

ANNUAL PROGRESS REPORT AND PERFORMANCE MONITORING REPORT

Barbee Mill Groundwater Remediation
Project

Prepared for: Barbee Mill Co., Inc.

Project No. AS050004 • February 27, 2025 • FINAL



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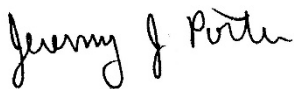
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1 Introduction

Aspect Consulting, a Geosyntec company (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 individual residential homeowners and is located at 4101 Lake Washington Boulevard North in Renton, Washington.
- The Quendall Terminals Property (Quendall Property), located north of the Barbee Property, which includes aquatic lands owned by Lake Washington East, LLC, and formerly 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 pentachlorophenol (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 level¹ 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.

¹ Previous Site documents have identified a Site cleanup level of 20 micrograms per liter (µg/L). Based on Washington State Department of Ecology’s (Ecology) May 27, 2020, comments on the Draft Remedial Investigation (RI) Report (Aspect, 2019b), 20 ug/L will be referred to as an 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.

- 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.

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 Remedial Investigation and Feasibility Study Report (RI/FS; Aspect and Geosyntec, 2024) included an updated description of the nature and extent of arsenic at the Site and identified a final remedy for the Site. The Public Review Draft RI/FS has been approved by the Washington State Department of Ecology (Ecology). See Section 2.2 below. The Draft Cleanup Action Plan (DCAP) has been approved by Ecology and describes the selected remedy, including a compliance monitoring plan.

This report was prepared in accordance with Agreed Order DE 5396 (AO) dated December 1, 2009, Amendment 1 dated December 16, 2010, and Amendment 2 dated May 30, 2012, between Barbee Mill Co., Inc., and Ecology (collectively, the AO). 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 AO Schedule Change Request (Aspect 2020b).

Performance of Site remedial actions through December 2023 were evaluated in the previous Performance Monitoring Report (Aspect, 2024a). The previous Annual Progress Report covered the period from February 2023 to December 2023 (Aspect, 2024a). This performance monitoring report:

- Includes a Site progress report for the period of January 2024 through December 2024.
- Documents the performance monitoring data collected through December 2024, evaluates the performance of the remedial actions by comparing monitoring data with remedial objectives, and updates the estimated 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, 2024, to December 31, 2024, and includes the following information:

- Description of the work completed pursuant to the AO 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, 2024, Reporting Period

Activities completed during January 1 to March 31, 2024, are:

- On January 5, 2024, the Revised Agency Review Draft RI/FS Report was submitted to Ecology for review. Ecology provided comments via email on February 22, 2024.
- On February 27, 2024, the Annual Progress and Performance Monitoring Report (Aspect, 2024a) was submitted to Ecology.
- On March 25, 2024, the Second Revised Agency Review Draft RI/FS was submitted to Ecology for review. Ecology provided minor comments and a Conditional Approval Letter via email on April 2, 2024.

2.2 Activities during April 1-to-June 30, 2024, Reporting Period

Activities completed during April 1 to June 30, 2024, are:

- On June 4, 2024, the Public Review Draft RI/FS (Aspect and Geosyntec, 2024) was submitted to Ecology. Ecology provided approval of the RI/FS for public review via email on June 4, 2024.
- On June 20, 2024, the preliminary Draft Cleanup Action Plan (Aspect, 2024b) was submitted to Ecology for review.

2.3 Activities during July 1-to-September 30, 2024, Reporting Period

Activities completed during July 1 to September 30, 2024, are:

- On July 10, 2024, a call to discuss comments on the DCAP was held with Aspect and Ecology.

- On July 31, 2024, the revised DCAP and revised SEPA checklist was submitted to Ecology. Ecology provided approval of the DCAP via email on August 5, 2024.

2.4 Activities during October 1-to-December 31, 2024, Reporting Period

Activities completed from October 1 to December 31, 2024, are:

- On December 30 and 31, 2024, groundwater monitoring was conducted at Site monitoring wells CMW-1 through CMW-6 and BH-31B, well points WP-1A and WP-8, extraction wells EW-1 through EW-8, and Quendall Terminals monitoring well BH-29A.
 - 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, 2024a).
 - 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. Shallow arsenic concentrations and groundwater elevations from the December 2024 monitoring event are summarized on Figure 2.
 - Deep arsenic concentrations and groundwater elevations from December 2024 are summarized on Figure 3. Trends in arsenic concentrations are shown on Figure 4 for monitoring wells and on Figure 5 for extraction wells. The laboratory certificate of analysis from December 2024 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.

2.5 Anticipated Work in the Upcoming Reporting Period

The monitoring program described in the last Performance Monitoring Report (Aspect, 2024a) calls for groundwater monitoring in 2025 to be conducted on an annual basis. Work scheduled to be performed during the next progress reporting period includes the following:

- Prepare revised DCAP for public comment.
- Finalize the DCAP after the public review period.
- Execute Consent Decree (CD) for implementation of the CAP after the public review period.
- Implement the final cleanup action in accordance with the CD.
- Annual groundwater monitoring, to be completed in December 2025.

The next Annual Progress Report and Performance Monitoring Report will cover the period from January 1 through December 31, 2025, and be submitted by March 1, 2026, in accordance with the AO Schedule Change Request, unless Ecology determines that Barbee Mill has completed the remedial activities required by the AO. If the AO is

complete, monitoring and reporting will be conducted in accordance with the CD and the final CAP.

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:

- 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.
- Collecting groundwater samples at BH-31B, located north of the PAZ, and analyzing for dissolved arsenic, to evaluate the northern extent for arsenic occurrences in deeper groundwater.
- Measuring groundwater elevation 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 2. Arsenic concentrations at each sampling location and estimated shallow and deep groundwater elevation contours from December 2024 are shown on Figures 2 and 3, respectively.

The objectives of the PAZ are:

- 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 any way that would negatively impact aquatic life in Lake Washington.

Groundwater monitoring data are 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 sampling event are very similar to those reported in the previous performance monitoring report and do not exhibit significant seasonal variability. Groundwater monitoring at CMW-1 and CMW-6 indicate:

- Arsenic concentrations at CMW-1 have increased after installation of the PAZ and exceed the Site-specific natural background concentration. The concentration detected in December 2024 (76 µg/L) has increased since December 2023 (62 µg/L), and is the highest concentration measured at this well. Although arsenic concentrations at CMW-1 have an overall increasing trend, the concentration does not exceed the remediation level (REL) identified in the DCAP of 150 ug/L, which is protective of surface water (Aspect, 2024b). Additionally, arsenic was detected in porewater at BM-PW-17 (1.6 µg/L) downgradient of CMW-1 during the RI Data Gaps porewater monitoring event in August 2021², below the Site-specific natural background. The porewater results indicate that dissolved arsenic in groundwater is not impacting surface water downgradient of CMW-1.
- 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 was observed between June 2011 and 2014. Concentrations at this well have been stable since 2014.

² A concurrent porewater sample was not collected with the BM-PW-17 porewater sample, but arsenic concentrations at CMW-1 at adjacent sampling events ranged from 64 ug/L (March 2021) to 70 ug/L (January 2022).

As discussed in the final RI Work Plan (Aspect 2021a), 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 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 5.

It is anticipated future groundwater monitoring will be done in accordance with the DCAP and will continue until Ecology determines that Barbee Mill has completed the remedial activities required by the CD. The groundwater monitoring schedule for 2025, based on the DCAP, is summarized in Table 3.

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 in 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 4. 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.³

Arsenic concentrations at the fourth shallow well—CMW-4S—have dropped 99 percent (to 48 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

³ 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 former operation of the Pump-and-Treat System. However, performance of the PAZ will ultimately be evaluated by the effluent concentrations, not the percent removed.

(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:

- **CMW-2D:** Arsenic concentrations are 12 percent lower than before the PAZ was installed. Concentrations initially decreased sharply, then have gradually increased since the Pump-and-Treat System was shut down in August 2011.
- **CMW-4D:** Arsenic concentrations have been reduced 94 percent as of December 2024. Concentrations have varied considerably (between 216 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 3, 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 2025, and will be performed pursuant to the AO or in accordance with the monitoring plan in the CAP if the CD has been executed.

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 4 and summarized as:

- **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. In December 2024, the arsenic concentration in this well point was 4.9 µg/L.

- **WP-8:** This location was not sampled prior to PAZ installation. Arsenic concentrations at this well point have declined 81 percent since the well point was installed in May 2009 and exhibit a slight downward trend. The arsenic concentration in December 2024 was 130 µg/L. Porewater sampling was completed as part of the RI Work Plan in August 2021 to assess potential impacts to surface water. The 2021 arsenic concentration in porewater at BM-PW-16 (4 µg/L), which was located next to WP-8, was below the Site-specific natural background. The porewater results suggest that dissolved arsenic in groundwater is not impacting surface water near WP-8.
- **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 69 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 3, new downgradient well CMW-7⁴ and BH-29A will be monitored for arsenic in December 2025, in accordance with the monitoring plan in the AO or CAP if the CD has been executed.

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 4. Results indicate:

- 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 (7.3) than upgradient of the PAZ (6.7).
- The average conductivity of groundwater was slightly lower downgradient of the PAZ (358.1 microsiemens per centimeter [µS/cm]) than upgradient of the PAZ (389.2 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 3, PAZ monitoring wells will be monitored in December 2025

⁴ CMW-7 will be installed and sampled pending finalization of the CD in 2025, otherwise WP-1A and WP-8 will be sampled.

for field parameters, in accordance with the monitoring plan in the AO or the CAP if the CD has been executed.

3.2 Shoreline Monitoring

The shoreline was inspected for visual evidence of iron staining downgradient of the PAZ and south of the PAZ.

Minor orange staining, indicative of iron precipitation, was observed on shoreline gravel. Moderate orange staining had been observed before and after installation of the PAZ, and was observed both downgradient of the PAZ and along the shoreline south of the PAZ. The installation of the PAZ has not increased the observed amount of iron staining along the shoreline.

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’). An evaluation based on data through December 2024 is included in this report. Operation and maintenance data from the period of operation is provided in Table 5.

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 5.

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-specific natural background level of 16 µg/L⁵)

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 (January 2024 through December 2024) 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 were used to evaluate alternatives in the draft FS.

⁵ 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-specific natural background level for arsenic (16 µg/L).

Arsenic concentrations at extraction wells are included in Table 1 and trend plots for each well are shown on Figure 5. 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-3, and EW-4) have not exhibited a significant increasing or decreasing trend.⁶
- Although EW-1 does not have a statistically significant overall trend, the arsenic concentration in December 2024 (260 µg/L) was the highest concentration ever measured at the well, and was a 227% increase over the December 2023 concentration (79 µg/L). Concentrations at EW-1 have previously been relatively stable since shutdown of the Pump-and-Treat system, ranging from 60 to 110 µg/L during 2011 to 2023.
- An overall increasing trend in arsenic concentrations was measured at well EW-2 (from 130 to 330 µg/L). Concentrations initially increased at this well, and then became relatively stable from 2014 to 2021. Arsenic concentrations have increased since 2022. The arsenic concentration at EW-2 increased 85% from December 2023 (178 µg/L) to December 2024 (330 µg/L).
- An overall decrease in arsenic concentrations was measured at well EW-8 (from 460 to 260 µg/L). Concentrations at this well have been relatively stable until 2019, when concentrations began to decrease significantly.
- Overall, the average arsenic concentration at the eight extraction wells (EW-1 through EW-8) have declined 63 percent during the pump-and-treat rebound analysis period, from 365 µg/L to 135 µg/L, between September 2011 and December 2024 (see Figure 5).

Overall, arsenic concentrations upgradient of the PAZ are declining in the absence of pump-and-treat. The restoration time frame is discussed in Section 5 below. The data indicate that rebound after shutdown of the Pump-and-Treat System has not occurred. However, two wells (EW-1 and EW-2) exhibited atypical increases in the December 2024 monitoring event; additional data is needed to evaluate if these increases are anomalous.

⁶ 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

As described in the DCAP, groundwater currently meets cleanup levels at the conditional point of compliance; therefore, the estimated restoration time frame is zero years.

6 Conclusions and Recommendations

Site monitoring data indicate that remedial actions have greatly reduced Site arsenic concentrations. 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 Site-specific natural background level.

The increases in arsenic concentrations in December 2024 at shoreline well CMW-1 and upgradient wells EW-1 and EW-2 will be evaluated after future monitoring events to determine whether they are anomalous or represent a significant trend. However, the detected concentrations of arsenic at these locations do not represent a risk to surface water based on the results of groundwater-porewater monitoring in 2021 and shoreline well concentrations remain below the REL identified in the DCAP. Based on the lack of rebound upgradient of the PAZ, the Pump-and-Treat System will remain off but retained as a potential contingency action, as identified in the DCAP.

Future monitoring will depend on confirmation of the selected final remedy and finalization of the compliance monitoring plan included in the DCAP. Until Ecology determines that Barbee Mill has completed the remedial activities required by the AO, monitoring will continue on an annual basis, in December, pending finalization of the CD. We anticipate that the next monitoring event and report will be conducted pursuant to the CD/DCAP.

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8 Limitations

Work for this project was performed for the 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.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

TABLES

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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
		1/6/2022	4.3	18.45	70							33
		1/5/2023	4.68	18.07	64							31
		12/22/2023	4.9	17.85	62							32
		12/31/2024	4.78	17.97	76							30
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	1 U			0.63
		9/8/2009	4.52	17.75	2.1	6.3	1 U	1 U	1 U			1.9
		12/23/2009	5.11	17.16	2.1	5 U	1 U	1 U	1 U			3.1
		3/19/2010	4.10	18.17	2.6	5 U	1 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
		1/6/2022	4.77	17.50	6.3							68
		1/5/2023	5	17.27	5.2							52
		12/22/2023	4.6	17.67	3.2							48
		12/31/2024	4.99	17.28	2.7							55
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	1 U			4.5
		9/8/2009	4.20	18.00	92	8.8	1 U	1 U	1 U			4.2
		12/23/2009	4.81	17.39	92	12	1 U	1 U	1 U			3.4
		3/19/2010	3.79	18.41	89	5 U	1 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
		1/6/2022	3.99	18.21	200							3.9
		1/5/2023	4.46	17.74	170							4
		12/22/2023	5.06	17.14	182							5.2
		12/31/2024	4.52	17.68	220							4.8
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	1 U			0.11
		9/8/2009	4.02	18.39	1.1	5 U	1 U	1 U	1 U			0.086
		12/22/2009	4.02	18.39	1 U	5 U	1 U	1 U	1 U			0.23
		3/19/2010	3.61	18.80	1 U	5 U	1 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
		1/6/2022	2.96	19.45	1.6							46
		1/5/2023	3.51	18.90	1.1							47
		12/22/2023	4.04	18.37	1.3							30
		12/31/2024	3.86	18.55	1.0							35

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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			
1/6/2022	8.89	18.55	93							2.9			
1/5/2023	9.35	18.09	58							12.0			
12/22/2023	9.79	17.65	51							9.7			
12/30/2024	9.55	17.89	48							9.4			
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	
	1/6/2022		8.78	18.81	250							10.0	
	1/5/2023	9.13	18.46	230							7.7		
	12/22/2023	9.50	18.09	216							8.6		
	12/30/2024	9.36	18.23	220							9.4		
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	
		1/6/2022	10.81	20.26	1.0 U							28	
		1/5/2023	11.35	19.72	2							17	
		12/22/2023	12.13	18.94	1.3							31	
		12/30/2024	11.9	19.17	1.7							34	
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	
		1/6/2022	8.43	22.60	150							14	
		1/5/2023	9.58	21.45	140							9	
		12/22/2023	13.60	17.43	139							14	
		12/30/2024	14.07	16.96	160							14	

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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			
1/6/2022			7.8						2.0			
1/5/2023			3.9						0.51			
12/22/2023			4.1						1.70			
12/30/2024			4.9						4			
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			
1/6/2022			180						14			
1/5/2023			140						11			
12/22/2023			132						14			
12/30/2024			130						14			
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		
1/6/2022	5.37	21.44	60							22		
1/5/2023	6.05	20.76	68							17		
12/22/2023	6.76	20.05	79							22		
12/31/2024	6.61	20.20	260							33		
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		
1/6/2022	5.35	21.32	50							7.2		
1/5/2023	6.04	20.63	120							12		
12/1/2023	6.90	19.77	178							23		
12/31/2024	6.65	20.02	330							25		

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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
		1/6/2022	5.94	20.83	59						6.0
		1/5/2023	6.63	20.14	11						0.6
		12/22/2023	7.55	19.22	174						15.0
		12/31/2024	7.33	19.44	51						6
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
		1/6/2022	4.48	23.17	52						7.0
		1/5/2023	6.32	21.33	41						4.8
		12/22/2023	7.34	20.31	14						2.2
		12/30/2024	7.07	20.58	1.0 U						0.1
		EW-5	28.34	6/3/2009			61				
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
1/7/2022	4.51			23.83	17						1.9
1/5/2023	5.98			22.36	30						1.2
12/22/2023	7.22			21.12	30						3.5
12/31/2024	6.95			21.39	74						8.2
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
		1/6/2022	4.77	23.84	65						8.0
		1/5/2023	6.28	22.33	38						3.8
		12/22/2023	7.48	21.13	57						5.6
		12/31/2024	7.23	21.38	93						3.9

Table 1. Summary of Water Level and Chemical Data

Project No. AS050004, Barbee Mill, Renton, Washington

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		
1/6/2022	4.86	23.80	8.1						3.6		
1/5/2023	6.30	22.36	8.4						0.11		
12/22/2023	7.59	21.07	9.6						0.82		
12/31/2024	7.28	21.38	8.0						56 U		
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		
1/6/2022	7.45	21.43	350						13		
1/5/2023	8.31	20.57	240						7.5		
12/22/2023	9.26	19.62	248						11		
12/31/2024	9.08	19.80	260						8.1		
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									
1/6/2022	6.18	21.60									
1/5/2023	6.92	20.86									
12/22/2023	7.49	20.29									
12/30/2024	7.30	20.48									
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									
1/6/2022	4.69	23.18									
1/5/2023	5.40	22.47									
12/22/2023	19.13	8.74									
12/31/2024	6.30	21.57									

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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								
		11/19/2020				4.6						60
		3/18/2021	7.43	18.73								
1/6/2022	7.55	18.61										
2/9/2022	8.23	17.93										
1/5/2023	7.67	18.49										
12/22/2023	6.32	19.84										
12/30/2024	7.84	18.32										
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								
		11/13/2020				160						7.1
		3/18/2021	5.76	20.12								
		1/6/2022	5.98	19.90								
2/9/2022	6.41	19.47										
1/5/2023	6.14	19.74										
12/22/2023	5.15	20.73										
12/30/2024	6.25	19.63										
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								
		11/9/2020				15						33
		3/18/2021	7.11	21.87								
1/6/2022	5.09	23.89										
2/9/2022	7.26	21.72										
1/5/2023	5.94	23.04										
12/22/2023	6.85	22.13										
12/30/2024	6.89	22.09										

Table 1. Summary of Water Level and Chemical Data
Project No. AS050004, Barbee Mill, Renton, Washington

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-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								
		11/6/2020				32						17
		3/18/2021	6.06	20.56								
		1/6/2022	5.96	20.66								
		2/9/2022	6.70	19.92								
		1/5/2023	6.23	20.39								
12/22/2023	7.50	19.12										
12/30/2024	6.46	20.16										
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	
		11/9/2020			110						17	
		3/18/2021	9.05	18.59	150						19	
		1/6/2022	8.97	18.67	120						18	
		2/9/2022	9.80	17.84								
		1/5/2023	9.31	18.33	150						15	
		12/22/2023	9.65	17.99	110						18	
		12/30/2024	9.51	18.13	120						17	
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								
		11/9/2020				3						0.14U
		3/18/2021	7.86	19.94								
		1/6/2022	8.01	19.79								
		2/9/2022	8.56	19.24								
		1/5/2023	8.28	19.52								
		12/22/2023	8.44	19.36								
		12/30/2024	8.38	19.42								
BH-31B	27.24	9/29/2021	8.59	18.65	16							
		1/6/2022	7.22	20.02	30							
		2/9/2022	7.82	19.42	30							
		1/5/2023	7.47	19.77	12							
		12/22/2023	7.57	19.67	29							
		12/30/2024	7.62	19.62	32						11	

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.

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.

Data from wells BH-21A, BH-21B, BH-29A, BH-29B, BH-26A, and BH-26B in 2020 were collected by Geosyntec for the Quendall Site.

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. Arsenic Monitoring Summary

Project No. AS050004, Barbee Mill, Renton, Washington

Well	Location	Arsenic Concentration December 2024 (ug/L)	Arsenic Trend
<i>Wells evaluating effectiveness of capturing arsenic in groundwater</i>			
CMW-1	South end of PAZ	76	Increasing since pump & treat shut down but some fluctuation since 2021.
CMW-6	East end of PAZ	160	Overall no trend. Relatively stable since 2014.
<i>Wells evaluating effectiveness of treating arsenic in groundwater</i>			
CMW-2S	West of PAZ, shallow	2.7	Below background level since PAZ installed.
CMW-3	West of PAZ shallow	1	Below background level since PAZ installed.
CMW-4S	North of PAZ, shallow	48	Decreasing. Declined 99% since PAZ installed but still above background level. May be elevated due to As desorbing from soil downgradient of PAZ.
CMW-5	North of PAZ, shallow	1.7	Below background level since PAZ installed.
CMW-2D	West of PAZ, deep	220	Increasing since pump & treat shut down but some fluctuation since 2021.
CMW-4D	North of PAZ, deep	220	Decreasing since pump & treat shut down. Seasonal variation.
<i>Wells evaluating attenuation of arsenic downgradient of PAZ</i>			
BH-29A	Monitoring well 180 ft downgradient (north) of PAZ, shallow	120	Decreasing trend since 2011.
BH-31B	Monitoring well 200 ft downgradient (northeast) of PAZ, deep	32	Installed in 2021. Overall no trend.
WP-1A	Sediment well point 50 ft downgradient (north) of PAZ, 2 ft below mudline	4.9	Below background level. Declined 98% since PAZ installed. Seasonal variation.
WP-8	Sediment well point 150 ft downgradient (north) of PAZ, 2 ft below mudline	130	Decreasing trend. Declined 81% since May 2009.
<i>Wells evaluating long-term trends upgradient of PAZ</i>			
EW-1	Upgradient of PAZ	260	Overall no trend.
EW-2	Upgradient of PAZ	330	Increasing since pump & treat shut down, with relative stability from 2014 to 2021. Increasing since 2022.
EW-3	Upgradient of PAZ	51	Overall no trend.
EW-4	Upgradient of PAZ	59	Overall no trend. Decreased below background level in 2023.
EW-5	Upgradient of PAZ	74	Decreasing overall.
EW-6	Upgradient of PAZ	93	Decreasing overall.
EW-7	Upgradient of PAZ	8	Decreasing overall. Decreased below background level in 2021.
EW-8	Upgradient of PAZ	260	Decreasing overall.

Notes

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

MW - monitoring well

PAZ - passive attenuation zone

Table 3. Performance and Compliance Monitoring Schedule

Project No. AS050004, Barbee Mill, Renton, Washington

Well	Year
	2025
PAZ Compliance Wells	
CMW-1	A - As
CMW-2S	A - As
CMW-2D	A - As
CMW-3	A - As
CMW-4S	A - As
CMW-4D	A - As
CMW-5	A - As
CMW-6	A - As
Wells and Well Points on Quendall Terminals	
BH-29A	A - As
BH-31B	A - As
CMW-7⁽²⁾	A - As
Groundwater Extraction Wells and Piezometers	
EW-1	WL
EW-2	A - As
EW-3	WL
EW-4	A - As
EW-5	WL
EW-6	A - As
EW-7	WL
EW-8	A - As
PZ-1	WL
PZ-2	WL

Notes:

⁽¹⁾ The 'Monitoring Year' begins in September of the indicated year (i.e., the 2024 monitoring year runs from September 2024 to August 2025).

As discussed in Section 5 of this report, annual monitoring is scheduled to occur in December.

⁽²⁾ New downgradient monitoring well CMW-7 will be installed along the shoreline as part of the cleanup action implementation.

CMW-7 will replace WP-1A and WP-8.

A Annual

WL Monitored for water levels only.

-- 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 2025

As Arsenic

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/6/2022	12.10	424	0.32	6.33	-80.7	3.6
	1/6/2023	11.87	348	0.13	6.47	43.7	1.3
	12/22/2023	11.28	315	0.14	6.41	-40.1	1.2
	12/31/2024	12.26	263	0.10	6.52	34.6	0.6
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
	1/6/2022	12.70	533	0.22	6.75	-137.5	4.4
	1/6/2023	12.91	366	0.05	6.97	-108.9	2.2
	12/22/2023	13.50	344	0.09	7.14	-140.1	2.3
	12/31/2024	12.77	306	0.07	7.10	-137.2	3.2
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
	1/7/2022	12.60	603	0.27	6.59	-57.2	3.6
	1/6/2023	12.96	505	0.19	6.73	-25.0	2.8
	12/22/2023	13.39	463	0.14	6.83	-43.4	1.7
	12/31/2024	13.18	432	0.13	6.85	-75.3	1.6

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/6/2022	10.40	377	0.20	7.28	-186.0	6.7
	1/6/2023	10.15	300	0.04	7.62	-153.2	4.0
	12/22/2023	12.08	217	0.00	7.61	-204.6	14.3
	12/31/2024	11.64	256	0.05	7.71	-196.2	1.7
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
	1/6/2022	12.20	159	0.32	6.49	-27.4	8.2
	1/6/2023	12.90	249	0.09	6.76	-66.7	3.5
	12/22/2023	13.33	128	0.04	6.95	-92.3	9.7
	12/30/2024	12.66	262	0.14	6.91	-75.8	4.6
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
	1/6/2022	13.00	320	0.19	6.54	-61.4	5.1
	1/6/2023	13.31	215	6.19	6.81	-75.2	1.3
	12/22/2023	13.05	124	0.05	6.88	-74.3	6.0
	12/30/2024	12.85	197	0.07	6.58	-60.9	3.5

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/6/2022	12.70	316	0.86	7.05	-145.6	2.3
	1/6/2023	13.86	174	0.20	7.42	-139.1	1.9
	12/22/2023	12.15	192	0.06	7.34	-157.1	10.3
	12/30/2024	13.72	299	0.15	7.13	-147.5	2.7
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
	1/7/2022	14.60	381	0.28	6.46	-23.3	1.5
	1/6/2023	14.64	252	0.15	6.59	-111.9	1.6
	12/22/2023	14.01	232	0.13	6.63	-61.4	7.8
	12/30/2024	13.52	332	0.19	6.37	43.3	2.9
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
	1/7/2022	7.10	175	5.17	6.79	-52.2	98.0
	1/5/2023	10.41	266	0.11	6.88	109.9	6.1
	12/22/2023	8.36	180	0.04	6.87	5.2	7.4
	12/30/2024	8.27	197	0.13	6.63	0.5	5.2

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Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/7/2022	6.70	353	0.36	6.57	-63.2	2.1
	1/5/2023	11.10	342	6.23	6.97	-60.8	3.5
	12/22/2023	8.92	323	0.16	6.86	-59.7	2.7
	12/30/2024	8.95	385	0.82	6.82	-59.9	0.6
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
	1/7/2022	13.20	286	0.20	6.36	-13.6	2.3
	1/5/2023	13.18	252	0.08	6.61	-49.1	1.8
	12/22/2023	8.71	186	0.04	6.69	-66.1	3.9
	12/31/2024	8.76	208	0.10	6.58	-45.2	0.2
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
	1/7/2022	9.30	307	1.21	6.43	-18.4	3.9
	1/5/2023	12.60	269	1.51	6.73	-64.1	1.6
	12/22/2023	8.62	257	0.09	6.72	-88.1	1.0
	12/31/2024	8.81	209	0.08	6.65	-64.6	0.3

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/7/2022	9.40	306	1.07	6.35	43.1	77.5
	1/5/2023	11.86	196	0.23	6.98	69.3	84.2
	12/22/2023	12.34	203	0.12	6.75	-76.6	2.1
	12/31/2024	11.67	241	0.18	6.59	17.8	3.7
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
	1/7/2022	12.60	454	0.28	6.82	-51.7	12.6
	1/5/2023	12.95	344	0.01	7.03	21.9	11.0
	12/22/2023	12.42	422	0.14	7.14	-32.8	12.6
	12/31/2024	12.11	481	0.49	7.22	8.7	23.6
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
	1/7/2022	11.60	217	1.32	6.62	-20.0	2.9
	1/5/2023	11.60	123	0.19	6.98	-67.4	2.8
	12/22/2023	8.83	90	0.04	6.71	-51.3	2.2
	12/31/2024	8.80	95	0.39	6.41	-22.3	0.4

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/7/2022	10.30	313	0.30	6.47	-21.0	6.9
	1/5/2023	11.73	192	0.36	6.78	-70.2	4.3
	12/22/2023	8.47	156	0.25	6.49	9.6	2.6
	12/31/2024	9.02	131	0.07	6.40	-1.9	0.3
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
	1/7/2022	12.20	414	3.97	6.98	-19.5	2.0
	1/5/2023	11.94	311	2.78	7.24	-7.6	1.3
	12/22/2023	12.17	170	0.32	7.10	-23.3	2.9
	12/31/2024	7.33	147	0.29	6.93	9.9	2.1
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
	1/7/2022	11.60	267	0.30	6.41	-15.0	10.7
	1/5/2023	13.70	214	0.14	6.82	-67.5	1.4
	12/22/2023	8.64	180	0.09	6.53	3.6	2.8
	12/31/2024	8.90	147	0.05	6.41	5.4	0.2

Table 4. Summary of Field Parameter Data
Project No. AS050004, Barbee Mill, Renton, Washington

	Date	Temperature	Specific Conductance	Dissolved Oxygen	pH	Eh ORP	Turbidity
Location	Units	Degrees C	us/cm	mg/L	-	mv	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
	1/6/2022	12.50	463	0.24	6.48	-58.0	4.9
	1/6/2023	12.00	334	6.22	6.75	-67.9	1.3
	12/22/2023	12.35	353	0.13	6.70	-49.5	1.0
	12/30/2024	12.32	418	0.16	6.74	-65.9	0.68
BH-31B	9/29/2021	13.80	242	0.80	6.48	84.2	44.1
	1/6/2022	11.6	556	0.34	6.68	-69.5	14.1
	2/9/2022	12.4	510	0.13	7.07	-97.1	2.36
	1/6/2023	12	373	0.34	7.08	-13.2	8.55
	12/22/2023	11.4	438	0.21	7.07	-88.8	2.35
	12/30/2024	12.26	516	0.27	7.06	-99.1	0.88

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

Table 5. Cumulative Discharge Volume and Estimated Arsenic Removal

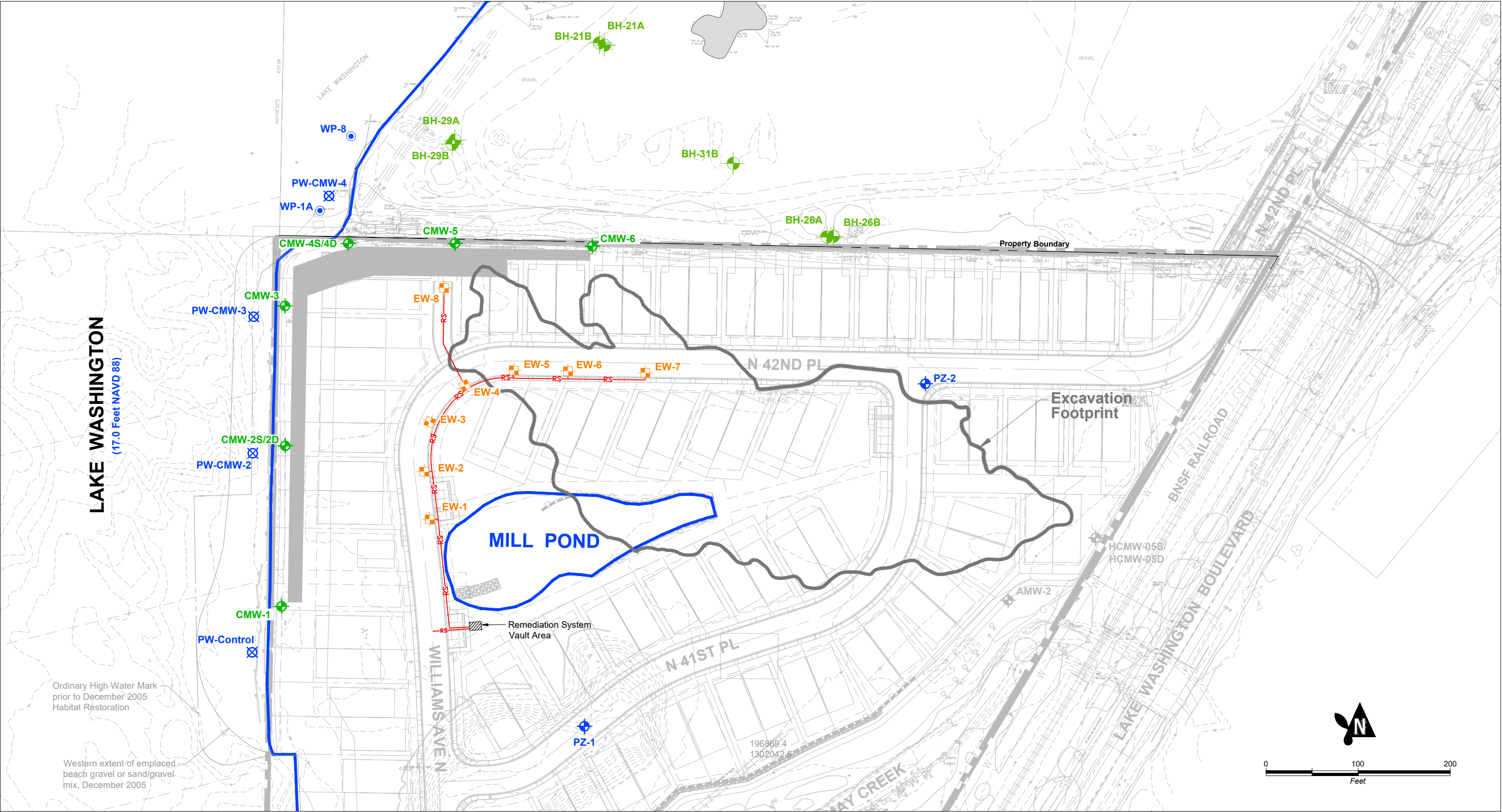
Project No. AS050004, Barbee Mill, Renton, Washington

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. 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.

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

Site Plan
Barbee Mill Site
Performance Monitoring Report
Renton Washington



Feb-2023
PROJECT NO.
050004

BY:
AO/SCC
REV BY:
AF/SCC

FIGURE NO.
1



Lake Washington

Quendall Property
Barbee Property

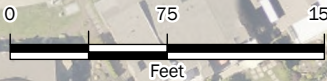
- Quendall Site Monitoring Well
- Shallow Alluvium Wells
 - Deep Alluvium Wells
 - Shallow Alluvium Wells
 - Wellpoint
 - Extraction Well
 - PAZ Performance Monitoring Well

- Piezometer
- Shallow Groundwater Contours
- Arsenic-Contaminated Soil Excavation Area
- Barbee Property Line

BH29A
120
18.13 ft

← Sample ID
← Arsenic Concentration
← Groundwater Elevation

Note:
- GW elevation of the arsenic-contaminated soil excavation area is assumed to be 22.36' bgs, due to backfill with permeable material and elevations of wells installed within backfill (EW-5, EW-6, and EW-7)
- Red indicates dissolved arsenic concentration in exceedance of the 16 ug/L screening level
- Monitoring wells with asterisk were not used to define groundwater elevation contours.



Summary of Shallow Arsenic Monitoring Data - December 2024

Barbee Mill Site
Performance Monitoring Report

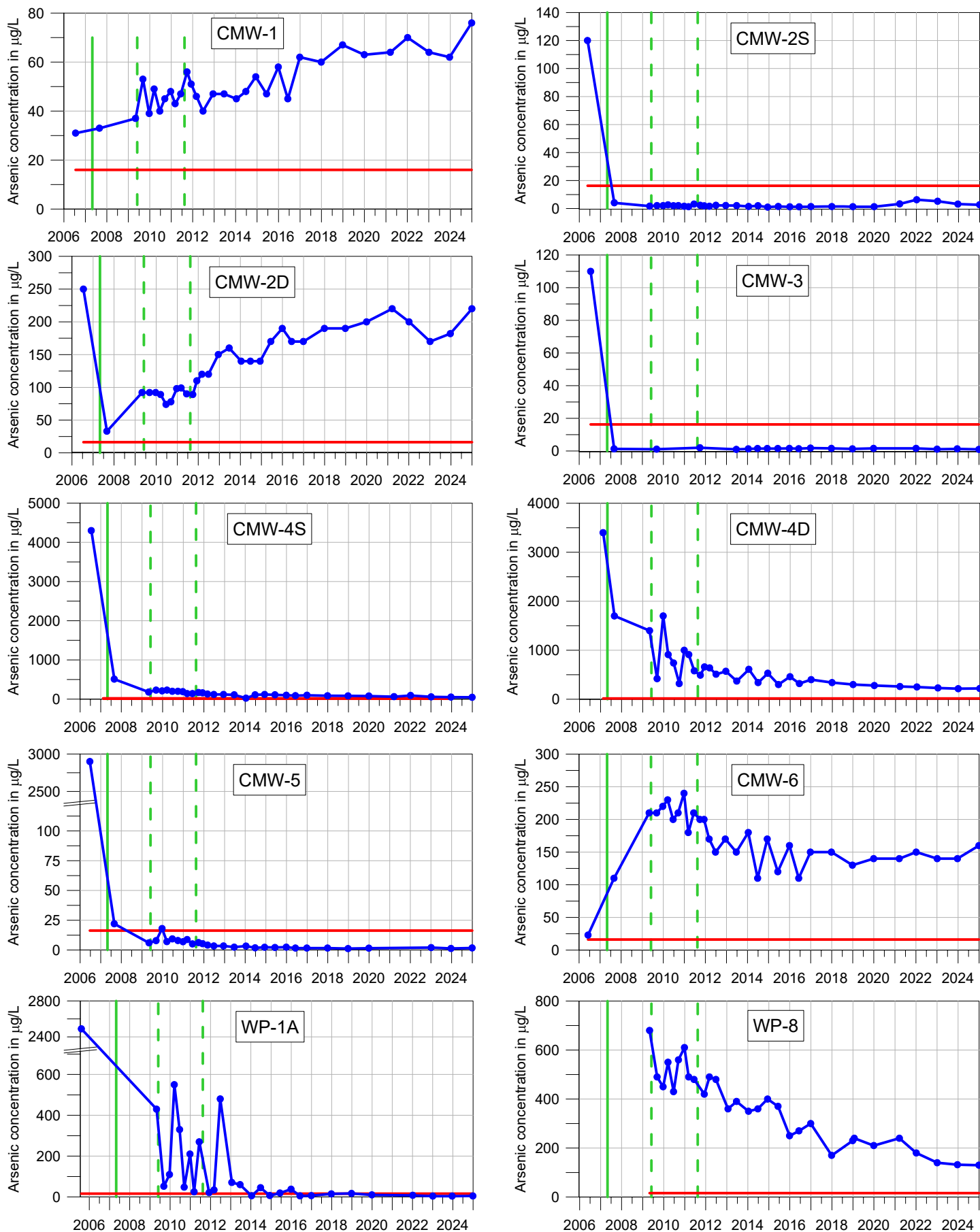


FEB-2025
PROJECT NO.
050004

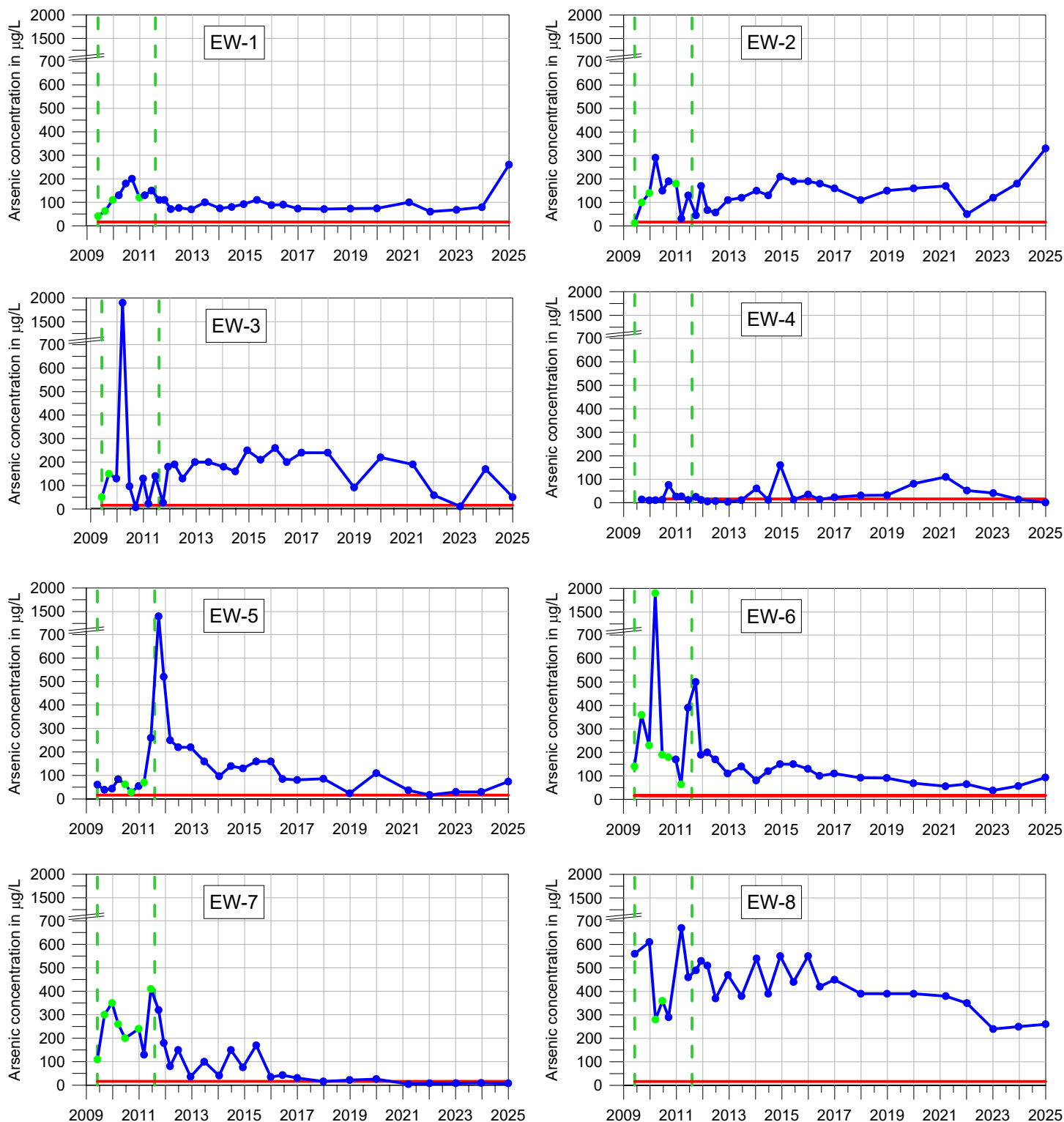
BY:
DJM / NCP
REV BY:
HMD

FIGURE NO.
2





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



Notes:

Red line represents Site-specific natural background concentration for dissolved Arsenic (16 µg/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.

APPENDIX A

**Data Validation Report and Laboratory
Certificates of Analysis –
OnSite Environmental, December 2024**



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

January 14, 2025

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

Re: Analytical Data for Project AS050004
Laboratory Reference No. 2501-004

Dear Delia:

Enclosed are the analytical results and associated quality control data for samples submitted on January 2, 2025.

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,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures



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

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 14, 2025
Samples Submitted: January 2, 2025
Laboratory Reference: 2501-004
Project: AS050004

Case Narrative

Samples were collected on December 30 and 31, 2024 and received by the laboratory on January 2, 2024. 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. However the soil results for the QA/QC samples are reported on a wet-weight basis.

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.



Date of Report: January 14, 2025
 Samples Submitted: January 2, 2025
 Laboratory Reference: 2501-004
 Project: AS050004

DISSOLVED METALS
EPA 6020B/6010D

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: BH-29A-20241230						
Laboratory ID:	01-004-01					
Arsenic	120	1.0	EPA 6020B		1-10-25	
Iron	17000	56	EPA 6010D		1-6-25	

Client ID: BH-31B-20241230						
Laboratory ID:	01-004-02					
Arsenic	32	1.0	EPA 6020B		1-10-25	
Iron	11000	56	EPA 6010D		1-6-25	

Client ID: CMW-1-20241231						
Laboratory ID:	01-004-03					
Arsenic	76	1.0	EPA 6020B		1-10-25	
Iron	30000	56	EPA 6010D		1-6-25	

Client ID: CMW-2D-20241231						
Laboratory ID:	01-004-04					
Arsenic	220	2.5	EPA 6020B		1-10-25	
Iron	4800	56	EPA 6010D		1-6-25	

Client ID: CMW-2S-20241231						
Laboratory ID:	01-004-05					
Arsenic	2.7	1.0	EPA 6020B		1-10-25	
Iron	55000	250	EPA 6010D		1-6-25	

Client ID: CMW-3-20241231						
Laboratory ID:	01-004-06					
Arsenic	1.0	1.0	EPA 6020B		1-10-25	
Iron	35000	250	EPA 6010D		1-6-25	

Client ID: CMW-4D-20241230						
Laboratory ID:	01-004-07					
Arsenic	220	2.5	EPA 6020B		1-10-25	
Iron	9400	56	EPA 6010D		1-6-25	



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This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 14, 2025
 Samples Submitted: January 2, 2025
 Laboratory Reference: 2501-004
 Project: AS050004

DISSOLVED METALS
EPA 6020B/6010D

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CMW-4S-20241230						
Laboratory ID:	01-004-08					
Arsenic	48	1.0	EPA 6020B		1-10-25	
Iron	9800	56	EPA 6010D		1-6-25	

Client ID: CMW-5-20241230						
Laboratory ID:	01-004-09					
Arsenic	1.7	1.0	EPA 6020B		1-10-25	
Iron	34000	250	EPA 6010D		1-6-25	

Client ID: CMW-6-20241230						
Laboratory ID:	01-004-10					
Arsenic	160	1.0	EPA 6020B		1-10-25	
Iron	14000	56	EPA 6010D		1-6-25	

Client ID: EW-1-20241231						
Laboratory ID:	01-004-11					
Arsenic	260	2.5	EPA 6020B		1-10-25	
Iron	33000	250	EPA 6010D		1-6-25	

Client ID: EW-2-20241231						
Laboratory ID:	01-004-12					
Arsenic	330	2.5	EPA 6020B		1-10-25	
Iron	25000	56	EPA 6010D		1-6-25	

Client ID: EW-4-20241231						
Laboratory ID:	01-004-13					
Arsenic	ND	1.0	EPA 6020B		1-10-25	
Iron	92	56	EPA 6010D		1-6-25	

Client ID: EW-3-20241231						
Laboratory ID:	01-004-14					
Arsenic	51	1.0	EPA 6020B		1-10-25	
Iron	6400	56	EPA 6010D		1-6-25	



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

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 14, 2025
 Samples Submitted: January 2, 2025
 Laboratory Reference: 2501-004
 Project: AS050004

DISSOLVED METALS
EPA 6020B/6010D

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: EW-5-20241231						
Laboratory ID: 01-004-15						
Arsenic	74	1.0	EPA 6020B		1-10-25	
Iron	8200	56	EPA 6010D		1-6-25	

Client ID: EW-6-20241231						
Laboratory ID: 01-004-16						
Arsenic	93	1.0	EPA 6020B		1-10-25	
Iron	3900	56	EPA 6010D		1-6-25	

Client ID: EW-7-20241231						
Laboratory ID: 01-004-17						
Arsenic	8.0	1.0	EPA 6020B		1-10-25	
Iron	ND	56	EPA 6010D		1-6-25	

Client ID: EW-8-20241231						
Laboratory ID: 01-004-18						
Arsenic	260	2.5	EPA 6020B		1-10-25	
Iron	8100	56	EPA 6010D		1-6-25	

Client ID: WP-1A-20241230						
Laboratory ID: 01-004-19						
Arsenic	4.9	1.0	EPA 6020B		1-10-25	
Iron	3600	56	EPA 6010D		1-6-25	

Client ID: WP-8-20241230						
Laboratory ID: 01-004-20						
Arsenic	130	1.0	EPA 6020B		1-10-25	
Iron	14000	56	EPA 6010D		1-6-25	



Date of Report: January 14, 2025
 Samples Submitted: January 2, 2025
 Laboratory Reference: 2501-004
 Project: AS050004

**DISSOLVED METALS
 EPA 6020B/6010D
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0106D1					
Iron	ND	56	EPA 6010D		1-6-25	
Laboratory ID:	MB0110D1					
Arsenic	ND	1.0	EPA 6020B		1-10-25	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-004-04							
	ORIG	DUP						
Iron	4840	4880	NA	NA	NA	NA	1	20
Laboratory ID:	01-004-06							
Arsenic	1.01	1.05	NA	NA	NA	NA	4	20

MATRIX SPIKES

Laboratory ID:	01-004-04									
	MS	MSD	MS	MSD		MS	MSD			
Iron	30000	30200	22200	22200	4840	113	114	75-125	1	20
Laboratory ID:	01-004-06									
Arsenic	83.4	87.4	80.0	80.0	ND	104	109	75-125	5	20

SPIKE BLANK

Laboratory ID:	SB0106D1				
Iron	23800	22200	N/A	107	80-120
Laboratory ID:	SB0110D1				
Arsenic	79.6	80.0	N/A	100	80-120





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.
- X2 - Sample extract treated with a 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.
- Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

[illegible]