

2024 ANNUAL REPORT FOR GROUNDWATER MONITORED NATURAL ATTENUATION

Pulp & Tissue Mill RAU, Georgia-Pacific West Site

Prepared for: Port of Bellingham

Project No. AS140298A-19 • February 17, 2025 • FINAL



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1 Background for Groundwater Monitoring Program

This report presents results from the 2024 compliance monitoring for the groundwater monitored natural attenuation (MNA) cleanup action selected by the Washington State Department of Ecology (Ecology) for the Pulp and Tissue Mill (PTM) Remedial Action Unit (RAU) at the Georgia-Pacific West Site (Site). The PTM RAU is being cleaned up under the terms of Consent Decree No. 14207008 (Decree) between the Port of Bellingham (Port) and Ecology. Monitoring of the groundwater MNA cleanup action is being conducted by Aspect Consulting (Aspect) in accordance with the Compliance Monitoring Plan for Groundwater MNA (CMP; Aspect, 2015), which was reviewed and approved by Ecology prior to initiation of the monitoring program.

As described in the Cleanup Action Plan for the PTM RAU (CAP; Ecology, 2014), the highest beneficial use of Site groundwater is discharge to marine water and sediment, not potable use, and groundwater cleanup levels (CULs) for the PTM RAU were established accordingly. Groundwater CULs for individual contaminants are included in the data tables for this report (Tables 1 and 2).

At the time of the CAP preparation in 2014, the contaminants that exceeded CULs in PTM RAU groundwater included:

- Acidic pH and selected metals in the Acid Plant Subarea
- Chlorinated solvent volatile organic compounds (VOCs), tetrachloroethene (PCE), and vinyl chloride (VC) in the LP-MW01 Subarea
- Selected metals in the Miscellaneous Dissolved Metals Exceedances Area (termed here Miscellaneous Metals Area)

Figure 1 depicts the locations of these three areas. Subsequent to the CAP, chlorinated VOC concentrations in the LP-MW01 Subarea were demonstrated to meet groundwater cleanup levels by the end of the 2017 monitoring period; therefore, monitoring for that subarea was terminated, as documented in the 2017 MNA Monitoring Annual Report (Aspect, 2018a). The LP-MW01 Subarea is therefore not discussed further in this report; however, well LP-MW01 remains in use for monitoring the Miscellaneous Metals Area.

As described in the 2017 MNA Monitoring Annual Report (Aspect, 2018a), wells AA-MW01 through AA-MW04, FH-MW01, and GF-MW01 were decommissioned in 2016 prior to construction of the RAU-wide environmental cap and, following cap construction, were replaced with wells that were essentially identical in construction and location. The replacement well names included an 'R' suffix (e.g., AA-MW01R). Wells AA-MW01R and FH-MW01R were subsequently decommissioned in early 2021 to accommodate construction of Harcourt Development's (Harcourt) Granary Avenue Waterfront Residential project, the outline of which is depicted on Figure 1. Those wells will be reestablished for monitoring, in consultation with Ecology, following completion of that redevelopment project. Figure 1 depicts locations of the monitoring wells that have been and are currently being monitored during the MNA program, including one well that was not accessible for monitoring during the 2024 monitoring.

This report documents the groundwater MNA compliance monitoring data collected to date and, in accordance with Section 2.2 of the CMP, presents the plan for the next year of monitoring.

Following this Background section, the structure of the report is as follows:

- Section 2 – Describes the groundwater sampling and analysis completed in 2024.
- Section 3 – Contains an evaluation of the groundwater analytical data with respect to compliance with CULs and long-term trends.
- Section 4 – Presents the plan for monitoring in 2025.

2 2024 Groundwater Sampling and Analysis

In accordance with the CMP (Aspect, 2015) and the findings from the 2023 MNA Monitoring Annual Report (Aspect, 2024), semiannual groundwater monitoring was performed in April and October of 2024. The wells sampled are depicted on Figure 1 and their chemical analyses¹ in 2024 were as follows:

Acid Plant Subarea

- Within the active construction area for Harcourt's residential redevelopment project, wells FH-MW01R and AA-MW01R were previously decommissioned and, therefore, could not be monitored in 2024. Section 4 describes the planned re-establishment of these wells as part of the MNA monitoring program.
- On May 2, 2024, Aspect conducted a supplemental field reconnaissance to locate and assess the condition of wells GF-MW01R and BC-MW05 that were not decommissioned but had been inaccessible within Harcourt's fenced construction area since 2020. Well GF-MW-01R could not be located. Well BC-MW05 was located and found to be in usable condition and was therefore monitored for field parameters in accordance with the CMP. While the BC-MW05 monitoring data were collected shortly after completion of the April 2024 monitoring for the other wells, they are included with the April 2024 data as representative of wet-season conditions (Table 1).
- The two groundwater samples from well AA-MW04R were analyzed for four dissolved metals: cadmium, copper, nickel, and zinc².
- Because wells AA-MW04R and FH-MW01R did not yet meet CULs at the end of 2023, the following wells positioned outside the Acid Plant Subarea were also monitored in accordance with the CMP:

¹ Groundwater parameters (temperature, pH, electrical conductance, and oxidation reduction potential [ORP]) were also measured in the field for each monitoring location and event.

² Arsenic was eliminated as an analyte for this well following completion of the 2023 monitoring (Aspect Consulting, 2024).

- Cross-gradient from the Acid Plant Subarea, groundwater field parameters including pH were measured at wells AA-MW02R, AA-MW03R, and BC-MW05³. If the field measurement of groundwater pH was less than pH 6.2⁴ in any of these wells, then that well was sampled for analysis of five dissolved metals (arsenic, cadmium, copper, nickel, and zinc) in accordance with the CMP. During the 2024 monitoring:
 - ♦ Well AA-MW03R had a measured pH (pH 5.79 and 6.13) less than 6.2 during the April and October 2024 monitoring events; therefore, groundwater samples were collected for analysis of the five dissolved metals during both events.
 - ♦ Well AA-MW02R had a pH (pH 7.30 and 7.71) greater than 6.2 during the April and October 2024 monitoring events. Regardless of pH, well AA-MW02R was sampled for dissolved copper during each round to provide monitoring downgradient of the Miscellaneous Metals Area as required by the CMP and described below.
 - ♦ Cross-gradient shoreline well BC-MW05 had a pH greater than 6.2 (pH 7.17 and 7.46) during the April and October 2024 monitoring events. Therefore, no sampling for metals was conducted at this well.

Miscellaneous Metals Area

- Within the Miscellaneous Metals Area, groundwater samples from wells LP-MW01 and SC-MW02R were analyzed for dissolved copper.
- Because wells LP-MW01 and SC-MW02R did not meet CULs at the end of 2023, downgradient wells LB-MW01R and AA-MW02R were sampled for dissolved copper in accordance with the CMP.

3 Data Evaluation

The following subsections describe the analytical results from the 2024 groundwater monitoring events for the Acid Plant Subarea and Miscellaneous Metals Area. The 2024 results are compared with CULs and with data from prior monitoring events to assess temporal trends in groundwater pH and metals concentrations. Tables 1 and 2 present the analytical results over the entire period of monitoring for the Acid Plant Subarea and Miscellaneous Metals Area, respectively.

Based on Aspect's independent quality assurance validation of the 2024 analytical data, no data were qualified, and the data are usable for their intended purpose. Appendix A

³ The acidic metals plume was defined in the RI as groundwater exceeding CULs for both pH and dissolved metals. Well AA-MW03R had pH exceeding the CUL, but no dissolved metals exceedances during the remedial investigation/feasibility study (RI/FS) period (2009–2013), so was considered on the edge (cross-gradient) of the acidic metals plume.

⁴ All pH measurements are reported in pH standard units.

provides Aspect’s data validation report and the laboratory reports generated by OnSite Environmental⁵ for the two rounds of 2024 analytical data.

3.1 Acid Plant Subarea

3.1.1 pH

The groundwater pH in well AA-MW04R, located within the acidic source area⁶, and at the cross-gradient inland well AA-MW02R, did not exceed the CUL (pH 6.2)⁷ during either 2024 monitoring event. The groundwater pH at well AA-MW03R, located cross-gradient (mill-west) of the acidic metals plume, did exceed the CUL during both 2024 monitoring events. The measured pH met the CUL at well AA-MW02R, located cross-gradient (mill-east) of the acidic metals plume, during both 2024 monitoring events. The cross-gradient shoreline well GF-MW01R, located mill-west of the Acid Plant Subarea, could not be monitored in 2024 as described in Section 2.

Within the Acid Plant Subarea as a whole, measured pH levels continue to show a gradual, long-term improvement (increase in pH) relative to the earliest measurements in 2004, but with considerable short-term variation. Figure 2 graphically illustrates the long-term pH trends at three Subarea well locations that have had pH exceedances over the long-term monitoring program (monitoring began in 2004 for AA-MW04R and FH-MW01R⁸, and began in 2009 for AA-MW03R). On all figures in this report, the groundwater pH vertical axis is plotted in reverse order, so that points higher on the axis are farther from the CUL (pH 6.2), consistent with how metals concentrations are plotted. The average annual groundwater pH in these three pH-impacted wells over the past 7 years (no data available from decommissioned well FH-MW01R over past 4 years) are tabulated below.

Well ID	Area represented by samples from well	Average Annual Groundwater pH (CUL = 6.2)						
		2018	2019	2020	2021	2022	2023	2024
AA-MW04R	Acidic metals plume source	4.8	5.5	6.3	5.8	6.4	6.21	6.6
FH-MW01R	Downgradient from source	5.5	5.7	5.0	NA	NA	NA	NA
AA-MW03R	Cross-gradient from source	4.5	5.6	5.8	6.18	5.7	5.7	5.9

NA: Not monitored.
Highlighted values exceed the pH 6.2 CUL.

⁵ An analytical laboratory accredited by Ecology and located in Redmond, Washington.
⁶ The 2004 data from the acidic source area are from well GF-MW02, which was located just mill-west of well AA-MW04/04R (Figure 1), but which could not be found at the start of the RI in 2009.
⁷ While the term “exceedance” typically refers to a measurement greater than a cleanup level, for acidic pH it refers to a measurement less than the pH 6.2 CUL.
⁸ Combining data from original wells and replacement wells in those locations.

As of the end of 2024 monitoring, observations regarding groundwater pH for wells AA-MW-04R and AA-MW03R are as follows:

- Within the footprint of the historical Acid Plant where the release(s) of acid occurred (source area well AA-MW04R), the pH reading measured during the 2024 monitoring events (pH 6.56 and 6.69) were greater than the CUL (Table 1). The acidic pH within the source area has shown substantial improvement from the start of monitoring in 2004 (Figure 2) and the average annual pH over the last 3 years complies with the CUL.
- At cross-gradient well AA-MW03R, the pH readings during both 2024 monitoring events (pH 5.79 and 6.13) exceeded the CUL, although the well's average annual pH was somewhat higher in 2024 than in 2022 or 2023 as presented in the tabulation above.

3.1.2 Dissolved Metals

AA-MW04R

During the 2024 monitoring events, concentrations of the four dissolved metals (cadmium, copper, nickel, and zinc) at source area well AA-MW04R were below their respective CULs (Table 1). Plotting the groundwater pH and the summed concentrations of the four dissolved metals currently monitored (cadmium, copper, nickel, zinc) over time illustrates a general improvement in groundwater quality since the October 2016 concentration spike created by formation disturbance during drilling of replacement well AA-MW04R, which was described in the 2018 MNA Monitoring Annual Report (Aspect, 2018b). A general correlation between lower pH and higher metals concentrations is also apparent over the past several years of data, although the correlation is not perfect (Figure 3)⁹.

AA-MW03R

During both 2024 events for well AA-MW03R, the concentrations of dissolved metals were again less than CULs (non-detect) despite the pH being less than the pH 6.2 CUL (Table 1).

AA-MW01R and FH-MW01R

Wells AA-MW01R and FH-MW01R were decommissioned and could not be sampled in 2024 as described in Section 2. Accordingly, no analysis of metals trends beyond that presented in the 2020 MNA Monitoring Annual Report (Aspect, 2021) can be conducted for these wells.

Other Cross-Gradient and Downgradient Wells

During both 2024 monitoring events, dissolved copper remained nondetect at well AA-MW02R located mill-east of the acidic metals plume (Table 1). During both 2024 monitoring events, well BC-MW05 had pH greater than the cleanup level so it was not

⁹ Figure 3 does not extend back to 2004 because adjacent 2004 well GF-MW02 never had elevated metals concentrations in groundwater, despite having highly acidic groundwater, so it is not meaningful to combine those data for analysis of long-term metals trends back to 2004.

sampled for metals, and well GF-MW01R could not be monitored, as described in Section 2.

3.2 Miscellaneous Metals Area

The Miscellaneous Metals Area encompasses two wells, LP-MW01 and SC-MW02R, that had low-level exceedances of selected metals without pH impacts during the 2009-2010 monitoring conducted for the Site remedial investigation/feasibility study (RI/FS). The following sections describe groundwater quality at each well.

LP-MW01

Groundwater pH at well LP-MW01 during both 2023 monitoring events (pH 6.45 and 6.49) complied with the CUL, consistent with prior data. The dissolved copper concentrations detected in the October 2024 sample (6.5 µg/L) exceeded the 3.1 µg/L CUL in the October event but not in the April 2024 sample (1.9 µg/L) (Table 2). The seasonal pattern of higher concentrations in the dry season (October) versus the wet season (April) continues with the 2024 monitoring data. The 2024 average annual copper concentration (4.2 µg/L) was the lowest measured since 2017, as indicated in the tabulation below.

Year	LP-MW01 Average Annual Copper in µg/L
2017*	7.7
2018	7.5
2019	6.2
2020	6.0
2021	5.8
2022	14.5
2023	10.4
2024	4.2

* 2017 average includes October 2016 data (see Table 2).

SC-MW02R

At well SC-MW02R, the dissolved copper concentration was below the CUL during both 2024 monitoring events.

Notably, the dissolved copper concentrations at SC-MW02R have now been below the CUL for four consecutive sampling events and in 7 of the past 8 events (Table 2), demonstrating compliance with the CUL in accordance with the CMP (Aspect, 2015).

Downgradient Wells AA-MW02R and LB-MW01R

At well AA-MW02R, downgradient of the Miscellaneous Metals Area, dissolved copper remained non-detect, consistent with prior results (Table 2).

At the other downgradient well, LB-MW01R, dissolved copper was marginally above the CUL during the April 2024 monitoring event (3.3 µg/L) but below it in the October 2024 event (non-detect) (Table 2). The 2024 average annual dissolved copper concentration at

LB-MW01 (1.9 µg/L) was the lowest measured since 2017 and the first year it was below the CUL, as indicated in the tabulation below.

Year	LB-MW01 Average Annual Copper in µg/L
2017*	5.2
2018	5.6
2019	5.0
2020	5.6
2021	4.6
2022	3.6
2023	7.2
2024	1.9

* 2017 average includes October 2016 data (see Table 2)

4 Plan for 2025 MNA Monitoring

Following completion of the 2024 MNA monitoring, well SCMW-02R has been demonstrated to comply with CULs, as described in Section 3.2, and therefore qualifies for exclusion from the future monitoring program in accordance with the CMP. As described in the 2015 CMP and reiterated above, wells AA-MW02R, AA-MW03R, and LB-MW01 must be monitored until other specified wells reach CULs.

It is expected that, in 2025, the Harcourt residential development will be complete to the point that decommissioned wells AA-MW01R and FH-MW01R can be replaced, and well GF-MW01R can either be found or else replaced, and the three wells' monitoring can be reinitiated. Figure 4 shows the planned approximate locations for replacement wells AA-MW01R2 and FH-MW01R2 with the intent they will be located on City of Bellingham (City) property just outside the Harcourt property boundary: AA-MW01R2 within the City's planned Waypoint Park expansion, and FH-MW01R2 within the City's Granary Avenue easement. If well GF-MW01R cannot be located and determined to be intact, its replacement will be installed within 10 feet of the original well location. Specific locations of the replacement wells will be coordinated with appropriate City staff and will account for existing and planned infrastructure and subsurface utilities.

The semiannual groundwater MNA monitoring program will be conducted in April and October 2025, including whichever of the three reinitiated wells can be re-established. Monitoring for well SC-MW02R will be discontinued. For the other wells, the well-specific analytes will be the same as those measured in 2024. Assuming monitoring of wells GF-MW01R, AA-MW01R2, and FH-MW01R2 is reinitiated, it will continue from where it was left off in 2020, in accordance with the CMP. Table 3 lists the wells and analytes to be monitored for the 2025 monitoring program.

Following receipt of data from the 2025 monitoring events, an annual report will be prepared that analyzes the collective data and re-evaluates the scope of the monitoring program for the subsequent (2026) monitoring, in accordance with the CMP.

5 References

- Aspect Consulting, LLC (Aspect), 2015, Compliance Monitoring Plan for Groundwater Monitored Natural Attenuation, Pulp & Tissue Mill RAU, Georgia-Pacific West Site, July 7, 2015.
- Aspect Consulting, LLC (Aspect), 2018a, 2017 Annual Report for Groundwater Monitored Natural Attenuation, Pulp & Tissue Mill RAU, Georgia-Pacific West Site, January 3, 2018.
- Aspect Consulting, LLC (Aspect), 2018b, 2018 Annual Report for Groundwater Monitored Natural Attenuation, Pulp & Tissue Mill RAU, Georgia-Pacific West Site, December 17, 2018.
- Aspect Consulting, LLC (Aspect), 2021, 2020 Annual Report for Groundwater Monitored Natural Attenuation, Pulp & Tissue Mill RAU, Georgia-Pacific West Site, January 19, 2021.
- Aspect Consulting, LLC (Aspect), 2024, 2023 Annual Report for Groundwater Monitored Natural Attenuation, Pulp & Tissue Mill RAU, Georgia-Pacific West Site, February 22, 2024.
- Washington State Department of Ecology (Ecology), 2014, Cleanup Action Plan, Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, Exhibit B to Consent Decree No. 14207008, October 30, 2014.

6 Limitations

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

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TABLES

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Within Acidic Metals Plume																
			GF-MW02	AA-MW04				AA-MW04R											
			07/25/04	09/29/09	03/30/10	02/25/15	10/14/16	11/02/16	01/11/17	04/17/17	07/05/17	01/24/18	04/23/18	07/10/18	10/02/18	01/13/19	04/08/19	07/24/19	10/09/19
Field Parameters																			
pH	pH units	6.2	3.34	4.18	4.49	4.50	4.34	4.38	4.51	4.53	4.45	4.58	4.54	5.5	6.5	5.93	5.08	6.28	5.68
Temperature	deg C		18.87	15.35	11.12	11.0	15.49	15.48	8.81	11.1	15.95	10.9	12.8	15.1	15.7	12.66	10.6	16.8	15.9
Specific Conductance	uS/cm		2442	2345	1716	539	2901	2123	1527	1195	1096	835	981	1150	1088	1254	1478	1149	1126
Dissolved Oxygen	mg/L		1.55	1.23	0.38	0.51	0.12	0.14	0.15	0.26	0.13	0.4	0.3	0.1	0.11	0.14	0.22	0.61	0.19
ORP	mV		394	-164	278	75	204	167	136	158	135	83	62	44	-177	63	145	-9	68
Turbidity	NTU		5	10	20	2	22	7	13	--	6	--	20	35	0.02	29	17	15	46
Metals																			
Arsenic (Dissolved)	ug/L	5	38	4.73	48	5.3	83	17	6.4	7.1	25	14	3.0 U	8.1	17	3.0 U	3.0 U	4.3	3.0 U
Cadmium (Dissolved)	ug/L	8.8	81.1	1650	74.3	7.8	5000	920	120	49	20	14	9.4	47	4.0 U	81	54	4.0 U	120
Copper (Dissolved)	ug/L	3.1	795	2.78	179	1.4	15000	3900	1000	420	240	120	170	130	3.8	100	300	18	94
Nickel (Dissolved)	ug/L	8.2	626	1560	108	19	1400	320	65	39	42	24	13	83	4.0 U	93	60	18	130
Zinc (Dissolved)	ug/L	81	2440	7420	836	82	10000	1800	440	250	330	150	83	330	25 U	480	470	68	530

Analyte	Units	Groundwater Cleanup Level	Wells Within Acidic Metals Plume									
			AA-MW04R (continued)									
			04/21/20	10/07/20	04/29/21	10/20/21	04/27/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters												
pH	pH units	6.2	6.13	6.43	6.30	5.53	6.23	6.73	6.29	6.15	6.56	6.69
Temperature	deg C		11.4	16.3	12.1	16.1	11.1	15.3	11.4	15.7	11.6	16.08
Specific Conductance	uS/cm		770	838	748	823	1022	967	689	1492	891	639
Dissolved Oxygen	mg/L		0.93	0.28	0.23	0.11	--	0.27	0.14	0.30	0.17	0.03
ORP	mV		-135	-39	-202	147	125	-42	36	-143	-342	-191
Turbidity	NTU		12	8	3	4	5	11	6	11	2	4
Metals												
Arsenic (Dissolved)	ug/L	5	3.0 U	3.0 U	3.0 U	3.0 U	5.0	4.4	3.0 U	3.0 U	--	--
Cadmium (Dissolved)	ug/L	8.8	4.0 U	4.0 U	4.0 U	66	23	4.0 U	6.3	4.0 U	4.0 U	4.0 U
Copper (Dissolved)	ug/L	3.1	1.2	1.0 U	1.2	190	110	3.0	6.2	4.5	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	38	21	24	44	18	4.0 U	17	18	5.4	5.5
Zinc (Dissolved)	ug/L	81	66	44	63	230	110	25 U	46	31	25 U	25 U

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Within Acidic Metals Plume																
			FH-MW01				FH-MW01R												
			07/25/04	09/29/09	03/30/10	02/25/15	10/15/16	01/11/17	04/18/17	07/05/17	01/24/18	04/23/18	07/10/18	10/02/18	01/14/19	04/08/19	07/24/19	10/09/19	04/22/20
Field Parameters																			
pH	pH units	6.2	4.11	4.36	4.64	5.27	4.92	5.16	5.41	5.08	5.46	5.52	5.35	5.7	5.96	5.71	5.69	5.62	5.00
Temperature	deg C		20.39	16.53	11.22	11.9	16.91	9.93	12.5	19.52	11.8	12.2	16.3	17.1	10.82	11.9	16.8	16.7	11.7
Specific Conductance	uS/cm		2305	2132	1613	1877	2085	1528	1348	1459	1152	1563	1899	2086	2291	2370	2110	1879	1005
Dissolved Oxygen	mg/L		0.73	0.82	0.45	0.80	0.1	0.16	0.33	0.35	1.4	0.3	0.1	0.17	0.34	0.38	0.29	0.17	0.80
ORP	mV		261	-159	72	122	-155	44	83	-114	-22	-7	-57	-174	32	-10	-24	64	32
Turbidity	NTU		3.22	10	10	300	36.1	19.2	--	21.2	--	39	25	3.94	37	40.5	34.1	11.8	17
Metals																			
Arsenic (Dissolved)	ug/L	5	2	2.72	0.5 U	3 U	3.0 U	3.0 U	3.0 U	3.0 U	5.3	15	88	20	29	35	25	27	46
Cadmium (Dissolved)	ug/L	8.8	0.2 U	0.02 U	0.443	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.9	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Copper (Dissolved)	ug/L	3.1	0.8	1.55	1.55	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	405	209	459	190	140	69	59	77	54	6200	2700	1100	2400	2500	990	850	590
Zinc (Dissolved)	ug/L	81	760	616	1130	530	510	250	180	230	150	950	560	180	810	1300	940	840	750

Analyte	Units	Groundwater Cleanup Level	Wells Within Acidic Metals Plume
			FH-MW01R (continued)
Field Parameters			Not Monitored Oct. 2020 - Oct. 2024
pH	pH units	6.2	
Temperature	deg C		
Specific Conductance	uS/cm		
Dissolved Oxygen	mg/L		
ORP	mV		
Turbidity	NTU		
Metals			
Arsenic (Dissolved)	ug/L	5	
Cadmium (Dissolved)	ug/L	8.8	
Copper (Dissolved)	ug/L	3.1	
Nickel (Dissolved)	ug/L	8.2	
Zinc (Dissolved)	ug/L	81	

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume														
			AA-MW01			AA-MW01R											
			09/29/09	03/30/10	02/25/15	10/15/16	01/11/17	04/17/17	07/06/17	01/24/18	04/23/18	07/10/18	10/02/18	01/13/19	04/08/19	07/24/19	10/10/19
Field Parameters																	
pH	pH units	6.2	7.56	6.92	6.99	6.99	6.91	6.99	6.74	6.75	6.98	6.82	6.79	7.38	7.03	6.88	6.88
Temperature	deg C		18.5	12.8	11.9	16.4	11.0	12.9	17.2	12.9	13.3	16.1	17.5	13.3	12.4	18.4	17.5
Specific Conductance	uS/cm		746	848	1526	1504	1341	1333	1361	1586	1437	2720	5075	2575	1313	5253	5139
Dissolved Oxygen	mg/L		1.2	0.5	0.6	0.1	0.2	1.0	0.1	0.3	0.5	0.2	0.1	0.12	0.2	0.3	4.4
ORP	mV		-354	-113	9	-194	-33	-107	-81	-85	-49	-108	-210	-79	-105	-85	41
Turbidity	NTU		10	10	1	27	37	--	5	--	14	12	16	29	18	9	1
Metals																	
Arsenic (Dissolved)	ug/L	5	0.11 J	0.5 U	3 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	4.5	3.8	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Cadmium (Dissolved)	ug/L	8.8	0.02 U	0.02 U	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Copper (Dissolved)	ug/L	3.1	0.3	0.58	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	0.84	1.62	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	130	16	11	4.0 U	4.0 U	4.0 U	4.0 U
Zinc (Dissolved)	ug/L	81	0.5 U	0.5 U	25 U	25 U	25 U	10 U	25 U	25 U	25.0 U	25 U	25 U	25 U	25 U	25 U	25 U

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume	
			AA-MW01R (continued)	
			04/21/20	Not Monitored Oct. 2020 - Oct. 2024
Field Parameters				
pH	pH units	6.2	7.05	
Temperature	deg C		12.8	
Specific Conductance	uS/cm		1201	
Dissolved Oxygen	mg/L		0.60	
ORP	mV		-77	
Turbidity	NTU		1.6	
Metals				
Arsenic (Dissolved)	ug/L	5	3.0 U	
Cadmium (Dissolved)	ug/L	8.8	4.0 U	
Copper (Dissolved)	ug/L	3.1	1.0 U	
Nickel (Dissolved)	ug/L	8.2	4.0 U	
Zinc (Dissolved)	ug/L	81	25 U	

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume															
			AA-MW02			AA-MW02R												
			10/01/09	04/01/10	02/25/15	10/14/16	04/17/17	07/05/17	01/24/18	04/24/18	07/10/18	10/03/18	01/13/19	04/08/19	07/24/19	10/09/19	04/22/20	10/07/20
Field Parameters																		
pH	pH units	6.2	7.23	7.24	7.32	7.35	7.41	7.19	7.18	7.33	7.10	7.20	7.56	7.24	7.21	7.25	7.25	7.27
Temperature	deg C		15.13	12.39	12.4	16.46	12.4	16.16	12.3	11.4	14.9	15.1	12.85	12	16.1	14.8	11.7	15.6
Specific Conductance	uS/cm		1337	984	1110	1204	1018	883.6	957	807	812	753	926	1041	1055	886	806	780
Dissolved Oxygen	mg/L		0.58	0.72	0.54	0.09	0.25	0.23	0.3	0.1	0.1	0.2	0.12	0.21	0.37	0.18	0.63	0.14
ORP	mV		-335.1	-239.1	0.3	-183.2	-41.5	-27.6	59	1	-11	-30.4	-133.1	-10	-42.9	26	13	-228
Turbidity	NTU		10	10	16	9	--	13	--	5	7	0.02	8	0.5	8	1	1	0.02
Metals																		
Arsenic (Dissolved)	ug/L	5	0.1 J	0.5 U	3 U	--	3.0 U	3.0 U	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	0.02 U	0.02 U	4 U	--	4.0 U	4.0 U	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	0.67	0.68	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	2.18	2.3	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--	--
Zinc (Dissolved)	ug/L	81	0.4 J	0.6 J	25 U	--	10 U	25 U	--	--	--	--	--	--	--	--	--	--

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume							
			AA-MW02R (continued)							
			04/28/21	10/20/21	04/27/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters										
pH	pH units	6.2	7.50	7.24	7.40	7.29	7.42	7.20	7.30	7.71
Temperature	deg C		12.3	15.7	11.9	15.3	12.0	15.3	11.9	15.6
Specific Conductance	uS/cm		696	591	661	746	596	1293	612	596
Dissolved Oxygen	mg/L		0.45	0.10	--	0.38	0.09	0.34	0.30	0.04
ORP	mV		68	91	-288	-191	-173.8	-209.5	-318	-161
Turbidity	NTU		3	0.02	2	6	4	1	1	1
Metals										
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume																
			AA-MW03			AA-MW03R													
			09/29/09	03/30/10	02/25/15	10/15/16	01/11/17	04/17/17	07/05/17	01/24/18	04/24/18	07/10/18	10/03/18	01/13/19	04/08/19	07/24/19	10/10/19	04/21/20	10/07/20
Field Parameters																			
pH	pH units	6.2	5.06	4.87	5.52	4.42	4.61	5.27	4.23	4.84	4.4	4.63	4.43	5.67	5.72	5.64	5.47	5.80	5.76
Temperature	deg C		15.94	11.26	12.2	16.55	10.54	11.9	16.95	11.2	11	16	16.9	12.9	11.5	17.4	17.5	12.2	18.1
Specific Conductance	uS/cm		1581	1661	1960	1821	1668	1820	1601	1431	1247	1288	1350	1153	901	976	706	813	805
Dissolved Oxygen	mg/L		0.86	0.92	0.99	0.1	0.51	1.55	0.11	0.9	0.2	0.1	0.12	0.08	0.2	0.35	0.14	0.75	0.45
ORP	mV		-268	69.9	119.3	-141.2	-10.5	-33.2	12	-25	-21	-49	39.4	-155	-77.2	-79.5	-4.4	-137	-30
Turbidity	NTU		10	10	3	7	--	--	9	--	4	4	0	9	12	11	2	2	0.02
Metals																			
Arsenic (Dissolved)	ug/L	5	0.87	0.5 U	3 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Cadmium (Dissolved)	ug/L	8.8	0.02 U	0.09	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Copper (Dissolved)	ug/L	3.1	0.99	1.09	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	3.01	7.37	8.0	4.3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	65	33	27	45	12	6.4
Zinc (Dissolved)	ug/L	81	32.3	23.6	25 U	25 U	25 U	10 U	25 U	25 U	25.0 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume							
			AA-MW03R (continued)							
			04/28/21	10/20/21	04/27/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters										
pH	pH units	6.2	6.06	6.35	6.10	5.55	5.73	5.76	5.79	6.13
Temperature	deg C		12.6	17.7	12.2	17.6	12.0	17.3	12.4	19.1
Specific Conductance	uS/cm		1126	400	992	523	738	1097	562	510
Dissolved Oxygen	mg/L		0.06	0.93	--	0.18	0.07	0.12	0.19	0.07
ORP	mV		-39	-149.5	-267	-168	-0.4	-246	-321	-182
Turbidity	NTU		3	0.02	2	8	3	1	1	2
Metals										
Arsenic (Dissolved)	ug/L	5	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Cadmium (Dissolved)	ug/L	8.8	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Copper (Dissolved)	ug/L	3.1	1.0 U	--	2.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc (Dissolved)	ug/L	81	25 U	--	25 U	25 U	25 U	25 U	25 U	25 U

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume													Not Monitored Oct. 2020 - Oct. 2023
			BC-MW05													
			12/19/10	10/15/16	04/17/17	07/06/17	01/24/18	04/25/18	07/10/18	10/02/18	01/13/19	04/08/19	07/23/19	10/09/19	04/21/20	
Field Parameters																
pH	pH units	6.2	7.64	7.25	7.40	7.20	7.20	7.42	7.21	7.26	7.54	7.25	7.17	7.12	7.22	
Temperature	deg C		10.82	15.04	12.2	16.78	11.5	12.4	15	16	11.37	11.2	17.2	14.9	11.4	
Specific Conductance	uS/cm		25250	9868	4674	11489	5766	10857	13952	31689	15228	10350	11949	13024	13070	
Dissolved Oxygen	mg/L		0.22	0.12	0.20	0.16	0.30	0.1	1.9	0.53	0.18	0.23	0.33	0.27	6.77	
ORP	mV		-313	-327	-298	-328	-325	-207	-161	-294	-305	-290	-267	-187	-309	
Turbidity	NTU		3	14	--	8	--	--	--	0.02	80	8	8	0.9	0.4	
Metals																
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper (Dissolved)	ug/L	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--	--	--	--	--	--	
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--	--	--	--	--	--	

Analyte	Units	Groundwater Cleanup Level	Outside Acidic Metals Plume	
			BC-MW05 (cont'd)	
			05/02/24	10/09/24
Field Parameters				
pH	pH units	6.2	7.17	7.46
Temperature	deg C		11.9	15.9
Specific Conductance	uS/cm		9666	23960
Dissolved Oxygen	mg/L		0.7	0.02
ORP	mV		-337	-311
Turbidity	NTU		0.8	1
Metals				
Arsenic (Dissolved)	ug/L	5	--	--
Cadmium (Dissolved)	ug/L	8.8	--	--
Copper (Dissolved)	ug/L	3.1	--	--
Nickel (Dissolved)	ug/L	8.2	--	--
Zinc (Dissolved)	ug/L	81	--	--

Table 1. Groundwater Chemistry Data for Acid Plant Subarea

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Outside of Acidic Metals Plume													Not Monitored Oct. 2020 - Oct. 2024
			GF-MW01R													
			10/15/16	01/11/17	04/19/17	07/06/17	01/24/18	04/25/18	07/10/18	10/02/18	01/13/19	04/08/19	07/23/19	10/09/19	04/22/20	
Field Parameters																
pH	pH units	6.2	6.13	6.44	6.40	6.23	6.26	6.25	6.23	6.52	6.91	6.34	6.24	6.50	6.13	
Temperature	deg C		17.0	10.7	12.0	16.4	12.0	13.4	15.8	17.6	13.0	11.3	17.2	17.1	11.9	
Specific Conductance	uS/cm		7059	7951	3687	1125	8380	1231	1764	19073	3446	4901	3204	2012	1464	
Dissolved Oxygen	mg/L		0.1	0.2	0.2	0.2	0.5	0.2	0.1	0.08	0.09	0.2	0.2	0.2	1.2	
ORP	mV		-220	-168	-128	-15	-90	-61	-95	-278	-254	-127	-61	-68	9	
Turbidity	NTU		6	10	--	8	--	--	5	0.02	3	--	8	4	2	
Metals																
Arsenic (Dissolved)	ug/L	5	3.0 U	--	--	--	--	--	--	--	--	--	--	--	3.0 U	
Cadmium (Dissolved)	ug/L	8.8	4.0 U	--	--	--	--	--	--	--	--	--	--	--	4.0 U	
Copper (Dissolved)	ug/L	3.1	1.0 U	--	1.0 U	--	--	--	--	--	--	--	--	--	1.0 U	
Nickel (Dissolved)	ug/L	8.2	4.0 U	--	4.0 U	--	--	--	--	--	--	--	--	--	4.0 U	
Zinc (Dissolved)	ug/L	81	25 U	--	--	--	--	--	--	--	--	--	--	--	25 U	

Notes

Wells AA-MW01R, BC-MW05, FH-MW01R, and GF-MW01R not monitored because they were within the Harcourt construction zone.
U - Not detected at PQL. Yellow - exceeded cleanup level. "--" indicates analysis not conducted.
deg C - degrees Celsius, ug/L - micrograms per liter, uS/cm -microsiemens per centimeter, mg/L - milligrams per liter, mV - millivolts, NTU - Nephelometric Turbidity Unit

Table 2. Groundwater Chemistry Data for Miscellaneous Metals Area

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Within Miscellaneous Metals Area															
			LP-MW01															
			07/27/04	09/30/09	03/29/10	02/26/15	10/14/16	01/11/17	04/17/17	07/06/17	01/23/18	04/23/18	07/10/18	10/03/18	01/14/19	04/09/19	07/24/19	10/08/19
Field Parameters																		
pH	pH units	6.2	7.20	7.09	7.79	6.94	6.71	7.04	7.23	6.88	6.85	6.56	6.50	6.59	7.13	6.26	6.47	6.40
Temperature	deg C		19.14	19.1	11.39	10.8	16.11	7.6	11.2	18.79	9.1	11.7	18	16.9	10.39	11.1	17.6	14.9
Specific Conductance	uS/cm		863	712	222	193	278	237	510	430	317	164	590	670	166	265	564	273
Dissolved Oxygen	mg/L		0.73	0.99	3.14	0.60	7.46	1.79	0.21	0.16	0.4	1.2	0.1	3.21	2.5	0.92	0.22	0.23
ORP	mV		-27	-289	98	-179	77	30	-96	-193	121	-50	-111	77	-2.8	84	86	15
Turbidity	NTU		17	10	10	4	3	1	--	5	10	9	7	0.02	5.4	0.1	6.7	2.2
Metals																		
Arsenic (Dissolved)	ug/L	5	14.1	3.18	1.1 J	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	1.5	0.097	0.061	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	45	3.10	4.41	3.5	4.1	4.5	11	11	6.5	4.4	10	9.1	3.9	4.2	7.4	9.1
Nickel (Dissolved)	ug/L	8.2	7	1.61	1.2	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--	4.1	--	--	--	--	--
Zinc (Dissolved)	ug/L	81	10	0.56	0.5 U	--	--	--	--	--	--	--	--	--	--	--	--	--

Analyte	Units	Groundwater Cleanup Level	Wells Within Miscellaneous Metals Area									
			LP-MW01									
			04/20/20	10/07/20	04/29/21	10/21/21	04/28/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters												
pH	pH units	6.2	6.09	6.59	6.57	6.35	6.63	6.56	6.66	6.27	6.45	6.48
Temperature	deg C		12.3	16.70	12.80	14.90	11.20	16.20	10.01	13.9	11.04	16.4
Specific Conductance	uS/cm		190	385	243	285	240	1618	202	1000	190	322
Dissolved Oxygen	mg/L		0.64	0.38	0.13	1.01	--	2.25	0.09	3.39	0.78	0.06
ORP	mV		-121	140	60	-48	-241	-18	43.6	89.3	-69	13
Turbidity	NTU		1.4	1.1	5.5	0.02	0.7	12	1.4	2.6	0	1
Metals												
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--	--	
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--	--	
Copper (Dissolved)	ug/L	3.1	3.1	8.8	2.1	9.4	4.0	25	5.8	15	1.9	6.5
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--	--	
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--	--	

Table 2. Groundwater Chemistry Data for Miscellaneous Metals Area

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Within Miscellaneous Metals Area														
			SC-MW02				SC-MW02R										
			07/27/04	09/30/09	04/01/10	02/26/15	10/14/16	04/17/17	07/05/17	01/23/18	04/23/18	07/10/18	10/02/18	01/14/19	04/09/19	07/24/19	10/08/19
Field Parameters																	
pH	pH units	6.2	6.05	6.41	6.56	6.78	6.89	6.94	6.34	6.70	6.69	6.51	6.71	7.12	6.37	6.55	6.56
Temperature	deg C		15.3	16.6	10.9	11.3	16.5	11.6	17.4	11.1	11.1	16.1	15.3	9.5	10.3	15.7	14.6
Specific Conductance	uS/cm		6685	4137	2920	3325	1766	1726	1856	1389	1024	2557	4233	1187	1587	2267	1053
Dissolved Oxygen	mg/L		0.68	0.65	4.58	0.58	0.12	0.1	0.1	0.6	--	0.1	0.06	0.15	0.79	0.11	0.47
ORP	mV		-385	-497	-272	-194	-303	-178	-269	-62	-92	-215	230	-216	-116	-341	-44
Turbidity	NTU		56	10	15	9	28	--	--	--	12	38	0	18	42	38	8
Metals																	
Arsenic (Dissolved)	ug/L	5	12.2	2.94	1.67 U	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	0.5 U	0.043	0.067 U	--	--	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	17	4.78	0.412	2 U	4.4	3.1	4.1	3.7	4.1	16	7.3	14	4.8	7.4	5.1
Nickel (Dissolved)	ug/L	8.2	29	8.42	1.67 U	13	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	17	28	4.0 U	4.0 U	6.2	4.0 U
Zinc (Dissolved)	ug/L	81	20	4.13	1.67 U	--	--	--	--	--	--	--	--	--	--	--	--

Analyte	Units	Groundwater Cleanup Level	Wells Within Miscellaneous Metals Area									
			SC-MW02R (continued)									
			04/20/20	10/07/20	04/29/21	10/21/21	04/28/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters												
pH	pH units	6.2	6.33	6.73	6.87	6.55	7.03	6.92	7.06	6.56	6.84	7.08
Temperature	deg C		12.1	16.0	12.2	15.9	11.4	15.2	10.2	15.4	11.8	16.2
Specific Conductance	uS/cm		1577	2799	2083	1067	1564	3771	787	2738	986	1768
Dissolved Oxygen	mg/L		0.47	0.16	0.16	0.11	0.17	-324	0.13	0.16	0.04	0.06
ORP	mV		-154	-300	-286	-209		-353	-107	-310	-272	-302
Turbidity	NTU		70	9	17	6	11	13	15	132	35	63
Metals												
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	2.9	3.3	2.8	2.4	2.5	6.6	1.0 U	2.1	1.0 U	2.7
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--	--	--
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--	--	--

Table 2. Groundwater Chemistry Data for Miscellaneous Metals Area

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Downgradient of Miscellaneous Metals Area													
			AA-MW02			AA-MW02R										
			10/01/09	04/01/10	02/25/15	10/14/16	04/17/17	07/05/17	01/24/18	04/24/18	07/10/18	10/03/18	01/13/19	04/08/19	07/24/19	10/09/19
Field Parameters																
pH	pH units	6.2	7.23	7.24	7.32	7.35	7.41	7.19	7.18	7.33	7.1	7.2	7.56	7.24	7.21	7.25
Temperature	deg C		15.1	12.4	12.4	16.5	12.4	16.2	12.3	11.4	14.9	15.1	12.9	12	16.1	14.8
Specific Conductance	uS/cm		1337	984	1110	1204	1018	884	957	807	812	753	926	1041	1055	886
Dissolved Oxygen	mg/L		0.58	0.72	0.54	0.09	0.25	0.23	0.3	0.1	0.1	0.2	0.12	0.21	0.37	0.18
ORP	mV		-335	-239	0	-183	-42	-28	59	1	-11	-30	-133	-10	-43	26
Turbidity	NTU		10	10	16	9	--	13	--	5	7	0.02	8	1	8	1
Metals																
Arsenic (Dissolved)	ug/L	5	0.1 J	0.5 U	3 U	--	3.0 U	3.0 U	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	0.02 U	0.02 U	4 U	--	4.0 U	4.0 U	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	0.67	0.68	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	2.18	2.3	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc (Dissolved)	ug/L	81	0.4 J	0.6 J	25 U	--	10 U	25 U	--	--	--	--	--	--	--	--

Analyte	Units	Groundwater Cleanup Level	Wells Downgradient of Miscellaneous Metals Area									
			AA-MW02R (continued)									
			04/22/20	10/07/20	04/28/21	10/20/21	04/28/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters												
pH	pH units	6.2	7.25	7.27	7.50	7.24	7.40	7.29	7.42	7.20	7.30	7.71
Temperature	deg C		11.7	15.6	12.3	15.7	11.9	15.3	12.0	15.3	11.9	15.6
Specific Conductance	uS/cm		806	780	696	591.1	661	746	596	1293	612	596
Dissolved Oxygen	mg/L		0.63	0.14	0.45	0.10	--	0.38	0.09	0.34	0.30	0.04
ORP	mV		13	-228	68	91	-288	-191	-174	-210	-318	-161
Turbidity	NTU		1	0.02	3	0.02	2	6	4	1	1	1
Metals												
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--	--	--
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--	--	--

Table 2. Groundwater Chemistry Data for Miscellaneous Metals Area

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Analyte	Units	Groundwater Cleanup Level	Wells Downgradient of Miscellaneous Metals Area															
			LB-MW01				LB-MW01R											
			07/27/04	10/01/09	04/01/10	02/26/15	10/14/16	01/11/17	04/19/17	07/05/17	01/24/18	04/23/18	07/10/18	10/02/18	01/13/19	04/09/19	07/24/19	10/09/19
Field Parameters																		
pH	pH units	6.2	6.60	6.79	6.84	6.70	6.93	7.00	7.23	7.04	6.95	7.19	7.39	7.74	7.45	7.64	7.62	7.45
Temperature	deg C		20.00	18.3	11.38	11.3	16.09	10.93	11	16.33	10.7	12.3	15.1	15.3	11.1	10.8	15	14.7
Specific Conductance	uS/cm		858	1001	702	607	1008	723	540	479	589	376	1001	1489	635	1364	1361	1197
Dissolved Oxygen	mg/L		0.86	0.61	0.95	0.53	0.15	0.22	0.15	0.06	0.3	0.1	0.1	0.01	0.13	0.22	0.08	0.12
ORP	mV		-295	-379	-251	57	-207	-44	-18	-51	47	-43	-33	-299	-170	-146	-66	-18
Turbidity	NTU		6	10	10	4	19	11	--	2	--	5	8	--	2	0.1	9	2
Metals																		
Arsenic (Dissolved)	ug/L	5	0.5 U	0.5 U	0.5 U	3 U	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	0.5 U	0.02 U	0.02 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	1 U	1.4	0.79	8.7	5.9	2.0	2.0	11.0	6.7	6.0	5.4	4.1	3.4	5.7	7.1	3.7
Nickel (Dissolved)	ug/L	8.2	1 U	0.86	2	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc (Dissolved)	ug/L	81	10 U	0.72	0.6 J	25 U	--	--	--	--	--	--	--	--	--	--	--	--

Analyte	Units	Groundwater Cleanup Level	Wells Downgradient of Miscellaneous Metals Area									
			LB-MW01R (continued)									
			04/21/20	10/07/20	04/28/21	10/20/21	04/28/22	10/26/22	04/11/23	10/25/23	04/17/24	10/09/24
Field Parameters												
pH	pH units	6.2	7.44	7.66	8.24	7.10	7.75	8.39	7.22	7.38	7.16	7.84
Temperature	deg C		11.4	15.5	12.3	15.4	11.3	14.8	11.23	14.9	11.7	15.5
Specific Conductance	uS/cm		626	1122	995	760	472	905	624	1981	415	757
Dissolved Oxygen	mg/L		1.17	0.18	0.11	1.96	--	0.11	0.34	0.11	0.90	0.05
ORP	mV		-188	-95	-273	-146	-147	-250	18	-267	-297	-191
Turbidity	NTU		3	2	3	0	2	7	0.8	2	0.7	2
Metals												
Arsenic (Dissolved)	ug/L	5	--	--	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	ug/L	8.8	--	--	--	--	--	--	--	--	--	--
Copper (Dissolved)	ug/L	3.1	5.5	5.6	7.4	1.7	1.9	5.2	4.3	10	3.3	1.0 U
Nickel (Dissolved)	ug/L	8.2	--	--	--	--	--	--	--	--	--	--
Zinc (Dissolved)	ug/L	81	--	--	--	--	--	--	--	--	--	--

Notes
Wells AA-MW02R and SC-MW02R not monitored 1/11/17 due to iced-in monuments.
U - Not detected at PQL. Yellow - exceeded cleanup level. "--" indicates analysis not conducted.
deg C - degrees Celsius, ug/L - micrograms per liter, uS/cm -microsiemens per centimeter, mg/L - milligrams per liter, mV - millivolts, NTU - Nephelometric Turbidity Unit

Table 3. Wells and Analytes for 2025 Groundwater Monitoring

Project No. AS140298A, Georgia-Pacific West Site, Bellingham, Washington

Well ID	Field Parameters	Dissolved Metals				
		Arsenic	Cadmium	Copper	Nickel	Zinc
AA-MW01R2	X	X	X	X	X	X
AA-MW04R	X		X	X	X	X
FH-MW01R2	X	X	X	X	X	X
LB-MW01R	X			X		
LP-MW01	X			X		
AA-MW02R	X	X if pH <6.2	X if pH <6.2	X	X if pH <6.2	X if pH <6.2
AA-MW03R	X	X for As, Cd, Cu, Ni, Zn if pH <6.2				
BC-MW05	X					
GF-MW01R	X					

Notes

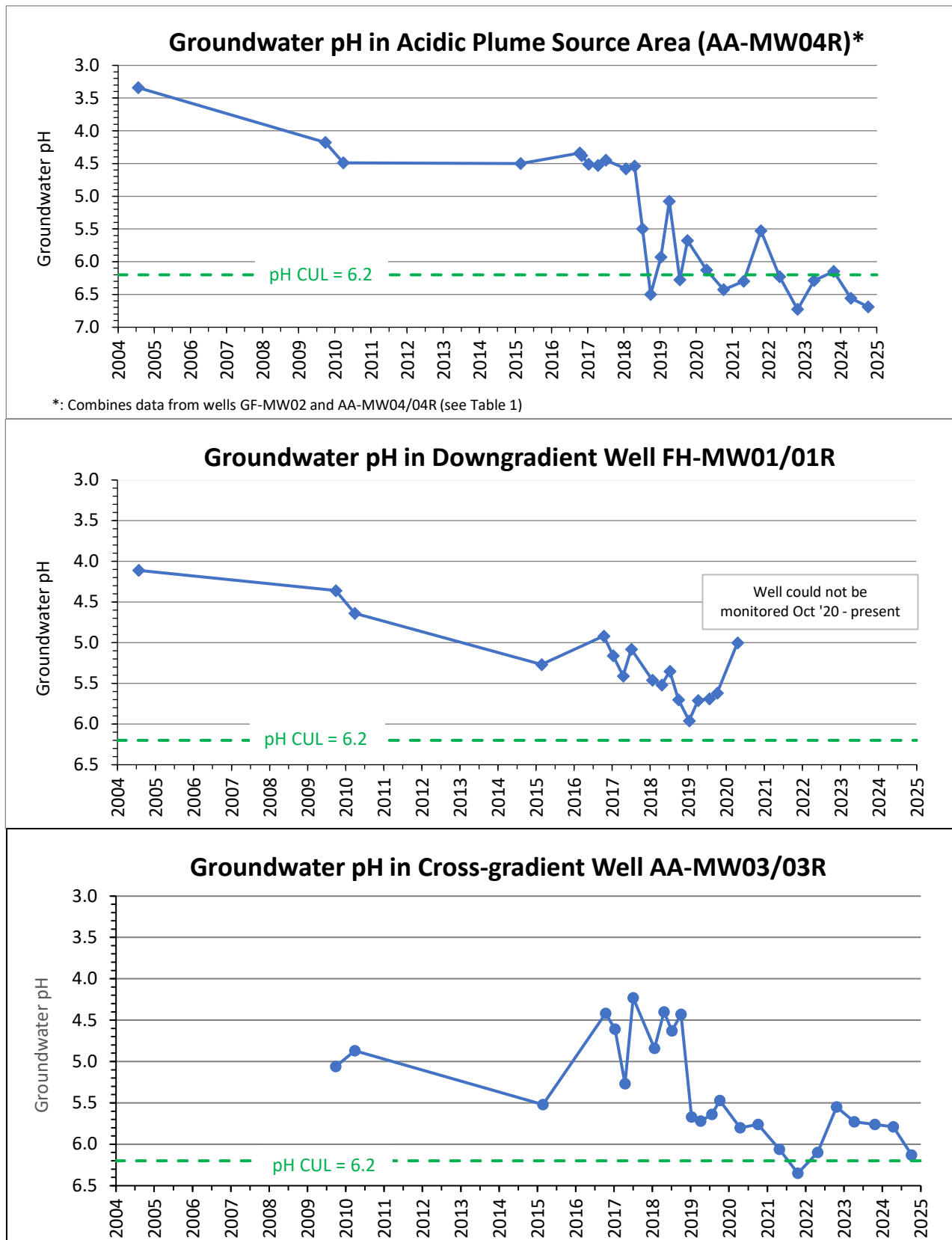
If pH < 6.2 in AA-MW02R, AA-MW03R, BC-MW05R, or GF-MW01R, analyze that well for four dissolved metals (Cd, Cu, Ni, Zn). However, AA-MW02R is analyzed for Cu each event regardless of pH (refer to text).

Replacement wells AA-MW01R2 and FH-MW01R2 are listed assuming they may be installed during 2025.

Table 3

FIGURES





Note: Groundwater pH axis is plotted in reverse order so higher on axis is farther from pH 6.2 CUL.

Figure 2
Acidic Plume Groundwater pH Trends Over Time, 2004-2024

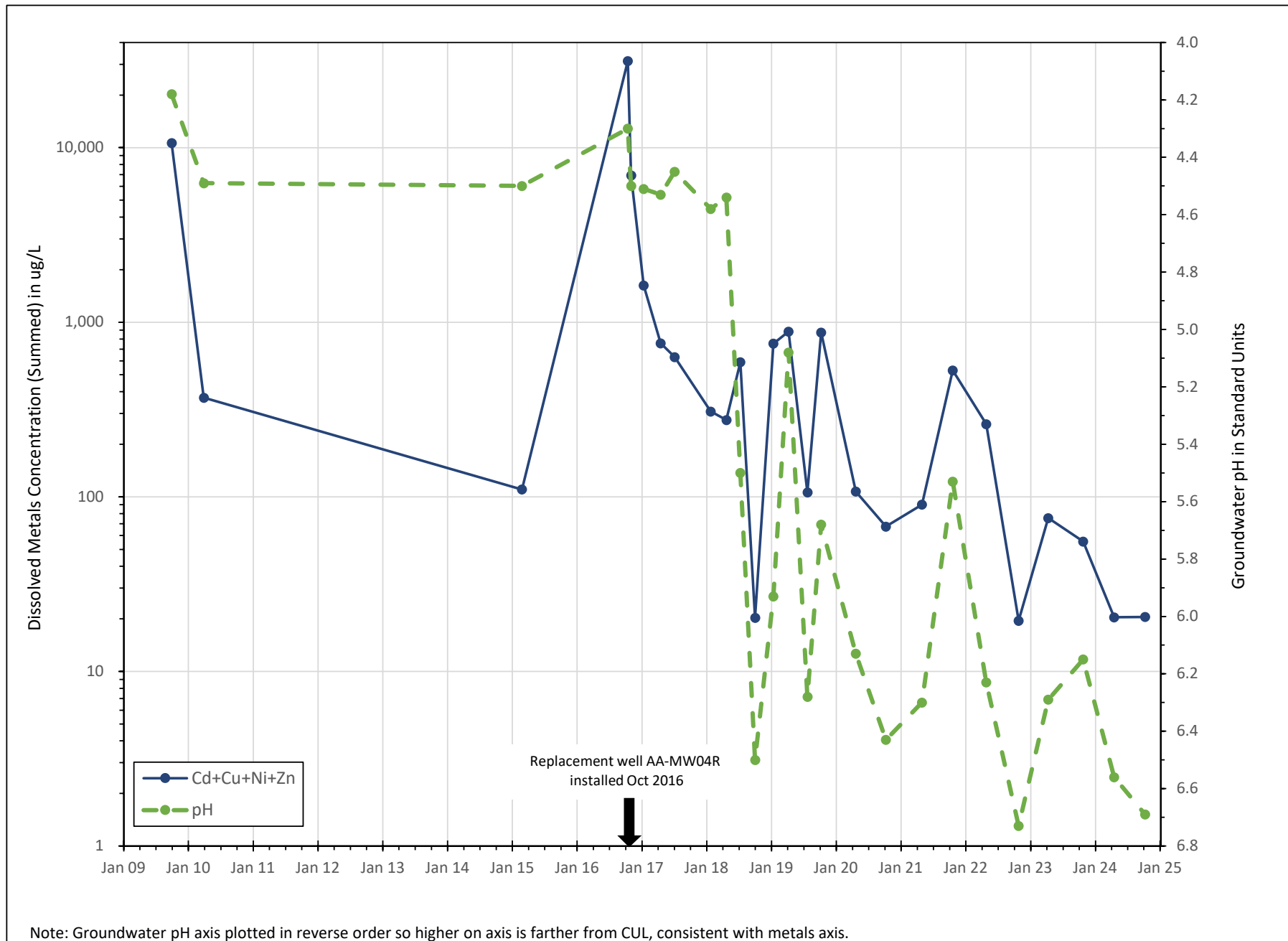
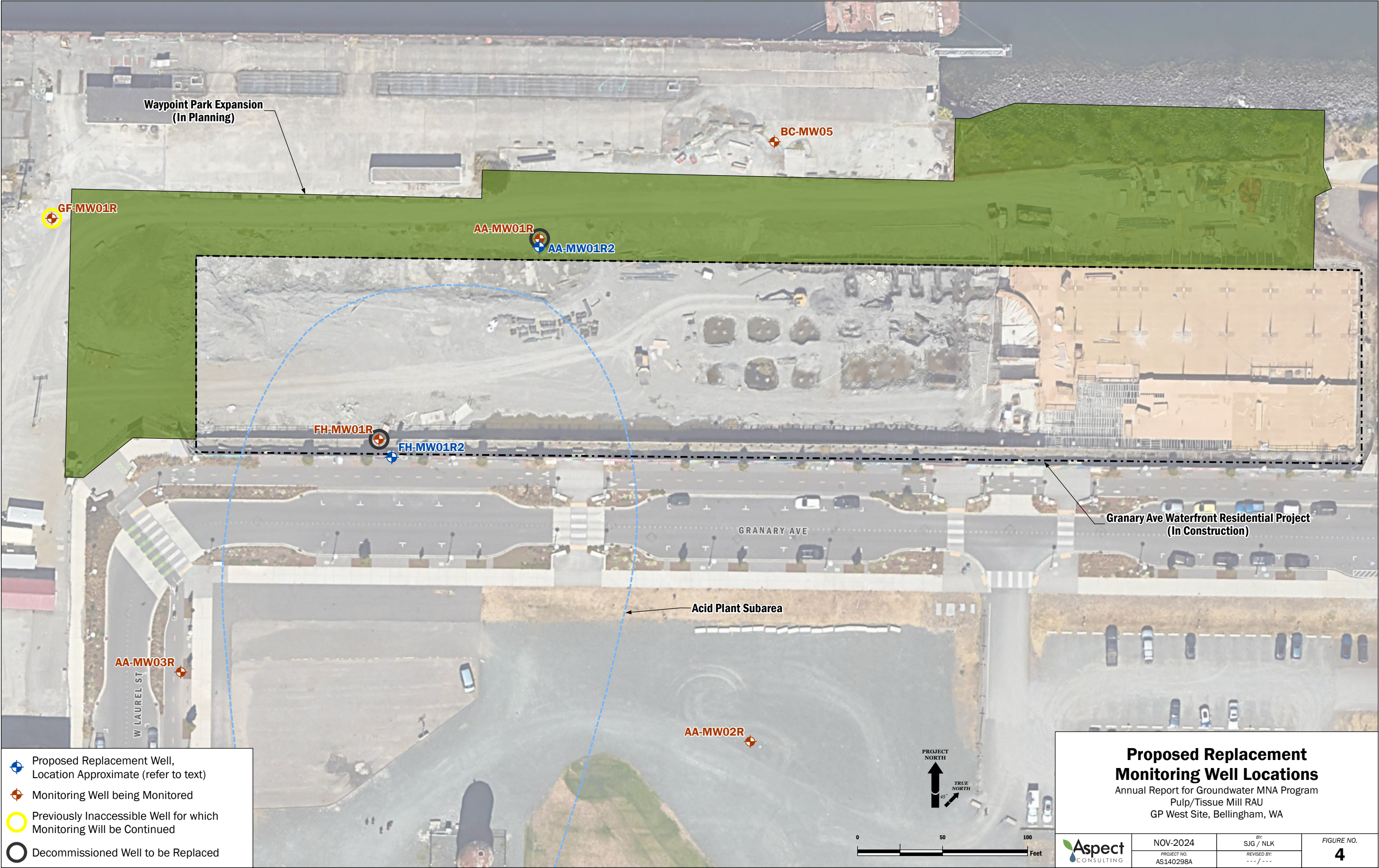


Figure 3



APPENDIX A

Data Validation Report and OnSite Environmental Laboratory Reports

DATA VALIDATION REPORT
Pulp/Tissue Mill RAU of GP West Site
2024 Groundwater Monitored Natural Attenuation Sampling
Sample Delivery Groups 2404-240 and 2410-154

Prepared by:
Aspect Consulting
710 2nd Ave, Suite 550
Seattle, WA 98104

1 Introduction

This report summarizes the findings of a U.S. Environmental Protection Agency (EPA) Stage 2A data validation performed on analytical data groundwater samples collected in April 2024 and October 2024 for the GP West Pulp and Tissue Mill Remedial Action Unit groundwater monitoring program.

Samples were analyzed for select metals by EPA method 200.8 by Onsite Environmental, Inc. in Redmond, Washington (Onsite). Refer to the table below for further information.

Table 1. Analytical Methods

Analysis	Method	Laboratory
Metals (Arsenic, Copper, Cadmium, Nickel, Zinc)	EPA 200.8	OnSite

The validation followed the procedures documented in the analytical methods, and the *National Functional Guidelines for Organic Data Review* (USEPA, 2017), and *Contract Laboratory Program SOW* (USEPA, 2016).

Data assigned a J qualifier (estimated) may be used for site evaluation purposes but the reasons for qualification should be considered when interpreting sample concentrations. Data marked as rejected (R) should not be used under any circumstances. Values without qualification meet all data measurement quality objectives and are suitable for use.

No data were qualified in the course of this review; all quality control (QC) requirements were met.

2 Data Validation Findings for Sample Delivery Group 2404-240

Water samples in this sample delivery group (SDG), and the chemical analyses performed on them, are tabulated below. The sections below describe the results of the data quality review.

Table 2. Sample Index

Sample Name	Sample Date	Sample Matrix	Dissolved Copper	Dissolved Arsenic, Cadmium, Nickel and Zinc
AA-MW02R_20240417	2024/04/17 10:55	Water	X	
AA-MW03R_20240417	2024/04/17 12:00	Water	X	X
AA-MW04R_20240417	2024/04/17 17:45	Water	X	X
LB-MW01R_20240417	2024/04/17 13:35	Water	X	
LP-MW01_20240417	2024/04/17 14:20	Water	X	
SC-MW02R_20240417	2024/04/17 14:55	Water	X	

2.1 Metals (EPA 200.8)

2.1.1 Sample Receipt, Preservation, and Holding Times

Sample receipt and preservation (2-6 degrees C) were acceptable. Samples were analyzed within the requisite holding time limit.

2.1.2 Method Blanks / Detection Levels

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

2.1.3 Laboratory Control Samples

All laboratory control sample (LCS) percent recoveries (%R) were within the laboratory specified control limits for requested analytes. No qualification or action was needed.

2.1.4 Laboratory Duplicate Sample

All laboratory duplicate sample relative percent differences (RPDs) were within the laboratory-specified control limits for all target analytes. No qualification or action was needed.

2.1.5 Matrix Spike / Matrix Spike Duplicates

All matrix spike (MS) and MS duplicate sample %Rs and RPDs were within the laboratory specified control limits for all target analytes. No qualification or actions were needed.

2.1.6 Overall Assessment

Accuracy was acceptable based on the LCS and MS/MSD %Rs and precision was acceptable based on the laboratory duplicate and MS/MSD RPD values. The data are of known quality and are acceptable for use.

3 Data Validation Findings for Sample Delivery Group 2410-154

Water samples in this sample delivery group (SDG), and the chemical analyses performed on them, are tabulated below. The sections below describe the results of the data quality review.

Table 3. Sample Index

Sample Name	Sample Date	Sample Matrix	Dissolved Copper	Dissolved Arsenic, Cadmium, Nickel and Zinc
AA-MW02R-20241009	2024/10/09 17:10	Water	X	
AA-MW03R-20241009	10/9/2024 16:25	Water	X	X
AA-MW04R-20241009	10/9/2024 17:05	Water	X	X
LB-MW01R-20241009	10/9/2024 11:50	Water	X	
LP-MW01-20241009	10/9/2024 12:45	Water	X	
SC-MW02R-20241009	10/9/2024 10:50	Water	X	

3.1 Metals (EPA 200.8)

3.1.1 Sample Receipt, Preservation, and Holding Times

Sample receipt and preservation (2-6 degrees C) were acceptable. Samples were analyzed within the requisite holding time limit.

3.1.2 Method Blanks / Detection Levels

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

3.1.3 Laboratory Control Samples

All laboratory control sample (LCS) percent recoveries (%R) were within the laboratory specified control limits for requested analytes. No qualification or action was needed.

3.1.4 Laboratory Duplicate Sample

All laboratory duplicate sample relative percent differences (RPDs) were within the laboratory specified control limits for all target analytes. No qualification or action was needed.

3.1.5 Matrix Spike / Matrix Spike Duplicates

All matrix spike (MS) and MS duplicate sample %Rs and RPDs were within the laboratory specified control limits for all target analytes. No qualification or actions were needed.

3.1.6 Overall Assessment

Accuracy was acceptable based on the LCS and MS/MSD %Rs and precision was acceptable based on the laboratory duplicate and MS/MSD RPD values. The data are of known quality and are acceptable for use.

4 Qualified Data Summary

No sample results were qualified in the course of the Stage 2A validation performed.

5 Data Qualifier Definitions

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
UU	The analyte was analyzed for, and the associated quantitation limit was an estimated value.

6 References

- U.S. Environmental Protection Agency (USEPA), 2017 National Functional Guidelines for Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI), USEPA Publication No. 540-R-2017-002, January.
- U.S. Environmental Protection Agency (USEPA), 2016, Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Superfund Methods, Multi-Media, Multi-Concentration, SOM02.4, October.



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

April 26, 2024

Steve Germiot
Aspect Consulting
Dexter Horton Building
710 2nd Avenue, Suite 550
Seattle, WA 98104

Re: Analytical Data for Project AS140298A-19
Laboratory Reference No. 2404-240

Dear Steve:

Enclosed are the analytical results and associated quality control data for samples submitted on April 18, 2024.

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

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

Sincerely,

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

David Baumeister
Project Manager

Enclosures



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

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

Date of Report: April 26, 2024
Samples Submitted: April 18, 2024
Laboratory Reference: 2404-240
Project: AS140298A-19

Case Narrative

Samples were collected on April 17, 2024 and received by the laboratory on April 18, 2024. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

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



Date of Report: April 26, 2024
 Samples Submitted: April 18, 2024
 Laboratory Reference: 2404-240
 Project: AS140298A-19

DISSOLVED METALS
EPA 200.8

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: AA-MW02R_20240417						
Laboratory ID: 04-240-01						
Copper	ND	1.0	EPA 200.8		4-24-24	

Client ID: AA-MW03R_20240417						
Laboratory ID: 04-240-02						
Arsenic	ND	3.0	EPA 200.8		4-24-24	
Cadmium	ND	4.0	EPA 200.8		4-24-24	
Copper	ND	1.0	EPA 200.8		4-24-24	
Nickel	ND	4.0	EPA 200.8		4-24-24	
Zinc	ND	25	EPA 200.8		4-24-24	

Client ID: LB-MW01R_20240417						
Laboratory ID: 04-240-03						
Copper	3.3	1.0	EPA 200.8		4-24-24	

Client ID: LP-MW01_20240417						
Laboratory ID: 04-240-04						
Copper	1.9	1.0	EPA 200.8		4-24-24	

Client ID: SC-MW02R_20240417						
Laboratory ID: 04-240-05						
Copper	ND	1.0	EPA 200.8		4-24-24	

Client ID: AA-MW04R_20240417						
Laboratory ID: 04-240-06						
Cadmium	ND	4.0	EPA 200.8		4-24-24	
Copper	ND	1.0	EPA 200.8		4-24-24	
Nickel	5.4	4.0	EPA 200.8		4-24-24	
Zinc	ND	25	EPA 200.8		4-24-24	



Date of Report: April 26, 2024
 Samples Submitted: April 18, 2024
 Laboratory Reference: 2404-240
 Project: AS140298A-19

**DISSOLVED METALS
 EPA 200.8
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0424D1					
Arsenic	ND	3.0	EPA 200.8		4-24-24	
Cadmium	ND	4.0	EPA 200.8		4-24-24	
Copper	ND	1.0	EPA 200.8		4-24-24	
Nickel	ND	4.0	EPA 200.8		4-24-24	
Zinc	ND	25	EPA 200.8		4-24-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	04-240-02							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Copper	ND	ND	NA	NA	NA	NA	NA	20
Nickel	ND	ND	NA	NA	NA	NA	NA	20
Zinc	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	04-240-02									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	82.6	81.8	80.0	80.0	ND	103	102	75-125	1	20
Cadmium	76.8	78.2	80.0	80.0	ND	96	98	75-125	2	20
Copper	74.2	73.0	80.0	80.0	ND	93	91	75-125	2	20
Nickel	76.2	75.8	80.0	80.0	ND	95	95	75-125	1	20
Zinc	79.0	78.2	80.0	80.0	ND	99	98	75-125	1	20

SPIKE BLANK

Laboratory ID:	SB0424D1									
Arsenic	77.8		80.0		N/A	97		85-115		
Cadmium	78.2		80.0		N/A	98		85-115		
Copper	76.0		80.0		N/A	95		85-115		
Nickel	76.0		80.0		N/A	95		85-115		
Zinc	79.2		80.0		N/A	99		85-115		





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- X2 - Sample extract treated with a silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference





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

Chain of Custody

Page 1 of 1

Company: Aspect		Turnaround Request (in working days) (Check One) ☐ Same Day ☐ 1 Day ☐ 2 Days ☐ 3 Days ☒ Standard (7 Days) ☐ (other) _____			Laboratory Number: 04-240														
Project Number: AS140298A-19																			
Project Name: GP - West																			
Project Manager: SS & Steve Gerriat																			
Sampled by: N. Fredrickson and M. vonder Ahe																			
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers														
1	AA-MW02R-20240417	4/17/24	1055	GW	1	NWTPH-HCID													
2	AA-MW03R-20240417		1200			NWTPH-Gx/BTEX (8021 ☐ 8260 ☐)													
3	LB-MW01R-20240417		1335			NWTPH-Gx													
4	LP-MW01-20240417		1420			NWTPH-Dx (SG Clean-up ☐)													
5	SC-MW02R-20240417		1455			Volatiles 8260													
6	AA-MW04R-20240417		1745			Halogenated Volatiles 8260													
						EDB EPA 8011 (Waters Only)													
						Semivolatiles 8270/SIM (with low-level PAHs)													
						PAHs 8270/SIM (low-level)													
						PCBs 8082													
						Organochlorine Pesticides 8081													
						Organophosphorus Pesticides 8270/SIM													
						Chlorinated Acid Herbicides 8151													
						Total RCRA Metals													
						Total MTCA Metals													
						TCLP Metals													
						HEM (oil and grease) 1664 Dis. Arsenic													
						4/17/24 Cadmium													
						Copper													
						Nickel													
						Zinc													
						% Moisture													
Relinquished		Signature: [Signature]		Company: Aspect		Date: 4/18/24		Time: 0840		Comments/Special Instructions									
Received		Signature: Nicole Johnson		Company: OSI		Date: 4/18/24		Time: 0840											
Relinquished																			
Received																			
Relinquished																			
Received																			
Relinquished																			
Reviewed/Date				Reviewed/Date						Data Package: Standard ☐ Level III ☐ Level IV ☐									
										Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐									



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

October 21, 2024

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

Re: Analytical Data for Project 140298
Laboratory Reference No. 2410-154

Dear Delia:

Enclosed are the analytical results and associated quality control data for samples submitted on October 10, 2024.

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

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

Sincerely,

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

David Baumeister
Project Manager

Enclosures



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

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

Date of Report: October 21, 2024
Samples Submitted: October 10, 2024
Laboratory Reference: 2410-154
Project: 140298

Case Narrative

Samples were collected on October 9, 2024 and received by the laboratory on October 10, 2024. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

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



Date of Report: October 21, 2024
 Samples Submitted: October 10, 2024
 Laboratory Reference: 2410-154
 Project: 140298

**DISSOLVED METALS
EPA 200.8**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: SC-MW02R-20241009						
Laboratory ID: 10-154-01						
Copper	2.7	1.0	EPA 200.8		10-15-24	

Client ID: LB-MW01R-20241009						
Laboratory ID: 10-154-02						
Copper	ND	1.0	EPA 200.8		10-15-24	

Client ID: LP-MW01-20241009						
Laboratory ID: 10-154-03						
Copper	6.5	1.0	EPA 200.8		10-15-24	

Client ID: AA-MW04R-20241009						
Laboratory ID: 10-154-04						
Cadmium	ND	4.0	EPA 200.8		10-15-24	
Copper	ND	1.0	EPA 200.8		10-15-24	
Nickel	5.5	4.0	EPA 200.8		10-15-24	
Zinc	ND	25	EPA 200.8		10-15-24	

Client ID: AA-MW03R-20241009						
Laboratory ID: 10-154-05						
Arsenic	ND	3.0	EPA 200.8		10-15-24	
Cadmium	ND	4.0	EPA 200.8		10-15-24	
Copper	ND	1.0	EPA 200.8		10-15-24	
Nickel	ND	4.0	EPA 200.8		10-15-24	
Zinc	ND	25	EPA 200.8		10-15-24	

Client ID: AA-MW02R-20241009						
Laboratory ID: 10-154-06						
Copper	ND	1.0	EPA 200.8		10-15-24	



Date of Report: October 21, 2024
 Samples Submitted: October 10, 2024
 Laboratory Reference: 2410-154
 Project: 140298

**DISSOLVED METALS
 EPA 200.8
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1014F1					
Arsenic	ND	3.0	EPA 200.8	10-14-24	10-15-24	
Cadmium	ND	4.0	EPA 200.8	10-14-24	10-15-24	
Copper	ND	1.0	EPA 200.8	10-14-24	10-15-24	
Nickel	ND	4.0	EPA 200.8	10-14-24	10-15-24	
Zinc	ND	25	EPA 200.8	10-14-24	10-15-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	09-355-03							
	ORIG	DUP						
Arsenic	3.08	3.34	NA	NA	NA	NA	8	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Copper	1.36	1.32	NA	NA	NA	NA	3	20
Nickel	ND	ND	NA	NA	NA	NA	NA	20
Zinc	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	09-355-03									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	84.4	83.0	80.0	80.0	3.08	102	100	75-125	2	20
Cadmium	77.0	76.4	80.0	80.0	ND	96	96	75-125	1	20
Copper	72.4	72.0	80.0	80.0	1.36	89	88	75-125	1	20
Nickel	75.4	74.8	80.0	80.0	ND	94	94	75-125	1	20
Zinc	79.4	79.2	80.0	80.0	ND	99	99	75-125	0	20

SPIKE BLANK

Laboratory ID:	SB1014F1									
Arsenic	76.6		80.0		N/A	96		85-115		
Cadmium	74.6		80.0		N/A	93		85-115		
Copper	72.6		80.0		N/A	91		85-115		
Nickel	73.2		80.0		N/A	92		85-115		
Zinc	78.0		80.0		N/A	98		85-115		





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Page 1 of 1

Laboratory Number: 10-154

[illegible]