ANNUAL PROGRESS REPORT AND PERFORMANCE MONITORING REPORT

Barbee Mill Groundwater Remediation Project

Prepared for: Barbee Mill Co., Inc.

Project No. 050004-008-03 • September 23, 2021 FINAL

Aspect CONSULTING

earth + water

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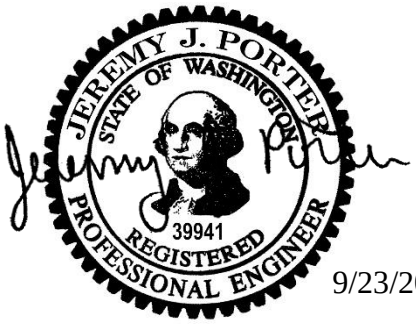

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1 Introduction

Aspect Consulting, LLC (Aspect) prepared this Annual Progress Report and Performance Monitoring Report to evaluate the performance of cleanup actions implemented to address arsenic, zinc, and petroleum hydrocarbon occurrences in groundwater at the Barbee Mill Site (Site). The Site includes portions of the following properties:

- The former Barbee Mill Property (Barbee Property), which is currently owned by Conner Homes at Barbee Mill LLC and is located at 4101 Lake Washington Boulevard North in Renton, Washington.
- The Quendall Terminals Property, located north of the Barbee Property, which includes aquatic lands owned by Quendall Terminals.
- State-owned aquatic lands of Lake Washington, located west of the Barbee Property.

Cleanup actions at the Site are described in the draft "Interim Action Design and Implementation Report" (Aspect, 2010a) and include the following activities to address arsenic and petroleum in groundwater:

- Removing soil from the Site that exceeds Washington State Model Toxic Control Act (MTCA) Method A cleanup levels for arsenic and total petroleum hydrocarbons (TPH) and MTCA Method B cleanup levels for zinc. The excavation of arsenic-contaminated soil was completed between January and May 2006, and a total of approximately 54,125 tons of soil was removed. The excavation of TPH- and PCP-impacted soil was completed in July 2006, and a total of 23 tons of soil was removed.
- Installing a Passive Attenuation Zone (PAZ) between February and April 2007 along the downgradient boundary of the Barbee Property to prevent arsenic above the Site-specific natural background level[1] from migrating off the Barbee Property
- Installing a Groundwater Extraction and Treatment (Pump-and-Treat) System upgradient of the PAZ to remove additional arsenic mass from groundwater to enhance performance of the PAZ. The system operated from June 2009 to August 2011.
- Installing a network of monitoring wells and piezometers to evaluate performance of the PAZ and Pump-and-Treat System. The monitoring well and piezometer network was installed in August 2007, and the well points were installed near the shoreline in January 2009.

[1] Previous Site documents have identified a Site cleanup level of 20 µg/L. Based on Ecology comments on the RI Report (Aspect, 2019b) that were issued on May 27, 2020, Ecology considers that concentration to have been interim action remediation level, not the Site cleanup level. Ecology has requested that PAZ performance monitoring data be compared to the revised Site-specific natural background level of 16 µg/L.

A Site plan showing the layout of the PAZ, Pump-and-Treat System, and monitoring well network is provided on Figure 1. Groundwater monitoring at the Site is ongoing in accordance with the "Performance Monitoring Plan" (Aspect, 2010b).

The "Draft RI Report" (Aspect, 2019) described the extent of arsenic in soil and groundwater. The Draft RI Report used a groundwater screening level for arsenic of 20 µg/L based on natural background concentrations. Ecology re-evaluated the background data set and has identified a Site-specific natural background concentration for arsenic of 16 µg/L. An updated description of the nature and extent of arsenic at the Site is provided in the "Remedial Investigation Work Plan" (RI Work Plan; Aspect, 2021)..

This report was prepared in accordance with Agreed Order DE 5396 (AO), dated December 1, 2009, and including Amendment 1 dated December 16, 2010, and Amendment 2 dated May 30, 2012, between Barbee Mill Co., Inc. and Ecology. The AO requires annual progress reports as well as evaluation of remediation performance and reevaluation of restoration time frame on an annual basis. This Annual Progress Report and Performance Monitoring Report has been prepared as one combined deliverable, per the Agreed Order Schedule Change Request (Aspect 2020c).

Performance of Site remedial actions through June 2020 was evaluated in the previous performance monitoring report (Aspect, 2020a). The previous annual progress report covered the period from January to December 2019 (Aspect 2020b). The 2020 annual groundwater monitoring event was conducted in March 2021 after approval of additional monitoring outlined in the draft RI Work Plan. This performance monitoring report:

- Includes a Site progress report for the period of January 2020 through March 2021. Per discussion with Ecology, the reporting period was extended through the first quarter of 2021 to include the March 2021 groundwater monitoring event.
- Documents the performance monitoring data collected through March 2021, evaluates the performance of the remedial actions by comparing monitoring data with remedial objectives, and updates the estimate of the Site restoration time frame.

The report is organized as follows:

- Section 2 – Progress Report
- Section 3 – PAZ Performance Monitoring
- Section 4 – Pump-and-Treat System Performance Monitoring
- Section 5 – Estimated Restoration Time Frame
- Section 6 – Conclusions and Recommendations

2 Progress Report

This report covers work performed from January 1, 2020, to March 31, 2021, and includes the following information:

- Description of the work completed pursuant to the Agreed Order during the reporting period.
- Summary of data collected during the reporting period.
- Summary of problems encountered during the reporting period and actions taken to rectify those problems.
- Projected work for the next reporting period.

Work performed in each quarter of the reporting period is described below.

2.1 Activities during January 1-to-March 31, 2020 Reporting Period

Activities completed during January 1 to March 31, 2020 are listed below:

- On January 24, 2020, a meeting with Ecology, Aspect, and Geosyntec was held to discuss sediment evaluations. Ecology provided additional feedback via email on February 26, 2020.
- On February 7, 2020, the annual progress report covering January 1 to December 31, 2019 (Aspect, 2020a) was submitted to Ecology.
- On February 24, 2020, the preliminary revised draft RI Work Plan was submitted to Ecology.

2.2 Activities during April 1-to-June 30, 2020 Reporting Period

Activities completed during April 1 to June 30, 2020 are listed below:

- On April 17, 2020, a meeting with Ecology, Aspect and Geosyntec was held to discuss screening of sediment data Ecology provided additional feedback via email on April 17 and April 21, 2020, and Aspect and Geosyntec provided updated sediment figures via email on April 27, 2020.
- On May 13, 2020, Ecology confirmed via email that an RI work plan should be prepared for the Site.
- On May 27, 2020, Ecology provided comments on the upland portion of the draft RI Report.
- Between May 28 and June 8, 2020, the background calculation for arsenic in groundwater was reviewed and discussed via email and phone calls between Aspect and Ecology.

- On June 17, 2020, Aspect submitted a Terrestrial Ecological Evaluation checklist to Ecology via email. Ecology requested a writeup documenting the evaluation on June 22, 2020.

2.3 Activities during July 1-to-September 30, 2020 Reporting Period

Activities completed from July 1 to September 30, 2020, are listed below:

- On July 7, 2020, Aspect submitted a Terrestrial Ecological Evaluation writeup for Ecology. The writeup was approved by Ecology on July 7, 2020.
- On July 28, 2020, Ecology notified Aspect that an Inadvertent Discovery Plan would be required for the RI Work Plan and provided a template and tribal contacts on July 29, 2020.
- On July 31, 2020, the annual Performance Monitoring Report (Aspect, 2020b) was submitted to Ecology.
- On September 11, 2020, a meeting to discuss Ecology's comments on the upland portion of the draft RI Report was held between Aspect and Ecology.

2.4 Activities during October 1-to-December 31, 2020 Reporting Period

Activities completed from October 1 to December 31, 2020, are listed below:

- On October 1, 2020, Geosyntec Submitted figures and a summary table of historical bioassay data to Ecology via email.
- On October 9, 2020, Geosyntec submitted via email a summary of proposed data quality objectives and sampling for sediment evaluation. Following additional discussion via email, Ecology provided comments on October 30, 2020.
- On October 20, 2020, a request to modify the AO schedule, including submittal of a combined RI/FS Report, was submitted to Ecology. Ecology provided comments on the schedule on October 23 and October 28 and a revised request incorporating those comments was submitted on October 29, 2020. Ecology approved the request in a letter dated November 17, 2020.
- On November 6, 2020, the annual updated cost estimate for financial assurances was submitted to Ecology. Ecology agreed that no change in financial assurance was needed on November 20, 2020.
- On December 7, 2020, the draft RI Work Plan was submitted to Ecology.
- On December 15, 2020, Ecology provided approval via email to delay the December groundwater monitoring event pending review of the draft RI Work Plan.

2.5 Activities during January 1-to-March 31, 2021 Reporting Period

Activities completed during January 1 to March 31, 2021, are summarized below:

- On January 11, 2021, a call to discuss preliminary comments on the upland portion of the draft RI Work Plan was held with Aspect and Ecology, and Aspect provided additional information via email.
- On January 19, 2021, Ecology provided comments on the draft RI Work Plan and on the 2020 annual performance monitoring report.
- On January 29, 2021, a call to discuss Ecology comments on the draft RI Work Plan was held with Ecology, Aspect and Geosyntec.
- On February 24, 2021, a preliminary revised draft RI Work Plan was submitted to Ecology with draft meeting notes documenting the January 29, 2021 meeting and subsequent email and phone communications.
- On March 3, 2021, Ecology provided comments on the preliminary revised draft RI Work Plan and the January 29, 2021 meeting notes.
- On March 10, 2021, a revised preliminary revised draft RI Work Plan was submitted to Ecology. Ecology provide comments and approved the groundwater sampling scope on March 12, 2021.
- On March 18 and 19, 2021, groundwater monitoring was conducted at Site monitoring wells CMW-1 through CMW-6, well points WP-1A and WP-8, extraction wells EW-1 through EW-8, and Quendall Terminals monitoring well BH-29A. Additional analyses were conducted per the draft RI Work Plan (Aspect, 2021).

  Additional groundwater monitoring was completed in conjunction with the annual sampling event to address data gaps identified in the draft RI Work Plan (Aspect, 2021). In addition to the standard performance monitoring parameters (dissolved arsenic and iron at all wells), total arsenic was included as an analyte at all wells, and the following additional analytes were evaluated at a subset of the existing Site monitoring wells (CMW-1, CMW-2S, CMW-4S, CMW-6, EW-2, EW-4, EW-6, and EW-8):

  - Total antimony, barium, mercury, and selenium by EPA Method 6020
  - Dissolved antimony, barium, manganese, mercury, selenium, and zinc by EPA Method 6020 (field filtered)
  - PAHs by EPA Method 8270E-SIM

  Groundwater sampling was conducted and samples were analyzed in accordance with the Performance Monitoring Plan (Aspect, 2010) and the recommendations of the Performance Monitoring Report (Aspect, 2020b) and the preliminary revised draft RI Work Plan dated March 10, 2021. Well point WP-8 was observed to be oriented at an angle from vertical, indicating it was potentially impacted (e.g., struck

by a log or boat). Field parameters measured at this well point were compared to previous events and appeared representative of groundwater rather than surface water, indicating that the well point integrity was not compromised and replacement is not recommended at this time.

Water level monitoring and chemical data at wells and well points for PAZ performance monitoring analytes (historical and current data) are summarized in Table 1.[2] All chemical data from the March 2021 monitoring event are summarized in Table 2, with data compared to the preliminary screening levels identified in the draft RI Work Plan. Arsenic concentrations and groundwater elevations from the March 2021 monitoring event are summarized on Figure 2. Trends in arsenic concentrations are shown on Figure 3 for monitoring wells and on Figure 4 for extraction wells. The laboratory certificate of analysis from March 2021 is included in Appendix A. An evaluation of the monitoring data and potential for rebound in arsenic concentrations in the extraction area is included in Sections 3 and 4.

2.6 Anticipated Work in the Upcoming Reporting Period

The monitoring program described in the last Performance Monitoring Report (Aspect, 2020b) calls for groundwater monitoring in 2021 to be conducted on an annual basis. Work scheduled to be performed during the next progress reporting period includes the following:

- Ecology review and finalization of the revised draft RI Work Plan (Aspect, 2021).
- Implementation of field work identified in the RI Work Plan.
- Annual groundwater monitoring, to be completed in December 2021.

The next annual progress report and performance monitoring report will cover the period from April 1 through December 31, 2021, and be submitted by March 1, 2022, in accordance with the AO Schedule Change Request.

[2] For consistency with prior monitoring events, dissolved arsenic concentrations for the 2021 monitoring event are shown on Table 1.

3 PAZ Performance Monitoring

Performance of the PAZ is evaluated by monitoring groundwater and porewater around and downgradient of the PAZ, and by inspecting the shoreline downgradient of the PAZ. Our monitoring activities, results, and conclusions are provided below.

3.1 Groundwater Monitoring

Ongoing groundwater monitoring for the PAZ includes the following:

- Collecting groundwater samples from wells CMW-2S/2D, CMW-3, CMW-4S/4D, and CMW-5, and analyzing for the following parameters:
    - Dissolved arsenic, to monitor effectiveness of the PAZ at removing arsenic from groundwater.
    - Dissolved iron, pH, conductivity, dissolved oxygen, and oxidation/reduction potential (ORP), to evaluate changes to groundwater chemistry due to the PAZ.
- Collecting groundwater samples from monitoring well BH-29A and well points WP-1A and WP-8, and analyzing for the following parameters:
    - Dissolved arsenic, to monitor the rate of attenuation downgradient of the PAZ.
    - Dissolved iron, pH, conductivity, dissolved oxygen, and ORP, to evaluate changes to groundwater chemistry downgradient of the PAZ.
- Collecting groundwater samples at wells CMW-1 and CMW-6, located at either end of the PAZ, and analyzing for dissolved arsenic and iron, to evaluate capture of the arsenic plume.
- Groundwater elevation measurements at the above wells and well points and at piezometers PZ-1 and PZ-2, to estimate groundwater flow patterns.

The annual groundwater monitoring data is summarized in Table 1, and a summary of arsenic trends is included as Table 3. Arsenic concentrations at each sampling location and estimated groundwater elevation contours from March 2021 are shown on Figure 2.

The objectives of the PAZ are as follows:

- To intercept arsenic in groundwater exceeding the Site-specific natural background of 16 micrograms per liter (µg/L) at the Barbee Property boundary.
- To reduce arsenic concentrations in groundwater exiting the PAZ to less than 16 µg/L.
- To not alter water quality in groundwater in such a way that would negatively impact aquatic life in Lake Washington.

Groundwater monitoring data is evaluated relative to these objectives below.

3.1.1 Arsenic Plume Capture

The PAZ alignment was based on arsenic concentrations in samples collected from multiple depths at 21 borings along the Barbee Property boundary during the 2006 design investigation, as summarized in the draft "Engineering Design Report" (Aspect, 2006). The arsenic concentration at boring AZ-17 (25 µg/L) was used to locate the south end of the PAZ, while the arsenic concentration at boring AZ-9 (23 µg/L) was used to locate the north end of the PAZ. Although these concentrations were slightly above the original interim action remediation level of 20 µg/L (and above the updated Site-specific natural background concentration of 16 µg/L), they were within the range of upgradient background concentrations (which were as high as 28 µg/L).

The PAZ's effectiveness at capturing arsenic in groundwater above the Site-specific natural background concentration is evaluated based on the arsenic concentrations at two monitoring wells (CMW-1, at the south end of the PAZ, and CMW-6, at the east end of the PAZ), and on the groundwater flow patterns for the Site (see Figure 2). Groundwater flow directions observed at the Site during the past two sampling events are very similar to those reported in the previous performance monitoring report and do not exhibit significant seasonal variability.[3] Groundwater monitoring at CMW-1 and CMW-6 indicate the following:

- Arsenic concentrations at CMW-1 have increased after installation of the PAZ and exceed the Site-specific natural background concentration. The concentration detected in March 2021 (64 µg/L) was essentially the same as was detected in December 2019 (63 µg/L). Arsenic was not detected downgradient of CMW-1 during the most recent porewater monitoring event (Aspect, 2011). The arsenic concentrations at CMW-1 have exhibited an increasing trend[4] since porewater monitoring was last conducted. Additional porewater sampling in this area is proposed in the draft RI Work Plan to confirm historical data.
- Arsenic concentrations at CMW-6 increased after installation of the PAZ and exceeded the Site-specific natural background. Since May 2009, concentrations have fluctuated slightly, ranging between 110 and 240 µg/L. An overall downward trend has been observed since June 2011. The concentration detected in March 2021 (140 µg/L) was the same as detected in December 2019.

As discussed in the draft RI Work Plan, the increases in arsenic concentrations at CMW-1 and CMW-6 are suspected to have resulted from radial flow from groundwater mounding within the permeable excavation backfill. Although arsenic concentrations at CMW-1 and CMW-6 exceed the Site-specific natural background, the removal of approximately

[3] Anomalous water levels were measured at several wells and piezometers during the December 2015 monitoring event. Groundwater monitoring results for some wells also showed a slight increase in concentration during this same event. Monitoring wells and piezometers were redeveloped prior to the June 2016 monitoring event, and water levels and concentrations measured in June 2016 were more consistent with historical data.

[4] Data were analyzed for trends using linear regression analysis performed at the 95 percent confidence interval as described in EPA (2009). Data were also log transformed or analyzed with a seasonal Kendall trend analysis where appropriate, as determined by a Shapiro Wilk test for normality, Rank Von Neumann test for seasonality, and seasonality test.

55,000 tons of arsenic-contaminated soil from the source area in 2006, and ongoing flushing of residual contamination upgradient of the PAZ, is expected to eventually reduce arsenic concentrations at CMW-1 and CMW-6 to below the background level. The Site restoration time frame is discussed in Section 4.

In accordance with the Performance Monitoring Plan, groundwater will be monitored for arsenic at CMW-1 and CMW-6 and groundwater elevations will be measured at all Site monitoring wells annually. The groundwater monitoring schedule is summarized in Table 4.

3.1.2 Arsenic Removal

The PAZ is designed to reduce arsenic concentrations in groundwater flowing through it by at least 95 percent. Downgradient of the PAZ, arsenic concentrations are expected to decline gradually (i.e., attenuate) as residual arsenic on soil desorbs into the treated groundwater. Below, we evaluate the arsenic removal by the PAZ and the attenuation of arsenic downgradient of the PAZ.

3.1.2.1 PAZ Treatment Effectiveness

Arsenic removal by the PAZ is monitored at six monitoring wells constructed downgradient of the PAZ. Four shallow wells (CMW-2S, CMW-3, CMW-4S, and CMW-5) are screened near the water table, and two deeper wells (CMW-2D and CMW-4D) are located downgradient of the two deeper sections of the PAZ. Based on the surveyed coordinates for the wells and the PAZ, two of the shallow wells—CMW-3 and CMW-5—are located within 1 foot of the edge of the PAZ, while the other wells are located approximately 5 to 8 feet away from the edge of the PAZ.

Arsenic concentrations at PAZ monitoring wells are summarized in Table 1 and shown on Figure 3. Concentrations at three of the four shallow wells—CMW-2S, CMW-3, and CMW-5—have consistently been below the background level since the PAZ was installed. Based on the reductions from initial concentrations at these locations, the PAZ has removed 98 to 99.5 percent of arsenic from groundwater.[5]

The concentration at the fourth shallow well—CMW-4S—has dropped 98 percent (to 62 μg/L) compared to pre-remediation conditions. This concentration is above the Site-specific natural background of 16 μg/L. As discussed in the previous performance monitoring reports, the concentration at CMW-4S is likely elevated due to arsenic desorbing from soil downgradient of the PAZ. Contaminant fate-and-transport modeling (see Section 4) indicates that a more gradual decline in concentrations downgradient of the PAZ is consistent with the desorption and gradual flushing of residual arsenic on soil.

Arsenic concentrations at the two deep wells (CMW-2D and CMW-4D) have also declined compared to pre-remediation conditions, but more slowly than at the shallow wells. Data from these wells have shown the following:

[5] Using initial concentrations as the basis for arsenic removal is a reasonable estimate for initial performance, but as monitoring proceeds, actual removal of arsenic by the PAZ may be different than estimated using this method because influent concentrations–those entering the PAZ–are not monitored. Influent concentrations are expected to decrease over time, due to the prior excavation action and the ongoing Pump-and-Treat System. However, performance of the PAZ will ultimately be evaluated by the effluent concentrations, not the percent removed.

- **At CMW-2D:** Concentrations are 12 percent lower than before the PAZ was installed. Concentrations initially decreased sharply but have increased since the Pump-and-Treat System was shut down in August 2011. This well was redeveloped prior to the June 2016 sampling event to ensure that the well screen is in good hydraulic connection with the deep aquifer. The arsenic concentration has increased slightly from 170 µg/L immediately post-redevelopment to 220 µg/L in March 2021.
- **At CMW-4D:** Concentrations have been reduced 92 percent as of March 2021. Concentrations have varied considerably (between 260 and 1,700 µg/L) but have shown a consistent downward trend since the Pump-and-Treat System was shut down in August 2011. The variability shows some seasonal patterns, with the highest concentrations detected in December and the lowest concentrations detected in September of each monitoring year, based on 3 years of quarterly monitoring.

A slower response to PAZ treatment in the deeper system is not unexpected because groundwater flow in this unit is likely much slower than in the shallow unit, due to the presence of lower-permeability sandy silt, silt, and peat layers. Slower groundwater flow rates provide slower flushing of residual arsenic downgradient of the PAZ. In accordance with the Performance Monitoring Plan, and as summarized in Table 4, the six PAZ monitoring wells will be monitored for arsenic annually. Site-wide average arsenic concentrations since 2011 have been the same in June and December; however, the rate of groundwater discharge to Lake Washington is highest in December due to precipitation recharge in the uplands and lower lake levels during the winter. Therefore, the next groundwater monitoring event is scheduled for December 2021.

3.1.2.2 Attenuation Downgradient of the PAZ

Attenuation of arsenic in groundwater downgradient of the PAZ is evaluated based on data at one monitoring well, BH-29A (located 180 feet downgradient of the PAZ), and two sediment well points, WP-1A (located 50 feet downgradient of the PAZ) and WP-8 (located 150 feet downgradient of the PAZ). The well points, which are located in Lake Washington and screened approximately 2 feet below mudline, represent locations furthest downgradient of the PAZ where elevated arsenic concentrations have been measured and, therefore, the location where arsenic concentrations are likely to remain elevated the longest (see restoration time-frame discussion in Section 4). Data are summarized in Table 1. Trends in arsenic concentrations at WP-1A and WP-8 are shown on Figure 3 and summarized as follows:

- **WP-1A:** Arsenic concentrations have declined 99 percent at this location since the PAZ was installed. Arsenic concentrations at this location have historically exhibited significant seasonal variation. The arsenic concentration was below the detection limit in March 2021.
- **WP-8:** This location was not sampled prior to PAZ installation. Arsenic concentrations at this well point have declined 65 percent since the well point was installed in May 2009 and exhibit a slight downward trend. The arsenic concentration in March 2021 was 240 µg/L. Porewater sampling at this location is planned as described in the RI Work Plan to assess potential impacts to surface water.

- **BH-29A:** This location was not sampled prior to PAZ installation. Arsenic concentrations initially fluctuated between 230 and 490 µg/L but have exhibited a downward trend since 2011. Concentrations have declined 61 percent since this well was first sampled in September 2009.

Based on the collective data, arsenic concentrations in groundwater downgradient of the PAZ are declining. As summarized in Table 4, WP-1A, WP-8, and BH-29A will be monitored for arsenic in December 2021.

3.1.3 Effect of PAZ on Groundwater Chemistry

To determine the effect of the PAZ on groundwater chemistry, PAZ wells are monitored for iron and field parameters including pH, temperature, conductivity, dissolved oxygen, and ORP. Iron concentrations are summarized in Table 1, and field parameter data are summarized in Table 5. Results indicated the following:

- At locations downgradient of the PAZ where iron was analyzed before and after installation of the PAZ (CMW-3, CMW-4S, at CMW-4D), dissolved iron concentrations are below those measured before PAZ installation.
- Little difference in temperature, dissolved oxygen, or ORP was noted between wells downgradient of the PAZ (CMW-2S, CMW-2D, CMW-3, CMW-4S, CMW-4D, and CMW-5) and wells up- or cross-gradient of the PAZ (EW-1 through EW-8, CMW-1, and CMW-6).
- The average pH of groundwater was slightly higher downgradient of the PAZ (7.4) than upgradient of the PAZ (6.7).
- The average conductivity of groundwater was slightly lower downgradient of the PAZ (360.9 microsiemes per centimeter [µs/cm]) than upgradient of the PAZ (410.0 µs/cm).

This data is consistent with the expected performance of the PAZ, in which ongoing reactions with the iron is expected to slightly raise the pH and remove dissolved minerals (consequently lowering the conductivity).

Based on the collected data, the PAZ is not adversely affecting groundwater chemistry. As summarized in Table 4, PAZ monitoring wells will continue to be monitored annually for dissolved iron and field parameters.

4 Pump-and-Treat System Performance Monitoring

The Pump-and-Treat System became operational on June 3, 2009. The system was shut down on August 5, 2011, to evaluate the potential for arsenic concentrations in groundwater to increase (i.e., rebound) in the absence of pump-and-treat (termed 'the rebound analysis.') The rebound analysis is ongoing. An evaluation based on data through March 2021 is included in this report. Operation and maintenance data from the period of operation is provided in Table 6.

Performance monitoring for the rebound analysis is completed by collecting water samples from extraction wells EW-1 through EW-8 for analysis of dissolved arsenic and iron. Data from these wells are summarized in Table 1. Trends in arsenic concentrations at these wells are shown on Figure 4.

The purpose of the Pump-and-Treat System is to remove arsenic from groundwater upgradient of the PAZ. The primary objectives of removing arsenic upgradient of the PAZ are:

1) To reduce the restoration time frame for the Site to less than 50 years
2) To reduce arsenic concentrations entering the PAZ to 320 µg/L (so that the PAZ design objective of 95 percent arsenic removal achieves the Site background level of 16 µg/L[6])

The restoration time frame is discussed in Section 5. Monitoring results and the results of the rebound analysis are described below.

4.1 Monitoring Results

Monthly effluent sampling and system operational monitoring were not conducted during the period covered by this report (July 2019 through March 2021) because the Pump-and-Treat System was not operated as part of the ongoing rebound analysis (i.e., evaluating the potential for arsenic concentrations in groundwater to increase in the absence of pump-and-treat). For the rebound analysis, groundwater monitoring was conducted for the following reasons:

- To identify long-term trends in arsenic concentrations upgradient of the PAZ and compare to model predictions of the restoration time frame (see Section 4 and Figure 5).
- To allow evaluation of PAZ performance and long-term trends downgradient of the PAZ without groundwater pumping.

PAZ performance monitoring data are used to evaluate the effectiveness of the PAZ and to help evaluate alternatives for the upcoming Feasibility Study.

[6] The original design objective was to reduce arsenic concentrations entering the PAZ to 400 µg/L, to achieve the original remediation level of 20 µg/L. This objective has been adjusted based on the revised Site natural background level for arsenic.

Arsenic concentrations at extraction wells are included in Table 1 and trend plots for each well are shown on Figure 4. The data indicate the following since the Pump-and-Treat System was shut down in 2011:

- At three extraction wells (EW-5, EW-6, and EW-7), arsenic concentrations have exhibited an overall decrease.
- Three wells (EW-1, EW-2, and EW-8) have not exhibited a significant increasing or decreasing trend.[7]
- An overall increase in arsenic concentrations was measured at well EW-3 (from 140 to 190 µg/L). Concentrations at this well have been relatively stable since 2015.
- An overall increase in arsenic concentrations was measured at well EW-4 (from 12 to 110 µg/L). Concentrations at this well have fluctuated from 3.4 to 160 µg/L within this period.
- Overall, the average arsenic concentration at the eight extraction wells (EW-1 through EW-8) have declined 64 percent during the pump-and-treat rebound analysis period, from 365 µg/L to 141 µg/L, between September 2011 and March 2021 (see Figure 6), although concentrations measured in March 2021 represent a slight increase from the previous two years. It is possible that seasonal fluctuations are in part responsible since groundwater monitoring was conducted in March rather than in December.

Based on the results, arsenic concentrations upgradient of the PAZ are declining in the absence of pump-and-treat. Observed trends are compared to model predictions in Section 5 below. Based on these preliminary results, continuation of the rebound analysis (i.e., leaving the system off and continuing groundwater monitoring in accordance with the schedule in Table 5) is recommended. Future groundwater monitoring data will be documented in progress reports submitted to Ecology.

Evaluation of the ongoing rebound analysis will be provided in the next performance monitoring report, due to Ecology on March 1, 2022.

[7] Data were analyzed for trends using linear regression analysis performed at the 95 percent confidence interval as described in EPA (2009). Data were also log transformed where appropriate, as determined by a Shapiro Wilk test for normality.

5 Restoration Time Frame

Upgradient of the PAZ, residual arsenic is being flushed out by clean groundwater flowing onto the Site. Downgradient of the PAZ, residual arsenic is being flushed out by clean groundwater treated by the PAZ. This section describes the estimated restoration time frame (i.e., the time for arsenic concentrations to achieve the background level in groundwater) in these two areas.

Restoration time frames were estimated as described in the previous performance monitoring reports using a fate-and-transport model (Aspect, 2011; Aspect, 2012; Aspect, 2013; Aspect, 2014; Aspect, 2015; Aspect, 2016; Aspect, 2017; Aspect, 2018; and Aspect 2019a). The model-predicted concentrations (based on 2011 model calibration) and measured concentrations of arsenic at wells CMW-4S, CMW-5 and well points WP-1A and WP-8 are shown on Figure 5.[8] The model predicted a faster decline than was observed at CMW-4S and a slower decline than was observed at CMW-5, WP-1A, and WP-8; as discussed in the previous monitoring reports, this is likely due to the following:

- Modeling artifact for CMW-5, which is located less than 5 feet from the PAZ. At this close distance, even the finer model grid (5-foot cell spacing) cannot provide sufficient resolution. Model grids of less than 5 feet were considered but were determined to not add additional precision due to uncertainty in model predictions of transport processes that occur over very short distances at model boundaries (such as the edge of the PAZ) where concentrations used in the model change dramatically.
- Actual groundwater conditions that vary from the simple model assumptions of uniform initial concentration, homogeneous soils, and equilibrium sorption.

The model (based on 2011 model calibration) estimated that restoration time frames (i.e., time after PAZ installation to achieve the arsenic background level) downgradient of the PAZ are currently 16 years at WP-1A, 20 years at BH-29A, and 36 years at WP-8 under natural groundwater flushing (no pump-and-treat[9]). Based on a comparison of data collected since 2011 (when the Pump-and-Treat System was shut off) to model-predicted concentrations for the same time period (Figure 5), the model over-predicts the restoration time frame at WP-1A (i.e., groundwater concentrations dropped faster than predicted) but is consistent with empirical data at WP-8. However, there is some variability in the data, and additional annual performance monitoring data is needed to confirm the trends.

[8] In 2020, the calibration model which is used to compare the model calibration to recent Site data in Figure 5 was updated to reflect the Pump-and-Treat system shutdown in 2011, because previously, it had simulated continued pumping past 2011. The update does not affect the calibration or restoration time-frame estimates. Restoration time-frame estimates were made using the longer duration, restoration timeframe version of the model which had already included the Pump-and-Treat system shutdown when modeling was completed in 2011.

[9] As described in the 2012 performance monitoring report (Aspect, 2012), a longer restoration time frame would be predicted if the Pump-and-Treat System is operated for an additional period in the future because pumping would slow the rate of groundwater flow downgradient of the PAZ (and, consequently, the rate of arsenic flushing).

Restoration time frames upgradient of the PAZ are currently estimated by the model to be 30 years at EW-1 and 11 years at EW-8 without additional pump-and-treat. This was based on an average arsenic concentration upgradient of the PAZ of 244 µg/L as measured in June 2011. As of March 2021, the average upgradient arsenic concentration had declined to 161 µg/L. This decline is generally consistent with the model-predicted decline upgradient of the PAZ (see Figure 6); therefore, no recalibration of the model upgradient of the PAZ is recommended at this time. However, the recent increase in average concentrations noted from 2020 to 2021 is not consistent with the historical trend and continued monitoring is needed.

6 Conclusions and Recommendations

Site monitoring data indicate that remedial actions have greatly reduced arsenic concentrations at the Site. The PAZ is removing residual arsenic in groundwater migrating from the Barbee Property. In general, arsenic concentrations downgradient of the PAZ meet performance objectives or are decreasing consistent with modeling expectations. However, exceedances of PAZ performance criteria at three wells: CMW-2D (downgradient of the PAZ) and CMW-1 and CMW-6 (at the ends of the PAZ) suggest that some elevated concentrations of arsenic at the plume periphery are not captured by the PAZ, and arsenic concentrations at well point WP-8 exceed the background level. The detected concentrations of arsenic at these locations do not represent a risk to surface water based on historical groundwater-porewater monitoring, but additional data collection is proposed in the RI Work Plan, including sampling of porewater adjacent to WP-8, to confirm this assumption. More monitoring is needed to confirm continued treatment and to further refine predictions of restoration time frame. Restoration time frame evaluations will be updated in the upcoming RI/FS. At this time, we recommend continuing the rebound analysis by leaving the Pump-and-Treat System off and continuing groundwater monitoring.

Future PAZ performance monitoring will occur on an annual basis, and we recommend performing the annual sampling in December (the season with greatest groundwater discharge to Lake Washington), in accordance with previous monitoring report recommendations. In accordance with the AO Schedule Change Request, the next combined annual progress report and performance monitoring report will be submitted to Ecology by March 1, 2022.

7 References

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8 Limitations

Work for this project was performed for Barbee Mill Co., Inc. (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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Please refer to Appendix B titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

TABLES

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
Cleanup Level/Performance Standard (See Note 2)					*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Performance Monitoring Wells											
CMW-1	22.75	*7/19/2006*			*31*						26
		8/30/2007	4.63	18.12	33						27
		5/5/2009	3.58	19.17	37				0.27 U	0.43 U	42
		9/8/2009	4.61	18.14	53				0.25 U	0.41 U	41
		12/23/2009	5.36	17.39	39				0.26 U	0.41 U	39
		3/18/2010	4.45	18.30	49				0.26 U	0.41 U	48
		6/21/2010	3.55	19.20	40						58
		9/14/2010	4.57	18.18	45						42
		12/23/2010	4.99	17.76	48						33
		3/10/2011			43						32
		6/13/2011	3.53	19.22	47						34
		9/28/2011	4.73	18.02	56						31
		12/8/2011	5.19	17.56	51						31
		3/6/2012	4.79	17.96	46						32
		6/26/2012	3.36	19.39	40						33
		12/13/2012	4.88	17.87	47						29
		6/20/2013	3.74	19.01	47						42
		1/15/2014	5.16	17.59	45						31
		6/25/2014	3.41	19.34	48						36
		12/10/2014	4.78	17.97	54						36
		6/12/2015	4.02	18.73	47						33
		12/29/2015	4.93	17.82	58						45
		1/22/2016	4.66	18.09							
		6/8/2016	3.72	19.03	45						43
		12/29/2016	4.95	17.80	62						32
		12/28/2017	4.39	18.36	60						34
		12/27/2018	4.94	17.81	67						35
		12/30/2019	5.03	17.72	63						41
		3/18/2021	4.33	18.42	64	25 U					33
CMW-2S	22.27	*5/23/2006*			*120*						
		8/30/2007	4.32	17.95	4.1		1 U	1 U			1.4
		5/5/2009	3.28	18.99	1.7	5 U	1 U	1 U			0.63
		9/8/2009	4.52	17.75	2.1	6.3	1 U	1 U			1.9
		12/23/2009	5.11	17.16	2.1	5 U	1 U	1 U			3.1
		3/19/2010	4.10	18.17	2.6	5 U	1 U	1 U			1.8
		6/21/2010	3.28	18.99	2						1.8
		9/14/2010	4.42	17.85	2.1						1.4
		12/23/2010	4.95	17.32	1.6						2.4
		3/10/2011	4.29	17.98	1.3						7.3
		6/13/2011	3.24	19.03	3.2						14
		9/28/2011	4.65		2.3						8.7
		12/8/2011	5.08	17.19	1.9						12
		3/6/2012	4.75	17.52	1.6						20
		6/26/2012	3.12	19.15	2.3						32
		12/13/2012	5.01	17.26	2.2						28
		6/20/2013	3.46	18.81	2.1						39
		1/15/2014	5.02	17.25	1.5						28
		6/25/2014	3.24	19.03	2						39
		12/10/2014	5.02	17.25	1						31
		6/12/2015	3.8	18.47	1.5						39
		12/29/2015	5.03	17.24	1.2						53
		1/22/2016	7.53	14.74							
		6/8/2016	3.53	18.74	1.2						66
		12/29/2016	5.01	17.26	1.4						52
		12/28/2017	5.03	17.24	1.4						52
		12/27/2018	5.05	17.22	1.3						46
		12/30/2019	5.13	17.14	1.3						53
		3/18/2021	4.2	18.07	3.3	25 U					65
CMW-2D	22.20	*7/19/2006*			*250*						
		8/30/2007	3.99	18.21	33		1 U	1 U			9.2
		4/30/2009	3.29	18.91	92	14	1 U	1 U			4.5
		9/8/2009	4.20	18.00	92	8.8	1 U	1 U			4.2
		12/23/2009	4.81	17.39	92	12	1 U	1 U			3.4
		3/19/2010	3.79	18.41	89	5 U	1 U	1 U			3.4
		6/21/2010	3.02	19.18	74						3.1
		9/14/2010	4.13	18.07	78						3.1
		12/23/2010	4.56	17.64	98						3.3
		3/11/2011	3.93	18.27	99						3.2
		6/13/2011	2.94	19.26	90						3.2
		9/28/2011	4.32	17.88	89						2.7
		12/8/2011	4.71	17.49	110						3.0
		3/6/2012	4.37	17.83	120						3.1
		6/26/2012	2.80	19.40	120						3.3
		12/13/2012	4.59	17.61	150						3.5
		6/20/2013	3.18	19.02	160						3.2
		1/15/2014	4.72	17.48	140						2.9
		6/25/2014	2.94	19.26	140						3.0
		12/10/2014	4.66	17.54	140						2.0
		6/12/2015	3.48	18.72	170						2.0
		12/29/2015	16.61	5.59	190						3.7
		1/22/2016	16.67	5.53							
		6/8/2016	3.52	18.68	170						3.5
		12/29/2016	4.59	17.61	170						3.5
		12/28/2017	4.6	17.60	190						3.4
		12/27/2018	4.64	17.56	190						3.3
		12/30/2019	4.77	17.43	200						3.4
		3/18/2021	3.92	18.28	220						3.2
CMW-3	22.41	*7/19/2006*			*110*						90 (3)
		8/30/2007	3.78	18.63	1.3		1 U	1 U			2.9
		4/30/2009	2.32	20.09	1 U	5 U	1 U	1 U			0.11
		9/8/2009	4.02	18.39	1.1	5 U	1 U	1 U			0.086
		12/22/2009	4.02	18.39	1 U	5 U	1 U	1 U			0.23
		3/19/2010	3.61	18.80	1 U	5 U	1 U	1 U			0.2
		6/21/2010	2.77	19.64	1 U						0.26
		9/14/2010	4.01	18.40	1 U						0.2
		12/23/2010	3.80	18.61	1 U						0.29
		3/11/2011	3.23	19.18	1 U						3.2
		6/13/2011	2.10	20.31	1 U						0.53
		9/28/2011	4.00	18.41	2						0.6
		12/8/2011	4.24	18.17	1 U						1.2
		3/6/2012	3.93	18.48	1 U						3.7
		6/26/2012	2.42	19.99	1 U						1.5
		12/13/2012	3.75	18.66	1 U						1.4
		6/20/2013	2.81	19.60	1						2.8
		1/15/2014	4.23	18.18	1.3						5
		6/25/2014	2.6	19.81	1.5						7.5
		12/10/2014	3.87	18.54	1.5						15
		6/12/2015	3.33	19.08	1.5						8.5
		12/29/2015	7.45	14.96	1.6						25
		1/22/2016	7.49	14.92							
		6/8/2016	3.13	19.28	1.4						14
		12/29/2016	3.98	18.43	1.8						27
		12/28/2017	4.04	18.37	1.6						26
		12/27/2018	4.11	18.30	1.3						26
		12/30/2019	4.23	18.18	1.6						26
		3/18/2021	3.52	18.89	3.0 U						33

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Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
		Cleanup Level/Performance Standard (See Note 2)			*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Performance Monitoring Wells (Continued)											
CMW-4S	27.44	*7/19/2006*			*4300*						50
		8/30/2007	9.40	18.04	510		1 U	1 U			28
		4/30/2009	8.11	19.33	180	5 U	1 U	1 U			12
		9/8/2009	9.57	17.87	230	5 U	1 U	1 U			8
		12/22/2009	9.82	17.62	210	5 U	1 U	1 U			17
		3/19/2010	9.03	18.41	230	5 U	1 U	1 U			17
		6/21/2010	8.36	19.08	200						11
		9/27/2010	9.47	17.97	200						9.2
		12/23/2010	9.69	17.75	190						17
		3/11/2011	9.05	18.39	140						23
		6/13/2011	8.24	19.20	140						11
		9/28/2011	9.64	17.80	170						7.9
		12/8/2011	10	17.44	160						5.6
		3/6/2012	9.55	17.89	130						17
		6/26/2012	8.09	19.35	120						9.8
		12/13/2012	9.58	17.86	120						15
		6/20/2013	8.47	18.97	110						7.9
		1/15/2014	9.79	17.65	25						16
		6/25/2014	8.22	19.22	110						11
		12/10/2014	9.52	17.92	120						15
		6/12/2015	8.78	18.66	110						8.3
		12/29/2015	11.72	15.72	100						24
		1/22/2016	9.06	18.38							
		6/8/2016	8.5	18.94	89						12
		12/29/2016	9.63	17.81	99						17
		12/28/2017	9.78	17.66	86						11
		12/27/2018	9.79	17.65	83						11
		12/30/2019	9.84	17.60	79						13
		3/18/2021	9.04	18.40	62	25 U					88
CMW-4D	27.92	*2/15/2007*			*3400*						13
		8/30/2007	9.51	18.41	1700		1 U	1 U			10
		4/30/2009	8.20	19.72	1400	5 U	1 U	1 U			6
		9/8/2009	9.71	18.21	420	5 U	1 U	1 U			2
		12/22/2009	10.16	17.76	1700	5 U	1 U	1 U			9
		3/19/2010	9.17	18.75	910	5 U	1 U	1 U			6.1
		6/21/2010	8.56	19.36	740						4.7
		9/27/2010	9.61	18.31	320						2.1
		12/23/2010	9.77	18.15	1000						8.8
		3/11/2011	9.23	18.69	910						5.8
		6/13/2011	8.33	19.59	580						4.5
		9/28/2011	9.72	18.20	490						3.5
		12/8/2011	10.04	17.88	660						19
		3/6/2012	9.72	18.20	640						5
		6/26/2012	8.14	19.78	510						4.5
	27.59 [7]	12/13/2012	9.39	18.20	570						6.1
		6/20/2013	8.19	19.40	370						4.1
		1/15/2014	9.60	17.99	610						7.2
		6/25/2014	7.95	19.64	340						5.4
		12/10/2014	9.43	18.16	530						6.9
		6/12/2015	8.54	19.05	300						4
		12/29/2015	9.35	18.24	460						7.2
		1/22/2016	9.29	18.30							
		6/8/2016	8.24	19.35	320						5.9
		12/29/2016	9.42	18.17	400						6.9
		12/28/2017	9.46	18.13	340						6
		12/27/2018	9.45	18.14	300						7.2
		12/30/2019	9.57	18.02	280						9.2
		3/18/2021	8.76	18.83	260						9.0
CMW-5	31.07	*6/23/2006*			*2900*						
		8/30/2007	12.32	18.75	22		1 U	1 U			1.8
		5/5/2009	10.87	20.20	6	5 U	1 U	1 U			1.8
		9/8/2009	12.72	18.35	7.8	5 U	1 U	1 U			0.069
		12/22/2009	12.56	18.51	18	5 U	1.4	1 U			5.8
		3/18/2010	12.03	19.04	7	9.5	1 U	1 U			2.2
		6/21/2010	11.34	19.73	9.3						1.7
		9/27/2010	12.65	18.42	7.9						0.056 U
		12/27/2010	12.09	18.98	6.9						0.99
		3/11/2011	11.67	19.40	8.8						5.2
		6/14/2011	11.02	20.05	5.1						0.37
		9/29/2011	12.43	18.64	6.2						0.17
		12/9/2011	12.62	18.45	5.3						0.092
		3/7/2012	12.1	18.97	4.1						8.7
		6/26/2012	10.66	20.41	3.4						15
		12/13/2012	11.85	19.22	3.4						23
		6/21/2013	11.26	19.81	2.4						30
		1/14/2014	12.27	18.80	3.3						29
		6/26/2014	11.08	19.99	1.8						37
		12/10/2014	11.93	19.14	2.3						38
		6/12/2015	11.69	19.38	2.1						33
		12/30/2015	11.86	19.21	2.4						39
		1/22/2016	11.59	19.48							
		6/8/2016	11.23	19.84	1.6						43
		12/28/2016	12.01	19.06	1.6						27
		12/28/2017	12.17	18.90	1.6						27
		12/27/2018	12.21	18.86	1.2						33
		12/30/2019	12.17	18.90	1.5						34
		3/19/2021	11.76	19.31	3.0 U						35
CMW-6	31.03	*6/5/2006*			*23*						
		8/30/2007	11.61	19.42	110						25
		5/1/2009	9.70	21.33	210						21
		9/8/2009	12.17	18.86	210						17
		12/23/2009	11.63	19.40	220						16
		3/18/2010	11.28	19.75	230						18
		6/21/2010	13.36	17.67	200						17
		9/15/2010	12.19	18.84	210						16
		12/27/2010	10.79	20.24	240						22
		3/11/2011	10.56	20.47	180						17
		6/14/2011	10.10	20.93	210						17
		9/29/2011	11.47	19.56	200						16
		12/9/2011	11.42	19.61	200						19
		3/7/2012	10.87	20.16	170						20
		6/26/2012	11.57	19.46	150						18
		12/13/2012	10.35	20.68	170						14
		6/21/2013	13.85	17.18	150						12
		1/15/2014	11.04	19.99	180						15
		6/26/2014	14.03	17.00	110						12
		12/10/2014	10.58	20.45	170						14
		6/11/2015	10.83	20.20	120						12
		12/30/2015	12.24	18.79	160						11
		1/22/2016	10.85	20.18							
		6/8/2016	10.36	20.67	110						10
		12/28/2016	10.62	20.41	150						13
		12/28/2017	10.00	21.03	150						11
		12/27/2018	10.82	20.21	130						11
		12/30/2019	12.95	18.08	140						12
		3/19/2021	10.55	20.48	140	25 U					14

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
		Cleanup Level/Performance Standard (See Note 2)			*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Performance Monitoring Wells (Continued)											
WP-1A		*8/10/2005*			*2,490*						
		5/1/2009			430						20
		9/9/2009			52						7.2
		12/22/2009			110						17
		3/18/2010			550						43
		6/22/2010			330						19
		9/14/2010			48						4.3
		12/27/2010			210						28
		3/11/2011			25						3.9
		6/13/2011			270						20
		9/28/2011			NM (6)						NM (6)
		12/8/2011			21						2.6
		3/6/2012			34						1.9
		6/26/2012			480						37
		1/22/2013[8]			71						5.2
		6/20/2013			60						4.5
		1/14/2014			5.7						1.6
		6/25/2014			45						2.3
		12/10/2014			6.7						2.7
		6/11/2015			19						0.48
		12/29/2015			38						3.4
		6/8/2016			5.2						0.067
		12/29/2016			6.5						23
		12/28/2017			15						6
		12/27/2018			17						9.1
		12/30/2019			10						3.2
		3/18/2021			3.0 U						0.086
WP-8		5/1/2009			680						11
		9/9/2009			490						9.5
		12/22/2009			450						18
		3/18/2010			550						13
		6/22/2010			430						8.4
		9/14/2010			560						13
		12/27/2010			610						19
		3/11/2011			490						18
		6/13/2011			480						15
		9/28/2011			NM (6)						
		12/8/2011			420						19
		3/6/2012			490						22
		6/26/2012			480						25
		1/22/2013[8]			360						24
		6/20/2013			390						24
		1/14/2014			350						22
		6/25/2014			360						23
		12/10/2014			400						21
		6/11/2015			370						19
		12/29/2015			250						20
		6/8/2016			270						16
		12/29/2016			300						17
		12/28/2017			170						17
		12/27/2018			230						13
		1/25/2019			240						14
		12/30/2019			210						14
		3/18/2021			240						12
Extraction Wells											
EW-1	26.81	6/3/2009			41				0.26 U	0.42 U	14
		9/9/2009	6.86	19.95	63				0.25 U	0.4 U	12
		12/23/2009	10.12	16.69	110				0.26 U	0.41 U	22
		3/18/2010	7.08	19.73	130				0.25 U	0.4 U	23
		6/22/2010	5.76	21.05	180						12
		9/15/2010	6.93	19.88	200						17
		12/27/2010	6.74	20.07	120						18
		3/11/2011	6.51	20.30	130						16
		6/14/2011	5.80	21.01	150						16
		9/29/2011	6.67	20.14	110						15
		12/9/2011	7.19	19.62	110						17
		3/6/2012	6.82	19.99	71						17
		6/26/2012	5.54	21.27	76						17
		12/14/2012	6.62	20.19	70						22
		6/21/2013	6.11	20.70	100						18
		1/14/2014	7.19	19.62	74						17
		6/26/2014	5.81	21.00	80						19
		12/10/2014	6.72	20.09	92						20
		6/11/2015	6.40	20.41	110						17
		12/30/2015	6.73	20.08	88						21
		1/22/2016	6.41	20.40							
		6/9/2016	6.09	20.72	90						18
		12/29/2016	6.85	19.96	73						17
		12/28/2017	6.74	20.07	71						14
		12/27/2018	6.90	19.91	73						14
		12/30/2019	6.90	19.91	74						15
		3/19/2021	6.46	20.35	100						15
EW-2	26.67	6/3/2009			12						4.2
		9/9/2009	6.88	19.79	100						12
		12/23/2009	10.71	15.96	140						19
		3/18/2010	7.33	19.34	290						39
		6/22/2010	5.88	20.79	150						13
		9/15/2010	7.13	19.54	190						20
		12/27/2010	6.87	19.80	180						17
		3/11/2011	6.56	20.11	31						5.2
		6/14/2011	5.83	20.84	130						17
		9/29/2011	6.79	19.88	45						8.2
		12/9/2011	7.30	19.37	170						22
		3/6/2012	6.89	19.78	67						11
		6/26/2012	5.54	21.13	57						10
		12/14/2012	6.75	19.92	110						17
		6/21/2013	6.21	20.46	120						18
		1/14/2014	7.32	19.35	150						18
		6/26/2014	5.88	20.79	130						17
		12/9/2014	6.83	19.84	210						25
		6/11/2015	6.51	20.16	190						21
		12/30/2015	6.84	19.83	190						22
		1/22/2016	6.46	20.21							
		6/9/2016	6.05	20.62	180						24
		12/29/2016	6.97	19.70	160						20
		12/28/2017	6.82	19.85	110						13
		12/27/2018	7.02	19.65	150						18
		12/30/2019	7.01	19.66	160						24
		3/19/2021	6.61	20.06	170	25 U					23

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Extraction Wells (Continued)											
EW-3	26.77	6/3/2009			51				0.27 U	0.42 U	24
		9/9/2009	7.67	19.10	150				0.25 U	0.4 U	26
		12/23/2009	7.11	19.66	130				0.26 U	0.41 U	21
		3/18/2010	8.14	18.63	1900				0.26 U	0.41 U	91 (4)
		6/22/2010	6.67	20.10	97						19
		9/15/2010	7.92	18.85	7.7						16
		12/27/2010	7.56	19.21	130						17
		3/11/2011	7.25	19.52	23						4.7
		6/14/2011	6.57	20.20	140						20
		9/29/2011	7.60	19.17	27						9.6
		12/9/2011	8.00	18.77	180						25
		3/7/2012	7.65	19.12	190						25
		6/26/2012	6.18	20.59	130						19
		12/14/2012	7.44	19.33	200						25
		6/20/2013	6.90	19.87	200						21
		1/14/2014	7.96	18.81	180						19
		6/26/2014	6.63	20.14	160						20
		12/9/2014	7.52	19.25	250						22
		6/11/2015	7.21	19.56	210						18
		12/30/2015	7.53	19.24	260						22
		1/22/2016	7.14	19.63							
		6/8/2016	6.88	19.89	200						20
		12/29/2016	7.62	19.15	240						20
		12/28/2017	7.54	19.23	240						21
		12/27/2018	7.68	19.09	92						14
		12/30/2019	7.68	19.09	220						24
		3/19/2021	7.30	19.47	190						19
EW-4	27.65	9/9/2009	8.38	19.27	14						0.056 U
		12/23/2009	8.37	19.28	10						0.056 U
		3/18/2010	7.88	19.77	11						0.056 U
		6/22/2010	6.67	20.98	13						0.056 U
		9/15/2010	8.34	19.31	76						0.056 U
		12/27/2010	7.34	20.31	26						0.056 U
		3/11/2011			27						0.056 U
		6/14/2011	6.48	21.17	12						0.056 U
		9/29/2011	7.64	20.01	25						0.38
		12/9/2011	7.89	19.76	12						0.22
		3/7/2012	7.39	20.26	5.7						0.056 U
		6/26/2012	5.95	21.70	6.8						0.056 U
		12/14/2012	6.94	20.71	3.4						0.12
		6/20/2013	6.81	20.84	11						0.86
		1/14/2014	7.77	19.88	61						7
		6/26/2014	6.52	21.13	12						1.7
		12/9/2014	7.32	20.33	160						88
		6/11/2015	7.19	20.46	13						2.4
		12/30/2015	6.12	21.53	35						43
		1/22/2016	6.56	21.09							
		6/8/2016	6.67	20.98	14						3
		12/29/2016	7.24	20.41	23						4.4
		12/28/2017	7.31	20.34	31						3.5
		12/27/2018	7.45	20.20	32						3.3
		12/30/2019	7.43	20.22	81						9.1
		3/19/2021	7.26	20.39	110	25 U					8.2
EW-5	28.34	6/3/2009			61						1.3
		9/9/2009	8.05	20.29	39						1.9
		12/23/2009	8.98	19.36	44						1.6
		3/18/2010	8.36	19.98	84						73
		6/22/2010	7.28	21.06	62						0.61
		9/15/2010	9.24	19.10	29						2.3
		12/27/2010	7.86	20.48	55						0.58
		3/11/2011	7.74	20.60	70						1.3
		6/14/2011	6.99	21.35	260						85
		9/29/2011	8.34	20.00	1400						140
		12/9/2011	8.28	20.06	520						29
		3/6/2012	7.79	20.55	250						8.5
		6/26/2012	6.50	21.84	220						6.2
		12/14/2012	7.14	21.20	220						6.8
		6/21/2013	7.34	21.00	160						4.5
		1/14/2014	8.01	20.33	97						4.1
		6/26/2014	7.02	21.32	140						4.9
		12/9/2014	7.53	20.81	130						5.7
		6/11/2015	7.69	20.65	160						6.1
		12/30/2015	6.95	21.39	160						5.5
		1/22/2016	6.42	21.92							
		6/9/2016	6.89	21.45	85						4
		12/29/2016	7.35	20.99	81						4.1
		12/28/2017	7.40	20.94	86						4.5
		12/27/2018	7.47	20.87	24						2.4
		12/30/2019	7.28	21.06	110						7.5
		3/19/2021	7.36	20.98	37						3.4
EW-6	28.61	6/3/2009			140						2.7
		9/9/2009	11.15	17.46	360						7.8
		12/23/2009	9.25	19.36	230						2.7
		3/18/2010	8.62	19.99	1900						52
		6/22/2010	7.97	20.64	190						36
		9/15/2010	11.31	17.30	180						4.5
		12/27/2010	8.12	20.49	170						2.6
		3/11/2011	8.06	20.55	64						1.5
		6/14/2011	7.23	21.38	390						15
		9/29/2011	8.56	20.05	500						10
		12/9/2011	8.50	20.11	190						4.9
		3/6/2012	8.02	20.59	200						6.4
		6/26/2012	6.74	21.87	170						8.1
		12/14/2012	7.37	21.24	110						4.9
		6/21/2013	7.56	21.05	140						6.8
		1/14/2014	8.24	20.37	81						4.3
		6/26/2014	7.25	21.36	120						7.6
		12/9/2014	7.81	20.80	150						8.8
		6/11/2015	7.93	20.68	150						7.5
		12/30/2015	7.19	21.42	130						6.5
		1/22/2016	6.67	21.94							
		6/9/2016	7.21	21.40	100						6
		12/29/2016	7.58	21.03	110						6.6
		12/28/2017	7.64	20.97	92						6.9
		12/27/2018	7.75	20.86	91						6.3
		12/30/2019	7.52	21.09	69						6.0
		3/19/2021	7.62	20.99	56	25 U					6.4

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
Cleanup Level/Performance Standard (See Note 2)					*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Extraction Wells (Continued)											
EW-7	28.66	6/3/2009			110						2.5
		9/9/2009	9.61	19.05	300						6
		12/23/2009	9.32	19.34	350						7.6
		3/18/2010	8.65	20.01	260						7.9
		6/22/2010	7.64	21.02	200						7
		9/15/2010	9.63	19.03	830						8.7
		12/27/2010	8.19	20.47	240						6.9
		3/11/2011	8.07	20.59	130						8.5
		6/14/2011	7.30	21.36	410						18
		9/29/2011	8.65	20.01	320						11
		12/9/2011	8.61	20.05	180						8.3
		3/6/2012	8.13	20.53	81						3.8
		6/26/2012	6.81	21.85	150						8.4
		12/14/2012	7.46	21.20	36						1.6
		6/21/2013	7.63	21.03	100						4.7
		1/14/2014	8.32	20.34	41						2.6
		6/26/2014	7.34	21.32	150						7.6
		12/9/2014	7.92	20.74	76						5.8
		6/11/2015	8.01	20.65	170						8.2
		12/30/2015	7.28	21.38	35						1.8
		1/22/2016	6.74	21.92							
		6/9/2016	7.25	21.41	43						3
		12/29/2016	7.68	20.98	31						1.9
		12/28/2017	7.72	20.94	16						0.96
		12/27/2018	7.79	20.87	22						1.3
		12/30/2019	7.59	21.07	26						1.8
		3/19/2021	7.71	20.95	4.7						0.2
EW-8	28.88	6/3/2009			560						21
		9/9/2009	10.11	18.77	750						16
		12/23/2009	10.36	18.52	610						16
		3/18/2010	9.37	19.51	280						7.7
		6/22/2010	8.49	20.39	360						14
		9/15/2010	9.93 [3]	18.95	290						15
		12/27/2010	9.16	19.72	810						20
		3/11/2011	8.95	19.93	670						20
		6/14/2011	8.24	20.64	460						20
		9/29/2011	9.54	19.34	490						17
		12/9/2011	9.74	19.14	530						19
		3/6/2012	9.28	19.60	510						22
		6/26/2012	8.00	20.88	370						22
		12/14/2012	8.84	20.04	470						19
		6/21/2013	8.59	20.29	380						20
		1/14/2014	9.55	19.33	540						20
		6/26/2014	8.35	20.53	390						20
		12/9/2014	9.12	19.76	550						19
		6/11/2015	8.99	19.89	440						18
		12/30/2015	8.97	19.91	550						17
		1/22/2016	8.61	20.27							
		6/9/2016	8.51	20.37	420						18
		12/29/2016	9.17	19.71	450						16
		12/28/2017	9.28	19.60	390						15
		12/27/2018	9.38	19.50	390						14
		12/30/2019	9.28	19.60	390						16
		3/19/2021	9.03	19.85	380	25 U					13
Piezometers											
PZ-1	27.78	5/5/2009	6.59	21.19							
		9/9/2009	7.39	20.39							
		12/23/2009	7.17	20.61							
		3/18/2010	6.72	21.06							
		6/22/2010	5.80	21.98							
		9/13/2010	8.11	19.67							
		12/27/2010	7.31	20.47							
		3/11/2011	6.98	20.80							
		6/14/2011	7.07	20.71							
		9/29/2011	7.86	19.92							
		12/9/2011	7.85	19.93							
		3/6/2012	7.63	20.15							
		6/26/2012	6.85	20.93							
		12/13/2012	7.10	20.68							
		6/20/2013	7.30	20.48							
		1/14/2014	7.81	19.97							
		6/25/2014	6.87	20.91							
		12/10/2014									
		6/11/2015	7.46	20.32							
		12/29/2015	14.96	12.82							
		1/22/2016	14.33	13.45							
		6/8/2016	7.26	20.52							
		12/28/2016	7.63	20.15							
		12/28/2017	7.59	20.19							
		12/27/2018	7.61	20.17							
		12/30/2019	7.51	20.27							
		3/18/2021	7.34	20.44							
PZ-2	27.87	5/5/2009	5.76	22.11							
		9/9/2009	8.17	19.70							
		12/23/2009	7.74	20.13							
		3/18/2010	7.30	20.57							
		6/22/2010	6.41	21.46							
		9/13/2010	8.11	19.76							
		12/27/2010	6.89	20.98							
		3/11/2011									
		6/14/2011	6.24	21.63							
		9/29/2011	7.45	20.42							
		12/9/2011	7.45	20.42							
		3/6/2012	6.96	20.91							
		6/26/2012	6.83	21.04							
		12/13/2012	6.45	21.42							
		6/20/2013	6.58	21.29							
		1/14/2014	7.20	20.67							
		6/25/2014	6.32	21.55							
		12/10/2014									
		6/11/2015	6.74	21.13							
		12/29/2015	14.69	13.18							
		1/22/2016	14.70	13.17							
		6/8/2016	6.28	21.59							
		12/28/2016	6.60	21.27							
		12/28/2017	6.72	21.15							
		12/27/2018	6.85	21.02							
		12/30/2019	6.56	21.31							
		3/18/2021	7.20	20.67							

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
Cleanup Level/Performance Standard (See Note 2)					*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Porewater Stations											
PW-CMW-2		*7/1/2006*			*1.5*						
		2/16/2007			3.1						4.9
		9/21/2007									4.8
		5/22/2009			1 U						0.056 U
		10/9/2009			17						9.8
		1/5/2010			1.1						0.1
		3/18/2010			1 U						0.056 U
PW-CMW-3		*7/1/2006*			*1.7*						
		3/12/2007									1.5
		5/22/2009			1 U						0.056 U
		10/9/2009			1.8						0.082
		1/5/2010			1 U						0.063
		3/18/2010			1 U						0.056 U
PW-CMW-4		*9/9/2005*			*1,400*						
		9/21/2007									26
		5/22/2009			2.2						0.056 U
		10/9/2009			2.6						0.12
		1/5/2010			2.3						0.23
		3/18/2010			1.3						0.056 U
PW-Control		2/4/2010			1 U						0.056 U
		3/18/2010			1 U						0.056 U
NS01-C1		6/22/2009			7.4						6.67
WD01-PW		6/18/2009			5.7						3.83
WD02-PW		6/18/2009			3.2						3.11
Quendall Terminals Monitoring Wells											
BH-21A	26.16	9/9/2009	8.11	18.05	5.9						
		12/23/2009	8.69	17.47							
		3/19/2010	7.30	18.86							
		6/22/2010	6.75	19.41							
		9/13/2010	7.79	18.37							
		3/11/2011	7.46	18.70							
		6/14/2011	6.72	19.44							
		9/29/2011	8.15	18.01							
		12/8/2011	8.28	17.88							
		3/6/2012	7.91	18.25							
		6/26/2012	6.64	19.52							
		12/13/2012	7.93	18.23							
		6/20/2013	7.00	19.16							
		1/14/2014	8.18	17.98							
		6/25/2014	6.76	19.40							
		12/10/2014	7.93	18.23							
		6/11/2015	7.34	18.82							
		12/29/2015	7.79	18.37							
		1/22/2016	7.70	18.46							
		6/8/2016	7.06	19.10							
		12/28/2016	7.99	18.17							
		12/28/2017	7.93	18.23							
		12/27/2018	7.94	18.22							
		12/30/2019	8.01	18.15							
		3/18/2021	7.43	18.73							
BH-21B	25.88	9/9/2009	6.43	19.45	109						
		12/23/2009	6.63	19.25	77/65.5 [1]						
		3/19/2010	5.72	20.16							
		9/13/2010	6.24	19.64							
		3/11/2011	5.86	20.02							
		6/14/2011	5.07	20.81							
		9/29/2011	6.49	19.39							
		12/8/2011	6.63	19.25							
		3/6/2012	6.26	19.62							
		6/26/2012	5.95	19.93							
		12/13/2012	6.34	19.54							
		6/20/2013	5.36	20.52							
		1/14/2014	6.57	19.31							
		6/25/2014	5.16	20.72							
		12/10/2014	6.40	19.48							
		6/11/2015	5.65	20.23							
		12/29/2015	6.30	19.58							
		1/22/2016	6.27	19.61							
		6/8/2016	5.37	20.51							
		12/28/2016	6.46	19.42							
		12/28/2017	6.40	19.48							
		12/27/2018	6.50	19.38							
		12/30/2019	6.49	19.39							
		3/18/2021	5.76	20.12							
BH-26A	28.98	9/9/2009	9.29	19.69	3.8						
		12/23/2009	8.27	20.71							
		3/19/2010	7.88	21.10							
		6/22/2010	7.51	21.47							
		9/13/2010	9.28	19.70							
		3/11/2011	7.25	21.73							
		6/14/2011	7.20	21.78							
		9/29/2011	8.74	20.24							
		12/8/2011	8.28	20.70							
		3/6/2012	7.62	21.36							
		6/26/2012	6.95	22.03							
		12/13/2012	6.98	22.00							
		6/20/2013	7.75	21.23							
		1/14/2014	7.99	20.99							
		6/25/2014	7.46	21.52							
		12/10/2014	7.39	21.59							
		6/11/2015	8.08	20.90							
		12/29/2015	6.56	22.42							
		1/22/2016	6.23	22.75							
		6/8/2016	7.67	21.31							
		12/28/2016	7.21	21.77							
		12/28/2017	7.28	21.70							
		12/27/2018	7.58	21.40							
		12/30/2019	7.20	21.78							
		3/18/2021	7.11	21.87							
BH-26B	26.62	9/9/2009	6.88	19.74	31.8						
		12/23/2009	6.98	19.64							
		3/19/2010	6.10	20.52							
		6/22/2010	5.47	21.15							
		9/13/2010	6.75	19.87							
		3/11/2011	6.17	20.45							
		6/14/2011	5.44	21.18							
		9/29/2011	6.88	19.74							
		12/8/2011	6.94	19.68							
		3/6/2012	6.56	20.06							
		6/26/2012	5.31	21.31							
		12/13/2012	6.59	20.03							
		6/20/2013	5.76	20.86							
		1/14/2014	6.88	19.74							
		6/25/2014	5.56	21.06							
		12/10/2014	6.64	19.98							
		6/11/2015	6.05	20.57							
		12/29/2015	6.47	20.15							
		1/22/2016	6.39	20.23							
		6/8/2016	5.75	20.87							
		12/28/2016	6.68	19.94							
		12/28/2017	6.63	19.99							
		12/27/2018	6.77	19.85							
		12/30/2019	6.71	19.91							
		3/18/2021	6.06	20.56							

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*16*	*105*	*2.1*	*11*	*0.5*	*0.5*	*75*
Quendall Terminals Monitoring Wells (continued)											
BH-29A	27.64	9/9/2009	9.65	17.99	389						
		12/23/2009	9.91	17.73	400/372 [1]						
		3/19/2010	8.96	18.68							
		6/22/2010	8.29	19.35							
		9/13/2010	9.52	18.12	230						23
		3/11/2011	9.09	18.55							
		6/14/2011	8.17	19.47							
		9/28/2011	9.63	18.01	490						23
		12/8/2011	9.89	17.75							
		3/6/2012	9.53	18.11							
		6/26/2012	8.00	19.64							
		12/13/2012	9.55	18.09	370						19
		6/20/2013	8.44	19.20							
		1/14/2014	9.74	17.90							
		6/25/2014	8.20	19.44	230						21
		12/10/2014	9.56	18.08	260						20
		6/11/2015	8.77	18.87							
		12/29/2015	9.45	18.19	240						18
		1/22/2016	9.39	18.25							
		6/8/2016	8.45	19.19							
		12/28/2016	9.64	18.00	210						18
		12/28/2017	9.67	17.97	200						17
		12/27/2018	9.71	17.93	180						17
		12/30/2019	9.73	17.91	190						19
		3/18/2021	9.05	18.59	150						19
BH-29B	27.8	9/9/2009	8.59	19.21	3						
		12/23/2009	8.80	19.00							
		3/19/2010	7.85	19.95							
		6/22/2010	7.19	20.61							
		9/13/2010	6.42	21.38							
		3/11/2011	8.01	19.79							
		6/14/2011	7.15	20.65							
		9/29/2011	8.58	19.22							
		12/8/2011	8.76	19.04							
		3/6/2012	8.40	19.40							
		6/26/2012	7.00	20.80							
		12/13/2012	8.52	19.28							
		6/20/2013	7.43	20.37							
		1/14/2014	8.70	19.10							
		6/25/2014	7.21	20.59							
		12/10/2014	8.56	19.24							
		6/11/2015	7.73	20.07							
		12/29/2015	8.45	19.35							
		1/22/2016	8.36	19.44							
		6/8/2016	7.42	20.38							
		12/28/2016	8.62	19.18							
		12/28/2017	8.55	19.25							
		12/27/2018	8.62	19.18							
		12/30/2019	8.61	19.19							
		3/18/2021	7.86	19.94							

Notes

[1] Results from ICP/MS analysis and Arsenic Hydride analysis.

[2] Cleanup levels and performance standards identified in Performance Monitoring Plan (Aspect, in progress) and are based as follows:

Arsenic: Based on site-specific natural background concentration of arsenic in groundwater, as presented in the RI Work Plan (Aspect, 2021).

Zinc: Cleanup level based on current ARARs for fresh water, superseding the previous cleanup level of 105 µg/L identified in Independent Remedial Action Plan (Hart Crowser, 2000).

TPH: Cleanup level based on MTCA Method A cleanup level for unrestricted use.

Iron: Performance standard is for the PAZ to not significantly elevate natural concentrations, which are naturally elevated due to reducing conditions created by peat deposits in Site soils.

Copper and Lead: Performance standard for PAZ is to not result in exceedance of surface water standard listed in table.

[3] Iron concentrations in samples collected prior to the PAZ being installed are not compared to the performance criteria.

[4] Iron concentrations in samples collected upgradient of the PAZ are not compared to the performance criteria.

[5] Results are for total/dissolved concentrations.

[6] WP-1A and WP-8 were damaged by debris and not sampled during the Sept 2011 monitoring event.

[7] Well casing was trimmed due to well monument subsidence.

[8] Well Points WP-1A and WP-8 were not located during the December 2012 monitoring event and were presumed destroyed. These well points were replaced at the same locations on January 22, 2013.

U = not detected at indicated reporting limit

Bold = data collected during this reporting period

Blue italics indicates baseline sample from location closest to current sample location, as follows:

existing location	baseline location
CMW-1	AZ-16
CMW-2S	AZ-3
CMW-2D	AZ-18
CMW-3	RMW-01
CMW-4S	AZ-5
CMW-4D	HCMW-01D
CMW-5	AZ-11
CMW-6	AZ-9
WP-1A	WP-1B
PW-CMW-2	PW-M
PW-CMW-3	PW-N
PW-CMW-4	PW-WP1B

Highlighted cells indicate exceedance of cleanup levels

Table 2. Additional Groundwater Quality Data - RI Data Gaps

Project No. 050004, Barbee Mill, Renton, Washington

Analyte	Preliminary Screening Levels (ug/L)	CMW-1 03/18/2021 CMW-1-031821	CMW-2S 03/18/2021 CMW-2S-031821	CMW-2D 03/18/2021 CMW-2D-031821	CMW-3 03/18/2021 CMW-3-031821	CMW-4S 03/18/2021 CMW-4S-031821	CMW-4D 03/18/2021 CMW-4D-031821	CMW-5 03/19/2021 CMW-5-031921	CMW-6 03/19/2021 CMW-6-031921	EW-1 03/19/2021 EW-1-031921	EW-2 03/19/2021 EW-2-031921	EW-3 03/19/2021 EW-3-031921
Total Metals												
Antimony	5.6	< 5.6 U	< 5.6 U	--	--	< 5.6 U	--	--	< 5.6 U	--	< 5.6 U	--
Arsenic	16	**72**	**3.6**	**220**	< 3.3 U	**68**	**250**	< 3.3 U	**140**	**130**	**200**	**210**
Barium	1000	**44**	**43**	--	--	< 28 U	--	--	**32**	--	**34**	--
Mercury	0.012	< 0.13 U	< 0.13 U	--	--	< 0.13 U	--	--	< 0.13 U	--	< 0.13 U	--
Selenium	5	< 3.3 U	< 3.3 U	--	--	< 3.3 U	--	--	< 3.3 U	--	< 3.3 U	--
Dissolved Metals												
Antimony	5.6	< 5.0 U	< 5.0 U	--	--	< 5.0 U	--	--	< 5.0 U	--	< 5.0 U	--
Arsenic	16	**64**	**3.3**	**220**	< 3.0 U	**62**	**260**	< 3.0 U	**140**	**100**	**170**	**190**
Barium	1000	**38**	**39**	--	--	< 25 U	--	--	**27**	--	< 25 U	--
Iron	300	**33000**	**65000**	**3200**	**33000**	**8800**	**9000**	**35000**	**14000**	**15000**	**23000**	**19000**
Manganese	50	**1800**	**1400**	--	--	**800**	--	--	**1800**	--	**1200**	--
Mercury	0.012	< 0.13 U	< 0.13 U	--	--	< 0.13 U	--	--	< 0.13 U	--	< 0.13 U	--
Selenium	5	< 3.3 U	< 3.3 U	--	--	< 3.3 U	--	--	< 3.3 U	--	< 3.3 U	--
Zinc	105	< 25 U	< 25 U	--	--	< 25 U	--	--	< 25 U	--	< 25 U	--
PAHs												
1-Methylnaphthalene	1.51	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
2-Methylnaphthalene	32	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Acenaphthene	20	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Acenaphthylene		< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Anthracene	100	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Benzo(g,h,i)perylene		< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Fluoranthene	0.020	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Fluorene	10	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Naphthalene	8.92	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Phenanthrene		< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Pyrene	0.015	< 0.10 U	< 0.10 U	--	--	< 0.10 U	--	--	< 0.10 U	--	< 0.10 U	--
Benz(a)anthracene	0.00016	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Benzo(a)pyrene	1.60E-05	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Benzo(b)fluoranthene	0.00016	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Benzo(j,k)fluoranthene		< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Chrysene	0.0045	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Dibenzo(a,h)anthracene	1.60E-05	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Indeno(1,2,3-cd)pyrene	0.00016	< 0.010 U	< 0.010 U	--	--	< 0.010 U	--	--	< 0.010 U	--	< 0.010 U	--
Total cPAHs TEQ (ND = 1/2 RDL)	0.0043	< 0.00755 U	< 0.00755 U	--	--	< 0.00755 U	--	--	< 0.00755 U	--	< 0.00755 U	--

Notes:

Highlighted orange cells indicate exceedance of screening levels

Highlighted blue cells indicate non-detect exceedance of screening levels

Table 2. Additional Groundwater Quality Data - RI Data Gaps

Project No. 050004, Barbee Mill, Renton, Washington

Analyte	Preliminary Screening Levels (ug/L)	EW-4 03/19/2021 EW-4-031921	EW-5 03/19/2021 EW-5-031921	EW-6 03/19/2021 EW-6-031921	EW-7 03/19/2021 EW-7-031921	EW-8 03/19/2021 EW-8-031921	WP-8 03/18/2021 WP-8-031821	WP-1A 03/18/2021 WP-1A-031821	BH-29A 03/18/2021 BH-29A-031821
Total Metals									
Antimony	5.6	< 5.6 U	--	< 5.6 U	--	< 5.6 U	--	--	--
Arsenic	16	**130**	**58**	**100**	**12**	**450**	**240**	< 3.3 U	**140**
Barium	1000	**29**	--	< 28 U	--	**30**	--	--	--
Mercury	0.012	< 0.13 U	--	< 0.13 U	--	< 0.13 U	--	--	--
Selenium	5	< 3.3 U	--	< 3.3 U	--	< 3.3 U	--	--	--
Dissolved Metals									
Antimony	5.6	< 5.0 U	--	< 5.0 U	--	< 5.0 U	--	--	--
Arsenic	16	**110**	**37**	**56**	**4.7**	**380**	**240**	< 3.0 U	**150**
Barium	1000	< 25 U	--	< 25 U	--	< 25 U	--	--	--
Iron	300	**8200**	**3400**	**6400**	**150**	**13000**	**12000**	**86**	**19000**
Manganese	50	**1400**	--	**940**	--	**1700**	--	--	--
Mercury	0.012	< 0.13 U	--	< 0.13 U	--	< 0.13 U	--	--	--
Selenium	5	< 3.3 U	--	< 3.3 U	--	< 3.3 U	--	--	--
Zinc	105	< 25 U	--	< 25 U	--	< 25 U	--	--	--
PAHs									
1-Methylnaphthalene	1.51	< 0.10 U	--	< 0.10 U	--	< 0.11 U	--	--	--
2-Methylnaphthalene	32	< 0.10 U	--	< 0.10 U	--	< 0.11 U	--	--	--
Acenaphthene	20	< 0.10 U	--	< 0.10 U	--	**0.33**	--	--	--
Acenaphthylene		< 0.10 U	--	< 0.10 U	--	< 0.11 U	--	--	--
Anthracene	100	< 0.10 U	--	< 0.10 U	--	**0.14**	--	--	--
Benzo(g,h,i)perylene		< 0.010 U	--	< 0.010 U	--	< 0.011 U	--	--	--
Fluoranthene	0.020	< 0.10 U	--	< 0.10 U	--	**0.37**	--	--	--
Fluorene	10	< 0.10 U	--	< 0.10 U	--	**0.16**	--	--	--
Naphthalene	8.92	< 0.10 U	--	< 0.10 U	--	< 0.11 U	--	--	--
Phenanthrene		< 0.10 U	--	< 0.10 U	--	**0.51**	--	--	--
Pyrene	0.015	< 0.10 U	--	< 0.10 U	--	**0.38**	--	--	--
Benz(a)anthracene	0.00016	< 0.010 U	--	< 0.010 U	--	**0.037**	--	--	--
Benzo(a)pyrene	1.60E-05	< 0.010 U	--	< 0.010 U	--	< 0.011 U	--	--	--
Benzo(b)fluoranthene	0.00016	< 0.010 U	--	< 0.010 U	--	**0.012**	--	--	--
Benzo(j,k)fluoranthene		< 0.010 U	--	< 0.010 U	--	< 0.011 U	--	--	--
Chrysene	0.0045	< 0.010 U	--	< 0.010 U	--	**0.032**	--	--	--
Dibenzo(a,h)anthracene	1.60E-05	< 0.010 U	--	< 0.010 U	--	< 0.011 U	--	--	--
Indeno(1,2,3-cd)pyrene	0.00016	< 0.010 U	--	< 0.010 U	--	< 0.011 U	--	--	--
Total cPAHs TEQ (ND = 1/2 RDL)	0.0043	< 0.00755 U	--	< 0.00755 U	--	**0.01237**	--	--	--

Notes:

Highlighted orange cells indicate exceedance of screening levels

Highlighted blue cells indicate non-detect exceedance of screening levels

Table 3. Arsenic Monitoring Summary

Project No. 050004, Barbee Mill, Renton, WA

Well	Location	Estimated Restoration Time Frame (yr)	Arsenic Concentration March 2021 (ug/L)	Arsenic Trend
Wells evaluating effectiveness of capturing arsenic in ground water				
CMW-1	South end of PAZ	--	64	**Increasing**
CMW-6	East end of PAZ	--	140	May be decreasing
Wells evaluating effectiveness of treating arsenic in ground water				
CMW-2S	West of PAZ, shallow	--	3.3	Below background level since PAZ installed
CMW-3	West of PAZ shallow	--	3.0 U	Below background level since PAZ installed
CMW-4S	North of PAZ, shallow	--	62	Decreasing. Declined 98% but still above background level. May be elevated due to As desorbing from soil downgradient of PAZ
CMW-5	North of PAZ, shallow	--	3.0 U	Below background level since PAZ installed
CMW-2D	West of PAZ, deep	--	220	**Increasing** since pump & treat shut down
CMW-4D	North of PAZ, deep	--	260	Decreasing since pump & treat shut down Seasonal variation
Wells evaluating attenuation of arsenic downgradient of PAZ				
BH-29A	MW 180 ft downgradient (north) of PAZ	16	150	Downward trend since 2011
WP-1A	Sediment well point 50 ft downgradient (north) of PAZ, 2 ft below mudline	12	3.0 U	Below background level. Declined 99% since PAZ installed Seasonal variation
WP-8	Sediment well point 150 ft downgradient (north) of PAZ, 2 ft below mudline	31	240	Downward trend. Declined 69% since May 2009
Wells evaluating long-term trends upgradient of PAZ				
EW-1	Upgradient of PAZ	30	100	Overall no trend. Increase from 2020 to 2021
EW-2	Upgradient of PAZ	--	170	Overall no trend, increase since 2018
EW-3	Upgradient of PAZ	--	190	Relatively stable with some fluctuations since 2015
EW-4	Upgradient of PAZ	--	110	**Increasing** since 2019
EW-5	Upgradient of PAZ	--	37	Decreasing overall
EW-6	Upgradient of PAZ	--	56	Decreasing overall, stable since 2017
EW-7	Upgradient of PAZ	--	4.7	Decreasing overall
EW-8	Upgradient of PAZ	11	380	No trend

Notes

The site-specific natural background concentration is 16 ug/L

MW - monitoring well

PAZ - passive attenuation zone

Table 4. Performance and Compliance Monitoring Schedule

Project No. 050004-008-03, Barbee Mill, Renton, WA

	Year				
Well	**2020**	**2021**	**2022**	**2023**	**2024**
PAZ Compliance Wells					
CMW-1	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-2S	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-2D	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-3	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-4S	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-4D	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-5	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
CMW-6	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
Wells and Well Points on Quendall Terminals					
BH-29A	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
WP-1A	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
WP-8	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe	**A** - As, Fe
Groundwater Extraction Wells and Piezometers					
EW-1	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]
EW-2	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]
EW-3	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]
EW-4	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]
EW-5	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]
EW-6	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]	**A** - As, Fe [(2)]
EW-7	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]
EW-8	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]	--	**A** - As, Fe [(2)]
PZ-1	[(3)]	[(3)]	[(3)]	[(3)]	[(3)]
PZ-2	[(3)]	[(3)]	[(3)]	[(3)]	[(3)]

Notes:

[(1)] The 'Monitoring Year' begins in September of the indicated year (i.e., the 2017 monitoring year runs from September 2017 to August 2018). As discussed in Section 5 of this report, annual monitoring is scheduled to occur in December.

[(2)] Assumes pump-and-treat operation ends in August 2011 and is not restarted.

[(3)] Piezometers wil be monitored for water levels only in conjunction with site monitoring events.

A Annual

-- No monitoring planned

Field parameters (temperature, conductivity, pH, dissolved oxygen, ORP) and water levels collected during each monitoring event
The monitoring program will be reevaluated in 2020

As Arsenic

Fe Iron

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells							
CMW-1	5/5/2009	11.39	395	0.46	7.61	-45.0	18.8
	9/8/2009	17.00	415	0.39	7.53	-421.3	0.5
	12/23/2009	13.28	459	0.09	6.48	-77.1	9.5
	3/18/2010	12.57	546	0.09	6.65	-81.7	0.9
	6/21/2010	12.95	550	2.16	6.36	-314.9	2.2
	9/14/2010	16.20	508	0.19	6.24	-26.0	1.8
	12/23/2010	13.31	473	0.32	8.06	-1.7	3.2
	3/10/2011	11.59	463	0.69	6.50	-25.1	-
	6/13/2011	12.90	446	2.18	6.51	-99.0	11.6
	9/28/2011	15.90	486	1.13	6.50	-141.6	0.6
	12/8/2011	13.90	462	1.73	6.37	-111.2	1.6
	3/6/2012	11.70	441	-	6.52	-129.0	0.4
	6/26/2012	12.80	620	1.00	6.39	-99.5	1.9
	12/13/2012	13.90	461	0.11	6.45	-118.8	0.7
	6/20/2013	13.70	490	0.10	6.54	-112.2	3.7
	1/15/2014	12.50	469	0.25	6.44	-114.7	1.7
	6/25/2014	13.90	497	0.51	6.33	13.8	6.3
	12/10/2014	14.10	501	0.31	6.56	-75.3	1.2
	6/12/2015	13.50	507	0.50	6.37	-8.4	2.0
	12/29/2015	13.10	486	0.72	6.58	-72.7	2.2
	6/8/2016	14.40	452	0.06	6.59	-61.4	2.1
	12/28/2016	13.20	407	0.18	6.47	-62.5	2.0
	12/28/2017	12.50	409	0.18	6.50	-64.2	1.9
	12/27/2018	12.80	470	0.13	6.40	-78.2	2.0
	12/30/2019[1]	12.80	473	0.45	6.24	96.0	<20
	3/18/2021	11.40	408	0.46	6.51	-78.0	0.5
CMW-2S	4/30/2009	12.82	250	0.23	8.67	-2.9	4.9
	9/8/2009	16.98	244	0.08	8.50	-408.1	0.5
	12/22/2009	14.38	262	0.12	7.29	-96.9	3.0
	3/19/2010	12.69	235	0.20	7.83	-163.9	0.4
	6/21/2010	13.42	303	0.46	7.42	-343.4	2.7
	9/14/2010	16.01	276	0.06	7.18	-90.5	2.1
	12/23/2010	13.85	362	0.21	8.57	-33.5	4.8
	3/11/2011	11.67	366	1.09	-	-	-
	6/13/2011	12.60	419	1.02	7.38	-153.7	9.7
	9/28/2011	15.20	400	0.49	7.46	-198.3	0.4
	12/8/2011	14.80	467	0.78	7.25	-177.8	1.5
	3/6/2012	12.20	440	-	7.27	-182.8	2.6
	6/26/2012	12.80	636	0.51	7.09	-166.3	3.3
	12/13/2012	14.80	456	0.09	7.21	-187.4	1.2
	6/20/2013	13.60	454	0.07	7.28	-190.9	2.1
	1/15/2014	13.60	450	0.24	7.26	-205.7	3.7
	6/25/2014	14.30	505	0.45	7.10	-54.1	6.3
	12/10/2014	14.30	471	0.14	7.26	-137.7	1.5
	6/12/2015	13.80	549	0.34	7.23	-66.5	3.0
	12/29/2015	12.80	569	0.47	7.30	-173.0	2.3
	6/8/2016	15.03	531	0.06	7.28	-152.9	--
	12/29/2016	13.70	496	0.07	7.19	-166.0	2.5
	12/28/2017	13.10	469	0.17	7.17	-158.4	3.0
	12/27/2018	13.20	516	0.07	7.12	-172.9	12.0
	12/30/2019[1]	13.20	533	0.34	6.93	64.0	<20
	3/18/2021	11.90	482	0.31	7.05	-164.0	1.1
CMW-2D	4/30/2009	13.99	537	0.57	7.65	-16.3	4.9
	9/8/2009	15.08	533	0.36	9.20	-394.7	2.0
	12/22/2009	13.67	491	0.26	6.89	-75.9	3.0
	3/19/2010	14.10	531	0.29	7.26	-106.9	0.5
	6/21/2010	13.84	490	0.93	7.01	-372.3	3.0
	9/14/2010	14.69	466	0.07	7.03	-84.1	6.3
	12/23/2010	13.50	519	0.24	8.06	-13.8	2.5
	3/11/2011	12.95	513	-	9.00	-27.4	-
	6/13/2011	13.60	506	1.07	7.06	-90.3	-
	9/28/2011	14.00	539	0.74	7.16	-167.0	0.5
	12/8/2011	13.70	559	1.13	6.94	-122.1	1.7
	3/6/2012	13.30	576	-	7.04	-141.2	1.1
	6/26/2012	13.20	769	0.62	6.90	-112.4	3.9
	12/13/2012	13.80	618	0.10	6.91	-123.9	0.6
	6/20/2013	13.70	562	0.10	6.93	-112.3	2.6
	1/15/2014	13.70	552	0.22	6.90	-120.9	7.2
	6/25/2014	14.50	578	0.47	6.78	-10.9	7.0
	12/10/2014	13.90	523	0.17	6.92	-27.6	2.6
	6/12/2015	14.40	609	0.36	6.90	-26.3	3.5
	12/29/2015	13.30	597	0.39	7.05	-94.6	3.1
	6/8/2016	15.30	591	0.08	6.94	-40.0	--
	12/29/2016	13.30	570	0.22	6.88	-84.7	2.4
	12/28/2017	13.50	541	0.20	6.85	-79.2	1.3
	12/27/2018	13.40	614	0.12	6.78	-76.0	4.0
	12/30/2019[1]	13.40	600	0.70	6.63	95.0	<20
	3/18/2021	13.30	525	0.17	6.85	-72.1	7.4

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells (Continued)							
CMW-3	4/30/2009	11.88	82	0.13	9.67	36.8	8.0
	9/8/2009	18.72	66	0.65	9.40	-308.0	2.5
	12/22/2009	12.60	227	0.09	8.57	-250.0	1.6
	3/19/2010	11.45	187	-	8.50	-202.7	0.5
	6/21/2010	13.27	147	0.35	8.65	-373.0	3.0
	9/14/2010	17.33	0	0.03	7.89	-107.1	2.4
	12/23/2010	12.50	217	0.16	9.78	-89.9	3.1
	3/11/2011	9.66	260	0.81	7.40	-	-
	6/13/2011	12.20	216	0.75	8.87	-309.5	14.8
	9/28/2011	16.50	232	0.24	8.82	-296.4	0.8
	12/8/2011	13.40	286	0.51	8.55	-298.4	1.8
	3/6/2012	10.00	324	-	8.34	-327.0	1.2
	6/25/2012	13.10	334	0.43	8.40	-475.2	4.2
	12/13/2012	13.70	288	0.10	8.44	-301.3	2.2
	6/20/2013	13.80	338	0.03	8.20	-282.0	2.1
	1/15/2014	11.80	490	0.22	8.21	-304.7	1.0
	6/25/2014	14.70	525	0.73	7.91	-104.2	4.3
	12/10/2014	13.90	550	0.12	7.86	-168.4	1.8
	6/12/2015	13.90	420	0.27	7.98	-131.6	23.8
	12/29/2015	12.20	512	0.28	7.77	-234.9	5.9
	6/8/2016	14.33	344	0.07	7.95	-220.0	8.0
	12/29/2016	12.20	385	0.04	7.76	-216.1	2.2
	12/28/2017	11.80	346	0.10	7.58	-195.7	2.5
	12/27/2018	12.20	407	0.06	7.61	-223.0	3.0
	12/30/2019[1]	12.00	386	0.70	7.03	77.5	<20
	3/18/2021	10.10	358	0.12	7.71	-248.8	3.4
CMW-4S	4/30/2009	11.35	212	0.24	8.10	30.6	4.8
	9/8/2009	15.60	192	0.31	7.74	-413.2	7.8
	12/22/2009	11.82	300	0.18	6.58	-78.5	11.7
	3/19/2010	10.65	286	0.04	6.96	-73.8	4.4
	6/21/2010	12.11	220	0.46	6.26	-367.7	2.1
	9/27/2010	15.48	206	0.19	6.38	-39.3	11.7
	12/23/2010	11.63	275	0.21	8.48	-42.1	2.9
	3/11/2011	9.93	308	0.76	6.80	-	-
	6/13/2011	11.40	179	1.00	6.76	-89.2	11.8
	9/28/2011	14.60	173	0.54	6.89	-170.5	10.0
	12/8/2011	13.20	186	0.93	6.59	-106.2	4.7
	3/6/2012	10.30	263	-	6.68	-144.4	1.7
	6/25/2012	12.20	237	0.69	6.69	-458.7	4.4
	12/13/2012	13.10	254	0.15	6.60	-101.7	0.5
	6/20/2013	12.30	148	0.06	6.68	-80.7	5.2
	1/15/2014	12.10	304	0.29	6.67	-114.4	17.1
	6/25/2014	13.20	209	0.59	6.44	31.0	3.9
	12/10/2014	14.00	288	0.20	6.81	-30.1	2.0
	6/12/2015	13.20	197	0.35	6.81	-60.9	4.2
	12/29/2015	12.10	429	0.25	6.97	-107.6	2.6
	6/8/2016	14.08	261	0.09	6.92	-111.8	7.3
	12/29/2016	12.80	345	0.13	6.92	-101.3	3.3
	12/28/2017	12.50	252	0.17	6.81	-88.3	2.0
	12/27/2018	12.80	310	0.19	6.33	-31.0	4.5
	12/30/2019	12.20	337	0.17	6.54	-78.0	10.0
	3/18/2021	11.40	248	0.12	6.87	-100.9	0.5
CMW-4D	4/30/2009	13.34	251	0.12	8.31	-25.7	2.5
	9/8/2009	14.54	225	0.28	8.24	-424.7	1.0
	12/22/2009	12.01	353	0.26	6.71	-86.7	3.5
	3/19/2010	12.58	320	0.07	7.11	-62.6	0.6
	6/21/2010	13.00	376	0.42	6.55	-374.6	2.7
	9/27/2010	14.00	393	0.13	7.03	-78.8	6.1
	12/23/2010	12.34	326	0.20	8.42	-57.3	4.0
	3/11/2011	11.77	256	1.51	6.40	-	-
	6/13/2011	12.60	222	0.93	6.96	-93.0	7.5
	9/28/2011	13.50	285	0.57	7.14	-164.3	3.7
	12/8/2011	12.40	247	0.87	6.81	-113.1	1.4
	3/6/2012	12.00	226	-	6.91	-141.0	0.8
	6/25/2012	12.50	284	0.65	6.39	-445.9	2.5
	12/13/2012	12.70	263	0.12	6.69	-88.3	0.5
	6/20/2013	12.90	197	0.06	7.02	-100.1	2.6
	1/14/2014	12.70	303	0.27	6.80	-113.7	2.2
	6/25/2014	13.50	260	0.65	6.64	25.3	6.1
	12/10/2014	13.30	290	0.17	6.97	-108.9	0.7
	6/12/2015	13.50	242	0.30	7.06	-68.4	5.0
	12/29/2015	12.90	272	0.24	7.03	-91.5	3.2
	6/8/2016	13.90	237	0.04	7.00	-102.1	2.9
	12/29/2016	12.90	262	0.07	6.93	-94.5	4.2
	12/28/2017	12.80	225	0.17	6.83	-70.5	1.0
	12/27/2018	12.50	268	0.19	6.05	40.1	2.0
	12/30/2019	12.60	287	0.10	6.45	-54.2	9.0
	3/18/2021	12.50	294	0.12	6.83	-108.0	0.1

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells (Continued)							
CMW-5	5/5/2009	11.84	191	0.33	8.27	32.0	3.7
	9/8/2009	15.47	142	0.23	9.77	-357.7	2.5
	12/22/2009	12.54	192	0.26	6.75	-62.3	3.1
	3/18/2010	11.84	101	0.04	7.23	-139.0	1.6
	6/21/2010	13.12	132	0.52	6.91	-395.7	3.0
	9/27/2010	17.13	169	0.07	7.95	-113.1	7.4
	12/27/2010	13.18	228	0.17	10.17	-42.2	0.8
	3/11/2011	11.54	220	0.83	7.00	-	-
	6/14/2011	12.50	267	1.40	8.73	-285.7	9.0
	9/29/2011	15.10	314	0.22	8.80	-250.3	0.3
	12/9/2011	14.50	442	0.46	8.39	-212.6	2.0
	3/7/2012	12.31	535	0.12	7.44	-104.6	0.9
	6/25/2012	13.10	632	0.76	7.35	-292.6	1.5
	12/14/2012	14.40	464	0.13	7.24	-195.5	1.4
	6/21/2013	13.10	415	0.08	7.41	-174.3	3.3
	1/14/2014	14.20	475	0.21	7.30	-195.0	3.1
	6/26/2014	13.60	486	1.14	6.70	2.8	5.1
	12/9/2014	15.70	515	0.15	7.26	-158.2	1.2
	6/12/2015	14.60	540	0.29	7.26	-84.1	4.3
	12/30/2015	13.80	439	0.81	7.12	-129.8	63.2
	6/8/2016	14.13	462	0.07	7.26	-155.7	3.5
	12/28/2016	13.60	373	0.22	7.46	-163.6	1.0
	12/29/2017	14.20	343	0.14	7.25	-139.0	1.5
	12/27/2018	14.50	458	0.09	7.11	-153.2	2.0
	12/30/2019	12.23	14	0.13	6.92	-140.1	10.0
	3/19/2021	12.20	393	0.17	7.23	-148.7	0.1
CMW-6	5/1/2009	13.03	439	0.14	8.74	-50.8	1.0
	9/8/2009	15.12	434	0.34	7.25	-362.2	1.1
	12/23/2009	12.44	534	0.36	6.55	-78.6	1.9
	3/18/2010	12.50	618	0.51	6.69	-97.2	0.2
	6/21/2010	13.43	542	0.78	6.36	-435.9	2.0
	9/15/2010	15.30	478	0.15	7.14	-40.8	1.2
	12/27/2010	12.60	533	0.30	9.19	-35.2	0.5
	3/11/2011	12.25	535	1.81	6.40	-	-
	6/14/2011	12.90	513	2.39	6.42	-51.5	9.7
	9/29/2011	14.90	500	0.73	6.53	-122.3	0.3
	12/9/2011	13.90	530	1.66	6.42	-90.8	2.0
	3/7/2012	12.49	587	0.32	6.38	-35.8	0.3
	6/25/2012	13.10	675	1.84	6.36	-104.0	0.8
	12/14/2012	14.10	523	0.16	6.39	-82.1	0.6
	6/21/2013	13.50	423	0.16	6.49	-58.1	2.2
	1/14/2014	13.60	544	0.44	6.44	-73.6	2.3
	6/25/2014	14.30	494	1.43	5.90	101.8	3.5
	12/10/2014	14.70	515	0.35	6.54	-29.6	0.5
	6/11/2015	16.10	498	0.46	6.53	-68.3	1.0
	12/30/2015	14.00	485	0.54	6.66	-58.6	0.7
	6/8/2016	15.60	470	0.17	6.57	-62.6	1.7
	12/28/2016	14.10	447	0.25	6.64	-51.3	1.5
	12/29/2017	13.30	414	0.27	6.51	-51.2	0.7
	12/27/2018	14.10	498	0.17	6.40	-43.0	3.0
	12/30/2019	14.20	464	0.14	6.29	-27.2	12.0
	3/19/2021	12.90	431	0.24	6.53	-76.5	0.0
Performance Monitoring Wellpoints							
WP-1A	5/1/2009	12.90	259	0.40	7.95	-200.9	3.8
	9/9/2009	20.77	137	1.02	7.52	-339.0	9.3
	12/22/2009	6.84	241	0.21	6.45	-7.3	13.2
	3/18/2010	8.76	370	0.22	6.68	-101.7	33.9
	6/22/2010	16.74	275	0.50	6.63	-262.9	5.6
	9/14/2010	19.23	143	0.35	7.09	-90.9	-
	12/27/2010	7.28	289	0.41	10.62	28.2	-
	3/11/2011	7.75	149	4.34	7.20	2.9	8.1
	6/13/2011	16.20	232	0.93	6.69	-111.8	7.4
	9/28/2011	17.10	102	5.09	7.07	-21.3	4.0
	12/8/2011	7.00	147	5.71	6.54	-9.0	6.8
	3/6/2012	6.80	144	32.55	6.11	-49.2	68.6
	6/26/2012	16.00	654	0.47	6.54	-160.0	1.5
	1/22/2013	4.80	312	0.20	5.96	78.9	35.7
	6/20/2013	18.00	115	0.11	6.73	-73.3	2.8
	1/14/2014	7.50	239	0.25	6.53	-2.8	5.3
	6/25/2014	19.80	152	0.71	6.25	43.4	3.5
	12/10/2014	10.60	191	0.66	6.73	-3.5	6.6
	6/11/2015	21.90	123	0.62	6.83	-55.1	1.0
	12/29/2015	7.00	274	0.39	6.79	-37.2	7.5
	6/8/2016	21.24	104	0.89	7.13	41.8	4.5
	12/29/2016	6.40	355	0.09	6.78	-15.9	1.6
	12/28/2017	7.40	303	0.36	6.50	-6.0	79.5
	12/27/2018	7.90	324	0.09	6.56	-42.5	52.0
	12/30/2019	5.02	381	0.11	6.18	26.0	18.0
	3/18/2021	9.00	103	3.70	6.89	58.8	3.7

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wellpoints (Continued)							
WP-8	5/1/2009	13.58	182	0.99	8.45	-272.9	3.4
	9/8/2009	21.12	177	2.94	7.34	-306.0	10.7
	12/22/2009	6.90	270	0.43	6.42	-73.3	33.6
	3/18/2010	9.15	213	1.48	6.68	-88.9	3.4
	6/22/2010	16.42	170	2.50	6.32	-259.2	9.7
	9/14/2010	19.52	209	0.49	6.44	-52.1	3.4
	12/27/2010	6.72	275	0.34	11.02	29.7	1.2
	3/11/2011	7.06	288	2.36	7.28	-29.0	4.8
	6/13/2011	16.20	230	0.32	6.49	-71.3	8.8
	9/28/2011	-	-	-	-	-	-
	12/8/2011	6.90	278	1.56	6.53	-81.2	5.6
	3/6/2012	6.20	329	-	6.31	-96.4	5.5
	6/26/2012	16.10	491	0.22	6.37	-107.0	9.0
	1/22/2013	5.90	350	0.79	6.26	7.5	-
	6/20/2013	17.10	374	0.12	6.65	-88.9	2.0
	1/14/2014	8.40	405	0.71	6.52	-82.9	9.8
	6/25/2014	19.60	427	0.75	6.15	10.4	2.2
	12/10/2014	14.00	406	0.28	6.72	-58.7	-
	6/11/2015	22.60	444	0.50	6.64	-43.1	1.6
	12/29/2015	7.40	435	0.50	6.81	-67.1	4.6
	6/8/2016	20.36	378	0.18	6.78	-80.0	1.7
	12/29/2016	6.90	409	0.16	6.77	-63.5	1.5
	12/28/2017	7.60	376	0.67	6.52	-59.4	0.5
	12/28/2018	11.40	364	0.12	6.79	-79.0	3.2
	12/30/2019[1]	11.20	395	0.13	6.34	-44.3	<10
	3/18/2021	8.60	371	0.52	6.84	-78.2	5.3
Extraction Wells							
EW-1	9/9/2009	18.70	236	10.16	6.67	-119.3	-
	12/23/2009	14.97	352	0.05	6.35	-58.1	-
	3/19/2010	12.61	399	0.60	6.86	-72.8	-
	6/22/2010	14.62	328	0.85	6.27	-440.8	4.5
	9/15/2010	16.70	338	0.26	6.10	-15.2	-
	12/27/2010	13.61	301	0.17	8.90	-25.0	-
	3/11/2011	11.82	317	0.49	7.09	-9.9	4.3
	6/14/2011	13.90	319	2.03	6.55	-80.5	82.1
	9/29/2011	17.80	282	0.55	6.49	-143.9	8.5
	12/9/2011	14.40	315	1.24	6.36	-75.5	12.9
	3/7/2012	11.60	335	0.96	5.54	22.1	6.3
	6/26/2012	14.90	457	0.75	6.34	-120.2	4.0
	12/14/2012	14.50	354	0.12	6.32	-87.1	2.7
	6/21/2013	14.80	357	0.06	6.51	-97.9	3.4
	1/14/2014	13.00	349	0.27	6.41	-64.1	3.4
	6/26/2014	15.40	390	0.71	6.17	52.6	7.3
	12/9/2014	15.30	329	0.17	6.50	-54.2	2.3
	6/11/2015	15.40	382	0.52	6.44	-42.7	4.1
	12/30/2015	14.30	315	0.22	6.71	-69.6	44.2
	6/9/2016	15.57	373	0.10	6.48	-73.5	19.6
	12/29/2016	13.90	284	0.11	6.54	-53.0	1.9
	12/29/2017	13.90	227	0.09	6.52	-39.7	2.2
	12/28/2018	14.40	265	0.18	6.45	-38.5	3.7
	12/30/2019	14.20	264	1.01	6.25	96.9	8.0
	3/19/2021	11.70	314	0.23	6.50	-55.4	12.5
EW-2	9/9/2009	18.58	273	9.65	5.85	-138.4	-
	12/23/2009	14.94	362	0.04	6.40	-56.8	-
	3/19/2010	13.07	417	0.66	6.89	-72.8	-
	6/22/2010	16.06	279	0.27	6.39	-323.7	13.8
	9/15/2010	17.50	416	0.18	6.42	-68.1	-
	12/27/2010	12.32	321	0.21	2.97	-36.2	-
	3/11/2011	9.88	264	0.40	7.35	-52.4	19.9
	6/14/2011	14.20	356	2.10	6.54	-77.5	40.9
	9/29/2011	20.40	286	0.46	6.59	-165.8	1.2
	12/9/2011	13.00	421	1.30	6.36	-90.3	116.0
	3/7/2012	9.93	299	0.98	6.34	7.8	1.1
	6/26/2012	17.20	374	0.70	6.42	-265.1	1.4
	12/14/2012	13.00	328	0.19	6.40	-76.5	3.0
	6/21/2013	16.60	382	0.06	6.54	-94.6	2.6
	1/14/2014	12.50	381	0.60	6.45	-65.4	3.9
	6/26/2014	16.00	405	0.89	6.20	52.5	5.4
	12/9/2014	14.50	423	0.52	6.51	-47.8	18.0
	6/11/2015	15.90	436	0.68	6.47	-52.3	1.8
	12/30/2015	13.30	400	0.96	6.68	-54.8	3.7
	6/9/2016	15.22	437	0.31	6.50	-72.5	17.0
	12/29/2016	13.40	368	1.92	6.66	-48.8	15.2
	12/29/2017	12.30	238	1.01	6.53	-30.9	12.5
	12/28/2018	13.60	359	1.35	6.52	-54.2	4.7
	12/30/2019	13.40	381	1.07	6.28	108.1	13.0
	3/19/2021	11.60	363	0.16	6.47	-76.7	27.7

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Extraction Wells (Continued)							
EW-3	9/9/2009	18.11	458	8.28	6.49	-214.7	-
	12/23/2009	14.23	358	0.06	6.37	-39.9	-
	3/19/2010	13.29	414	0.96	6.87	-81.2	-
	6/22/2010	15.83	515	0.50	6.48	-379.3	11.6
	9/15/2010	17.29	467	0.07	6.81	-62.7	-
	12/27/2010	11.14	0	0.20	8.28	-20.0	-
	3/11/2011	11.19	288	0.26	7.15	-16.2	5.9
	6/14/2011	14.20	470	1.99	6.55	-101.2	9.8
	9/29/2011	18.40	381	0.49	6.58	-138.9	1.1
	12/9/2011	12.80	502	1.43	6.39	-97.6	2.0
	3/7/2012	11.50	510	0.25	6.47	-54.8	0.5
	6/25/2012	15.10	547	1.61	6.35	-100.6	1.5
	12/14/2012	13.10	482	0.14	6.44	-103.3	1.9
	6/20/2013	14.30	459	0.07	6.59	-94.9	2.7
	1/14/2014	12.60	457	0.15	6.48	-67.7	1.1
	6/26/2014	15.90	476	0.83	6.24	24.1	6.2
	12/9/2014	14.70	471	0.16	6.57	-65.3	2.9
	6/11/2015	16.20	487	0.39	6.53	-59.4	3.8
	12/30/2015	13.10	435	0.38	6.75	-83.1	19.8
	6/8/2016	15.56	453	0.05	6.58	-78.4	10.9
	12/29/2016	12.60	400	0.22	6.62	19.0	9.2
	12/29/2017	12.80	345	0.13	6.54	-64.7	4.6
	12/27/2018	13.20	368	0.17	6.13	3.5	19.0
	12/30/2019	13.10	407	0.12	6.31	-57.8	9.0
	3/19/2021	12.00	374	0.15	6.50	-80.1	7.6
EW-4	9/8/2009	15.59	384	1.60	9.06	-315.0	17.0
	12/22/2009	13.23	368	0.09	7.96	-125.6	2.6
	3/19/2010	13.15	349	0.57	7.75	-112.2	1.0
	6/22/2010	14.00	305	0.32	8.01	-338.9	4.1
	9/15/2010	16.39	424	0.04	7.50	-94.1	3.6
	12/27/2010	12.53	351	0.21	10.08	47.6	0.9
	3/11/2011	11.77	295	0.17	7.51	-8.1	3.9
	6/14/2011	13.50	327	0.55	8.03	-110.9	8.9
	9/29/2011	16.00	472	0.27	7.67	-161.3	0.9
	12/9/2011	13.20	534	0.67	7.50	-99.6	4.7
	3/7/2012	11.21	426	0.30	7.60	-49.0	0.7
	6/25/2012	13.70	581	0.72	7.53	-125.2	0.6
	12/14/2012	13.40	574	0.22	7.34	-47.3	3.0
	6/20/2013	14.70	457	0.16	7.42	-108.1	3.8
	1/14/2014	13.10	470	0.17	7.05	-132.7	3.1
	6/26/2014	15.80	462	0.78	7.02	42.7	5.5
	12/9/2014	15.20	483	0.19	6.79	-53.4	2.3
	6/11/2015	17.30	442	0.46	7.20	-67.9	2.4
	12/30/2015	12.60	528	0.44	7.23	-84.2	1.7
	6/8/2016	16.56	460	0.16	7.22	-106.8	1.2
	12/29/2016	12.40	496	0.15	7.21	-91.8	4.9
	12/29/2017	12.20	432	0.24	7.09	-58.1	9.0
	12/27/2018	13.10	517	0.15	6.68	4.3	1.7
	12/30/2019	12.80	479	0.31	6.61	105.0	10.0
	3/19/2021	12.60	371	0.14	6.65	-56.7	14.7
EW-5	9/9/2009	17.73	277	8.25	6.82	-223.2	-
	12/23/2009	14.35	270	0.21	6.34	-4.4	-
	3/19/2010	12.09	282	0.96	6.96	-91.9	-
	6/22/2010	13.44	246	0.27	6.42	-402.1	13.0
	9/15/2010	18.30	297	4.61	6.50	-21.8	-
	12/27/2010	10.08	399	5.76	9.03	32.4	-
	3/11/2011	9.10	309	6.62	6.91	19.4	-
	6/14/2011	17.90	661	1.88	6.92	-152.1	214.0
	9/29/2011	20.40	789	0.34	7.58	-312.8	>1000
	12/9/2011	10.70	469	1.06	6.76	-138.9	224.0
	3/7/2012	10.53	453	1.01	6.38	-7.0	34.8
	6/26/2012	15.10	382	0.64	6.57	-305.0	10.1
	12/14/2012	13.30	448	0.26	6.38	-67.5	57.1
	6/21/2013	15.60	279	0.17	6.68	-70.3	4.9
	1/14/2014	12.40	384	0.61	6.40	-25.1	12.4
	6/26/2014	15.90	265	0.77	6.34	56.7	9.0
	12/9/2014	14.00	404	0.72	6.54	-29.6	2.7
	6/11/2015	16.40	370	0.67	6.54	-64.0	3.3
	12/30/2015	14.10	391	0.21	6.70	-32.7	3.5
	6/9/2016	15.44	230	0.06	6.73	-53.6	6.1
	12/29/2016	13.40	320	0.09	6.50	-38.5	15.9
	12/29/2017	13.10	286	1.18	6.52	0.1	3.9
	12/28/2018	13.00	331	0.90	6.57	4.4	3.0
	12/30/2019	12.80	382	0.79	6.25	115.8	12.0
	3/19/2021	11.90	291	0.27	6.66	-15.3	12.5

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Extraction Wells (Continued)							
EW-6	9/9/2009	18.61	312	0.81	6.71	-300.2	-
	12/23/2009	14.96	322	0.07	6.35	-24.5	-
	3/19/2010	11.17	248	5.05	6.83	-50.0	-
	6/22/2010	15.06	270	0.20	6.60	-469.8	6.1
	9/15/2010	17.61	310				
	12/27/2010	13.16	380	0.21	8.54	24.9	-
	3/11/2011	9.15	297	3.81	6.90	42.1	60.5
	6/14/2011	14.20	430	1.88	6.52	-83.8	77.2
	9/29/2011	17.50	391	0.63	6.61	-160.2	11.2
	12/9/2011	13.90	389	1.35	6.30	-45.3	3.8
	3/7/2012	11.72	468	0.78	6.33	10.1	1.1
	6/26/2012	14.80	614	1.08	6.36	-364.3	1.1
	12/14/2012	13.90	413	0.24	6.50	-47.5	1.5
	6/21/2013	15.50	417	0.06	6.60	24.4	2.0
	1/14/2014	12.80	339	0.15	6.35	-30.3	0.6
	6/26/2014	16.50	456	0.53	6.25	63.1	4.4
	12/9/2014	15.10	459	0.19	6.52	-25.8	0.4
	6/11/2015	16.30	439	0.40	6.47	-66.0	0.7
	12/30/2015	14.00	343	0.21	6.78	-41.5	2.1
	6/9/2016	15.85	300	0.05	6.61	-44.9	4.1
	12/29/2016	11.40	341	0.21	6.58	-15.1	7.3
	12/29/2017	13.30	316	0.15	6.51	-19.8	1.2
	12/28/2018	11.70	290	0.10	6.43	-4.0	3.0
	12/30/2019	13.20	267	0.30	6.28	119.0	9.0
	3/19/2021	11.80	323	0.14	6.63	-36.1	33.1
EW-7	9/9/2009	17.88	354	1.05	6.87	-308.7	-
	12/23/2009	14.82	431	0.10	6.37	-45.6	-
	3/19/2010	11.68	352	2.45	6.91	-61.1	-
	6/22/2010	13.89	323	0.26	6.32	-357.9	2.4
	9/15/2010	16.86	401	0.20	6.41	7.6	-
	12/27/2010	13.94	447	0.14	8.42	16.0	-
	3/11/2011	10.40	420	0.59	6.97	33.3	22.0
	6/14/2011	13.50	450	1.95	6.63	-99.4	13.3
	9/29/2011	17.20	476	0.82	6.44	-156.9	1.2
	12/9/2011	13.90	503	1.40	6.37	-65.4	1.8
	3/7/2012	11.42	508	1.71	6.47	16.3	0.5
	6/26/2012	14.80	692	1.00	6.48	-360.1	0.6
	12/14/2012	13.60	476	0.85	6.84	-43.1	1.0
	6/21/2013	15.70	500	0.12	6.74	35.8	2.2
	1/14/2014	12.70	368	0.97	6.63	-29.4	0.6
	6/26/2014	15.50	473	0.68	6.27	68.5	5.2
	12/9/2014	15.10	470	0.30	6.64	-4.4	0.3
	6/11/2015	16.60	462	0.44	6.51	-72.4	4.2
	12/30/2015	14.00	382	0.73	7.04	-30.0	4.6
	6/9/2016	15.51	407	0.07	6.69	-30.7	3.8
	12/29/2016	13.70	356	0.42	6.82	-18.2	7.1
	12/29/2017	13.10	299	1.44	6.79	3.9	1.5
	12/28/2018	11.30	330	0.24	6.78	-1.5	2.5
	12/30/2019	11.20	281	0.25	6.52	12.5	16.0
	3/19/2021	11.50	335	0.29	6.87	32.8	0.0
EW-8	9/9/2009	16.46	350	9.25	7.58	-106.4	-
	12/23/2009	13.86	384	0.20	6.52	-70.3	-
	3/19/2010	11.28	317	9.22	6.97	-35.1	-
	6/22/2010	15.06	318	0.23	6.59	-300.2	2.1
	9/15/2010	17.73	339	1.60	6.49	-32.4	-
	12/27/2010	11.08	397	2.33	8.90	7.7	-
	3/11/2011	10.18	454	3.19	7.16	-6.8	6.4
	6/14/2011	14.30	417	1.77	6.56	-76.1	12.1
	9/29/2011	16.20	434	0.77	6.54	-165.2	0.7
	12/9/2011	13.40	440	1.33	6.38	-84.6	2.4
	3/7/2012	11.89	532	1.62	6.38	-21.5	1.2
	6/26/2012	14.30	632	1.00	6.38	-337.9	1.0
	12/14/2012	13.60	451	0.26	6.43	-65.9	0.9
	6/21/2013	14.90	419	0.04	6.54	-69.1	2.2
	1/14/2014	12.80	339	0.15	6.35	-30.3	0.6
	6/26/2014	15.30	477	0.38	6.28	60.3	8.7
	12/9/2014	15.00	471	0.30	6.65	17.6	-
	6/11/2015	16.20	499	0.40	6.52	-71.8	2.2
	12/30/2015	14.00	409	0.19	6.74	-41.1	2.9
	6/9/2016	16.16	449	0.04	6.56	-61.8	14.9
	12/29/2016	13.50	393	0.10	6.50	-24.6	3.2
	12/29/2017	13.20	343	0.08	6.57	-26.2	2.1
	12/28/2018	13.60	391	0.10	6.55	-45.0	2.7
	12/30/2019	13.50	397	0.30	6.32	128.0	7.0
	3/19/2021	12.00	344	0.15	6.58	-60.1	28.4

Table 5. Summary of Field Parameter Data

Project No. 050004-008-03, Barbee Mill, Renton, WA

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Quendall Terminals Monitoring Wells							
BH-21B	12/23/2009	11.76	542	0.33	7.42	-67.3	1.7
	12/23/2009	12.11	561	0.16	6.74	-114.9	55.7
BH-29A	9/14/2010	15.19	548	0.06	6.83	-105.6	4.8
	9/28/2011	14.30	488	0.90	6.79	-159.9	6.7
	12/13/2012	12.50	465	0.15	6.71	-115.1	8.1
	6/25/2014	14.70	485	0.75	6.54	-22.5	13.2
	12/10/2014	14.10	484	0.18	6.70	-62.2	9.7
	12/29/2015	11.90	455	0.27	6.95	-59.9	2.7
	12/28/2016	9.65	430	0.32	6.71	-75.9	1.3
	12/28/2017	12.30	398	0.21	6.73	-74.5	2.4
	12/27/2018	12.80	468	0.13	6.60	-80.9	14.0
	12/30/2019[1]	12.20	444	0.20	6.10	-29.2	<20
	3/18/2021	12.00	435	0.96	6.73	-79.4	7.2

Notes:

[1]Turbidimeter was not functioning properly during December 2019 event. Readings were approximated based on visual observations.

Table 6. Cumulative Discharge Volume and Estimated Arsenic Removal

Project No. 050004-008-03, Barbee Mill, Renton, WA

Month	Monthly Discharge in gal	[As] in mg/L	Arsenic Removed in lb	Cumulative Removal		Pumps Turned "On"[1]							Notes
				Water in Mgal	Arsenic in lb	EW-1	EW-2	EW-3	EW-5	EW-6	EW-7	EW-8	
Jun-09	873,521	0.11	0.80	0.87	0.80					X	X		2
Jul-09	702,173	0.12	0.70	1.58	1.50					X	X		
Aug-09	707,895	0.16	0.95	2.28	2.45					X	X		4
Sep-09	614,318	0.23	1.18	2.90	3.63					X	X		
Oct-09	595,907	0.90	4.48	3.49	8.10					X	X		
Nov-09	1,005,099	0.062	0.52	4.50	8.62	X	X	X	X		X		
Dec-09	1,204,335	0.12	1.21	5.70	9.83	X	X	X		X	X	X	5
Jan-10	1,103,228	0.15	1.38	6.81	11.2	X	X	X		X	X	X	6
Feb-10	750,525	0.57	3.57	7.56	14.8	X	X	X		X	X	X	
Mar-10	808,335	0.39	2.63	8.37	17.4	X	X	X		X	X	X	
Apr-10	859,028	0.068	0.49	9.22	17.9	X	X	X		X	X	X	
May-10	1,000,603	0.087	0.73	10.2	18.6	X				X	X	X	7
Jun-10	661,023	0.45	2.48	10.9	21.1				X	X	X		8
Jul-10	721,541	0.11	0.66	11.6	21.8				X	X	X		
Aug-10	435,691	0.066	0.24	12.0	22.0				X	X	X		
Sep-10	379,150	0.37	1.17	12.4	23.2				X	X	X		
Oct-10	439,640	1.13	4.13	12.9	27.3				X	X	X		9
Nov-10	0	-	0	12.9	27.3								
Dec-10	187,146	0.88	1.37	13.0	28.7				X	X	X		10
Jan-11	564,889	0.99	4.67	13.6	33.3				X	X	X		
Feb-11	424,065	0.22	0.78	14.0	34.1				X	X	X		
Mar-11	354,675	0.040	0.12	14.4	34.2	X	X		X	X	X		11
Apr-11	247,212	0.66	1.36	14.6	35.6	X	X		X	X	X		12
May-11	0	-	0	14.6	35.6								
Jun-11	352,342	0.33	0.97	15.0	36.6	X					X	X	13
Jul-11	629,786	0.04	0.20	15.6	36.8	X					X	X	
Aug-11	89,199	0.07	0.05	15.7	36.8	X					X	X	

Notes:

1) An "X" indicates that a pump was turned "on" during the majority of the system operating-period for the indicated month. However, flow contributions from individual wells were not measured.
2) The pump-and-treat system began operation on 6/3/09. Startup testing revealed that the line from well EW-8 did not produce water, apparently due to a line break.
3) When installed in May 2009, the pumps were set such that their tops were approximately 1.5 feet below the water table. On 8/10/09, the pumps in wells EW-6 and EW-7 were reset such that their bottoms were approximately 1.5 feet above the well bottom. On 9/9/09, the remaining well pumps were reset in the same manner.
4) The flow meter stopped working some time between site visits on 8/10/09 and 9/1/09, apparently due to fouling of the in-line paddlewheel sensor. After cleaning the sensor on 9/2/09, flow meter function was restored. The volume of water pumped during this period was estimated, and the sensor was subsequently inspected on a monthly basis.
5) The break in the EW-8 line was located and repaired in early December 2009, and pumping from that well was initiated on 12/8/09.
6) The flow meter stopped working some time between site visits on 12/8/09 and 12/22/09. The cause was determined on 1/15/10: the inside of the 2-inch-diameter pipe housing the sensor was fouled to the point that the paddlewheel was shielded from the water flow. After cleaning the pipe, flow meter function was restored. Discharge flow rate was measured manually on 1/5/10, and the volume of water pumped between 12/8/09 and 1/15/10 was estimated. Subsequent monthly fouling inspections included the pipe as well as the paddlewheel sensor.
7) The system automatically shut down on 5/2/10 (est.) due to a clogged settling tank discharge line. The shutdown was discovered on 5/6/10. The discharge line was snaked out and the system restarted on 5/7/10.
8) The system was shut down on 6/8/10 after manual flow rate testing determined that the electronic flow totalizer was programmed incorrectly, resulting in low reporting of flow volumes. The totalizer was reprogrammed and the system restarted on 6/15/10. KCIW was notified on 6/21/10, and issued a Notice of Permit Violation for Exceeding Maximum Daily Discharge Volume dated 9/14/10. The discharge volumes shown in this table have been corrected.
9) The system was shut down on 10/26/10 after an exceedance of the Daily Average limit for arsenic was received from the laboratory. A composite sample was collected immediately prior to system shutdown, and KCIW was notified. The arsenic concentration shown represents the average of the two October 2010 samples.
10) The system was restarted on 12/23/10 after a letter was received from KCIW regarding the October 2010 exceedance.
11) High arsenic results in December 2010 and January 2011 prompted the decision to clean out the settling tank. Accumulated sediment was removed from the tank on 3/10/11 and disposed of as non-hazardous waste.
12) The system was shut down on 4/15/11 after an exceedance of the Daily Average limit for arsenic was received from the laboratory. A grab sample was collected immediately prior to system shutdown, and KCIW was notified. The arsenic concentration shown represents the average of the two April 2011 samples.
13) After visiting the site, KCIW recommended that a "tee" be installed inside the settling tank on the gravity discharge line, and that additional monthly inspection and maintenance steps be completed. The "tee" was installed, and the system was restarted on 6/14/11 after approval was received from KCIW.

FIGURES

NOTES:

1. VERTICAL DATUM: NAVD 88.

2. PLAT DETAILS BASED ON SITE PLAN PROVIDED BY OTAK ON 9/25/06.

3. GROUNDWATER ELEVATIONS AT ACTIVE EXTRACTION WELLS NOT USED TO DEVELOP GROUNDWATER CONTOURS.

4. TOPOGRAPHY IS PROVIDED BY DEGROSS AERIAL MAPPING WITH AERIAL CONTROL BY OTAK, INC. IN 2003. BOUNDARY LINES SHOWN ARE FROM A.L.T.A. A.C.S.M. LAND TITLE SURVEY OF SOUTH PARCEL FOR JAG DEVELOPMENT BY BUSH, ROED AND HITCHINGS, INC DATED 8/22/96 AND A FIELD SURVEY BY OTAK, INC. IN MARCH 2002.

BH-21B
BH-21A
BH-29A
BH-29B
WP-8
PW-CMW-4
WP-1A
BH-16
BH-26A
BH-26B
CMW-5
CMW-6
CMW-4S/4D
Property Boundary
EW-8
PW-CMW-3
CMW-3
EW-5
EW-6
EW-7
N 42ND PL
EW-4
PZ-2
Excavation Footprint
EW-3
PW-CMW-2
CMW-2S/2D
EW-2
EW-1
MILL POND
CMW-1
PW-Control
Remediation System Vault Area
N 41ST PL
PZ-1
Ordinary High Water Mark prior to December 2005 Habitat Restoration
Western extent of emplaced beach gravel or sand/gravel mix, December 2005
LAKE WASHINGTON
WILLIAMS AVE N
MAY CREEK
LAKE WASHINGTON BOULEVARD
BNSF RAILROAD
N 43RD ST

Legend

- Passive Attenuation Zone
- WP-6 — Well Point
- CMW-1 — Monitoring Well Location
- EW-7 — Extraction Well Location
- PZ-1 — Piezometer Location
- PW-CMW-2 — Porewater Sampling Location
- RS — Remediation System Utilities

N

0 100 200

Feet

Aspect CONSULTING

Site Plan

Barbee Mill
4101 Lake Washington Blvd. North, Renton, Washington

DATE: August 2011	PROJECT NO. 050004
DESIGNED BY: JJP	
DRAWN BY: PMB	FIGURE NO. 1
REVISED BY:	

Q:\Barbee Mill\050004 Barbee Mill\2011-08\050004-01.dwg

NOTES:

1. VERTICAL DATUM: NAVD 88.
2. PLAT DETAILS BASED ON SITE PLAN PROVIDED BY OTAK ON 9/25/06.
3. TOPOGRAPHY IS PROVIDED BY DEGROSS AERIAL MAPPING WITH AERIAL CONTROL BY OTAK, INC. IN 2003. BOUNDARY LINES SHOWN ARE FROM A.L.T.A. A.C.S.M. LAND TITLE SURVEY OF SOUTH PARCEL FOR JAG DEVELOPMENT BY BUSH, ROED AND HITCHINGS, INC DATED 8/22/96 AND A FIELD SURVEY BY OTAK, INC. IN MARCH 2002.

LAKE WASHINGTON (17.0 Feet NAVD 88)

BH-21B 20.12
BH-21A 18.73
WP-8 240
BH-29A 18.59 150
BH-29B 19.94
WP-1A 3.0 U
CMW-5 19.31 3.0 U
CMW-4S/4D 18.4/18.83 62/260
CMW-6 20.48 140
BH-16
BH-26A 21.87
BH-26B 20.56
Property Boundary
CMW-3 18.89 3.0 U
EW-8 19.85 380
EW-5 20.98 37
EW-6 20.99 56
EW-7 20.95 4.7
EW-4 20.39 110
EW-3 19.47 190
EW-2 20.06 170
EW-1 20.35 100
CMW-2S/2D 18.07/18.28 3.3/220
CMW-1 18.42 64
MILL POND
Remediation System Vault Area
PZ-1 20.67
PZ-1 20.44
N 42ND PL
N 41ST PL
WILLIAMS AVE N
BNSF RAILROAD
LAKE WASHINGTON BOULEVARD
HCMW-05S/ HCMW-05D
AMW-2
Excavation Footprint
Ordinary High-Water Mark prior to December 2005 Habitat Restoration
Western extent of emplaced beach gravel or sand/gravel mix, December 2005
19
20
21

Legend

- Passive Attenuation Zone
- WP-6 — Well Point
- CMW-1 — Monitoring Well Location
- EW-7 — Extraction Well Location
- PZ-1 — Piezometer Location
- RS — Remediation System Utilities
- 21.36 — Groundwater Elevation (March 2021)
- 410 — Groundwater/Porewater Arsenic Concentration in µg/L (March 2021)
- U — Not Detected at Indicated Detection Limit
- 20 — Groundwater Elevation Contour (March 2021, Dashed Where Inferred)

N

0 100 200
Feet

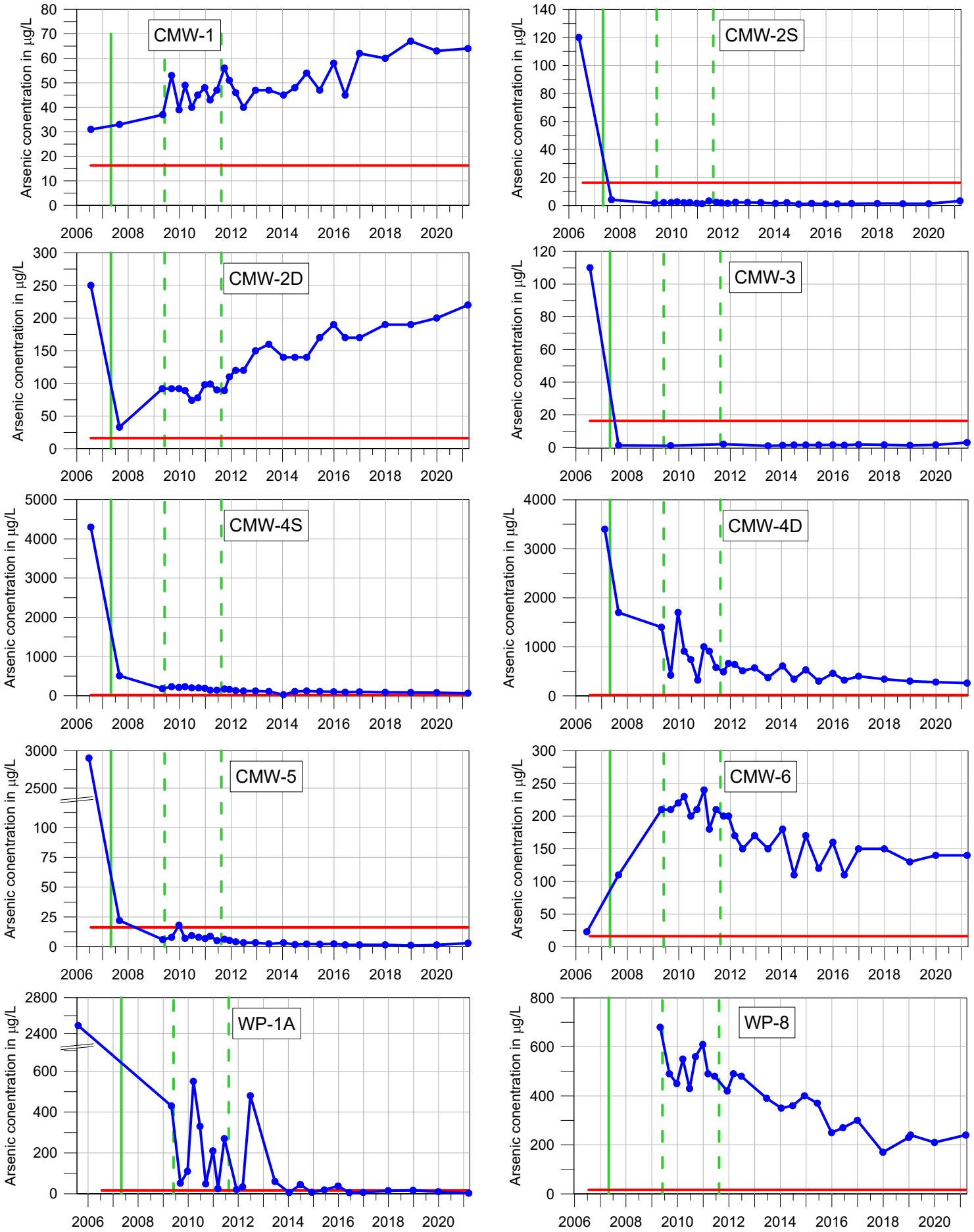
Summary of Arsenic Monitoring Data March 2021

Barbee Mill

4101 Lake Washington Blvd. North, Renton Washington

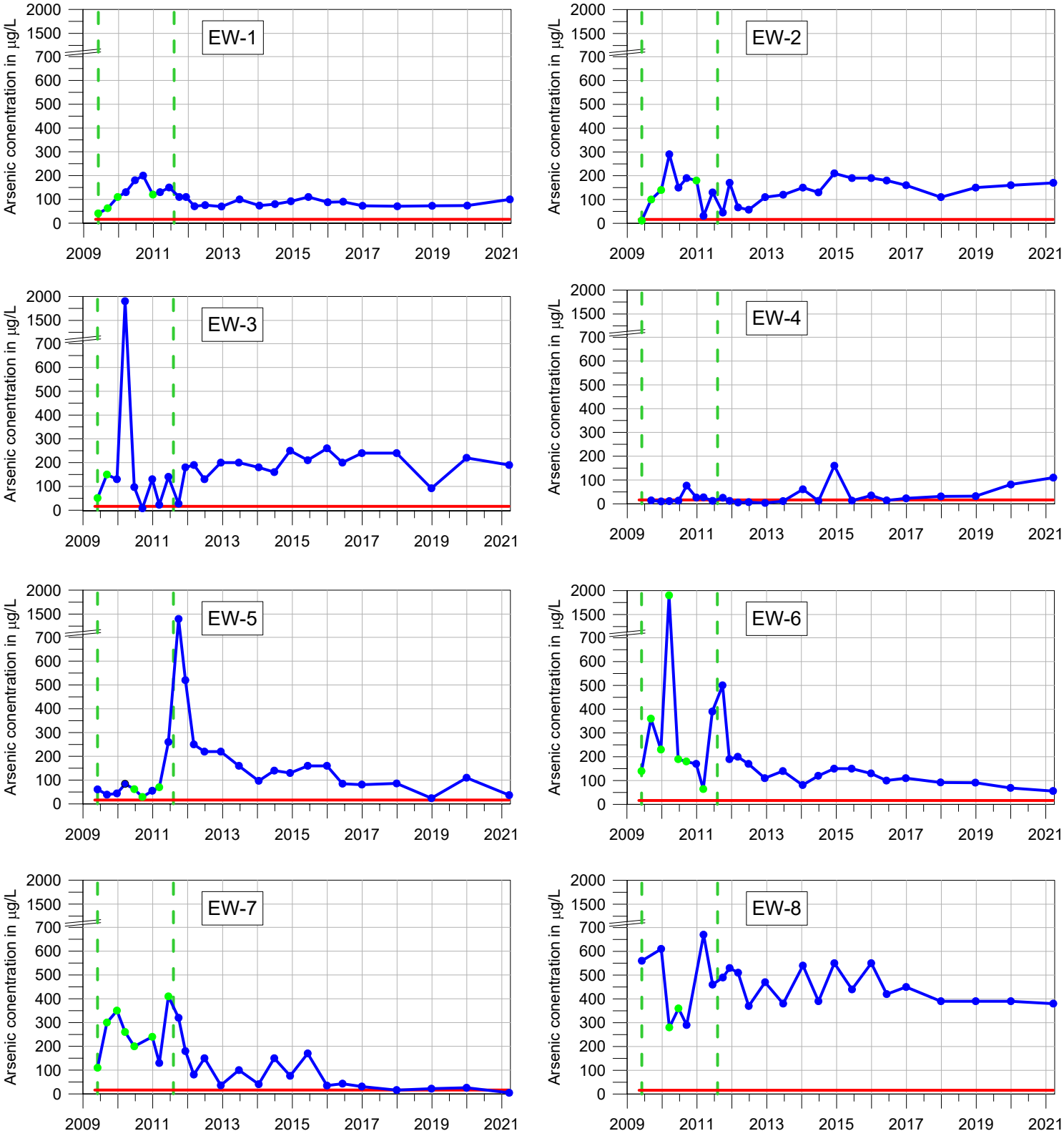
Aspect Consulting	May-2021	BY: DIM/SCC	FIGURE NO. 2
	PROJECT NO. 050004	REV BY: SCC	

CAD Path: Q:\Barbee Mill\050004 Barbee Mill\2021-05 Progress Report\050004-03.dwg GW Contours and Summary Data || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: May 17, 2021 2:48pm || User: soudd



Notes:
Red line represents Site-specific natural background concentration for dissolved Arsenic (16 ug/L).
Solid green Line represents PAZ installation, and dashed green lines represent the startup and shutdown of the Groundwater Pump and Treat System.

Figure 3
Trends in Arsenic Concentrations in Groundwater at Monitoring Wells



Notes:
Red line represents Site-specific natural background concentration for dissolved Arsenic (16 ug/L).
Dashed green lines represent the startup and shutdown of the Groundwater Pump and Treat System.
Total arsenic results are displayed from 9/2009 to 6/2010, Dissolved arsenic results displayed from 9/2010 to present.
Blue symbols represent samples collected while extraction well had not been operating during the month preceding sampling.
Green symbols represent samples collected when extraction well had been operating during the month preceding sampling.

Aspect Consulting
6/01/2021

Figure 4
Trends in Arsenic Concentrations in Groundwater at Extraction Wells
Barbee Mill

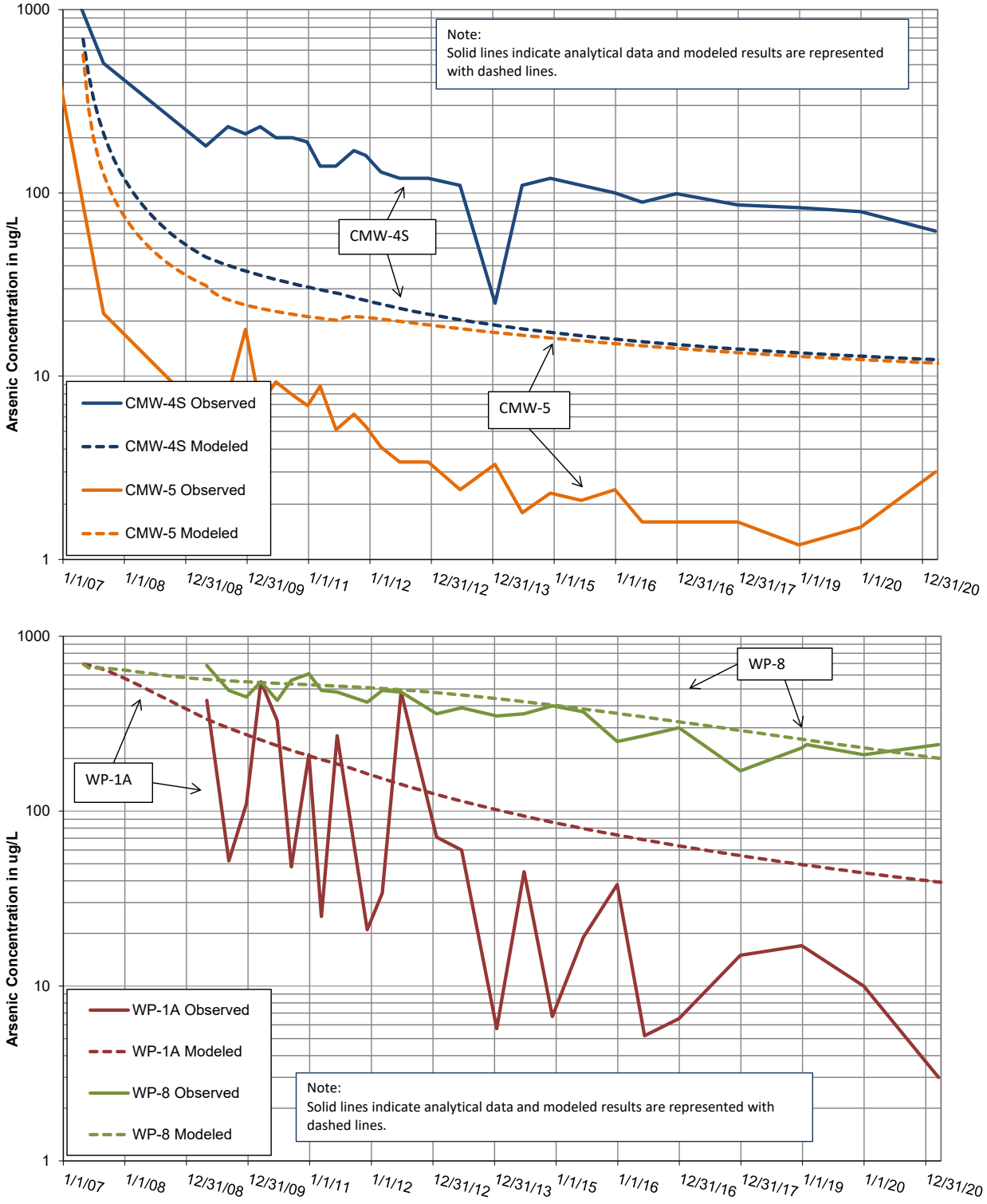


Figure 5
Comparison of Observed and Model-Predicted Arsenic Concentrations Downgradient of PAZ
Performance Monitoring Report
Project No. 050004

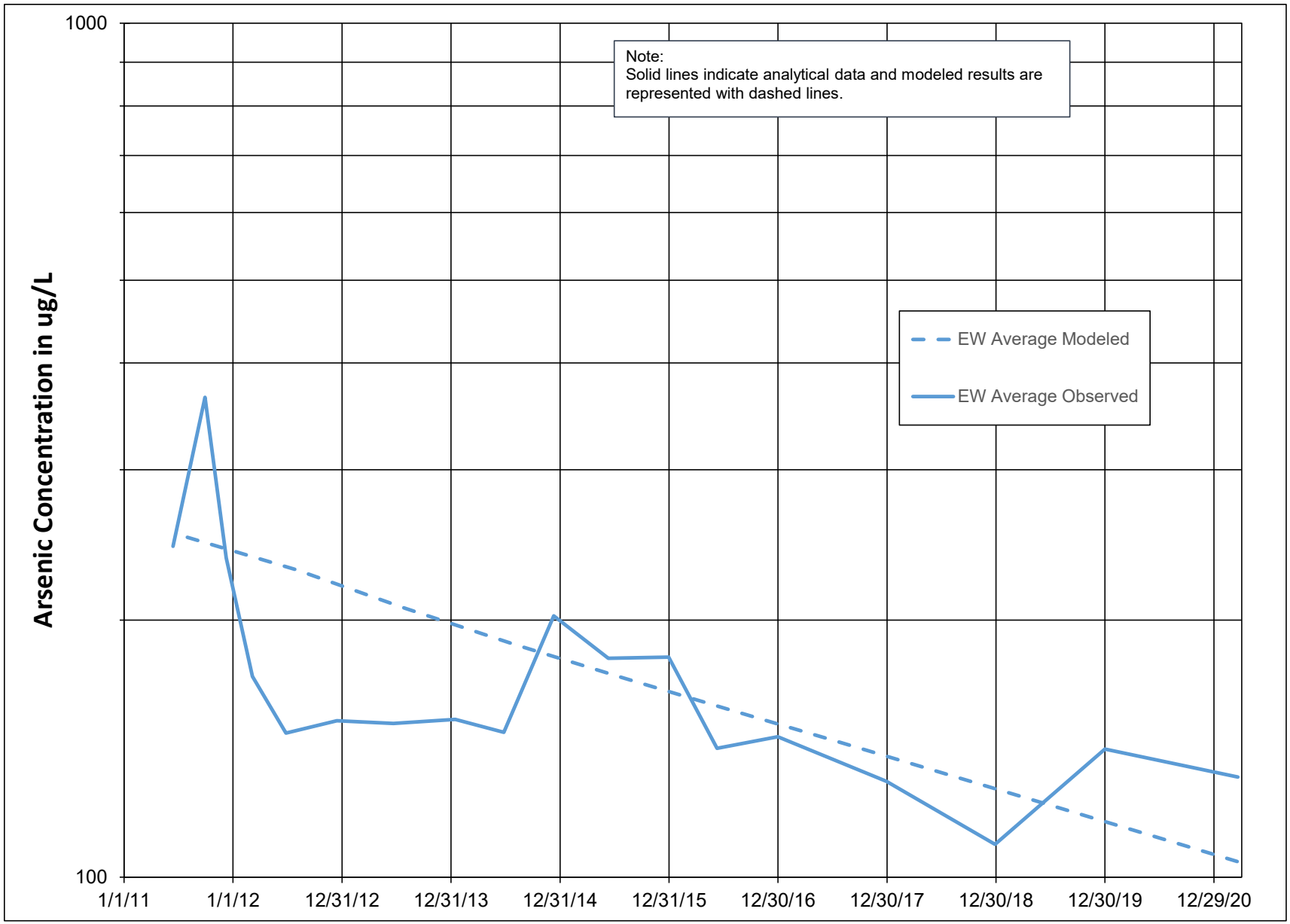


Figure 6
Comparison of Observed and Model-Predicted Average Arsenic Concentrations Upgradient of PAZ
Performance Monitoring Report
Project No. 050004

APPENDIX A

Laboratory Certificates of Analysis - OnSite Environmental, March 2021

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 30, 2021

Delia Massey
Aspect Consulting
Dexter Horton Building
710 2nd Avenue, Suite 550
Seattle, WA 98104

Re: Analytical Data for Project 050004
Laboratory Reference No. 2103-238

Dear Delia:

Enclosed are the analytical results and associated quality control data for samples submitted on March 19, 2021.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

Case Narrative

Samples were collected on March 18 and 19, 2021 and received by the laboratory on March 19, 2021. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

PAHs EPA 8270E/SIM Analysis

Sample EW-2-031921 had one surrogate recovery outside of control limits. This is within allowance of our standard operating procedure as long as the recovery is above 10%.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-4S-031821**					
Laboratory ID:	03-238-04					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*52*	*20 - 106*				
Pyrene-d10	*66*	*26 - 104*				
Terphenyl-d14	*71*	*44 - 127*				

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-1-031821**					
Laboratory ID:	03-238-06					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*55*	*20 - 106*				
Pyrene-d10	*60*	*26 - 104*				
Terphenyl-d14	*70*	*44 - 127*				

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-2S-031821**					
Laboratory ID:	03-238-08					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*56*	*20 - 106*				
Pyrene-d10	*58*	*26 - 104*				
Terphenyl-d14	*71*	*44 - 127*				

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-6-031921**					
Laboratory ID:	03-238-11					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*73*	*20 - 106*				
Pyrene-d10	*70*	*26 - 104*				
Terphenyl-d14	*76*	*44 - 127*				

Date of Report: March 30, 2021
Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2-031921**					
Laboratory ID:	03-238-13					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*111*	*20 - 106*				Q
Pyrene-d10	*68*	*26 - 104*				
Terphenyl-d14	*77*	*44 - 127*				

Date of Report: March 30, 2021
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Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-8-031921**					
Laboratory ID:	03-238-14					
Naphthalene	**ND**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**0.33**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**0.16**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**0.51**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**0.14**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**0.37**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**0.38**	0.11	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**0.037**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**0.032**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**0.012**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.011	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*58*	*20 - 106*				
Pyrene-d10	*70*	*26 - 104*				
Terphenyl-d14	*73*	*44 - 127*				

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Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-4-031921**					
Laboratory ID:	03-238-17					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*53*	*20 - 106*				
Pyrene-d10	*66*	*26 - 104*				
Terphenyl-d14	*68*	*44 - 127*				

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Project: 050004

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6-031921**					
Laboratory ID:	03-238-18					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*58*	*20 - 106*				
Pyrene-d10	*69*	*26 - 104*				
Terphenyl-d14	*74*	*44 - 127*				

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Project: 050004

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0323W1					
Naphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
2-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
1-Methylnaphthalene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthylene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Acenaphthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluorene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Phenanthrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Anthracene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Fluoranthene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Pyrene	**ND**	0.10	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Chrysene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Benzo[g,h,i]perylene	**ND**	0.010	EPA 8270E/SIM	3-23-21	3-23-21	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*58*	*20 - 106*				
Pyrene-d10	*69*	*26 - 104*				
Terphenyl-d14	*78*	*44 - 127*				

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Project: 050004

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0323W1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.254**	**0.251**	0.500	0.500	51	50	30 - 98	1	40	
Acenaphthylene	**0.303**	**0.293**	0.500	0.500	61	59	39 - 106	3	32	
Acenaphthene	**0.301**	**0.287**	0.500	0.500	60	57	36 - 114	5	33	
Fluorene	**0.318**	**0.324**	0.500	0.500	64	65	45 - 112	2	30	
Phenanthrene	**0.316**	**0.323**	0.500	0.500	63	65	51 - 109	2	24	
Anthracene	**0.300**	**0.308**	0.500	0.500	60	62	49 - 109	3	25	
Fluoranthene	**0.360**	**0.355**	0.500	0.500	72	71	53 - 115	1	22	
Pyrene	**0.373**	**0.359**	0.500	0.500	75	72	49 - 129	4	32	
Benzo[a]anthracene	**0.355**	**0.375**	0.500	0.500	71	75	61 - 123	5	24	
Chrysene	**0.368**	**0.373**	0.500	0.500	74	75	59 - 114	1	24	
Benzo[b]fluoranthene	**0.384**	**0.389**	0.500	0.500	77	78	60 - 125	1	26	
Benzo(j,k)fluoranthene	**0.363**	**0.385**	0.500	0.500	73	77	58 - 121	6	22	
Benzo[a]pyrene	**0.350**	**0.375**	0.500	0.500	70	75	58 - 118	7	24	
Indeno(1,2,3-c,d)pyrene	**0.352**	**0.363**	0.500	0.500	70	73	59 - 124	3	26	
Dibenz[a,h]anthracene	**0.370**	**0.381**	0.500	0.500	74	76	59 - 123	3	25	
Benzo[g,h,i]perylene	**0.368**	**0.378**	0.500	0.500	74	76	58 - 120	3	25	
Surrogate:										
2-Fluorobiphenyl					*63*	*57*	*20 - 106*			
Pyrene-d10					*75*	*76*	*26 - 104*			
Terphenyl-d14					*89*	*87*	*44 - 127*			

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Project: 050004

TOTAL METALS
EPA 6020B/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WP-8-031821**					
Laboratory ID:	03-238-01					
Arsenic	**240**	8.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**WP-1A-031821**					
Laboratory ID:	03-238-02					
Arsenic	**ND**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**BH-29A-031821**					
Laboratory ID:	03-238-03					
Arsenic	**140**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-4S-031821**					
Laboratory ID:	03-238-04					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**68**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**ND**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-4D-031821**					
Laboratory ID:	03-238-05					
Arsenic	**250**	8.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-1-031821**					
Laboratory ID:	03-238-06					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**72**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**44**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	

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TOTAL METALS
EPA 6020B/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-3-031821**					
Laboratory ID:	03-238-07					
Arsenic	**ND**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-2S-031821**					
Laboratory ID:	03-238-08					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**3.6**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**43**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-2D-031821**					
Laboratory ID:	03-238-09					
Arsenic	**220**	8.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-5-031921**					
Laboratory ID:	03-238-10					
Arsenic	**ND**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**CMW-6-031921**					
Laboratory ID:	03-238-11					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**140**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**32**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-1-031921**					
Laboratory ID:	03-238-12					
Arsenic	**130**	3.3	EPA 6020B	3-25-21	3-25-21	

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TOTAL METALS
EPA 6020B/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-2-031921**					
Laboratory ID:	03-238-13					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**200**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**34**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-8-031921**					
Laboratory ID:	03-238-14					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**450**	8.3	EPA 6020B	3-25-21	3-25-21	
Barium	**30**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-7-031921**					
Laboratory ID:	03-238-15					
Arsenic	**12**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-3-031921**					
Laboratory ID:	03-238-16					
Arsenic	**210**	3.3	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-4-031921**					
Laboratory ID:	03-238-17					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**130**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**29**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	

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TOTAL METALS
EPA 6020B/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-6-031921**					
Laboratory ID:	03-238-18					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**100**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**ND**	28	EPA 6020B	3-25-21	3-25-21	
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Client ID:	**EW-5-031921**					
Laboratory ID:	03-238-19					
Arsenic	**58**	3.3	EPA 6020B	3-25-21	3-25-21	

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Project: 050004

TOTAL METALS
EPA 6020B/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0325WM1					
Antimony	**ND**	5.6	EPA 6020B	3-25-21	3-25-21	
Arsenic	**ND**	3.3	EPA 6020B	3-25-21	3-25-21	
Barium	**ND**	28	EPA 6020B	3-25-21	3-25-21	
Selenium	**ND**	1.1	EPA 6020B	3-25-21	3-25-21	
Laboratory ID:	MB0325W1					
Mercury	**ND**	0.13	EPA 7470A	3-25-21	3-25-21	

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TOTAL METALS
EPA 6020B/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-238-02										
	ORIG	DUP									
Antimony	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	03-238-04										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	03-238-02										
	MS	MSD	MS	MSD		MS	MSD				
Antimony	**117**	**117**	111	111	ND	**106**	**106**	75-125	0	20	
Arsenic	**115**	**114**	111	111	ND	**104**	**103**	75-125	1	20	
Barium	**114**	**115**	111	111	ND	**103**	**103**	75-125	1	20	
Selenium	**121**	**120**	111	111	ND	**109**	**108**	75-125	1	20	
Laboratory ID:	03-238-04										
Mercury	**11.3**	**11.3**	12.5	12.5	ND	**90**	**90**	75-125	0	20	
SPIKE BLANK											
Laboratory ID:	SB0325WM1										
Antimony	**117**		111		N/A	**106**		80-120			
Arsenic	**115**		111		N/A	**103**		80-120			
Barium	**110**		111		N/A	**99**		80-120			
Selenium	**119**		111		N/A	**108**		80-120			
Laboratory ID:	SB0325W2										
Mercury	**11.8**		12.5		N/A	**95**		80-120			

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Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

DISSOLVED METALS
EPA 6020B/6010D/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**WP-8-031821**					
Laboratory ID:	03-238-01					
Arsenic	**240**	7.5	EPA 6020B		3-25-21	
Iron	**12000**	56	EPA 6010D		3-24-21	
Client ID:	**WP-1A-031821**					
Laboratory ID:	03-238-02					
Arsenic	**ND**	3.0	EPA 6020B		3-25-21	
Iron	**86**	56	EPA 6010D		3-24-21	
Client ID:	**BH-29A-031821**					
Laboratory ID:	03-238-03					
Arsenic	**150**	3.0	EPA 6020B		3-25-21	
Iron	**19000**	56	EPA 6010D		3-24-21	
Client ID:	**CMW-4S-031821**					
Laboratory ID:	03-238-04					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**62**	3.0	EPA 6020B		3-25-21	
Barium	**ND**	25	EPA 6020B		3-25-21	
Iron	**8800**	56	EPA 6010D		3-24-21	
Manganese	**800**	5.0	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**CMW-4D-031821**					
Laboratory ID:	03-238-05					
Arsenic	**260**	7.5	EPA 6020B		3-25-21	
Iron	**9000**	56	EPA 6010D		3-24-21	

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Samples Submitted: March 19, 2021
Laboratory Reference: 2103-238
Project: 050004

DISSOLVED METALS
EPA 6020B/6010D/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-1-031821**					
Laboratory ID:	03-238-06					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**64**	3.0	EPA 6020B		3-25-21	
Barium	**38**	25	EPA 6020B		3-25-21	
Iron	**33000**	250	EPA 6010D		3-24-21	
Manganese	**1800**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**CMW-3-031821**					
Laboratory ID:	03-238-07					
Arsenic	**ND**	3.0	EPA 6020B		3-25-21	
Iron	**33000**	250	EPA 6010D		3-24-21	
Client ID:	**CMW-2S-031821**					
Laboratory ID:	03-238-08					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**3.3**	3.0	EPA 6020B		3-25-21	
Barium	**39**	25	EPA 6020B		3-25-21	
Iron	**65000**	250	EPA 6010D		3-24-21	
Manganese	**1400**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**CMW-2D-031821**					
Laboratory ID:	03-238-09					
Arsenic	**220**	7.5	EPA 6020B		3-25-21	
Iron	**3200**	56	EPA 6010D		3-24-21	
Client ID:	**CMW-5-031921**					
Laboratory ID:	03-238-10					
Arsenic	**ND**	3.0	EPA 6020B		3-25-21	
Iron	**35000**	250	EPA 6010D		3-24-21	

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DISSOLVED METALS
EPA 6020B/6010D/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CMW-6-031921**					
Laboratory ID:	03-238-11					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**140**	3.0	EPA 6020B		3-25-21	
Barium	**27**	25	EPA 6020B		3-25-21	
Iron	**14000**	56	EPA 6010D		3-24-21	
Manganese	**1800**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**EW-1-031921**					
Laboratory ID:	03-238-12					
Arsenic	**100**	3.0	EPA 6020B		3-25-21	
Iron	**15000**	56	EPA 6010D		3-24-21	
Client ID:	**EW-2-031921**					
Laboratory ID:	03-238-13					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**170**	3.0	EPA 6020B		3-25-21	
Barium	**ND**	25	EPA 6020B		3-25-21	
Iron	**23000**	56	EPA 6010D		3-24-21	
Manganese	**1200**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**EW-8-031921**					
Laboratory ID:	03-238-14					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**380**	38	EPA 6020B		3-25-21	
Barium	**ND**	25	EPA 6020B		3-25-21	
Iron	**13000**	56	EPA 6010D		3-24-21	
Manganese	**1700**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	

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DISSOLVED METALS
EPA 6020B/6010D/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**EW-7-031921**					
Laboratory ID:	03-238-15					
Arsenic	**4.7**	3.0	EPA 6020B		3-25-21	
Iron	**150**	56	EPA 6010D		3-24-21	
Client ID:	**EW-3-031921**					
Laboratory ID:	03-238-16					
Arsenic	**190**	7.5	EPA 6020B		3-25-21	
Iron	**19000**	56	EPA 6010D		3-24-21	
Client ID:	**EW-4-031921**					
Laboratory ID:	03-238-17					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**110**	3.0	EPA 6020B		3-25-21	
Barium	**ND**	25	EPA 6020B		3-25-21	
Iron	**8200**	56	EPA 6010D		3-24-21	
Manganese	**1400**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**EW-6-031921**					
Laboratory ID:	03-238-18					
Antimony	**ND**	5.0	EPA 6020B		3-25-21	
Arsenic	**56**	3.0	EPA 6020B		3-25-21	
Barium	**ND**	25	EPA 6020B		3-25-21	
Iron	**6400**	56	EPA 6010D		3-24-21	
Manganese	**940**	13	EPA 6020B		3-25-21	
Mercury	**ND**	0.13	EPA 7470A		3-25-21	
Selenium	**ND**	1.0	EPA 6020B		3-25-21	
Zinc	**ND**	25	EPA 6020B		3-25-21	
Client ID:	**EW-5-031921**					
Laboratory ID:	03-238-19					
Arsenic	**37**	3.0	EPA 6020B		3-25-21	
Iron	**3400**	56	EPA 6010D		3-24-21	

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DISSOLVED METALS
EPA 6020B/6010D/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0324D1					
Iron	**ND**	56	EPA 6010D		3-24-21	
Laboratory ID:	MB0325D1					
Antimony	**ND**	5.0	EPA 6020B		3-24-21	
Arsenic	**ND**	3.0	EPA 6020B		3-24-21	
Barium	**ND**	25	EPA 6020B		3-24-21	
Manganese	**ND**	1.0	EPA 6020B		3-24-21	
Selenium	**ND**	1.0	EPA 6020B		3-24-21	
Zinc	**ND**	25	EPA 6020B		3-24-21	
Laboratory ID:	MB0322F1					
Mercury	**ND**	0.13	EPA 7470A	3-22-21	3-25-21	

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DISSOLVED METALS
EPA 6020B/6010D/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	03-238-02										
	ORIG	DUP									
Iron	**85.6**	**82.0**	NA	NA		NA		NA	4	20	
Laboratory ID:	03-238-02										
Antimony	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Manganese	**39.0**	**38.6**	NA	NA		NA		NA	1	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Zinc	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	03-256-02										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	03-238-02										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**21900**	**22100**	22200	22200	85.6	**98**	**99**	75-125	1	20	
Laboratory ID:	03-238-02										
Antimony	**79.8**	**83.2**	80.0	80.0	ND	**100**	**104**	75-125	4	20	
Arsenic	**79.4**	**82.0**	80.0	80.0	ND	**99**	**103**	75-125	3	20	
Barium	**80.4**	**82.0**	80.0	80.0	ND	**101**	**103**	75-125	2	20	
Manganese	**109**	**111**	80.0	80.0	39.0	**87**	**90**	75-125	2	20	
Selenium	**82.2**	**83.4**	80.0	80.0	ND	**103**	**104**	75-125	1	20	
Zinc	**79.8**	**80.0**	80.0	80.0	ND	**100**	**100**	75-125	0	20	
Laboratory ID:	03-256-02										
Mercury	**11.8**	**11.3**	12.5	12.5	ND	**94**	**90**	75-125	5	20	

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Samples Submitted: March 19, 2021
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DISSOLVED METALS
EPA 6020B/6010D/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	Flags
SPIKE BLANK						
Laboratory ID:	SB0324D1					
Iron	**21100**	22200	N/A	**95**	80-120	
Laboratory ID:	SB0325D1					
Antimony	**78.4**	80.0	N/A	**98**	80-120	
Arsenic	**82.8**	80.0	N/A	**104**	80-120	
Barium	**79.2**	80.0	N/A	**99**	80-120	
Manganese	**77.2**	80.0	N/A	**97**	80-120	
Selenium	**81.8**	80.0	N/A	**102**	80-120	
Zinc	**79.4**	80.0	N/A	**99**	80-120	
Laboratory ID:	SB0322F1					
Mercury	**11.8**	12.5	N/A	**94**	80-120	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Aspect Consulting
Project Number: 050004
Project Name: Barbee Mill
Project Manager: Delia Massey
Sampled by: Baxter Call, Rachel Conwell

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 03-238

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260D	Halogenated Volatiles 8260D	EDB EPA 8011 (Waters Only)	Semivolatiles 8270E/SIM (with low-level PAHs)	PAHs 8270E/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270E/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Total As, Dissolved As, Dissolved Fe	Total As, Ba, Sb, Se, Hg	Dissolved As, Ba, Fe, Sb, Se, Zn, Hg, Mn		% Moisture
1	WP-8-031821	3/18/21	1230	GW	2																		X				
2	WP-1A-031821		1250		2																						
3	BH-29A-031821		1330		2																						
4	CMW-4S-031821		1335		3									X										X	X		
5	CMW-4D-031821		1415		2																						
6	CMW-1-031821		1435		3									X										X	X		
7	CMW-3-031821		1455		2																						
8	CMW-2S-031821		1615		3									X										X	X		
9	CMW-2D-031821		1535		2																						
10	CMW-5-031821	3/19/21	0745		2																						

	Signature	Company	Date	Time
Relinquished	B Call	Aspect	3/19/21	1520
Received		ORE	3/19/21	1520
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Dissolved metals samples field filtered, marked on bottle cap or sample label.

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Aspect Consulting
Project Number: 050007
Project Name: Barbee Mill
Project Manager: Delia Massey
Sampled by: Baxter Call, Rachel Cornwell

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 03-238

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260D	Halogenated Volatiles 8260D	EDB EPA 8011 (Waters Only)	Semivolatiles 8270E/SIM (with low-level PAHs)	PAHs 8270E/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270E/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Total As, Dissolved As	Total Ba, Sb, Se, Hg; Dissolved Fe	Dissolved Sb, Ba, Se, Zn, Hg, Mn		% Moisture
11	CMW-6-031921	3/19/21	0825	GW	3									X									X	X	X		
12	EW-1-031921		0750		2																						
13	EW-2-031921		0900		3									X										X	X		
14	EW-8-031921		0920		3									X										X	X		
15	EW-7-031921		1025		2																						
16	EW-3-031921		0940		2																						
17	EW-4-031921		1625		3									X										X	X		
18	EW-6-031921		1120		3									X										X	X		
19	EW-5-031921		1115		2																						

	Signature	Company	Date	Time
Relinquished	B Call	Aspect	3/19/21	1520
Received		OSE	3/19/21	1520
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Dissolved metals samples field filtered, marked on bottle cap or sample label.

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

APPENDIX B

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.