*87*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-299431/14-A
Matrix: Water
Analysis Batch: 299639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299431

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		04/26/19 09:48	04/29/19 11:31	1
Lead	ND		0.00080		mg/L		04/26/19 09:48	04/29/19 11:31	1

Lab Sample ID: LCS 580-299431/15-A
Matrix: Water
Analysis Batch: 299639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299431

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			1.00	1.04		mg/L		104	85 - 115		
Lead			1.00	1.04		mg/L		104	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-299431/16-A
Matrix: Water
Analysis Batch: 299639

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 299431

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.07		mg/L		107	85 - 115	3	20
Lead			1.00	1.06		mg/L		106	85 - 115	2	20

Lab Sample ID: 580-85727-2 MS
Matrix: Water
Analysis Batch: 299639

Client Sample ID: HCC EFF-42419
Prep Type: Total/NA
Prep Batch: 299431

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0018		1.00	1.08		mg/L		108	70 - 130
Lead	ND		1.00	1.09		mg/L		109	70 - 130

Lab Sample ID: 580-85727-2 MSD
Matrix: Water
Analysis Batch: 299639

Client Sample ID: HCC EFF-42419
Prep Type: Total/NA
Prep Batch: 299431

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0018		1.00	1.05		mg/L		105	70 - 130	2	20
Lead	ND		1.00	1.06		mg/L		106	70 - 130	3	20

Lab Sample ID: 580-85727-2 DU
Matrix: Water
Analysis Batch: 299639

Client Sample ID: HCC EFF-42419
Prep Type: Total/NA
Prep Batch: 299431

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.0018			0.00179		mg/L				1	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-85727-1

Client Sample ID: Before GAC- 42419

Lab Sample ID: 580-85727-1

Date Collected: 04/24/19 15:30

Matrix: Water

Date Received: 04/25/19 14:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			299414	04/26/19 07:36	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	299706	04/30/19 17:55	W1T	TAL SEA

Client Sample ID: HCC EFF-42419

Lab Sample ID: 580-85727-2

Date Collected: 04/24/19 15:30

Matrix: Water

Date Received: 04/25/19 14:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			299414	04/26/19 07:36	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	299706	04/30/19 18:15	W1T	TAL SEA
Total/NA	Prep	200.8			299431	04/26/19 09:48	T1H	TAL SEA
Total/NA	Analysis	200.8		1	299639	04/29/19 11:44	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Job ID: 580-85727-1
Project/Site: Skykomish HCC System

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-85727-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85727-1	Before GAC- 42419	Water	04/24/19 15:30	04/25/19 14:35
580-85727-2	HCC EFF-42419	Water	04/24/19 15:30	04/25/19 14:35

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 4-24-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3day			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Loc: 580
85727

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 42419	4/24/19	15:30	Grab	W	2			X		***See instructions below
HCC EFF- 42419	4/24/19	15:30	Grab	W	3			X	X	***See instructions below

580-85727 Chain of Custody

Therm. ID: A7 Cor: 2.6 ° Unc: 3.3 °
Cooler Dsc: Ice Blue
Packing: Bubble
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Courr: X
Other:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other — 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica gel cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: Glacier	Date/Time: 4/25/19 9:50	Received by:	Company: TASI-H	Date/Time: 4/25/19 1485
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-85727-1

Login Number: 85727
List Number: 1
Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86369-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
5/29/2019 4:09:40 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-86369-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-86369-1

Comments
No additional comments.

Receipt
The samples were received on 5/22/2019 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8º C.

GC Semi VOA
Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC-52219 (580-86369-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-86369-1

Client Sample ID: Before GAC-52219
Date Collected: 05/22/19 10:00
Date Received: 05/22/19 14:40

Lab Sample ID: 580-86369-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.49		0.062		mg/L		05/24/19 09:33	05/24/19 20:16	1
Motor Oil (>C24-C36)	0.49		0.091		mg/L		05/24/19 09:33	05/24/19 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*05/24/19 09:33*	*05/24/19 20:16*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-86369-1

Client Sample ID: HCC EFF-52219
Date Collected: 05/22/19 10:00
Date Received: 05/22/19 14:40

Lab Sample ID: 580-86369-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		05/24/19 09:33	05/24/19 20:38	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		05/24/19 09:33	05/24/19 20:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*102*		*50 - 150*	*05/24/19 09:33*	*05/24/19 20:38*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0019**		0.0010		mg/L		05/22/19 17:58	05/23/19 08:43	1
Lead	ND		0.00080		mg/L		05/22/19 17:58	05/23/19 08:43	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-301529/1-A
Matrix: Water
Analysis Batch: 301618

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301529

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		05/24/19 09:33	05/24/19 18:27	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		05/24/19 09:33	05/24/19 18:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*58*		*50 - 150*	*05/24/19 09:33*	*05/24/19 18:27*	*1*

Lab Sample ID: LCS 580-301529/2-A
Matrix: Water
Analysis Batch: 301618

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301529

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.461		mg/L		92	50 - 120
Motor Oil (>C24-C36)	0.500	0.488		mg/L		98	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*84*		*50 - 150*

Lab Sample ID: LCSD 580-301529/3-A
Matrix: Water
Analysis Batch: 301618

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301529

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.450		mg/L		90	50 - 120	2	26
Motor Oil (>C24-C36)	0.500	0.481		mg/L		96	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*81*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-301372/14-A
Matrix: Water
Analysis Batch: 301732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301372

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		05/22/19 17:58	05/23/19 08:26	1
Lead	ND		0.00080		mg/L		05/22/19 17:58	05/23/19 08:26	1

Lab Sample ID: LCS 580-301372/15-A
Matrix: Water
Analysis Batch: 301732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301372

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.974		mg/L		97	85 - 115
Lead	1.00	0.949		mg/L		95	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-301372/16-A
Matrix: Water
Analysis Batch: 301732

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301372

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	0.961		mg/L		96	85 - 115	1	20
Lead			1.00	0.953		mg/L		95	85 - 115	1	20

Lab Sample ID: 580-86369-2 MS
Matrix: Water
Analysis Batch: 301732

Client Sample ID: HCC EFF-52219
Prep Type: Total/NA
Prep Batch: 301372

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	0.0019		1.00	0.976		mg/L		97	70 - 130		
Lead	ND		1.00	0.961		mg/L		96	70 - 130		

Lab Sample ID: 580-86369-2 MSD
Matrix: Water
Analysis Batch: 301732

Client Sample ID: HCC EFF-52219
Prep Type: Total/NA
Prep Batch: 301372

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0019		1.00	1.04		mg/L		104	70 - 130	7	20
Lead	ND		1.00	1.03		mg/L		103	70 - 130	7	20

Lab Sample ID: 580-86369-2 DU
Matrix: Water
Analysis Batch: 301732

Client Sample ID: HCC EFF-52219
Prep Type: Total/NA
Prep Batch: 301372

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.0019			0.00180		mg/L				4	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-86369-1

Client Sample ID: Before GAC-52219

Lab Sample ID: 580-86369-1

Date Collected: 05/22/19 10:00

Matrix: Water

Date Received: 05/22/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			301529	05/24/19 09:33	N1C	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	301618	05/24/19 20:16	JCM	TAL SEA

Client Sample ID: HCC EFF-52219

Lab Sample ID: 580-86369-2

Date Collected: 05/22/19 10:00

Matrix: Water

Date Received: 05/22/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			301529	05/24/19 09:33	N1C	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	301618	05/24/19 20:38	JCM	TAL SEA
Total/NA	Prep	200.8			301372	05/22/19 17:58	T1H	TAL SEA
Total/NA	Analysis	200.8		1	301732	05/23/19 08:43	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-86369-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-86369-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86369-1	Before GAC-52219	Water	05/22/19 10:00	05/22/19 14:40	
580-86369-2	HCC EFF-52219	Water	05/22/19 10:00	05/22/19 14:40	

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

86369

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 5-22-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 day			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 52219	5/22/19	10:00	Grab	W	2			X		***See instructions below
HCC EFF- 52219	5/22/19	10:00	Grab	W	3			X	X	***See instructions below

580-86369 Chain of Custody

Therm. ID: A7 Cor: 0.8 ° Unc: 1.2 °
Cooler Dsc: Ice & Blue
Packing: Bubble
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Courr: X
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ___ Corr'd: ___		Therm ID No.: ___
Relinquished by:	Company: Ghcier	Date/Time: 5/22/19 11:20	Received by:	Company:	Date/Time: 5/22/19 @ 1120
Relinquished by:	Company:	Date/Time:	Received by:	Company: TASEA	Date/Time: 5/22/19 1440
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-86369-1

Login Number: 86369

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87213-1
Client Project/Site: BNSF Skykomish NPDES
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
7/9/2019 11:22:41 AM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Case Narrative

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87213-1

Job ID: 580-87213-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-87213-1

Comments
No additional comments.

Receipt
The samples were received on 6/26/2019 5:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5º C.

GC Semi VOA
Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-304963 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are reported. (CCV 580-304963/19), (CCV 580-304963/30) and (CCVRT 580-304963/3)

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC - 62519 (580-87213-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87213-1

Client Sample ID: Before GAC - 62519
Date Collected: 06/25/19 11:00
Date Received: 06/26/19 17:50

Lab Sample ID: 580-87213-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.44		0.062		mg/L		07/08/19 12:56	07/08/19 21:11	1
Motor Oil (>C24-C36)	0.20		0.091		mg/L		07/08/19 12:56	07/08/19 21:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*07/08/19 12:56*	*07/08/19 21:11*	*1*

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87213-1

Client Sample ID: HCC EFF - 62519
Date Collected: 06/25/19 11:00
Date Received: 06/26/19 17:50

Lab Sample ID: 580-87213-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		07/08/19 12:56	07/08/19 20:50	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		07/08/19 12:56	07/08/19 20:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*07/08/19 12:56*	*07/08/19 20:50*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		07/01/19 10:39	07/04/19 23:29	5
Lead	ND		0.0040		mg/L		07/01/19 10:39	07/04/19 23:29	5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-304989/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 304963 — **Prep Batch: 304989**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		07/08/19 12:56	07/08/19 22:31	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		07/08/19 12:56	07/08/19 22:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*07/08/19 12:56*	*07/08/19 22:31*	*1*

Lab Sample ID: LCS 580-304989/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 304963 — **Prep Batch: 304989**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.348		mg/L		70	50 - 120
Motor Oil (>C24-C36)	0.500	0.460		mg/L		92	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*73*		*50 - 150*

Lab Sample ID: LCSD 580-304989/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 304963 — **Prep Batch: 304989**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.328		mg/L		66	50 - 120	6	26
Motor Oil (>C24-C36)	0.500	0.449		mg/L		90	64 - 120	2	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*75*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-304478/14-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 304786 — **Prep Batch: 304478**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		07/01/19 10:39	07/04/19 23:07	1
Lead	ND		0.00080		mg/L		07/01/19 10:39	07/04/19 23:07	1

Lab Sample ID: LCS 580-304478/15-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 304786 — **Prep Batch: 304478**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.997		mg/L		100	85 - 115
Lead	1.00	0.988		mg/L		99	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-304478/16-A
Matrix: Water
Analysis Batch: 304786

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304478

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.03		mg/L		103	85 - 115	3	20
Lead			1.00	1.02		mg/L		102	85 - 115	3	20

Lab Sample ID: 580-87213-2 MS
Matrix: Water
Analysis Batch: 304786

Client Sample ID: HCC EFF - 62519
Prep Type: Total/NA
Prep Batch: 304478

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		1.00	0.988		mg/L		99	70 - 130
Lead	ND		1.00	0.993		mg/L		99	70 - 130
Lead	ND		1.00	0.992		mg/L		99	70 - 130
Lead	ND		1.00	1.03		mg/L		103	70 - 130

Lab Sample ID: 580-87213-2 MSD
Matrix: Water
Analysis Batch: 304786

Client Sample ID: HCC EFF - 62519
Prep Type: Total/NA
Prep Batch: 304478

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	1.00		mg/L		100	70 - 130	1	20
Lead	ND		1.00	0.991		mg/L		99	70 - 130	0	20
Lead	ND		1.00	0.986		mg/L		99	70 - 130	1	20
Lead	ND		1.00	1.03		mg/L		103	70 - 130	0	20

Lab Sample ID: 580-87213-2 DU
Matrix: Water
Analysis Batch: 304786

Client Sample ID: HCC EFF - 62519
Prep Type: Total/NA
Prep Batch: 304478

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87213-1

Client Sample ID: Before GAC - 62519

Lab Sample ID: 580-87213-1

Date Collected: 06/25/19 11:00
Matrix: Water
Date Received: 06/26/19 17:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			304989	07/08/19 12:56	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	304963	07/08/19 21:11	JCM	TAL SEA

Client Sample ID: HCC EFF - 62519

Lab Sample ID: 580-87213-2

Date Collected: 06/25/19 11:00
Matrix: Water
Date Received: 06/26/19 17:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			304989	07/08/19 12:56	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	304963	07/08/19 20:50	JCM	TAL SEA
Total/NA	Prep	200.8			304478	07/01/19 10:39	T1H	TAL SEA
Total/NA	Analysis	200.8		5	304786	07/04/19 23:29	RM	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Job ID: 580-87213-1
Project/Site: BNSF Skykomish NPDES

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87213-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87213-1	Before GAC - 62519	Water	06/25/19 11:00	06/26/19 17:50	
580-87213-2	HCC EFF - 62519	Water	06/25/19 11:00	06/26/19 17:50	

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

Loc: 580
87213

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐DW ☑NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 6/25/19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 days			Walk-in Client:
(425) 295-0850 FAX	☐2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐1 week			
Site:	☐2 days			Job / SDG No.:
WO # TT0100-S03	☐1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 62519	6/25/19	11:00	Grab	W	2			X		***See instructions below
HCC EFF- 62519	6/25/19	11:00	Grab	W	3			X	X	***See instructions below

580-87213 Chain of Custody

Therm. ID: 17 Cor: 1.2 ° Unc: 1.5 °
Cooler Dsc: Med Blue
Packing: Bubbles
Cust. Seal: Yes ___ No ✓
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ✓
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐Return to Client ☑Disposal by Lab ☐Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐Yes ☐No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.: ___

	Company	Date/Time	Received by:	Company	Date/Time
Relinquished by:	Company: Clacier 6/26/19	Date/Time: 9:30	Received by:	Company: TASEA	Date/Time: 6/26/19 1750
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-87213-1

Login Number: 87213

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87969-1
Client Project/Site: BNSF Skykomish NPDES
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
8/9/2019 2:00:18 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-87969-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-87969-1

Comments
No additional comments.

Receipt
The samples were received on 7/29/2019 8:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.7º C.

GC Semi VOA
Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC-72619 (580-87969-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Client Sample ID: Before GAC-72619

Lab Sample ID: 580-87969-1

Date Collected: 07/26/19 08:30
Date Received: 07/29/19 08:00

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.38		0.062		mg/L		08/07/19 12:22	08/08/19 21:20	1
Motor Oil (>C24-C36)	0.21		0.091		mg/L		08/07/19 12:22	08/08/19 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*08/07/19 12:22*	*08/08/19 21:20*	*1*

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Client Sample ID: HCC EFF-72619
Date Collected: 07/26/19 08:30
Date Received: 07/29/19 08:00

Lab Sample ID: 580-87969-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		08/07/19 12:22	08/08/19 21:40	1
Motor Oil (>C24-C36)	ND		0.092		mg/L		08/07/19 12:22	08/08/19 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*08/07/19 12:22*	*08/08/19 21:40*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		07/30/19 08:11	07/30/19 18:50	1
Lead	ND		0.00080		mg/L		07/30/19 08:11	07/30/19 18:50	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-307734/1-A
Matrix: Water
Analysis Batch: 307877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307734

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		08/07/19 09:57	08/08/19 16:58	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		08/07/19 09:57	08/08/19 16:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*111*		*50 - 150*	*08/07/19 09:57*	*08/08/19 16:58*	*1*

Lab Sample ID: LCS 580-307734/2-A
Matrix: Water
Analysis Batch: 307877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307734

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			0.500	0.371		mg/L		74	50 - 120		
Motor Oil (>C24-C36)			0.500	0.493		mg/L		99	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*93*		*50 - 150*

Lab Sample ID: LCSD 580-307734/3-A
Matrix: Water
Analysis Batch: 307877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307734

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.377		mg/L		75	50 - 120	2	26
Motor Oil (>C24-C36)			0.500	0.509		mg/L		102	64 - 120	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*89*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-306971/10-A
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306971

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		07/30/19 08:11	07/30/19 19:19	1
Lead	ND		0.00080		mg/L		07/30/19 08:11	07/30/19 19:19	1

Lab Sample ID: LCS 580-306971/11-A
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306971

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			1.00	1.11		mg/L		111	85 - 115		
Lead			1.00	1.13		mg/L		113	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-306971/12-A
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306971

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.11		mg/L		111	85 - 115	0	20
Lead			1.00	1.12		mg/L		112	85 - 115	1	20

Lab Sample ID: 580-87897-C-11-C MS
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 306971

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0025		1.00	1.15		mg/L		115	70 - 130
Lead	ND		1.00	1.16		mg/L		116	70 - 130

Lab Sample ID: 580-87897-C-11-D MSD
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 306971

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0025		1.00	1.15		mg/L		115	70 - 130	0	20
Lead	ND		1.00	1.15		mg/L		114	70 - 130	2	20

Lab Sample ID: 580-87897-C-11-B DU
Matrix: Water
Analysis Batch: 307097

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 306971

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0025		0.00251		mg/L		1	20
Lead	ND		ND		mg/L		NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Client Sample ID: Before GAC-72619

Lab Sample ID: 580-87969-1

Date Collected: 07/26/19 08:30

Matrix: Water

Date Received: 07/29/19 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			307734	08/07/19 12:22	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	307877	08/08/19 21:20	T1W	TAL SEA

Client Sample ID: HCC EFF-72619

Lab Sample ID: 580-87969-2

Date Collected: 07/26/19 08:30

Matrix: Water

Date Received: 07/29/19 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			307734	08/07/19 12:22	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	307877	08/08/19 21:40	T1W	TAL SEA
Total/NA	Prep	200.8			306971	07/30/19 08:11	ART	TAL SEA
Total/NA	Analysis	200.8		1	307097	07/30/19 18:50	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: BNSF Skykomish NPDES

Job ID: 580-87969-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87969-1	Before GAC-72619	Water	07/26/19 08:30	07/29/19 08:00	
580-87969-2	HCC EFF-72619	Water	07/26/19 08:30	07/29/19 08:00	

87969

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jerry Portele	Site Contact: David Johnson	Date: 7/26/19	COC No:
Farallon Consulting	Tel/Fax: 425-295-0839	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Job No. Invoice attention to: Bruce Shepard, BNSF
Issaquah, WA 98027	Calendar (C) or Work Days (W)			
(425) 295-0800 Phone	TAT if different from Below 3day			SDG No.
(425) 295-0850 FAX	☐ 2 weeks			
Project Name: Skykomish HCC System	☐ 1 week			Sampler: TW
Site:	☐ 2 days			
WO #: TT0100-M07	☐ 1 day			Sample Specific Notes:

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	
Before GAC- 72619	7/26/19	8:30	Grab	W	2		X		*** See instructions below
HCC EFF- 72619	7/26/19	8:30	Grab	W	3		X	X	*** See instructions below

580-87969 Chain of Custody

Therm. ID: A2 Cor: 5.7 ° Unc: 6.0 °
Cooler Dsc: Wet Ice
Packing: Bubble
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: X
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___ 2 4 1

Possible Hazard Identification
■ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica gel cleanup needed for Dx

	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Client	7-26-19 10:50			7/26/19 1050
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company: SkyTrans	Date/Time: 7-29-19 0800

Form No. CA-C-WI-002, Rev. 3, dated 04/4/2012

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-87969-1

Login Number: 87969
List Number: 1
Creator: Vallelunga, Diana L

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88619-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
9/9/2019 1:51:16 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-88619-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-88619-1

Comments
No additional comments.

Receipt
The samples were received on 8/23/2019 1:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

GC Semi VOA
Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC-82219 (580-88619-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-88619-1

Client Sample ID: Before GAC-82219
Date Collected: 08/22/19 09:00
Date Received: 08/23/19 13:30

Lab Sample ID: 580-88619-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.39		0.062		mg/L		09/04/19 12:13	09/06/19 02:58	1
Motor Oil (>C24-C36)	0.21		0.091		mg/L		09/04/19 12:13	09/06/19 02:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*50 - 150*	*09/04/19 12:13*	*09/06/19 02:58*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-88619-1

Client Sample ID: HCC EFF-82219
Date Collected: 08/22/19 09:00
Date Received: 08/23/19 13:30

Lab Sample ID: 580-88619-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		09/04/19 12:13	09/06/19 03:18	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		09/04/19 12:13	09/06/19 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*104*		*50 - 150*	*09/04/19 12:13*	*09/06/19 03:18*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		08/26/19 16:56	08/28/19 16:13	1
Lead	ND		0.00080		mg/L		08/26/19 16:56	08/28/19 16:13	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-310189/1-A
Matrix: Water
Analysis Batch: 310377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		09/04/19 12:13	09/06/19 01:58	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		09/04/19 12:13	09/06/19 01:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*50 - 150*	*09/04/19 12:13*	*09/06/19 01:58*	*1*

Lab Sample ID: LCS 580-310189/2-A
Matrix: Water
Analysis Batch: 310377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310189

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.470		mg/L		94	50 - 120
Motor Oil (>C24-C36)	0.500	0.526		mg/L		105	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*90*		*50 - 150*

Lab Sample ID: LCSD 580-310189/3-A
Matrix: Water
Analysis Batch: 310377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310189

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.444		mg/L		89	50 - 120	6	26
Motor Oil (>C24-C36)	0.500	0.529		mg/L		106	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*90*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-309396/14-A
Matrix: Water
Analysis Batch: 309793

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309396

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		08/26/19 16:56	08/28/19 16:08	1
Lead	ND		0.00080		mg/L		08/26/19 16:56	08/28/19 16:08	1

Lab Sample ID: LCS 580-309396/15-A
Matrix: Water
Analysis Batch: 309793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309396

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.948		mg/L		95	85 - 115
Lead	1.00	0.951		mg/L		95	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-309396/16-A
Matrix: Water
Analysis Batch: 309793

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309396

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	0.965		mg/L		96	85 - 115	2	20
Lead			1.00	0.954		mg/L		95	85 - 115	0	20

Lab Sample ID: 580-88619-2 MS
Matrix: Water
Analysis Batch: 309793

Client Sample ID: HCC EFF-82219
Prep Type: Total/NA
Prep Batch: 309396

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		1.00	0.982		mg/L		98	70 - 130		
Lead	ND		1.00	0.971		mg/L		97	70 - 130		

Lab Sample ID: 580-88619-2 MSD
Matrix: Water
Analysis Batch: 309793

Client Sample ID: HCC EFF-82219
Prep Type: Total/NA
Prep Batch: 309396

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.983		mg/L		98	70 - 130	0	20
Lead	ND		1.00	0.983		mg/L		98	70 - 130	1	20

Lab Sample ID: 580-88619-2 DU
Matrix: Water
Analysis Batch: 309793

Client Sample ID: HCC EFF-82219
Prep Type: Total/NA
Prep Batch: 309396

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/L				NC	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-88619-1

Client Sample ID: Before GAC-82219

Lab Sample ID: 580-88619-1

Date Collected: 08/22/19 09:00
Date Received: 08/23/19 13:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			310189	09/04/19 12:13	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	310377	09/06/19 02:58	ADB	TAL SEA

Client Sample ID: HCC EFF-82219

Lab Sample ID: 580-88619-2

Date Collected: 08/22/19 09:00
Date Received: 08/23/19 13:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			310189	09/04/19 12:13	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	310377	09/06/19 03:18	ADB	TAL SEA
Total/NA	Prep	200.8			309396	08/26/19 16:56	T1H	TAL SEA
Total/NA	Analysis	200.8		1	309793	08/28/19 16:13	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-88619-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-88619-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88619-1	Before GAC-82219	Water	08/22/19 09:00	08/23/19 13:30	
580-88619-2	HCC EFF-82219	Water	08/22/19 09:00	08/23/19 13:30	

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 8/22/19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: JW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 day			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week		Loc: 580 88619	
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 82219	8/22/19	9:00	Grab	W	2			X		***See instructions below
HCC EFF- 82219	8/22/19	9:00	Grab	W	3			X	X	***See instructions below

580-88619 Chain of Custody

Therm. ID: IR4 Cor: 0.1 ° Unc: 0.4 °
Cooler Dsc: Med Blue
Packing: Bubble
Cust. Seal: Yes ___ No F
Blue Ice, (Yes) Dry, None
FedEx: ___
UPS: ___
Lab Cour: F
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.: ___

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:	Glacier	8/23/19 7:30	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received in Laboratory by:	Company: SEA TA	Date/Time: 8.23.19 1330

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-88619-1

Login Number: 88619

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89473-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
10/7/2019 5:14:32 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-89473-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-89473-1

Comments
No additional comments.

Receipt
The samples were received on 9/24/2019 12:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-89473-1

Client Sample ID: Before GAC-92419
Date Collected: 09/24/19 08:30
Date Received: 09/24/19 12:45

Lab Sample ID: 580-89473-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.47		0.062		mg/L		10/02/19 12:48	10/03/19 21:20	1
Motor Oil (>C24-C36)	0.28		0.091		mg/L		10/02/19 12:48	10/03/19 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*50 - 150*	*10/02/19 12:48*	*10/03/19 21:20*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-89473-1

Client Sample ID: HCC EFF-92419
Date Collected: 09/24/19 08:30
Date Received: 09/24/19 12:45

Lab Sample ID: 580-89473-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		10/02/19 12:48	10/03/19 22:00	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		10/02/19 12:48	10/03/19 22:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*10/02/19 12:48*	*10/03/19 22:00*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		10/04/19 11:06	10/05/19 04:24	1
Lead	ND		0.00080		mg/L		10/04/19 11:06	10/05/19 04:24	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-313064/1-A
Matrix: Water
Analysis Batch: 313198

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313064

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		10/02/19 12:47	10/03/19 14:36	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		10/02/19 12:47	10/03/19 14:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*10/02/19 12:47*	*10/03/19 14:36*	*1*

Lab Sample ID: LCS 580-313064/2-A
Matrix: Water
Analysis Batch: 313198

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313064

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.378		mg/L		76	50 - 120
Motor Oil (>C24-C36)	0.500	0.506		mg/L		101	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*74*		*50 - 150*

Lab Sample ID: LCSD 580-313064/3-A
Matrix: Water
Analysis Batch: 313198

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313064

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.381		mg/L		76	50 - 120	1	26
Motor Oil (>C24-C36)	0.500	0.503		mg/L		101	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*73*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-313296/14-A
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		10/04/19 11:06	10/05/19 03:05	1
Lead	ND		0.00080		mg/L		10/04/19 11:06	10/05/19 03:05	1

Lab Sample ID: LCS 580-313296/15-A
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.936		mg/L		94	85 - 115
Lead	1.00	0.963		mg/L		96	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-313296/16-A
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313296

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	0.940		mg/L		94	85 - 115	0	20
Lead			1.00	0.950		mg/L		95	85 - 115	1	20

Lab Sample ID: 580-89248-E-4-C MS
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 313296

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		1.00	1.02		mg/L		102	70 - 130		
Lead	0.0034		1.00	1.04		mg/L		104	70 - 130		

Lab Sample ID: 580-89248-E-4-D MSD
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 313296

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.962		mg/L		96	70 - 130	6	20
Lead	0.0034		1.00	0.999		mg/L		100	70 - 130	4	20

Lab Sample ID: 580-89248-E-4-B DU
Matrix: Water
Analysis Batch: 313446

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 313296

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/L				NC	20
Lead	0.0034			0.00355		mg/L				5	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-89473-1

Client Sample ID: Before GAC-92419

Lab Sample ID: 580-89473-1

Date Collected: 09/24/19 08:30

Matrix: Water

Date Received: 09/24/19 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			313064	10/02/19 12:48	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	313198	10/03/19 21:20	ERZ	TAL SEA

Client Sample ID: HCC EFF-92419

Lab Sample ID: 580-89473-2

Date Collected: 09/24/19 08:30

Matrix: Water

Date Received: 09/24/19 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			313064	10/02/19 12:48	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	313198	10/03/19 22:00	ERZ	TAL SEA
Total/NA	Prep	200.8			313296	10/04/19 11:06	JCP	TAL SEA
Total/NA	Analysis	200.8		1	313446	10/05/19 04:24	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-89473-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-89473-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89473-1	Before GAC-92419	Water	09/24/19 08:30	09/24/19 12:45	
580-89473-2	HCC EFF-92419	Water	09/24/19 08:30	09/24/19 12:45	

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Pete Kingstrom — Matt Bowmer

Client Contact	Project Manager: ~~Jerry Portele~~	Site Contact: ~~David Johnson~~	Date: 9-24-19	COC No:
Farallon Consulting	Tel/Fax: 425-~~395-9839~~ 374-4146	Lab Contact: Kristine Allen	Carrier:	1 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Job No. Invoice attention to: Bruce Shepard, BNSF
Issaquah, WA 98027	Calendar (C) or Work Days (W)			
(425) 295-0800 Phone	TAT if different from Below 3 day			SDG No.
(425) 295-0850 FAX	☐ 2 weeks			
Project Name: Skykomish HCC System	☐ 1 week			Sampler: TW
Site:	☐ 2 days			
WO #: TT0100-~~M07~~ SC3	☐ 1 day			

Loc: 580
89473

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 92419	9/24/19	930	Grab	W	2		X		*** See instructions below
HCC EFF- 92419	9/24/19	930	Grab	W	3		X	X	*** See instructions below

580-89473 Chain of Custody

Therm. ID: 307 Cor: 5.4 ° Unc: 5.7 °
Cooler Dsc: 1n Blu
Packing: Bbl
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: X
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___ — 2 4 1

Possible Hazard Identification
■ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica gel cleanup needed for Dx

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Glacier	9/24/19 1030			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by: B. Gall	Company: SEA TA	Date/Time: 9.24.19 1245

Form No. CA-C-WI-002, Rev. 3, dated 04/4/2012

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-89473-1

Login Number: 89473

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90306-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
10/29/2019 3:02:21 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-90306-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-90306-1

Comments
No additional comments.

Receipt
The samples were received on 10/24/2019 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3º C.

GC Semi VOA
Method NWTPH-Dx: The surrogate o-Terphenyl of CCV associated with batch analytical batch 580-315231 have %D lower control limit. Since the %Recovery is within the acceptance criteria, the data have been reported (CCVRT 580-315231/3)

Method NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Before GAC-102219 (580-90306-1).

Method NWTPH-Dx: Surrogate recovery for the following sample was outside control limits: Before GAC-102219 (580-90306-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Client Sample ID: Before GAC-102219
Date Collected: 10/22/19 09:00
Date Received: 10/24/19 14:40

Lab Sample ID: 580-90306-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.32		0.062		mg/L		10/25/19 11:21	10/26/19 21:36	1
Motor Oil (>C24-C36)	0.23		0.091		mg/L		10/25/19 11:21	10/26/19 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*28*	*X*	*50 - 150*	*10/25/19 11:21*	*10/26/19 21:36*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Client Sample ID: HCC EFF-102219
Date Collected: 10/22/19 09:00
Date Received: 10/24/19 14:40

Lab Sample ID: 580-90306-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		10/25/19 11:21	10/26/19 22:17	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		10/25/19 11:21	10/26/19 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*10/25/19 11:21*	*10/26/19 22:17*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		10/25/19 10:56	10/28/19 21:15	1
Lead	ND		0.00080		mg/L		10/25/19 10:56	10/28/19 21:15	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-315161/1-A
Matrix: Water
Analysis Batch: 315231

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		10/25/19 11:21	10/26/19 14:53	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		10/25/19 11:21	10/26/19 14:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*10/25/19 11:21*	*10/26/19 14:53*	*1*

Lab Sample ID: LCS 580-315161/2-A
Matrix: Water
Analysis Batch: 315231

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315161

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			0.500	0.368		mg/L		74	50 - 120		
Motor Oil (>C24-C36)			0.500	0.418		mg/L		84	64 - 120		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl			*82*		*50 - 150*

Lab Sample ID: LCSD 580-315161/3-A
Matrix: Water
Analysis Batch: 315231

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315161

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.394		mg/L		79	50 - 120	7	26
Motor Oil (>C24-C36)			0.500	0.438		mg/L		88	64 - 120	5	24

Surrogate			*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl			*82*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-315160/14-A
Matrix: Water
Analysis Batch: 315368

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315160

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		10/25/19 10:56	10/28/19 21:12	1
Lead	ND		0.00080		mg/L		10/25/19 10:56	10/28/19 21:12	1

Lab Sample ID: LCS 580-315160/15-A
Matrix: Water
Analysis Batch: 315368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315160

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			1.00	1.06		mg/L		106	85 - 115		
Lead			1.00	1.06		mg/L		106	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-315160/16-A
Matrix: Water
Analysis Batch: 315368

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315160

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.06		mg/L		106	85 - 115	0	20
Lead			1.00	1.06		mg/L		106	85 - 115	0	20

Lab Sample ID: 580-90306-2 MS
Matrix: Water
Analysis Batch: 315368

Client Sample ID: HCC EFF-102219
Prep Type: Total/NA
Prep Batch: 315160

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		1.00	0.909		mg/L		91	70 - 130		
Lead	ND		1.00	0.916		mg/L		92	70 - 130		

Lab Sample ID: 580-90306-2 MSD
Matrix: Water
Analysis Batch: 315368

Client Sample ID: HCC EFF-102219
Prep Type: Total/NA
Prep Batch: 315160

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.914		mg/L		91	70 - 130	1	20
Lead	ND		1.00	0.913		mg/L		91	70 - 130	0	20

Lab Sample ID: 580-90306-2 DU
Matrix: Water
Analysis Batch: 315368

Client Sample ID: HCC EFF-102219
Prep Type: Total/NA
Prep Batch: 315160

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/L				NC	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Client Sample ID: Before GAC-102219

Lab Sample ID: 580-90306-1

Date Collected: 10/22/19 09:00

Matrix: Water

Date Received: 10/24/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			315161	10/25/19 11:21	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	315231	10/26/19 21:36	CJ	TAL SEA

Client Sample ID: HCC EFF-102219

Lab Sample ID: 580-90306-2

Date Collected: 10/22/19 09:00

Matrix: Water

Date Received: 10/24/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			315161	10/25/19 11:21	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	315231	10/26/19 22:17	CJ	TAL SEA
Total/NA	Prep	200.8			315160	10/25/19 10:56	A1B	TAL SEA
Total/NA	Analysis	200.8		1	315368	10/28/19 21:15	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-90306-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90306-1	Before GAC-102219	Water	10/22/19 09:00	10/24/19 14:40	
580-90306-2	HCC EFF-102219	Water	10/22/19 09:00	10/24/19 14:40	

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

90306
~~90305~~

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 10/22/19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 day			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 102219	10/22/19	900	Grab	W	2			X		***See instructions below
HCC EFF- 102219	10/22/19	900	Grab	W	3			X	X	***See instructions below

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

580-90306 Chain of Custody

Therm. ID: IR7 Cor: 0.3 ° Unc: 0.6 °
Cooler Dsc: Ig Blue
Packing: None
Cust. Seal: Yes ___ No X
Blue Ice, (Wet) Dry, None
FedEx: ___
UPS: ___
Lab Cour: ✓
Other: ___

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ___ Corr'd: ___ | Therm ID No.: ___

	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Farallong	10/22/19 14:20			10/22/19 1420 1415
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA	Date/Time: 10.24.19 1440

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-90306-1

Login Number: 90306

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91040-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
11/27/2019 1:18:01 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-91040-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-91040-1

Comments
No additional comments.

Receipt
The samples were received on 11/25/2019 1:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: Farallon Consulting LLC
Job ID: 580-91040-1
Project/Site: Skykomish HCC System

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91040-1

Client Sample ID: Before GAC-112219
Date Collected: 11/22/19 07:30
Date Received: 11/25/19 13:50

Lab Sample ID: 580-91040-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.38		0.062		mg/L		11/26/19 09:23	11/26/19 23:24	1
Motor Oil (>C24-C36)	0.33		0.091		mg/L		11/26/19 09:23	11/26/19 23:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*11/26/19 09:23*	*11/26/19 23:24*	*1*

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91040-1

Client Sample ID: HCC EFF-112219
Date Collected: 11/22/19 07:30
Date Received: 11/25/19 13:50

Lab Sample ID: 580-91040-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		11/26/19 09:23	11/26/19 23:45	1
Motor Oil (>C24-C36)	ND		0.091		mg/L		11/26/19 09:23	11/26/19 23:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*11/26/19 09:23*	*11/26/19 23:45*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		11/26/19 08:45	11/26/19 18:58	1
Lead	ND		0.00080		mg/L		11/26/19 08:45	11/26/19 18:58	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-317671/1-A
Matrix: Water
Analysis Batch: 317751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317671

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		11/26/19 09:23	11/26/19 16:29	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		11/26/19 09:23	11/26/19 16:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*11/26/19 09:23*	*11/26/19 16:29*	*1*

Lab Sample ID: LCS 580-317671/2-A
Matrix: Water
Analysis Batch: 317751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317671

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.486		mg/L		97	50 - 120
Motor Oil (>C24-C36)	0.500	0.497		mg/L		99	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*112*		*50 - 150*

Lab Sample ID: LCSD 580-317671/3-A
Matrix: Water
Analysis Batch: 317751

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317671

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.481		mg/L		96	50 - 120	1	26
Motor Oil (>C24-C36)	0.500	0.490		mg/L		98	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*123*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-317664/14-A
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317664

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		11/26/19 08:45	11/26/19 18:55	1
Lead	ND		0.00080		mg/L		11/26/19 08:45	11/26/19 18:55	1

Lab Sample ID: LCS 580-317664/15-A
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317664

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.04		mg/L		104	85 - 115
Lead	1.00	1.02		mg/L		102	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-317664/16-A
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317664

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.04		mg/L		104	85 - 115	1	20
Lead			1.00	1.03		mg/L		103	85 - 115	1	20

Lab Sample ID: 580-90844-D-1-D MS
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 317664

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		1.00	0.922		mg/L		92	70 - 130		
Lead	ND		1.00	0.897		mg/L		90	70 - 130		

Lab Sample ID: 580-90844-D-1-E MSD
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 317664

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.940		mg/L		94	70 - 130	2	20
Lead	ND		1.00	0.912		mg/L		91	70 - 130	2	20

Lab Sample ID: 580-90844-D-1-C DU
Matrix: Water
Analysis Batch: 317769

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 317664

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/L				NC	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91040-1

Client Sample ID: Before GAC-112219

Lab Sample ID: 580-91040-1

Date Collected: 11/22/19 07:30
Matrix: Water
Date Received: 11/25/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			317671	11/26/19 09:23	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	317751	11/26/19 23:24	T1W	TAL SEA

Client Sample ID: HCC EFF-112219

Lab Sample ID: 580-91040-2

Date Collected: 11/22/19 07:30
Matrix: Water
Date Received: 11/25/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			317671	11/26/19 09:23	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	317751	11/26/19 23:45	T1W	TAL SEA
Total/NA	Prep	200.8			317664	11/26/19 08:45	A1B	TAL SEA
Total/NA	Analysis	200.8		1	317769	11/26/19 18:58	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91040-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91040-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91040-1	Before GAC-112219	Water	11/22/19 07:30	11/25/19 13:50	
580-91040-2	HCC EFF-112219	Water	11/22/19 07:30	11/25/19 13:50	

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

91040

Regulatory Program: ☐DW ☑NPDES ☐RCRA ☐Other:

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 11-22-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 day			Walk-in Client:
(425) 295-0850 FAX	☐2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐1 week			
Site:	☐2 days			Job / SDG No.:
WO # TT0100-S03	☐1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 112219	11/22/19	7:30	Grab	W	2			X		***See instructions below
HCC EFF- 112219	11/22/19	7:30	Grab	W	3			X	X	***See instructions below

580-91040 Chain of Custody

Therm. ID: IR6 Cor: 1.7° Unc: 1.2°
Cooler Dsc: Sm. Bx.
Packing: Bub
Cust. Seal: Yes ✓ No
Blue Ice: Wet, Dry, None
FedEx:
UPS:
Lab Courr: ✓
Other:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐Return to Client ☑Disposal by Lab ☐Archive for Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐Yes ☐No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: Corr'd:	Therm ID No.:
Relinquished by:	Company: Courier	Date/Time: 11/22/19 17:15	Received by:	Company: Glacier	Date/Time: 11/22/19 11:15
Relinquished by:	Company: Glacier	Date/Time: 11/22/19 10:05	Received by: Jean Romo	Company: Test America	Date/Time: 11/23/19 1249
Relinquished by: Jean Romo	Company: Test Am	Date/Time: 11/25/19 2:06	Received in Laboratory by:	Company: TASEA	Date/Time: 11/25/19 1350

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-91040-1

Login Number: 91040

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91749-1
Client Project/Site: Skykomish HCC System
Sampling Event: Skykomish - GAC/HCC

For:
Farallon Consulting LLC
975 5th Avenue NW
Suite 100
Issaquah, Washington 98027

Attn: Peter Kingston

Kristine D. Allen

Authorized for release by:
1/7/2020 3:01:36 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-91749-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-91749-1

Comments
No additional comments.

Receipt
The samples were received on 12/27/2019 12:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91749-1

Client Sample ID: Before GAC-122619
Date Collected: 12/26/19 10:30
Date Received: 12/27/19 12:25

Lab Sample ID: 580-91749-1
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.39		0.062		mg/L		01/02/20 13:22	01/03/20 15:18	1
Motor Oil (>C24-C36)	0.20		0.091		mg/L		01/02/20 13:22	01/03/20 15:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*01/02/20 13:22*	*01/03/20 15:18*	*1*

Client Sample Results

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91749-1

Client Sample ID: HCC EFF-122619

Lab Sample ID: 580-91749-2

Date Collected: 12/26/19 10:30

Matrix: Water

Date Received: 12/27/19 12:25

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.062		mg/L		01/02/20 13:22	01/03/20 15:40	1
Motor Oil (>C24-C36)	ND		0.092		mg/L		01/02/20 13:22	01/03/20 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*01/02/20 13:22*	*01/03/20 15:40*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		12/30/19 10:09	12/30/19 18:50	1
Lead	ND		0.00080		mg/L		12/30/19 10:09	12/30/19 18:50	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-319966/1-A
Matrix: Water
Analysis Batch: 319984

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 319966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.065		mg/L		01/02/20 13:21	01/03/20 13:28	1
Motor Oil (>C24-C36)	ND		0.096		mg/L		01/02/20 13:21	01/03/20 13:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*01/02/20 13:21*	*01/03/20 13:28*	*1*

Lab Sample ID: LCS 580-319966/2-A
Matrix: Water
Analysis Batch: 319984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 319966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.454		mg/L		91	50 - 120
Motor Oil (>C24-C36)	0.500	0.498		mg/L		100	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*81*		*50 - 150*

Lab Sample ID: LCSD 580-319966/3-A
Matrix: Water
Analysis Batch: 319984

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 319966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	0.500	0.449		mg/L		90	50 - 120	1	26
Motor Oil (>C24-C36)	0.500	0.533		mg/L		107	64 - 120	7	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*90*		*50 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-319826/14-A
Matrix: Water
Analysis Batch: 320080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 319826

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		12/30/19 10:09	12/30/19 18:45	1
Lead	ND		0.00080		mg/L		12/30/19 10:09	12/30/19 18:45	1

Lab Sample ID: LCS 580-319826/15-A
Matrix: Water
Analysis Batch: 320080

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 319826

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.996		mg/L		100	85 - 115
Lead	1.00	1.02		mg/L		102	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-319826/16-A
Matrix: Water
Analysis Batch: 320080

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 319826

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.00		mg/L		100	85 - 115	1	20
Lead			1.00	1.03		mg/L		103	85 - 115	1	20

Lab Sample ID: 580-91749-2 MS
Matrix: Water
Analysis Batch: 320080

Client Sample ID: HCC EFF-122619
Prep Type: Total/NA
Prep Batch: 319826

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		1.00	1.06		mg/L		106	70 - 130		
Lead	ND		1.00	1.07		mg/L		107	70 - 130		

Lab Sample ID: 580-91749-2 MSD
Matrix: Water
Analysis Batch: 320080

Client Sample ID: HCC EFF-122619
Prep Type: Total/NA
Prep Batch: 319826

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	1.04		mg/L		104	70 - 130	2	20
Lead	ND		1.00	1.05		mg/L		105	70 - 130	2	20

Lab Sample ID: 580-91749-2 DU
Matrix: Water
Analysis Batch: 320080

Client Sample ID: HCC EFF-122619
Prep Type: Total/NA
Prep Batch: 319826

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/L				NC	20
Lead	ND			ND		mg/L				NC	20

Lab Chronicle

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91749-1

Client Sample ID: Before GAC-122619

Lab Sample ID: 580-91749-1

Date Collected: 12/26/19 10:30

Matrix: Water

Date Received: 12/27/19 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			319966	01/02/20 13:22	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	319984	01/03/20 15:18	T1W	TAL SEA

Client Sample ID: HCC EFF-122619

Lab Sample ID: 580-91749-2

Date Collected: 12/26/19 10:30

Matrix: Water

Date Received: 12/27/19 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			319966	01/02/20 13:22	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	319984	01/03/20 15:40	T1W	TAL SEA
Total/NA	Prep	200.8			319826	12/30/19 10:09	ART	TAL SEA
Total/NA	Analysis	200.8		1	320080	12/30/19 18:50	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91749-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Sample Summary

Client: Farallon Consulting LLC
Project/Site: Skykomish HCC System

Job ID: 580-91749-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91749-1	Before GAC-122619	Water	12/26/19 10:30	12/27/19 12:25	
580-91749-2	HCC EFF-122619	Water	12/26/19 10:30	12/27/19 12:25	

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☑ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Pete Kingston	Site Contact: Matt Bowser	Date: 12-26-19	COC No:
Farallong Consulting	Tel/Fax: 425-394-4146	Lab Contact: Kristine Allen	Carrier:	2 of 2 COCs
975 5th Avenue Northwest	Analysis Turnaround Time			Sampler: TW
Issaquah, Washington	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(425) 295-0800 Phone	TAT if different from Below 3 days			Walk-in Client:
(425) 295-0850 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Skykomish HCC System	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
WO # TT0100-S03	☐ 1 day			

Loc: 580
91749

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Dx w/o silica gel cleanup	Total As, Pb (EPA 200.8)	Sample Specific Notes:
Before GAC- 122619	12/26/19	10:30	Grab	W	2			X		***See instructions below
HCC EFF- 122619	12/26/19	10:30	Grab	W	3			X	X	***See instructions below

Therm. ID: 7 Cor: 0.1 ° Unc: 0.4 °
Cooler Dsc: LB
Packing: Bub
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: X
Other: ___

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 2 4 1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments: 1) DxRx requires special limits 0.208 mg/L, cumulative, Final Volume of 2 mL required 2) No silica get cleanup needed for Dx

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: Glacier	Date/Time: 12/26/19 12:20	Received by:	Company:	Date/Time: 12/26/19 1200
Relinquished by:	Company: TT	Date/Time: 12/27/19	Received by:	Company: DLX	Date/Time: 12/27/19 11:28
Relinquished by:	Company: DLX	Date/Time: 1125	Received in Laboratory by:	Company: TASeattle	Date/Time: 12-27-19 1225

12/27/19 12:25

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

Login Sample Receipt Checklist

Client: Farallon Consulting LLC

Job Number: 580-91749-1

Login Number: 91749

List Source: Eurofins TestAmerica, Seattle

List Number: 1

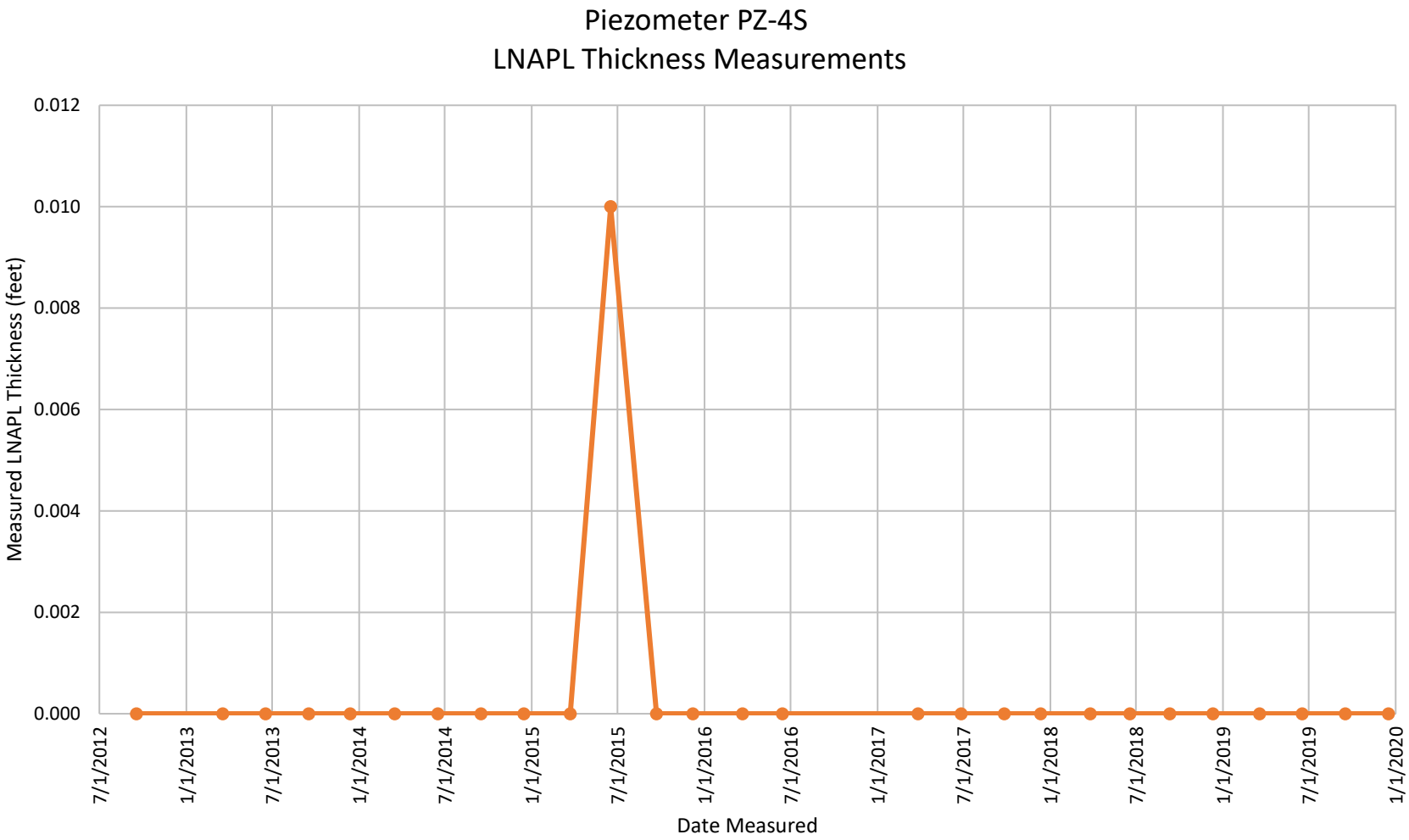
Creator: Hobbs, Kenneth F

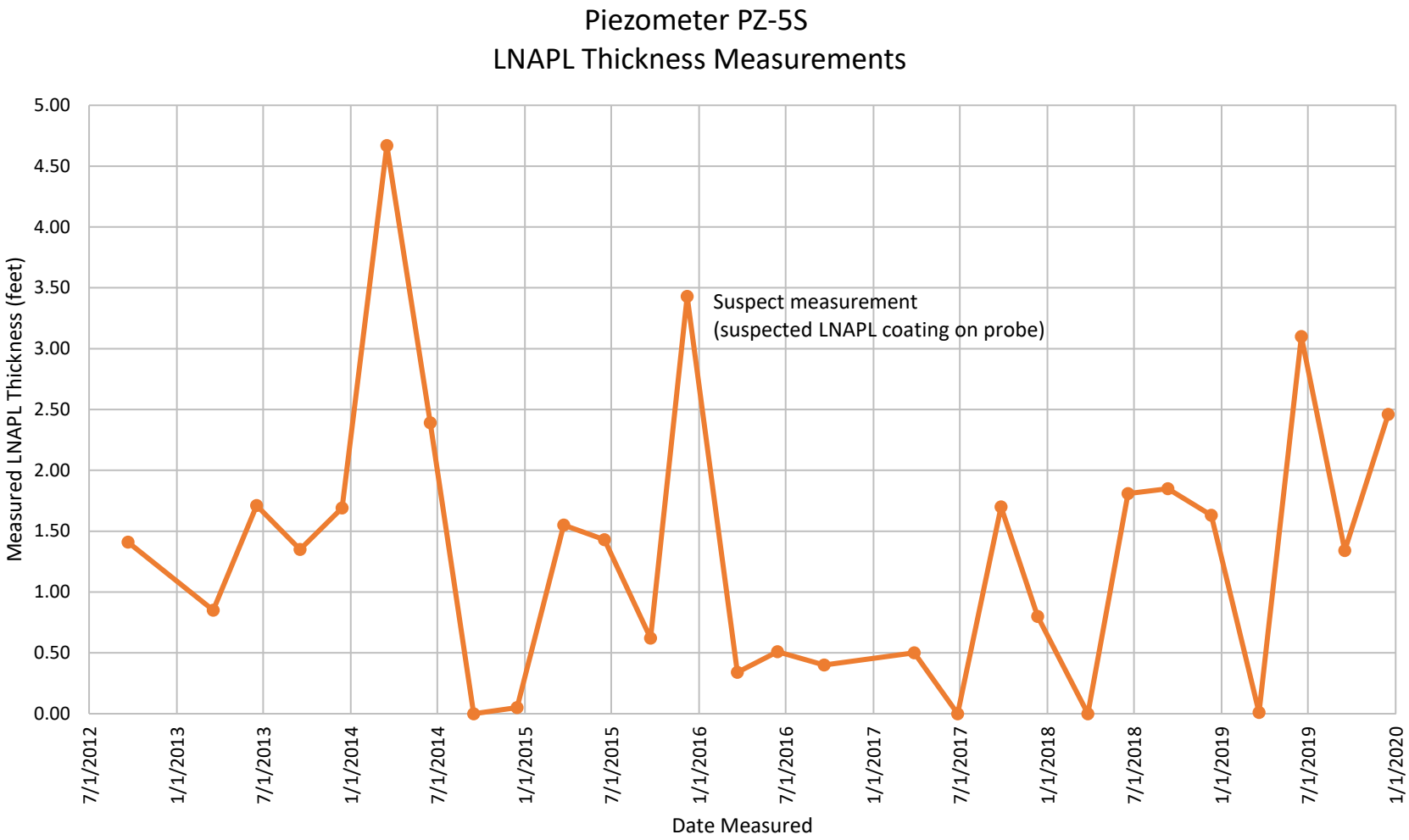
Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

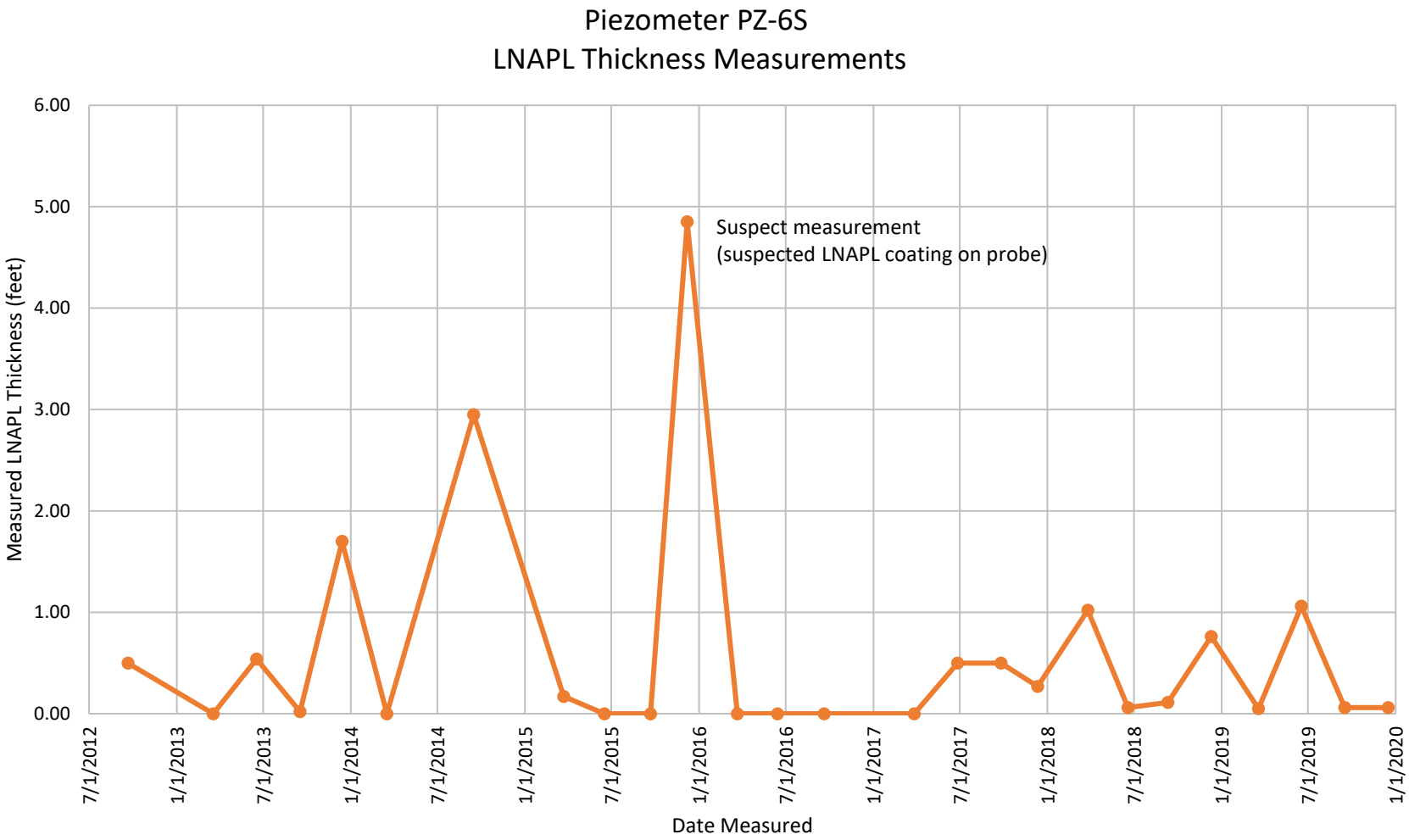
APPENDIX B
LNAPL TREND PLOTS

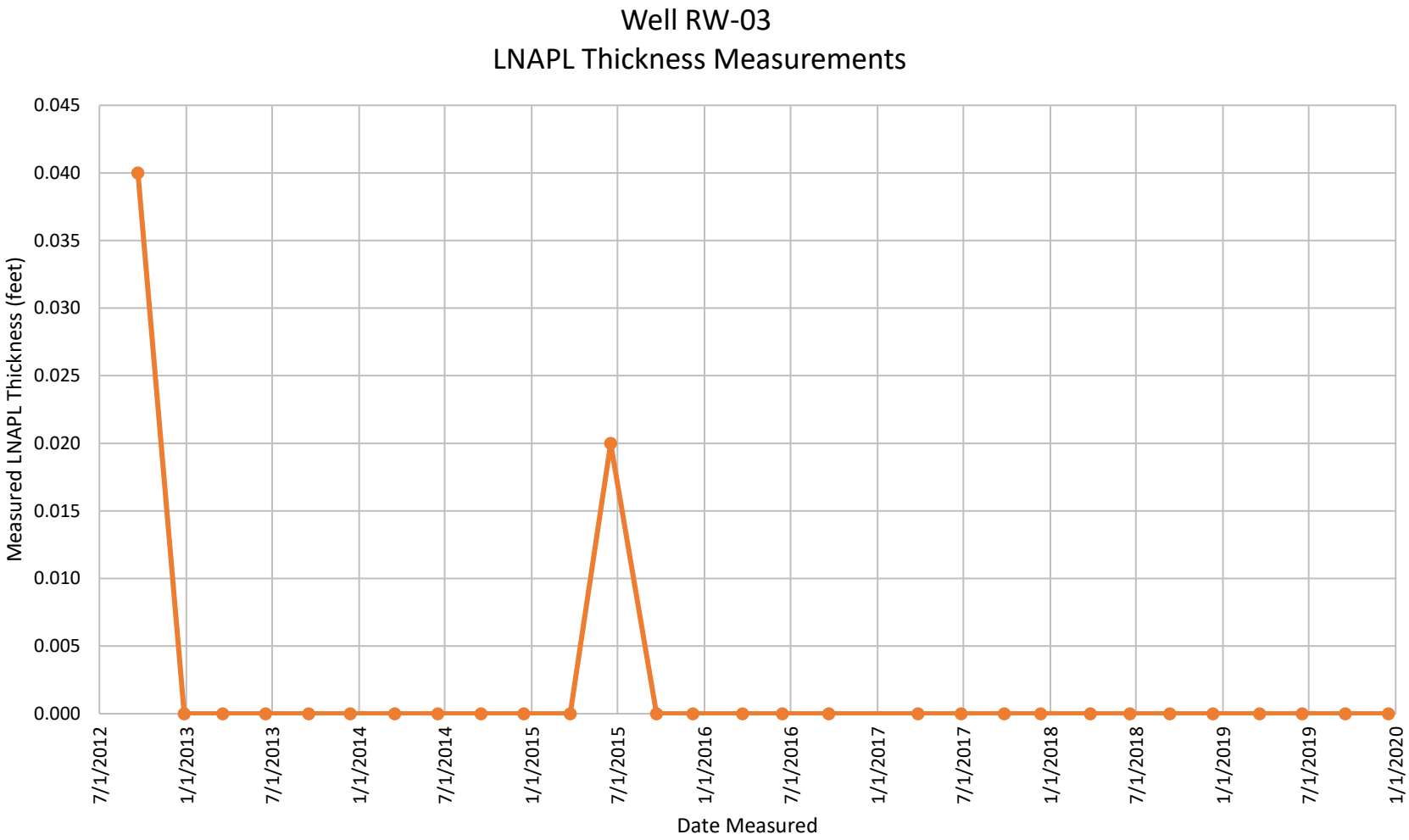
2019 ANNUAL HYDRAULIC CONTROL AND CONTAINMENT SYSTEM OPERATIONS REPORT
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington
Consent Decree No. 07-2-33672-9 SEA

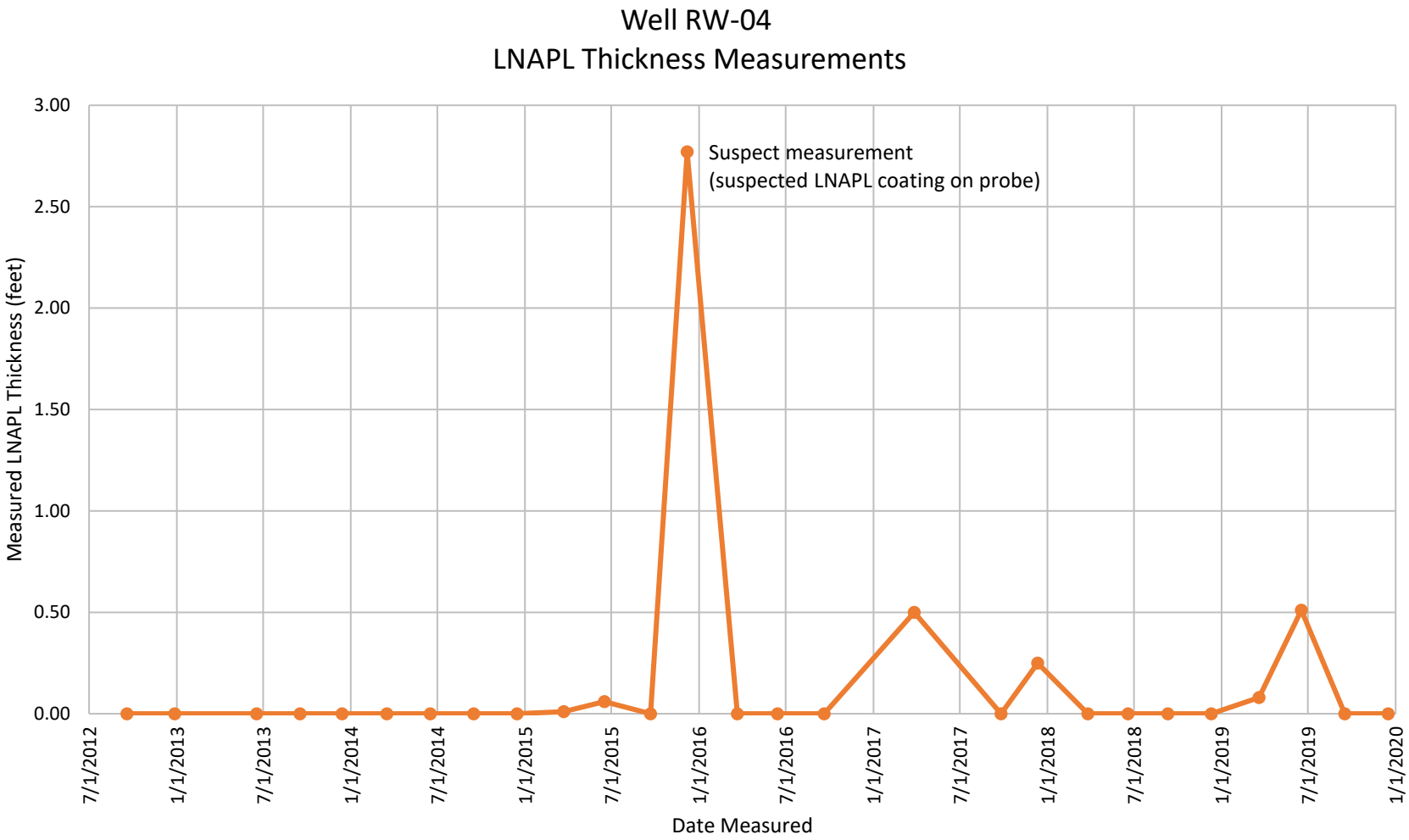
Farallon PN: 683-067

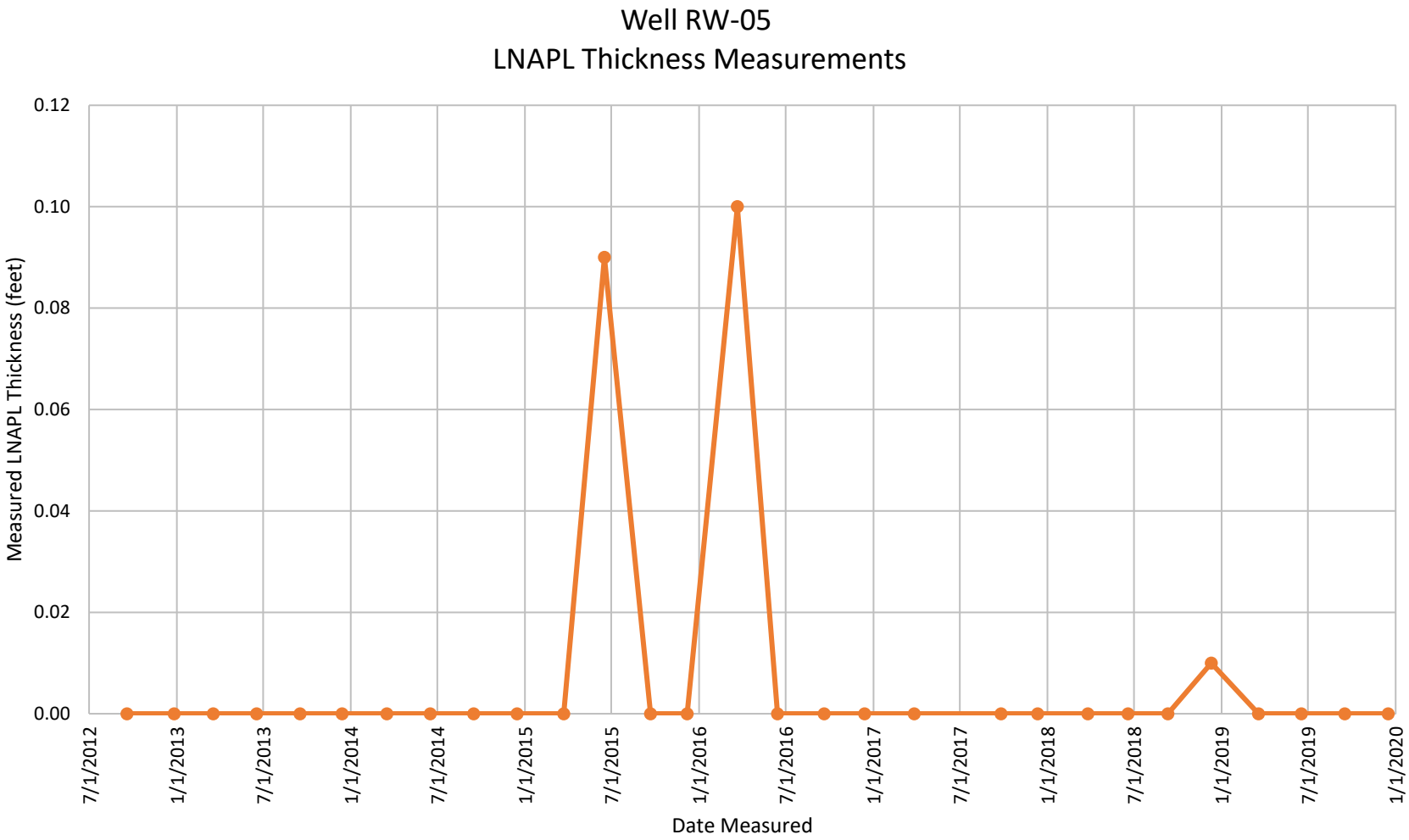

Piezometer PZ-4S
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
0.012
0.010
0.008
0.006
0.004
0.002
0.000
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured

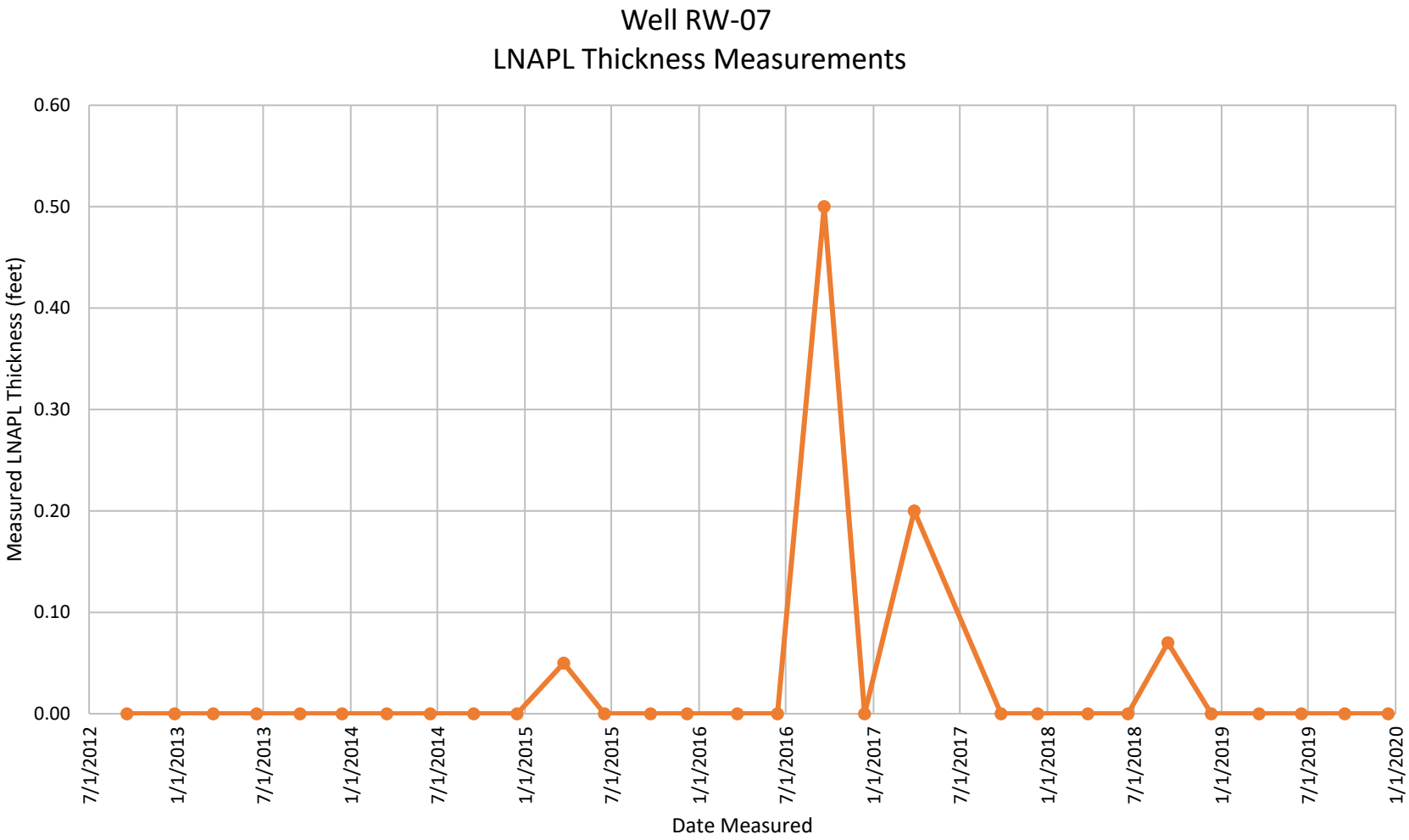

Piezometer PZ-5S
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Suspect measurement
(suspected LNAPL coating on probe)
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured

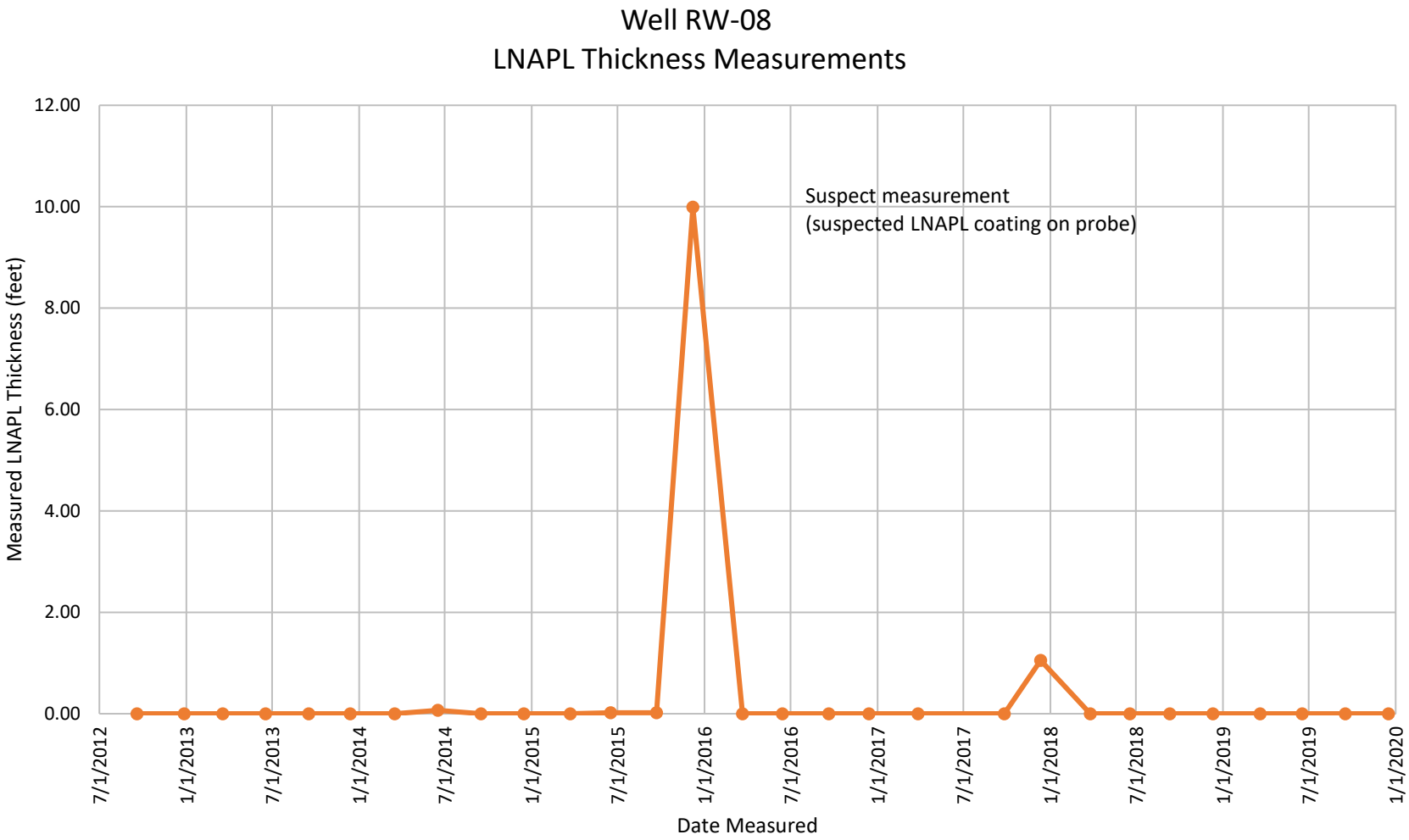

Piezometer PZ-6S
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Suspect measurement
(suspected LNAPL coating on probe)
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured


Well RW-03
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured


Well RW-04
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Suspect measurement
(suspected LNAPL coating on probe)
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured


Well RW-05
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured


Well RW-07
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured


Well RW-08
LNAPL Thickness Measurements
Measured LNAPL Thickness (feet)
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Suspect measurement
(suspected LNAPL coating on probe)
7/1/2012
1/1/2013
7/1/2013
1/1/2014
7/1/2014
1/1/2015
7/1/2015
1/1/2016
7/1/2016
1/1/2017
7/1/2017
1/1/2018
7/1/2018
1/1/2019
7/1/2019
1/1/2020
Date Measured