PERFORMANCE MONITORING REPORT

Barbee Mill Groundwater Remediation Project

Prepared for: Barbee Mill Co., Inc.

Project No. 050004-008-03 • July 31, 2020 FINAL

Aspect CONSULTING

earth + water

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Aspect Consulting, LLC

7/31/2020

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A Report Limitations and Guidelines for Use

1 Introduction

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

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

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

- Removing soil from the Site that exceeds Washington State Model Toxic Control Act (MTCA) Method A cleanup levels for arsenic and total petroleum hydrocarbons (TPH) and MTCA Method B cleanup levels for zinc
- Installing a Passive Attenuation Zone (PAZ) along the downgradient boundary of the Barbee Property to prevent arsenic above the interim action remediation level[1] from migrating off the Barbee Property
- Installing a Groundwater Extraction and Treatment (Pump-and-Treat) System upgradient of the PAZ to remove additional arsenic mass from groundwater to enhance performance of the PAZ
- Installing a network of monitoring wells and piezometers to evaluate performance of the PAZ and Pump-and-Treat System

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).

This report was prepared in accordance with Agreed Order DE 5396 (AO), dated December 1, 2009, and including Amendment 1 dated December 16, 2010, and Amendment 2 dated May 30, 2012, between Barbee Mill Co., Inc. and the Washington State Department of Ecology (Ecology). The AO requires evaluation of remediation performance and reevaluation of restoration time frame on an annual basis. Performance of Site remedial actions through June 2019 was evaluated in the previous performance monitoring report (Aspect, 2019a). This report documents the performance monitoring data collected through

[1] Previous Site documents have identified a Site cleanup level of 20 ug/L. Based on Ecology comments on the RI Report (Aspect, 2019b) that were issued on May 27, 2020, Ecology considers that concentration to be the interim action remediation level, not the Site cleanup level.

December 2019, evaluates the performance of the remedial actions by comparing monitoring data with remedial objectives, and updates the estimate of the Site restoration time frame.

The report is organized as follows:

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

2 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.

2.1 Groundwater Monitoring

Ongoing groundwater monitoring for the PAZ includes the following:

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

The groundwater monitoring data is summarized in Table 1. Arsenic concentrations at each sampling location and estimated groundwater elevation contours from December 2019 are shown on Figure 2.

The objectives of the PAZ are as follows:

- To intercept arsenic in groundwater exceeding the interim action remediation level of 20 micrograms per liter (µg/L) at the Barbee Property boundary
- To reduce arsenic concentrations in groundwater exiting the PAZ to less than 20 µg/L
- To not alter water quality in groundwater in such a way that would negatively impact aquatic life in Lake Washington

Groundwater monitoring data is evaluated relative to these objectives below.

2.1.1 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 interim action remediation level of 20 µg/L, they were within the range of upgradient background concentrations (which were as high as 28 µg/L) used to calculate the remediation level.

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

- Arsenic concentrations at CMW-1 increased slightly after installation of the PAZ and slightly exceed the remediation level. The concentration detected in December 2019 (63 µg/L) was slightly lower than detected in December 2018 (67 µg/L). Arsenic was not detected downgradient of CMW-1 during the most recent porewater monitoring event (Aspect, 2011). The arsenic concentrations at CMW-1 have exhibited an increasing trend[3] since porewater monitoring was last conducted.
- Arsenic concentrations at CMW-6 increased after installation of the PAZ and exceed the remediation level. Since May 2009, concentrations have fluctuated slightly, ranging between 110 and 240 µg/L. An overall downward trend has been observed since June 2011. The concentration detected in December 2019 (140 µg/L) was slightly higher than detected in December 2018 (130 µg/L).

Although arsenic concentrations at CMW-1 and CMW-6 exceed the remediation level, the removal of 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 remediation level. The Site restoration time frame is discussed in Section 4.

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

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

In accordance with the Performance Monitoring Plan, groundwater will be monitored for arsenic at CMW-1 and CMW-6 and groundwater elevations will be measured at all Site monitoring wells annually. The groundwater monitoring schedule is summarized in Table 2.

2.1.2 Arsenic Removal

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

2.1.2.1 PAZ Treatment Effectiveness

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

Arsenic concentrations at PAZ monitoring wells are summarized in Table 1 and shown on Figure 3. Concentrations at three of the four shallow wells—CMW-2S, CMW-3, and CMW-5—have consistently been below the remediation 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.[4]

The concentration at the fourth shallow well—CMW-4S—has dropped 98 percent (to 79 µg/L) compared to pre-remediation conditions. This concentration is above the remediation level of 20 µg/L. As discussed in the previous performance monitoring reports, the concentration at CMW-4S is likely elevated due to arsenic desorbing from soil downgradient of the PAZ. Contaminant fate-and-transport modeling (see Section 4) indicates that a more gradual decline in concentrations downgradient of the PAZ is consistent with the desorption and gradual flushing of residual arsenic on soil.

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

- **At CMW-2D:** Concentrations are 20 percent lower than before the PAZ was installed. Concentrations initially decreased sharply but have increased since the Pump-and-Treat System was shut down in August 2011. This well was redeveloped prior to the June 2016 sampling event to ensure that the well screen is in good hydraulic connection with the deep aquifer. The arsenic concentration has increased

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

slightly from 170 µg/L immediately post-redevelopment to 200 µg/L in December 2019.

- **At CMW-4D:** Concentrations have been reduced 92 percent as of December 2018. Concentrations have varied considerably (between 280 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 2, 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 2020.

2.1.2.2 Attenuation Downgradient of the PAZ

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

- **WP-1A:** Arsenic concentrations have declined 99 percent at this location since the PAZ was installed. Arsenic concentrations at this location have historically exhibited significant seasonal variation. A concentration of 10 µg/L was observed in December 2019.
- **WP-8:** This location was not sampled prior to PAZ installation. Arsenic concentrations at this well point have declined 69 percent since the well point was installed in May 2009 and exhibit a slight downward trend.
- **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 51 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. Additional data are needed to evaluate trends at BH-29A. As

summarized in Table 2, WP-1A, WP-8, and BH-29A will be monitored for arsenic in December 2020.

2.1.3 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 3. Results indicated the following:

- At locations downgradient of the PAZ where iron was analyzed before and after installation of the PAZ (CMW-3, CMW-4S, at CMW-4D), dissolved iron concentrations are below those measured before PAZ installation.
- Little difference in temperature, dissolved oxygen, or ORP was noted between wells downgradient of the PAZ (CMW-2S, CMW-2D, CMW-3, CMW-4S, CMW-4D, and CMW-5) and wells up- or cross-gradient of the PAZ (EW-1 through EW-8, CMW-1, and CMW-6).
- The average pH of groundwater was slightly higher downgradient of the PAZ (7.4) than upgradient of the PAZ (6.7).
- The average conductivity of groundwater was slightly lower downgradient of the PAZ (360 microsiemes per centimeter [µs/cm]) than upgradient of the PAZ (412.2 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 2, PAZ monitoring wells will continue to be monitored annually for dissolved iron and field parameters.

3 Pump-and-Treat System Performance Monitoring

The Pump-and-Treat System became operational on June 3, 2009. The system was shut down on August 5, 2011, to evaluate the potential for arsenic concentrations in groundwater to increase (i.e., rebound) in the absence of pump-and-treat (termed 'the rebound analysis'). The rebound analysis is ongoing. An evaluation based on data through December 2019 is included in this report. Operation and maintenance data from the period of operation is provided in Table 4.

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

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

1) To reduce the restoration time frame for the Site to less than 50 years
2) To reduce arsenic concentrations entering the PAZ to 400 µg/L (so that the PAZ design objective of 95 percent arsenic removal achieves the remediation level of 20 µg/L)

The restoration time frame is discussed in Section 4. Monitoring results and the results of the rebound analysis are described below.

3.1 Monitoring Results

Monthly effluent sampling and system operational monitoring were not conducted during the period covered by this report (July 2018 through June 2019) because the Pump-and-Treat System was not operated as part of the ongoing rebound analysis (i.e., evaluating the potential for arsenic concentrations in groundwater to increase in the absence of pump-and-treat). For the rebound analysis, groundwater monitoring was conducted for the following reasons:

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

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

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

- At three extraction wells (EW-5, EW-6, and EW-7), arsenic concentrations have exhibited an overall decrease.
- Three wells (EW-1, EW-2, and EW-8) have not exhibited a significant increasing or decreasing trend[5].
- An overall increase in arsenic concentrations was measured at well EW-3 (from 140 to 220 µg/L). Concentrations at this well have been relatively stable since 2015.
- An overall increase in arsenic concentrations was measured at well EW-4 (from 12 to 81 µg/L). Concentrations at this well have fluctuated from 3.4 to 160 µg/L within this period.
- Overall, the average arsenic concentration at the eight extraction wells EW-1 through EW-8 have declined 61 percent during the pump-and-treat rebound analysis period, from 365 µg/L to 141 µg/L, between September 2011 and December 2019 (see Figure 6).

Based on the results, arsenic concentrations upgradient of the PAZ are declining in the absence of pump-and-treat. Observed trends are compared to model predictions in Section 4 below. Based on these preliminary results, continuation of the rebound analysis (i.e., leaving the system off and continuing groundwater monitoring in accordance with the schedule in Table 2) is recommended. Future groundwater monitoring data will be documented in progress reports submitted to Ecology.

Evaluation of the ongoing rebound analysis will be provided in the next performance monitoring report, due to Ecology on July 31, 2021.

[5] 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.

4 Restoration Time Frame

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

Restoration time frames were estimated as described in the previous performance monitoring reports using a fate-and-transport model (Aspect, 2011; Aspect, 2012; Aspect, 2013; Aspect, 2014; Aspect, 2015; Aspect, 2016; Aspect, 2017; Aspect, 2018; and Aspect 2019). The model-predicted concentrations (based on 2011 model calibration) and measured concentrations of arsenic at wells CMW-4S, CMW-5 and well points WP-1A and WP-8 are shown on Figure 5[6]. The model predicted a faster decline than was observed at CMW-4S and a slower decline than was observed at CMW-5, WP-1A, and WP-8; as discussed in the previous monitoring reports, this is likely due to the following:

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

The model (based on 2011 model calibration) estimated that restoration time frames (i.e., time after PAZ installation to achieve the arsenic remediation level) downgradient of the PAZ are currently 12 years at WP-1A, 16 years at BH-29A, and 31 years at WP-8 under natural groundwater flushing (no pump-and-treat[7]). Based on a comparison of data collected since 2011 (when the Pump-and-Treat System was shut off) to model-predicted concentrations for the same time period (Figure 5), the model may be over-predicting restoration time frames at WP-1A and WP-8 (i.e., groundwater concentrations are dropping faster than predicted). However, there is some variability in the data, and additional data is needed to confirm this trend. If this trend continues based on future monitoring, it may be appropriate to recalibrate the groundwater model and re-estimate the restoration time frame.

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

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

Restoration time frames upgradient of the PAZ are currently estimated to be 30 years at EW-1 and 11 years at EW-8 without additional pump-and-treat. This was based on an average arsenic concentration upgradient of the PAZ of 244 µg/L as measured in June 2011. As of December 2019, the average upgradient arsenic concentration had declined to 141 µg/L. This decline is consistent with the model-predicted decline upgradient of the PAZ (see Figure 6); therefore, no recalibration of the model upgradient of the PAZ is recommended at this time. Continued monitoring is needed to evaluate long-term trends.

5 Conclusions and Recommendations

Site monitoring data indicate that remedial actions have greatly reduced arsenic concentrations at the Site. The PAZ is removing residual arsenic in groundwater migrating from the Barbee Property. More monitoring is needed to confirm continued treatment and to further refine predictions of restoration time frame.

Future PAZ performance monitoring will occur on an annual basis, and we recommend performing the annual sampling in December. Since 2011, the average arsenic concentrations across the Site measured in December/January and June sampling events are the same; however, the relative head difference between the uplands and Lake Washington is greater during the winter when lake levels are lower. Sampling during the season with the greatest relative head difference would correspond with the season of increased groundwater discharge to Lake Washington.

Progress reports are currently prepared on an annual basis. The next progress report will be submitted to Ecology within 30 days of receiving the analytical data from the December 2020 sampling event.

Additionally, we recommend continuing the rebound analysis by leaving the Pump-and-Treat System off and continuing groundwater monitoring. We will provide an evaluation of remediation performance and the restoration time frame in the next annual performance monitoring report. The next annual performance monitoring report is due on July 31, 2021.

6 References

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Limitations

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

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.

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

TABLES

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
		Cleanup Level/Performance Standard (See Note 2)			*20*	*105*	*2.5*	*9*	*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
CMW-2S	22.27	*5/23/2006*			*120*						
		8/30/2007	4.32	17.95	4.1		1 U	1 U			1.4
		5/5/2009	3.28	18.99	1.7	5 U	1 U	1 U			0.63
		9/8/2009	4.52	17.75	2.1	6.3	1 U	1 U			1.9
		12/23/2009	5.11	17.16	2.1	5 U	1 U	1 U			3.1
		3/19/2010	4.10	18.17	2.6	5 U	1 U	1 U			1.8
		6/21/2010	3.28	18.99	2						1.8
		9/14/2010	4.42	17.85	2.1						1.4
		12/23/2010	4.95	17.32	1.6						2.4
		3/10/2011	4.29	17.98	1.3						7.3
		6/13/2011	3.24	19.03	3.2						14
		9/28/2011	4.65		2.3						8.7
		12/8/2011	5.08	17.19	1.9						12
		3/6/2012	4.75	17.52	1.6						20
		6/26/2012	3.12	19.15	2.3						32
		12/13/2012	5.01	17.26	2.2						28
		6/20/2013	3.46	18.81	2.1						39
		1/15/2014	5.02	17.25	1.5						28
		6/25/2014	3.24	19.03	2						39
		12/10/2014	5.02	17.25	1						31
		6/12/2015	3.8	18.47	1.5						39
		12/29/2015	5.03	17.24	1.2						53
		1/22/2016	7.53	14.74							
		6/8/2016	3.53	18.74	1.2						66
		12/29/2016	5.01	17.26	1.4						52
		12/28/2017	5.03	17.24	1.4						52
		12/27/2018	5.05	17.22	1.3						46
		12/30/2019	5.13	17.14	1.3						53
CMW-2D	22.20	*7/19/2006*			*250*						
		8/30/2007	3.99	18.21	33		1 U	1 U			9.2
		4/30/2009	3.29	18.91	92	14	1 U	1 U			4.5
		9/8/2009	4.20	18.00	92	8.8	1 U	1 U			4.2
		12/23/2009	4.81	17.39	92	12	1 U	1 U			3.4
		3/19/2010	3.79	18.41	89	5 U	1 U	1 U			3.4
		6/21/2010	3.02	19.18	74						3.1
		9/14/2010	4.13	18.07	78						3.1
		12/23/2010	4.56	17.64	98						3.3
		3/11/2011	3.93	18.27	99						3.2
		6/13/2011	2.94	19.26	90						3.2
		9/28/2011	4.32	17.88	89						2.7
		12/8/2011	4.71	17.49	110						3.0
		3/6/2012	4.37	17.83	120						3.1
		6/26/2012	2.80	19.40	120						3.3
		12/13/2012	4.59	17.61	150						3.5
		6/20/2013	3.18	19.02	160						3.2
		1/15/2014	4.72	17.48	140						2.9
		6/25/2014	2.94	19.26	140						3.0
		12/10/2014	4.66	17.54	140						2.0
		6/12/2015	3.48	18.72	170						2.0
		12/29/2015	16.61	5.59	190						3.7
		1/22/2016	16.67	5.53							
		6/8/2016	3.52	18.68	170						3.5
		12/29/2016	4.59	17.61	170						3.5
		12/28/2017	4.6	17.60	190						3.4
		12/27/2018	4.64	17.56	190						3.3
		12/30/2019	4.77	17.43	200						3.4
CMW-3	22.41	*7/19/2006*			*110*						90 (3)
		8/30/2007	3.78	18.63	1.3		1 U	1 U			2.9
		4/30/2009	2.32	20.09	1 U	5 U	1 U	1 U			0.11
		9/8/2009	4.02	18.39	1.1	5 U	1 U	1 U			0.086
		12/22/2009	4.02	18.39	1 U	5 U	1 U	1 U			0.23
		3/19/2010	3.61	18.80	1 U	5 U	1 U	1 U			0.2
		6/21/2010	2.77	19.64	1 U						0.26
		9/14/2010	4.01	18.40	1 U						0.2
		12/23/2010	3.80	18.61	1 U						0.29
		3/11/2011	3.23	19.18	1 U						3.2
		6/13/2011	2.10	20.31	1 U						0.53
		9/28/2011	4.00	18.41	2						0.6
		12/8/2011	4.24	18.17	1 U						1.2
		3/6/2012	3.93	18.48	1 U						3.7
		6/26/2012	2.42	19.99	1 U						1.5
		12/13/2012	3.75	18.66	1 U						1.4
		6/20/2013	2.81	19.60	1						2.8
		1/15/2014	4.23	18.18	1.3						5
		6/25/2014	2.6	19.81	1.5						7.5
		12/10/2014	3.87	18.54	1.5						15
		6/12/2015	3.33	19.08	1.5						8.5
		12/29/2015	7.45	14.96	1.6						25
		1/22/2016	7.49	14.92							
		6/8/2016	3.13	19.28	1.4						14
		12/29/2016	3.98	18.43	1.8						27
		12/28/2017	4.04	18.37	1.6						26
		12/27/2018	4.11	18.30	1.3						26
		12/30/2019	4.23	18.18	1.6						26

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
		Cleanup Level/Performance Standard (See Note 2)			*20*	*105*	*2.5*	*9*	*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
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
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
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

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*20*	*105*	*2.5*	*9*	*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
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
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
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

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*20*	*105*	*2.5*	*9*	*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
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
EW-5	28.34	6/3/2009			61						1.3
		9/9/2009	8.05	20.29	39						1.9
		12/23/2009	8.98	19.36	44						1.6
		3/18/2010	8.36	19.98	84						73
		6/22/2010	7.28	21.06	62						0.61
		9/15/2010	9.24	19.10	29						2.3
		12/27/2010	7.86	20.48	55						0.58
		3/11/2011	7.74	20.60	70						1.3
		6/14/2011	6.99	21.35	260						85
		9/29/2011	8.34	20.00	1400						140
		12/9/2011	8.28	20.06	520						29
		3/6/2012	7.79	20.55	250						8.5
		6/26/2012	6.50	21.84	220						6.2
		12/14/2012	7.14	21.20	220						6.8
		6/21/2013	7.34	21.00	160						4.5
		1/14/2014	8.01	20.33	97						4.1
		6/26/2014	7.02	21.32	140						4.9
		12/9/2014	7.53	20.81	130						5.7
		6/11/2015	7.69	20.65	160						6.1
		12/30/2015	6.95	21.39	160						5.5
		1/22/2016	6.42	21.92							
		6/9/2016	6.89	21.45	85						4
		12/29/2016	7.35	20.99	81						4.1
		12/28/2017	7.40	20.94	86						4.5
		12/27/2018	7.47	20.87	24						2.4
		12/30/2019	7.28	21.06	110						7.5
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

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
Cleanup Level/Performance Standard (See Note 2)					*20*	*105*	*2.5*	*9*	*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
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
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							
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							

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*20*	*105*	*2.5*	*9*	*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							
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							
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							
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							

Table 1. Summary of Water Level and Chemical Data

Project No. 050004, Barbee Mill, Renton, WA

Well	TOC Elevation	Date	Depth to Water in Feet	Groundwater Elevation in Feet	Concentration in µg/L						Concentration in mg/L
					Arsenic	Zinc	Lead	Copper	TPH-D	TPH-O	Iron
				Cleanup Level/Performance Standard (See Note 2)	*20*	*105*	*2.5*	*9*	*0.5*	*0.5*	*75*
Quendall Terminals Monitoring Wells (Continued)											
BH-26B (continued)	26.62	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							
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
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							

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: Interim action remediation level based on natural background concentration of arsenic in groundwater.

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

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

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

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

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

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

[5] Results are for total/dissolved concentrations.

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

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

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

U = not detected at indicated reporting limit

Bold = data collected during this reporting period

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

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

Highlighted cells indicate exceedance of cleanup levels

Table 2. Performance and Compliance Monitoring Schedule

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

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

Notes:

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

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

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

A Annual

-- No monitoring planned

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

As Arsenic

Fe Iron

Table 3. Summary of Field Parameter Data

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells							
CMW-1	5/5/2009	11.39	395	0.46	7.61	-45.0	18.8
	9/8/2009	17.00	415	0.39	7.53	-421.3	0.5
	12/23/2009	13.28	459	0.09	6.48	-77.1	9.5
	3/18/2010	12.57	546	0.09	6.65	-81.7	0.9
	6/21/2010	12.95	550	2.16	6.36	-314.9	2.2
	9/14/2010	16.20	508	0.19	6.24	-26.0	1.8
	12/23/2010	13.31	473	0.32	8.06	-1.7	3.2
	3/10/2011	11.59	463	0.69	6.50	-25.1	-
	6/13/2011	12.90	446	2.18	6.51	-99.0	11.6
	9/28/2011	15.90	486	1.13	6.50	-141.6	0.6
	12/8/2011	13.90	462	1.73	6.37	-111.2	1.6
	3/6/2012	11.70	441	-	6.52	-129.0	0.4
	6/26/2012	12.80	620	1.00	6.39	-99.5	1.9
	12/13/2012	13.90	461	0.11	6.45	-118.8	0.7
	6/20/2013	13.70	490	0.10	6.54	-112.2	3.7
	1/15/2014	12.50	469	0.25	6.44	-114.7	1.7
	6/25/2014	13.90	497	0.51	6.33	13.8	6.3
	12/10/2014	14.10	501	0.31	6.56	-75.3	1.2
	6/12/2015	13.50	507	0.50	6.37	-8.4	2.0
	12/29/2015	13.10	486	0.72	6.58	-72.7	2.2
	6/8/2016	14.40	452	0.06	6.59	-61.4	2.1
	12/28/2016	13.20	407	0.18	6.47	-62.5	2.0
	12/28/2017	12.50	409	0.18	6.50	-64.2	1.9
	12/27/2018	12.80	470	0.13	6.40	-78.2	2.0
	12/30/2019	12.80	473	0.45	6.24	96.0	<20
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	13.20	533	0.34	6.93	64.0	<20
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	13.40	600	0.70	6.63	95.0	<20

Table 3. Summary of Field Parameter Data

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells (Continued)							
CMW-3	4/30/2009	11.88	82	0.13	9.67	36.8	8.0
	9/8/2009	18.72	66	0.65	9.40	-308.0	2.5
	12/22/2009	12.60	227	0.09	8.57	-250.0	1.6
	3/19/2010	11.45	187	-	8.50	-202.7	0.5
	6/21/2010	13.27	147	0.35	8.65	-373.0	3.0
	9/14/2010	17.33	0	0.03	7.89	-107.1	2.4
	12/23/2010	12.50	217	0.16	9.78	-89.9	3.1
	3/11/2011	9.66	260	0.81	7.40	-	-
	6/13/2011	12.20	216	0.75	8.87	-309.5	14.8
	9/28/2011	16.50	232	0.24	8.82	-296.4	0.8
	12/8/2011	13.40	286	0.51	8.55	-298.4	1.8
	3/6/2012	10.00	324	-	8.34	-327.0	1.2
	6/25/2012	13.10	334	0.43	8.40	-475.2	4.2
	12/13/2012	13.70	288	0.10	8.44	-301.3	2.2
	6/20/2013	13.80	338	0.03	8.20	-282.0	2.1
	1/15/2014	11.80	490	0.22	8.21	-304.7	1.0
	6/25/2014	14.70	525	0.73	7.91	-104.2	4.3
	12/10/2014	13.90	550	0.12	7.86	-168.4	1.8
	6/12/2015	13.90	420	0.27	7.98	-131.6	23.8
	12/29/2015	12.20	512	0.28	7.77	-234.9	5.9
	6/8/2016	14.33	344	0.07	7.95	-220.0	8.0
	12/29/2016	12.20	385	0.04	7.76	-216.1	2.2
	12/28/2017	11.80	346	0.10	7.58	-195.7	2.5
	12/27/2018	12.20	407	0.06	7.61	-223.0	3.0
	12/30/2019	12.00	386	0.70	7.03	77.5	<20
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
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

Table 3. Summary of Field Parameter Data

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wells (Continued)							
CMW-5	5/5/2009	11.84	191	0.33	8.27	32.0	3.7
	9/8/2009	15.47	142	0.23	9.77	-357.7	2.5
	12/22/2009	12.54	192	0.26	6.75	-62.3	3.1
	3/18/2010	11.84	101	0.04	7.23	-139.0	1.6
	6/21/2010	13.12	132	0.52	6.91	-395.7	3.0
	9/27/2010	17.13	169	0.07	7.95	-113.1	7.4
	12/27/2010	13.18	228	0.17	10.17	-42.2	0.8
	3/11/2011	11.54	220	0.83	7.00	-	-
	6/14/2011	12.50	267	1.40	8.73	-285.7	9.0
	9/29/2011	15.10	314	0.22	8.80	-250.3	0.3
	12/9/2011	14.50	442	0.46	8.39	-212.6	2.0
	3/7/2012	12.31	535	0.12	7.44	-104.6	0.9
	6/25/2012	13.10	632	0.76	7.35	-292.6	1.5
	12/14/2012	14.40	464	0.13	7.24	-195.5	1.4
	6/21/2013	13.10	415	0.08	7.41	-174.3	3.3
	1/14/2014	14.20	475	0.21	7.30	-195.0	3.1
	6/26/2014	13.60	486	1.14	6.70	2.8	5.1
	12/9/2014	15.70	515	0.15	7.26	-158.2	1.2
	6/12/2015	14.60	540	0.29	7.26	-84.1	4.3
	12/30/2015	13.80	439	0.81	7.12	-129.8	63.2
	6/8/2016	14.13	462	0.07	7.26	-155.7	3.5
	12/28/2016	13.60	373	0.22	7.46	-163.6	1.0
	12/29/2017	14.20	343	0.14	7.25	-139.0	1.5
	12/27/2018	14.50	458	0.09	7.11	-153.2	2.0
	12/30/2019	12.23	14	0.13	6.92	-140.1	10.0
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
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

Table 3. Summary of Field Parameter Data

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Performance Monitoring Wellpoints (Continued)							
WP-8	5/1/2009	13.58	182	0.99	8.45	-272.9	3.4
	9/8/2009	21.12	177	2.94	7.34	-306.0	10.7
	12/22/2009	6.90	270	0.43	6.42	-73.3	33.6
	3/18/2010	9.15	213	1.48	6.68	-88.9	3.4
	6/22/2010	16.42	170	2.50	6.32	-259.2	9.7
	9/14/2010	19.52	209	0.49	6.44	-52.1	3.4
	12/27/2010	6.72	275	0.34	11.02	29.7	1.2
	3/11/2011	7.06	288	2.36	7.28	-29.0	4.8
	6/13/2011	16.20	230	0.32	6.49	-71.3	8.8
	9/28/2011	-	-	-	-	-	-
	12/8/2011	6.90	278	1.56	6.53	-81.2	5.6
	3/6/2012	6.20	329	-	6.31	-96.4	5.5
	6/26/2012	16.10	491	0.22	6.37	-107.0	9.0
	1/22/2013	5.90	350	0.79	6.26	7.5	-
	6/20/2013	17.10	374	0.12	6.65	-88.9	2.0
	1/14/2014	8.40	405	0.71	6.52	-82.9	9.8
	6/25/2014	19.60	427	0.75	6.15	10.4	2.2
	12/10/2014	14.00	406	0.28	6.72	-58.7	-
	6/11/2015	22.60	444	0.50	6.64	-43.1	1.6
	12/29/2015	7.40	435	0.50	6.81	-67.1	4.6
	6/8/2016	20.36	378	0.18	6.78	-80.0	1.7
	12/29/2016	6.90	409	0.16	6.77	-63.5	1.5
	12/28/2017	7.60	376	0.67	6.52	-59.4	0.5
	12/28/2018	11.40	364	0.12	6.79	-79.0	3.2
	12/30/2019	11.20	395	0.13	6.34	-44.3	<10
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
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

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Extraction Wells (Continued)							
EW-3	9/9/2009	18.11	458	8.28	6.49	-214.7	-
	12/23/2009	14.23	358	0.06	6.37	-39.9	-
	3/19/2010	13.29	414	0.96	6.87	-81.2	-
	6/22/2010	15.83	515	0.50	6.48	-379.3	11.6
	9/15/2010	17.29	467	0.07	6.81	-62.7	-
	12/27/2010	11.14	0	0.20	8.28	-20.0	-
	3/11/2011	11.19	288	0.26	7.15	-16.2	5.9
	6/14/2011	14.20	470	1.99	6.55	-101.2	9.8
	9/29/2011	18.40	381	0.49	6.58	-138.9	1.1
	12/9/2011	12.80	502	1.43	6.39	-97.6	2.0
	3/7/2012	11.50	510	0.25	6.47	-54.8	0.5
	6/25/2012	15.10	547	1.61	6.35	-100.6	1.5
	12/14/2012	13.10	482	0.14	6.44	-103.3	1.9
	6/20/2013	14.30	459	0.07	6.59	-94.9	2.7
	1/14/2014	12.60	457	0.15	6.48	-67.7	1.1
	6/26/2014	15.90	476	0.83	6.24	24.1	6.2
	12/9/2014	14.70	471	0.16	6.57	-65.3	2.9
	6/11/2015	16.20	487	0.39	6.53	-59.4	3.8
	12/30/2015	13.10	435	0.38	6.75	-83.1	19.8
	6/8/2016	15.56	453	0.05	6.58	-78.4	10.9
	12/29/2016	12.60	400	0.22	6.62	19.0	9.2
	12/29/2017	12.80	345	0.13	6.54	-64.7	4.6
	12/27/2018	13.20	368	0.17	6.13	3.5	19.0
	12/30/2019	13.10	407	0.12	6.31	-57.8	9.0
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
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

Table 3. Summary of Field Parameter Data

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

Location	Date Units	Temperature Degrees C	Specific Conductance us/cm	Dissolved Oxygen mg/L	pH -	Eh ORP mv	Turbidity NTU
Extraction Wells (Continued)							
EW-6	9/9/2009	18.61	312	0.81	6.71	-300.2	-
	12/23/2009	14.96	322	0.07	6.35	-24.5	-
	3/19/2010	11.17	248	5.05	6.83	-50.0	-
	6/22/2010	15.06	270	0.20	6.60	-469.8	6.1
	9/15/2010	17.61	310				
	12/27/2010	13.16	380	0.21	8.54	24.9	-
	3/11/2011	9.15	297	3.81	6.90	42.1	60.5
	6/14/2011	14.20	430	1.88	6.52	-83.8	77.2
	9/29/2011	17.50	391	0.63	6.61	-160.2	11.2
	12/9/2011	13.90	389	1.35	6.30	-45.3	3.8
	3/7/2012	11.72	468	0.78	6.33	10.1	1.1
	6/26/2012	14.80	614	1.08	6.36	-364.3	1.1
	12/14/2012	13.90	413	0.24	6.50	-47.5	1.5
	6/21/2013	15.50	417	0.06	6.60	24.4	2.0
	1/14/2014	12.80	339	0.15	6.35	-30.3	0.6
	6/26/2014	16.50	456	0.53	6.25	63.1	4.4
	12/9/2014	15.10	459	0.19	6.52	-25.8	0.4
	6/11/2015	16.30	439	0.40	6.47	-66.0	0.7
	12/30/2015	14.00	343	0.21	6.78	-41.5	2.1
	6/9/2016	15.85	300	0.05	6.61	-44.9	4.1
	12/29/2016	11.40	341	0.21	6.58	-15.1	7.3
	12/29/2017	13.30	316	0.15	6.51	-19.8	1.2
	12/28/2018	11.70	290	0.10	6.43	-4.0	3.0
	12/30/2019	13.20	267	0.30	6.28	119.0	9.0
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
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
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	12.20	444	0.20	6.10	-29.2	<20

Table 4. Cumulative Discharge Volume and Estimated Arsenic Removal

DRAFT

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

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

Notes:

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

FIGURES

NOTES:

1. VERTICAL DATUM: NAVD 88.

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

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

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

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

Legend

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

N

0 100 200

Feet

Aspect CONSULTING

Site Plan

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

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

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

NOTES:

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

LAKE WASHINGTON (17.0 Feet NAVD 88)

WP-8 210
WP-1A 10
BH-29A 17.91 190
BH-29B 19.19
BH-21B 19.39
BH-21A 18.15
BH-16
BH-26A 21.78
BH-26B 19.91
CMW-4S/4D 17.6/18.02 79/280
CMW-5 18.9 1.5
CMW-6* 18.08 140
CMW-3 18.8 1.6
CMW-2S/2D 17.14/17.43 1.3/200
CMW-1 17.72 63
EW-8 19.60 390
EW-5 21.06 110
EW-6 21.09 69
EW-7 21.07 26
EW-4 20.22 81
EW-3 19.09 220
EW-2 19.66 160
EW-1 19.91 74
PZ-2 21.31
PZ-1 20.27
AMW-2
HCMW-05S/ HCMW-05D

Property Boundary
N 42ND PL
N 41ST PL
MILL POND
Excavation Footprint
Remediation System Vault Area
Ordinary High-Water Mark prior to December 2005 Habitat Restoration
Western extent of emplaced beach gravel or sand/gravel mix, December 2005
WILLIS AVE N
BNSF RAILROAD
LAKE WASHINGTON BOULEVARD
MAY CREEK

18 19 20 21

Legend

- Passive Attenuation Zone
- WP-6 — Well Point
- CMW-1 — Monitoring Well Location
- EW-7 — Extraction Well Location
- PZ-1 — Piezometer Location
- RS — Remediation System Utilities
- 21.36 — Groundwater Elevation (December 2019)
- 410 — Groundwater/Porewater Arsenic Concentration in µg/L (December 2019)
- U — Not Detected at Indicated Detection Limit
- 20 — Groundwater Elevation Contour (December 2019, Dashed Where Inferred)

* Water level not consistent with nearby wells, and was not used to draw groundwater elevation contours.

0 100 200 Feet

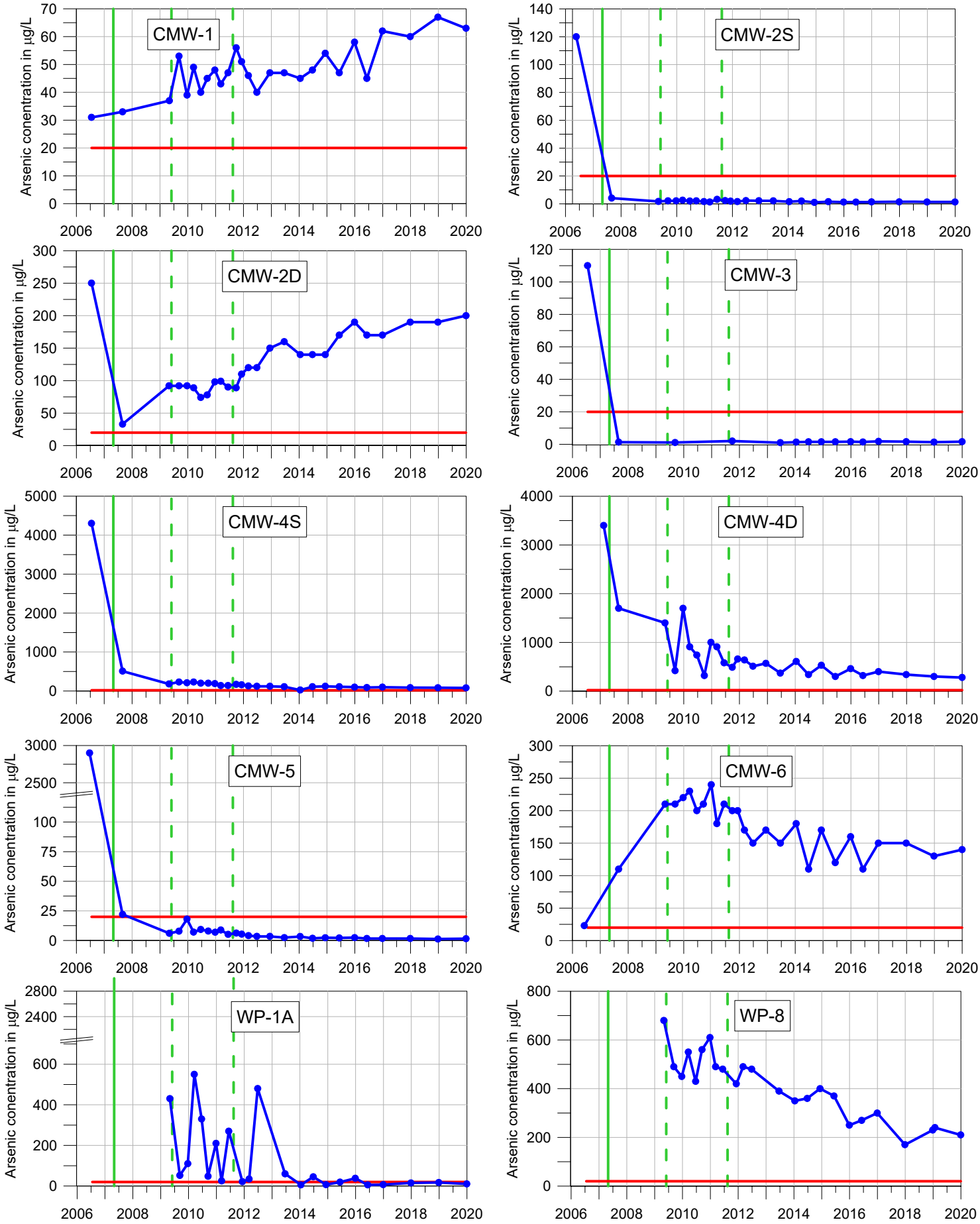
Summary of Arsenic Monitoring Data December 2019

Barbee Mill

4101 Lake Washington Blvd. North, Renton Washington

Aspect Consulting	Jul-2020	BY: DIM/SCC	FIGURE NO. 2
	PROJECT NO. 050004	REV BY: SCC	

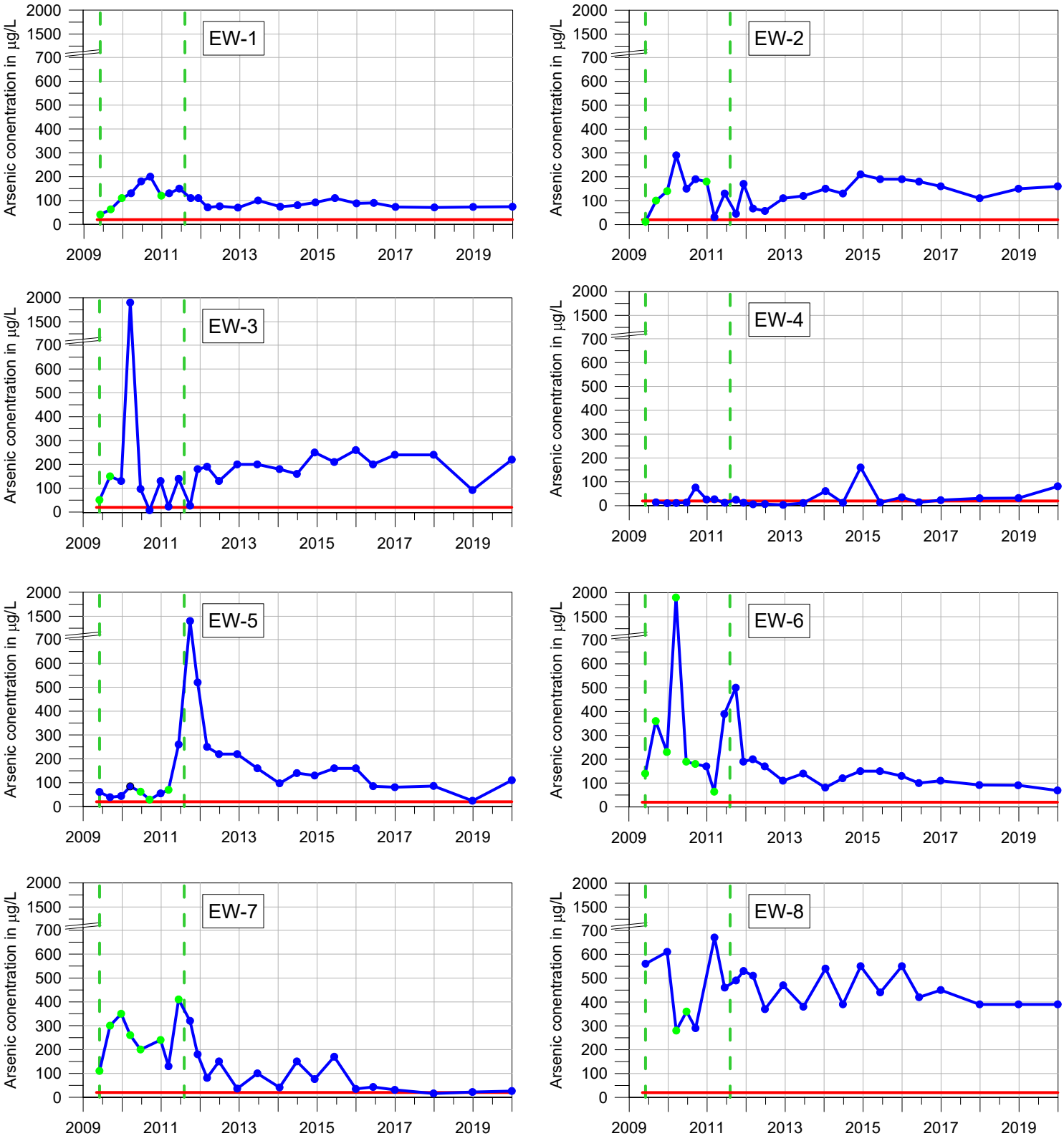
CAD Path: Q:\Barbee Mill\050004 Barbee Mill\2020-01 Progress Report\050004-03.dwg GW Contours and Summary Data || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Jul 13, 2020 2:07pm || User: scudd



Notes:
Red line represents site remediation level for dissolved Arsenic (20 ug/L).
Solid green Line represents PAZ installation, and dashed green lines represent the startup and shutdown of the Groundwater Pump and Treat System.

Figure 3
Trends in Arsenic Concentrations in Groundwater at Monitoring Wells
Project No. 050004, Barbee Mill

Aspect Consulting
1/27/2020



Notes:
Red line represents site remediation level for dissolved Arsenic (20 ug/L).
Dashed green lines represent the startup and shutdown of the Groundwater Pump and Treat System.
Total arsenic results are displayed from 9/2009 to 6/2010, Dissolved arsenic results displayed from 9/2010 to present.
Blue symbols represent samples collected while extraction well had not been operating during the month preceding sampling.
Green symbols represent samples collected when extraction well had been operating during the month preceding sampling.

Aspect Consulting
1/27/2020

Figure 4
Trends in Arsenic Concentrations in Groundwater at Extraction Wells
Project No. 050004, Barbee Mill

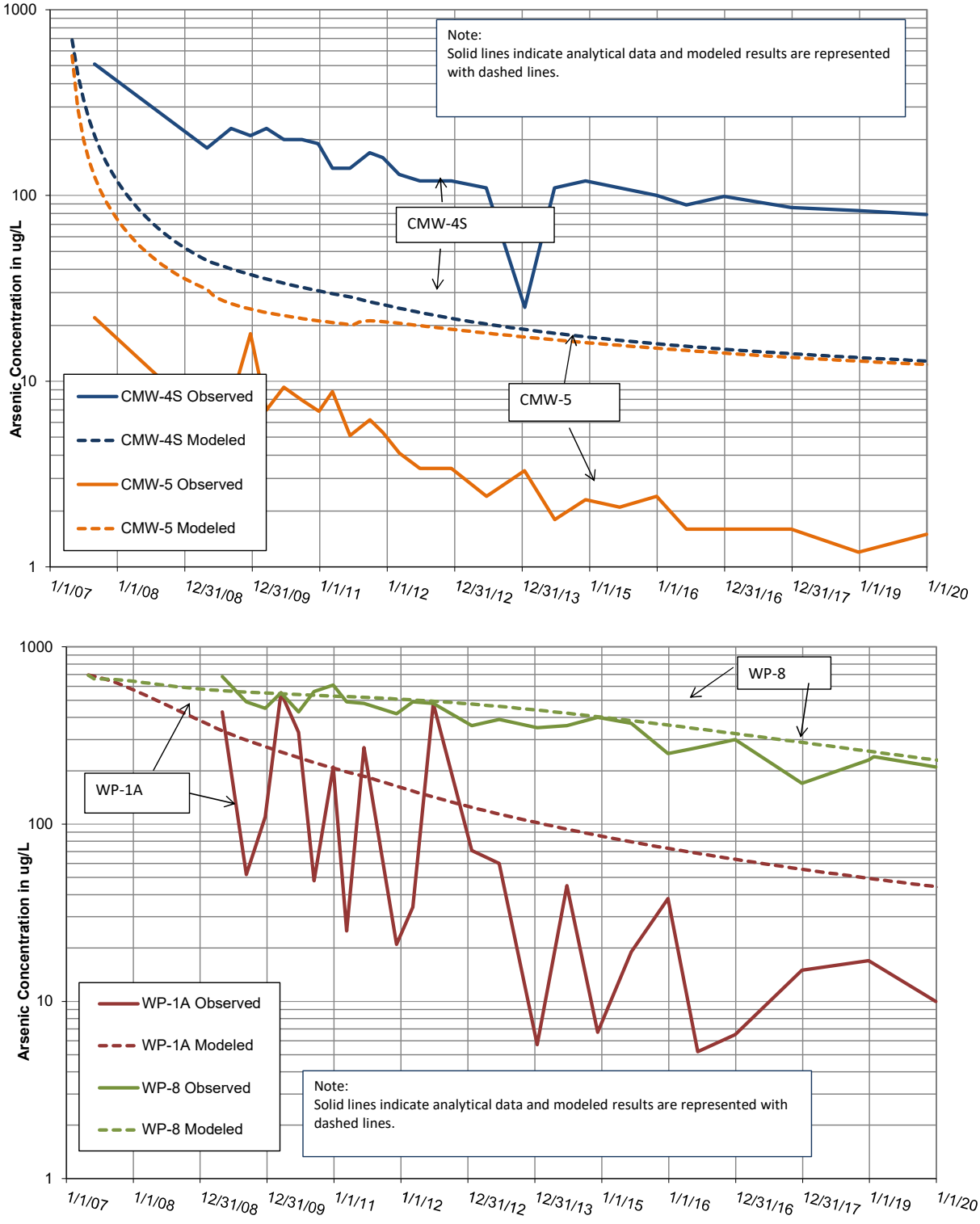


Figure 5
Comparison of Observed and Model-Predicted Arsenic Concentrations Downgradient of PAZ
Performance Monitoring Report
Project No. 050004

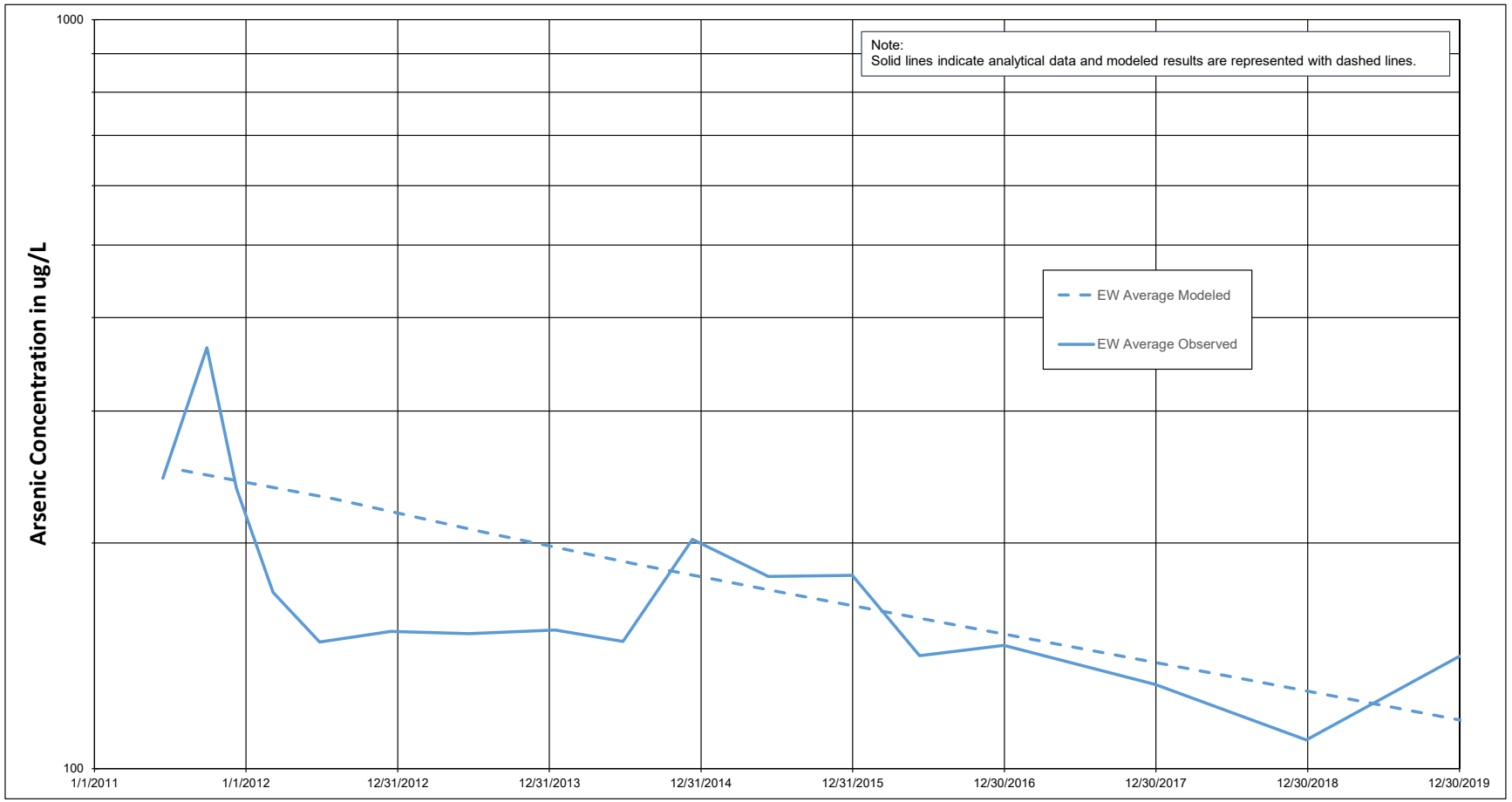


Figure 6
Comparison of Observed and Model-Predicted Average Arsenic Concentrations Upgradient of PAZ
Performance Monitoring Report
Project No. 050004

APPENDIX A

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

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

Services for Specific Purposes, Persons and Projects

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

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

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

This Report Is Project-Specific

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

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

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

Geoscience Interpretations

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

Discipline-Specific Reports Are Not Interchangeable

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

Environmental Regulations Are Not Static

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

Property Conditions Change Over Time

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

Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Historical Information Provided by Others

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

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect’s services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect’s services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect’s services do not include an evaluation of radon or lead in drinking water, unless specifically requested.