REPORT

QUARTERLY MONITORING REPORT
FIRST QUARTER 2021
RESERVE SILICA RECLAMATION SITE

Ecology Facility Site No. 2041/Cleanup Site No 4728
28131 Ravensdale-Black Diamond Road
Ravensdale, Washington 98051

Submitted to:

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1.0 INTRODUCTION

This report, prepared by Golder Associates Inc. (Golder) for Holcim (US) Inc., presents the results of surface water and groundwater monitoring conducted at the Reserve Silica Reclamation Site (Site) during the first quarter of 2021. The quarterly monitoring was completed during March 2021.

1.1 Site Description

The Site is located at 28131 Ravensdale-Black Diamond Road in Ravensdale, Washington. Figure 1 shows the Site location. Cement kiln dust (CKD) was placed in two former mine pits at the Site: the Lower Disposal Area (LDA) and the Dale Strip Pit (DSP). These permitted landfill areas have been capped and are in the post-closure inspection, maintenance, and monitoring phase. The LDA encompasses about 7 acres and is in the northwestern portion of the Site. The DSP, an area of about 6 acres, is in the southeastern portion of the Site. The LDA and DSP are shown in Figure 2.

Historically, sand and coal mining operations occurred on the Site. The Site is currently owned and operated by the Reserve Silica Corporation and is in the reclamation phase. The Site's historical background and previous environmental investigations are discussed further in Section 2.0.

1.2 Purpose and Scope

The purpose of the quarterly monitoring activities is to assess the groundwater and surface water conditions with respect to potential impact from the CKD placed in the LDA and the DSP. Previously, quarterly monitoring and reporting activities were conducted under requirements of Post-Closure Care and Maintenance Permits issued by Public Health – Seattle and King County (Public Health). The Site entered Agreed Order (AO) No. DE 16052 in December 2019, which requires that the Site complete a Remedial Investigation/Feasibility Study (RI/FS) under the Model Toxics Control Act (MTCA) and complete any necessary interim remedial actions as agreed upon by the Washington State Department of Ecology (Ecology). A draft RI Work Plan (draft Work Plan) was prepared by Golder and submitted to Ecology in June 2020 under the requirements of the AO. The draft Work Plan and supporting Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) describe the monitoring conducted in association with the RI.

The groundwater and surface water monitoring plan and procedures presented in the draft Work Plan, SAP, and QAPP are designed to fulfill the monitoring requirements of the 2020 Post-Closure Care and Maintenance Permit (PR0015708).

The groundwater and surface water monitoring scope of work includes the following:

- Quarterly collection of groundwater samples from six on-site shallow/alluvial groundwater monitoring wells (MW-1A, MW-2A, MW-3A, MW-4A, MW-5A, and MW-6A) as part of the LDA monitoring program.
- Annual collection of groundwater samples from three on-site bedrock groundwater monitoring wells (MWB-1LDA, MWB-2LDA, and MWB-3LDA) as part of the LDA monitoring program.
- Annual collection of groundwater samples from four on-site bedrock groundwater-monitoring wells (MWB-1SDSP, MWB-1DDSP, MWB-5DSP, MWB-6DSP) as part of the DSP monitoring program.
- Semi-annual measurement of water levels and field parameters in monitoring wells MWB-2DSP and MWB-4SDSP as part of the DSP monitoring program.

- Quarterly collection of surface water samples from the Infiltration Ponds, Weir (or the constructed wetlands located upstream if the Weir is dry), South Pond, and Still Well as part of the LDA surface water sampling program.
- Annual collection of water samples from the culvert that discharges from the former mine Portal (the Portal) as part of the DSP sampling program.
- Measurement of field parameters in water purged from the groundwater monitoring wells and in water sampled directly from the surface water areas. Field parameters include groundwater level readings (in wells only), pH, conductivity, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity.
- Analysis of the groundwater, surface water, and quality control samples for some combination of total arsenic, lead, iron, manganese, potassium, and total dissolved solids (TDS). Dissolved metals had historically been analyzed at the Site but Ecology in their comments on the draft Work Plan requested the analyses to be changed to total metals.
- Analysis of duplicate samples for quality control.
- Quarterly Interceptor Trench monitoring for instantaneous flow volume and sampling for pH, TDS, and turbidity.

In November 2020, monitoring well P-14 was installed near the center of the LDA in accordance with the draft Work Plan. Monitoring well P-14 installation, completion, and development details are included in the *2020 Remedial Investigation Activities* Technical Memorandum (Golder 2021) submitted to Ecology on January 29, 2021. Sampling of monitoring well P-14 was included in the quarterly monitoring beginning in the fourth quarter 2020 event, which included:

- Measurement of field parameters during purging of the groundwater monitoring wells. Field parameters include groundwater level readings, pH, conductivity, temperature, DO, ORP, and turbidity.
- Analysis of the groundwater for total arsenic, lead, iron, potassium, and TDS.

In support of the RI, the initial sampling of P-14 completed in December 2020, also included analyses for a full list of chemicals of potential concern (COPCs): antimony, arsenic, beryllium, chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium, and 2,3,7,8-substituted dioxins & furans. The results from the full COPC list were presented to Ecology in the *2020 Remedial Investigation Activities* Technical Memorandum (Golder 2021).

Figure 2 shows the location of the monitoring wells and surface water collection points. Table 1 presents construction details and water levels for each monitoring well.

2.0 BACKGROUND

2.1 Site Background

The following is a brief description of the historical mining and reclamation activities that occurred at the Site and includes a discussion of the quarterly monitoring program.

2.1.1 LDA Background

The LDA is a former open pit sand mine that was reclaimed by placing CKD and other material into the mine excavation from June 1979 to October 1982. The LDA was filled with approximately 175,000 tons of CKD.

Records indicate that a cap consisting of clay and up to 7 feet of overburden material from sand mining operations was placed over the CKD.

Historically, high pH seepage surfaced along the slope west of the LDA. The outbreaks are primarily located along the northern half of the western boundary of the LDA and records as early as 1987 indicate a leachate collection system was implemented for the LDA seepage. The leachate drained through low-lying, marshy areas and commingled with stormwater before flowing to the three infiltration ponds (the Infiltration Ponds as shown in Figure 2) near the Ravensdale-Black Diamond Road (ARCADIS 2004). In 2013 a new seepage collection ditch was installed to intercept and collect the seepage (see Section 2.2.3 of this report), which then flowed inside a pipe to the infiltration ponds. In 2018, a water treatment system was constructed, and the high pH water captured by the collection ditch is currently piped to on-site treatment area for pH neutralization and dissolved metals removal. The treated water discharges from the treatment system to the infiltration ponds.

2.1.2 DSP Background

The DSP was created to mine the Dale No. 4 coal seam from the surface starting in 1946. Prior to 1946, the coal seam was worked from an underground mine. The underground mining chutes were driven upward to the surface to provide ventilation and allow the transportation of timbers into the mine. Construction of the mine allowed groundwater to drain by gravity to the mine portal (Portal). The Portal has since collapsed, and now a pipe in the collapsed Portal allows water to continuously drain from the mine under an Ecology Sand and Gravel General Permit (Ecology 2005) with monitoring as described below. The Portal is located north of the LDA on the east side of the main haul road.

The DSP was approximately 1,800 feet long (north to south), averaged 140 feet wide (east to west), and averaged 40 feet deep. It was filled in the 1970s and 1980s with approximately 250,000 cubic yards of material including CKD, borrow, and other materials pursuant to a permit from Public Health – Seattle and King County. It is estimated that about one third of the DSP was filled with CKD (ARCADIS 2004).

2.2 Mitigation Activities

2.2.1 LDA Cover Upgrade

During September and October 2007, the existing soil cover on the LDA was regraded to provide positive drainage at all locations, reduce overly-steep slope areas, and place a minimum 2-foot-thick clean soil cover over the entire area, including locations where CKD was exposed at the surface. The construction activities are described in the Construction Summary Report (Golder 2008a).

2.2.2 LDA Seep Collection System Test Trenches

During September and October 2008, test trenches for collecting high pH seepage were constructed (Golder 2008b). The purpose of this test system was to evaluate the feasibility of using a more extensive trench system to collect high pH seepage that would otherwise discharge at the ground surface adjacent to the LDA. Details of the test trench construction are presented in the Construction Summary Report (Golder 2009a).

Between October 2008 and September 2009, Golder monitored seepage flow rates from each of two test trenches and the pipeline discharge once per month, on average. A summary of activities and results of this monitoring program is presented in the flow monitoring report (Golder 2009b).

2.2.3 LDA Seep Collection Ditch and Seepage Treatment System

In February 2013, a surface water collection ditch and concrete catch basin were constructed on the bench below the main access road on the west side of the LDA. This system was installed to capture leachate seeps emerging

from the bank along the east side of the bench (west of the main access road) and direct them into the existing pipeline that carries flow from the test trenches to the infiltration ponds. In April 2015, the 4-inch-diameter pipeline from the catch basin to the infiltration ponds, approximately 1,000 feet in length, was replaced with a 12-inch-diameter pipeline to alleviate plugging issues.

In December 2017, the seepage collection trench was further extended approximately 100 feet to the north to collect additional seepage that was not previously captured. Seepage water was then redirected into a seepage treatment system, which completed construction and started initial operations on September 28, 2018. The treatment system uses carbon dioxide (CO_2) sparging to neutralize pH levels and arsenic and lead adsorption using an iron-based adsorption media.

During the initial year of operation, the system operated intermittingly, with system shut-downs occurring as various upgrades and modifications were completed to increase the long-term operational efficiency of the treatment system. The system began continuous operating in June 2019, with only minor shutdowns occurring to complete routine maintenance.

2.2.4 LDA Interceptor Trench

In September 2013, a gravel-filled interceptor trench that included a perforated drainpipe and vertical downgradient liner was installed south of the LDA to intercept clean groundwater moving in a northerly direction prior to encountering the cement kiln dust in the LDA.

2.2.5 DSP Cover Upgrade

Cover upgrade activities began at the DSP in November 2010 and were completed in July 2011. Cover upgrade activities included stripping surficial vegetation and topsoil, regrading the existing surface to establish positive drainage, placing low permeability soil to provide a minimum 2-foot-thick layer at all locations, filling the existing ditch along the northeast side of the DSP, replacing topsoil, and revegetating the cover surface.

2.3 Monitoring Locations

2.3.1 LDA

The LDA groundwater and surface water sampling locations are shown in Figure 2. Shallow/alluvial monitoring wells were installed near the LDA in July 2005 and are monitored to assess the shallow/alluvial groundwater conditions with respect to potential impact from the CKD. Four of the wells (MW-1A, MW-2A, MW-5A, and MW-6A) are located around the infiltration ponds. MW-3A is located west of the high pH seepage area. MW-4A, a background well, is located south of, and upstream with respect to groundwater flow and surface water drainage, the high pH seepage area.

Bedrock monitoring wells were installed along the west side of the main access road, west of the LDA. The wells were installed in December 2006 to assess bedrock groundwater conditions in the vicinity of the LDA. MWB-1LDA is located near the northern tip of the LDA, MWB-2LDA is located near the center of the LDA, and MWB-3 LDA is located near the southern end of the LDA.

P-14 was installed in the center of the LDA during November 2020 as part of the draft Work Plan and is screened within CKD and other fill material disposed in the LDA. Groundwater samples collected from P-14 provide data on chemical composition of water in an area where saturated CKD is present.

The LDA surface water sampling locations evaluate the high pH seepage that occurs west of the LDA. The Still Well is a 2-inch-diameter flush-mount well located within the high pH seepage zone west of the LDA. The South

Pond is a closed depression located west of the high pH seepage area. The Weir is located north of the access road to MW-3A immediately below the discharge point from the wetlands. If no flow is observed at the Weir, the constructed wetlands upstream are the alternative sampling location. The Infiltration Ponds are located at the north end of the Site near Ravensdale-Black Diamond Road and receive treated water from the on-Site seepage treatment system. The surface sample is collected from the south west area of the infiltration ponds.

2.3.2 DSP

The DSP groundwater monitoring locations are shown in Figure 2. The DSP bedrock groundwater monitoring program was required by Public Health – Seattle and King County and Ecology as a condition of the CKD exemption as a dangerous waste on December 13, 1984 (Public Health 1984). The DSP bedrock groundwater monitoring program includes four wells in the DSP area (MWB-1SDSP, MWB-1DDSP, MWB-5DSP, and MWB-6DSP), which evaluate groundwater quality beneath, upgradient, and downgradient of the DSP. Groundwater discharging from the Portal is also monitored. The Portal was originally constructed to drain water from the Dale Strip Coal mine. There are two additional monitoring wells (MWB-2DSP and MWB-4SDSP) located in the DSP area that are being monitored for water levels and field parameters.

2.3.3 LDA Interceptor Trench

The purpose of the Interceptor Trench is to intercept clean groundwater and direct the water away from the LDA before the water enters the LDA. Monitoring is performed at the Interceptor Trench outfall for flow, pH, turbidity, and total dissolved solids. The purpose of the monitoring is to ensure that the trench is not collecting impacted groundwater.

2.4 Groundwater and Surface Water Monitoring Schedule

Various levels of groundwater and surface water monitoring have been conducted at the Site since 2002. ARCADIS performed monthly and quarterly monitoring activities through the second quarter of 2009. Golder assumed responsibility for monitoring activities in August 2009 and conducted groundwater and surface water monitoring until April 2014. GeoEngineers performed groundwater and surface monitoring from May to December 2014. Golder resumed the groundwater and surface monitoring in February 2015.

2.4.1 LDA Groundwater Sampling

Groundwater monitoring of the shallow/alluvial monitoring wells generally occurred on a quarterly schedule from July 2005 to September 2008. After the seep collection test trenches were installed, groundwater monitoring frequency for the four wells around the infiltration ponds was increased to monthly through September 2009. At the end of the formal test trench monitoring program in October 2009, the sampling frequency for these four wells returned to quarterly.

Groundwater monitoring of the bedrock monitoring wells generally occurred on a quarterly schedule since December 2006. A letter was submitted to Public Health dated April 9, 2015 requesting a variance to the LDA bedrock groundwater monitoring frequency. In a letter to Golder dated April 7, 2016, Public Health granted a variance for three years to reduce the monitoring frequency of the Ravensdale LDA bedrock wells to annually (Public Health 2016). Public Health subsequently granted an additional 2-year extension to the variance in a letter dated October 10, 2019 (Public Health 2019), extending the variance until October 2021.

2.4.2 LDA Surface Water Sampling

Surface water monitoring of the Infiltration Ponds, Weir (or the constructed wetlands located upstream if the Weir was dry), South Pond, and Still Well generally occurred on a monthly schedule from February 2005 to June 2008 and then was reduced to the current quarterly schedule.

2.4.3 DSP Groundwater Sampling

Groundwater monitoring of wells MWB-1SDSP and MWB-1DDSP generally occurred on a quarterly schedule starting in December 2002. Monitoring of well MWB-5DSP generally occurred on a monthly schedule from December 2006 to June 2008 and then monitoring was reduced to quarterly. Groundwater monitoring of well MWB-6DSP generally occurred on a quarterly schedule starting in December 2006. Groundwater levels and field parameters are being measured in wells MWB-2DSP and MWB-4SDSP on a quarterly schedule. Surface water monitoring of the Portal discharge generally occurred on a quarterly schedule starting in March 2002.

In a letter to Golder dated May 16, 2012, Public Health granted a variance for three years to reduce the monitoring frequency of the Ravensdale DSP wells and Portal to semi-annually (Public Health 2012). During this variance period, groundwater monitoring of the DSP wells occurred during the first and third quarters each year. During the second and fourth quarters, only water levels were measured in these wells. This variance expired in May 2015. A letter was submitted to the Public Health dated April 9, 2015, requesting a variance to the groundwater monitoring frequency. Pending approval, sampling of the DSP and Portal was reverted to quarterly, starting with the August 2015 sampling quarter. In a letter to Golder dated April 7, 2016, Public Health granted a variance for three years to reduce the monitoring frequency of the DSP wells and Portal to annually (Public Health 2016). Public Health subsequently granted an additional 2-year extension to the variance in a letter dated October 10, 2019 (Public Health 2019), extending the variance until October 2021.

2.4.4 LDA Interceptor Trench Sampling

The Interceptor Trench was monitored monthly from October 2013 to December 2014 and data showed that the water being collected and discharged is not impacted. A reduction in monitoring frequency to quarterly was approved by King County Public Health in an email to Joel Bolduc of Holcim dated January 2, 2015 (Public Health 2015). The Interceptor Trench is being monitored for pH, turbidity, and TDS.

3.0 OPERATIONS AND MAINTENANCE OF THE LEACHATE TREATMENT SYSTEM

The leachate treatment system first began operating in September 2018. System upgrades occurred from December 2018 to May 2019 and included various upgrades and modifications to improve long-term operating efficiency. The system began continuous operations in June 2019, with minor shutdowns occurring to complete routine maintenance and continued minor modifications to improve long term operating efficiency.

The treatment system includes a 4,200-gallon mixing tank (steel rectangular box shaped tank) that receives the influent water coming from the seepage collection ditch and piping. Water from the tank constantly flows through the carbon dioxide (CO_2) sparge unit, which continuously monitors the water pH and activates CO_2 sparging when the water pH exceeds 8.3. CO_2 sparging continues until the pH reduces to 7.5. The sparged water is pumped back into the mixing tank to maintain the neutralized the water within the tank. The influent flow, pumping from the tank and through the CO_2 sparge unit, and discharge from the sparge unit back into the tank are all specifically located in different areas of the mixing tank to provide a constant circulation effectively providing pH neutralization throughout the tank. The mixing tank contains a float switch activated discharge pump that activates when the water reaches a set height within the tank and turns the pump off when the water is lowered to the desired height.

Neutralized water pumped from the tank is discharged through filters and an iron-based adsorption media to remove arsenic, prior to discharge of the water to the Infiltration Ponds.

The continuous pH monitoring system is connected to telemetry that sends pH readings and alerts to Golder engineer's cell phones if readings outside of the set ranges occurs allowing for response and trouble shooting. Routine inspections of the treatment system are conducted approximately once every two weeks. The inspections include routine maintenance activities such as cleaning scale off pump parts, hoses, and probes to sustain continued operations of the treatment system. The treatment system has been effective in reducing the pH of the seepage water to below 8 standard units and reducing metals concentrations before discharge to the infiltration ponds. Typical maintenance down time of less than 1 day occasionally occurs. Optimization of the metals adsorption system continues, as calcium carbonate clogging of the adsorption system frequently arises. Table 5 provides the 2021 first quarter laboratory analytical data pre- and post- iron-based adsorption media showing the reduction in lead and arsenic concentrations. The validated laboratory analytical report is provided in Appendix C.

The treatment system has been effective in reducing the impacts to groundwater in the immediate vicinity of the infiltrations ponds that were historically observed in groundwater monitoring wells MW-5A and MW-6A. Additional modifications and improvements are anticipated to occur to the treatment system during the MTCA cleanup process to improve system performance, efficiency, and achieve Site specific cleanup standards that are protective of human health and the environment.

4.0 SAMPLING ACTIVITIES

The following section summarizes the activities associated with the monitoring event.

4.1 Common Elements

4.1.1 Field Parameter Measurements

Field parameters for groundwater and surface water were measured as part of the sampling activities described in the following sections. These measurements were performed with the following equipment:

- YSI ProDSS multimeter with pH, ORP (oxidation-reduction potential), conductivity, dissolved oxygen, and temperature probes
- Hach 2100P Turbidimeter

4.1.2 Laboratory Analysis

Laboratory analyses were performed on samples collected from the various locations described in the following sections. Although the analytic parameters varied between the types of samples, the following elements are common to all the sampling and analysis activities:

- The collected samples were transported to the laboratory within appropriate sample hold times following chain-of-custody protocols.
- The testing was performed by Analytical Resources, Inc. (ARI) of Tukwila, Washington.
- All samples were tested for the following parameters using the methods indicated:

Arsenic	EPA Method 200.8
Lead	EPA Method 200.8

Potassium	EPA Method 6010C
Iron	EPA Method 6010C
Manganese	EPA Method 6010C
Total Dissolved Solids (TDS)	EPA Method 160.1

- Samples were collected for both total metals and dissolved metals analyses, with dissolved metals samples field filtered with a 0.45 µm in-line filter. Samples historically were analyzed for dissolved metals at the Site until December 2020. Ecology requested in their review of the Draft RI/FS Work Plan that metals analyses be conducted as total metals. Groundwater samples are collected in the field for both dissolved metals and for total metals analyses. The dissolved metals samples are held at the laboratory so that they can be analyzed if the total metals results indicated significant differences from historical dissolved metals results. The total metal results were within the range of historical dissolved metals results, as such, dissolved metals analyses were not deemed necessary for this sampling event. Only total metals analyses were completed.

- Interceptor Trench samples were tested for the following parameters using the method indicated:

pH	Field Measurement
TDS	EPA Method 160.1
Turbidity	Field Measurement

- Summaries of historical analytic data for the various sampling locations are presented in Appendix A. Validated analytical laboratory data packages are provided electronically on the flash drive in Appendix C.

4.2 Sampling Procedures

4.2.1 LDA Groundwater Sampling

On March 3, 4, and 5, 2021, Golder sampled groundwater from the LDA shallow/alluvial groundwater monitoring wells (MW-1A, MW-2A, MW-3A, MW-4A, MW-5A, and MW-6A), LDA disposal area (P-14), and bedrock monitoring wells (MWB-1LDA, MWB-2LDA, and MWB-3LDA). The following methods and procedures were used in collecting the groundwater samples:

- Depth to groundwater was measured in the wells prior to purging and sampling. Table 1 presents depth to water measurements and elevations.
- Using dedicated tubing connected to a portable, stainless steel bladder pump or a peristaltic pump (if groundwater elevation allowed), water from wells MW-1A, MW-2A, MW-3A, MW-4A, MW-5A, MW-6A, and P-14 was purged at a rate between approximately 250 and 400 milliliters (mL) per minute.
- Using the dedicated bladder pump installed in wells MWB-1LDA, MWB-2LDA, and MWB-3LDA, water was purged at a rate between approximately 350 and 450 mL per minute.
- Field parameters of pH, conductivity, temperature, DO, ORP, and turbidity were measured and recorded during purging at approximately five-minute intervals until parameters were stable.
- Once the field parameters stabilized, the purging phase of the process was concluded. Groundwater samples were then collected directly from the dedicated sample tubing.
- For quality control purposes, a duplicate sample was collected from MW-2A (labeled as MW-45A).

- Laboratory-provided containers were used to collect the samples. For each groundwater sample, two 500-mL bottles preserved with nitric acid and one 1-Liter (L) unpreserved bottle were collected. The samples were then labeled and placed in a cooler with ice.

All groundwater and quality control samples were analyzed for the parameters listed in Section 4.1.2. Analytical results are discussed in Section 5.0, and the field parameters and analytical data are presented in Table 2.

4.2.2 LDA Surface Water Sampling

On March 3 and 4, 2021, Golder sampled surface water from the Still Well, Weir, South Pond, and the Infiltration Ponds sampling locations. The following methods and procedures were used in collecting the surface water samples:

- Field parameters of pH, conductivity, temperature, DO, ORP, and turbidity were measured and recorded. These parameters were measured and recorded at each of the surface water locations at the time of sample collection.
- Grab surface water samples were collected using dedicated sample tubing connected to a peristaltic pump.
- For quality control purposes, a duplicate sample was collected from the Infiltration Ponds (labeled as MW-35A).
- Laboratory-provided containers were used to collect the surface water samples. For each surface water sample, two 500-mL bottles preserved with nitric acid and one unpreserved 1-L bottle were collected. The samples were then labeled and placed in a cooler with ice.
- The pH of the LDA surface water samples is typically high (greater than 10). Sampling protocol requires that the preserved samples for dissolved metals analysis have a pH of less than 2 upon receipt at the laboratory. In order to meet this requirement, the pH of the LDA surface water samples collected for metals analysis were checked at the time of sample collection using pH test paper strips. If the pH was higher than 2, nitric acid (provided by the laboratory) was added until the pH of the sample was less than 2.

All surface water and quality control samples were analyzed for the parameters listed in Section 4.1.2. Analytical results are discussed in Section 5.0, and the field parameters and analytical data are presented in Table 2.

4.2.3 DSP Groundwater Sampling

On March 4 and 5, 2021, Golder sampled groundwater from the DSP groundwater monitoring wells (MWB-1SDSP, MWB-1DDSP, MWB-5DSP, and MWB-6DSP) and the Portal. The following methods and procedures were used in collecting the groundwater samples:

- Depth to groundwater was measured in the wells prior to purging and sampling. Table 1 presents depth to water measurements and elevations.
- Using the dedicated discharge tubing connected to the dedicated bladder pump, water from wells MWB-1DDSP, MWB-1SDSP, MWB-5DSP, and MWB-6DSP was purged at a rate between approximately 300 and 500 mL per minute.
- Field parameters of pH, conductivity, temperature, DO, ORP, and turbidity were measured and recorded during purging at approximately five-minute intervals until parameters were stable.

- Once the field parameters stabilized, the purging phase of the process was concluded. Groundwater samples were then collected directly from the dedicated sample tubing.
- Grab water samples were collected from the Portal using dedicated sample tubing connected to a peristaltic pump. The water quality parameters were measured and recorded at the Portal at the time of sample collection.
- For quality control purposes, a duplicate sample was collected from MWB-6DSP (labeled as MW-55A).
- Laboratory-provided containers were used to collect the samples. For each groundwater sample, two 500-mL bottle preserved with nitric acid and one 1-L un-preserved bottle were collected. The samples were then labeled and placed in a cooler with ice.

All groundwater and quality control samples were analyzed for the parameters listed in Section 4.1.2. Analytical results are discussed in Section 5.0, and the field parameters and analytical data are presented in Table 2.

In addition, water levels and field parameters were measured in DSP monitoring wells 2DSP and 4SDSP.

4.2.4 LDA Interceptor Trench Sampling

On March 4, 2021, Golder sampled groundwater from the Interceptor Trench. The following methods and procedures were used to collect the groundwater sample:

- Field pH, turbidity, and the flow rate at the Interceptor Trench outfall were measured and recorded.
- Grab water samples were collected from the Interceptor Trench by placing the sample bottles under the flow of water. pH and turbidity were measured and recorded at the Interceptor Trench at the time of sample collection.
- Laboratory-provided containers were used to collect the sample for TDS lab analysis. One 1-L unpreserved bottle was collected. The sample was then labeled and placed in a cooler with ice.

The Interceptor Trench sample was analyzed for the parameters listed in Section 4.1.2. Analytical results are discussed in Section 5.0, and the field parameters and analytical data are presented in Table 2.

5.0 RESULTS

5.1 Preliminary Standards

Preliminary standards have been established from the Washington State Administrative Code (WAC) 173-200 and 246-290-310(3)(a) for some of the field parameters and analytes measured as part of the monitoring program. These standards are presented in Table 3.

5.2 Method Detection Limits and Reporting Limits

The Method Detection Limit (MDL) is the minimum concentration of an analyte that the laboratory can detect using the specified analytical method and equipment. The Reporting Limit (RL) is the lowest concentration that the laboratory can report with certainty after adjustments have been made for sample dilution, sample weight, and other factors.

Where the laboratory analytical results indicate non-detection (ND), the concentration of an analyte is below the MDL. On the trend graphs presented in Appendix B, non-detections for sampling events prior to the December 2009 fourth quarter monitoring were plotted as fifty percent of the RL value. Beginning with the December 2009

fourth quarter monitoring event, non-detections are plotted as the MDL value, which is more representative of actual laboratory results. Method Detection Limits are not available for all the historical data; therefore, non-detect data prior to December 2009 remains plotted as fifty percent of the RL value. For TDS results, non-detect data are plotted at the RL.

5.3 Data Validation

All analytical data were subject to a data validation review. Data validation was conducted in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 2017), the SAP, and the QAPP. Data reporting qualifiers are included with the analytical results in Appendix A. Copies of the data validation checklist are included in Appendix C, along with the raw analytical data packages provided by the laboratory. The data validation review found that all the data were considered valid and usable.

5.4 Measurement Results

A summary of the groundwater field parameters and analytical results for the March 2021 first quarter monitoring are included in Table 2. Interceptor Trench results are provided in Table 4. Trend graphs of pH, TDS, and arsenic and potassium concentrations measured in each monitoring well are presented in Appendix B. Total metals concentrations did not appear to be substantially different from dissolved metals concentrations reported at the Site historically.

Results observed during this monitoring round were generally consistent with previous sampling rounds. pH levels and arsenic concentrations detected in the infiltration ponds and the two groundwater monitoring wells (MW-5A and MW-6A) located immediately downgradient of the infiltration ponds continue to attenuate in response to operation of the treatment system. Concentrations of arsenic in the infiltration ponds have remained steady to slightly decreasing since fourth quarter 2019. Concentrations of arsenic in MW-5A and MW-6A during 2020 averaged 0.005 and 0.004 mg/L, respectively. Concentrations of arsenic in MW-5A and MW-6A during 2019 averaged 0.02 and 0.03 mg/L, respectively. The 2020 concentrations of arsenic in MW-5A and MW-6A are approximately one order of magnitude lower than average concentrations measured during 2019. The first quarter 2021 concentrations of arsenic in MW-5A and MW-6A are similar to the averages encountered during 2020, at 0.00374 and 0.003 mg/L, respectively.

Concentrations of lead measured in samples from the infiltration ponds, MW-5A, and MW-6A have also steadily decreased from levels routinely measured during 2019 and earlier. Concentrations of lead detected in all samples were below the preliminary standard. The noted decreases in pH levels and reported concentrations of arsenic and lead in the infiltration ponds and in groundwater immediately downgradient of the infiltration ponds indicate the mitigating effects produced by the treatment system.

P-14 was installed in December 2020 and monitors the groundwater in an area with saturated CKD present within the LDA disposal area. The arsenic concentrations in P-14 were the highest measured among all samples analyzed during the first quarter of 2021, at 0.0841 mg/L.

6.0 LIMITATIONS

Golder has prepared this report for the exclusive use of Holcim (US) Inc. and their authorized agents. It may also be submitted to regulatory agencies.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood. This report was prepared, in part, based on previous investigations and data collected by others. Golder Associates Inc. is not responsible for any data that were inaccurately reported by others and reproduced here.

7.0 REFERENCES

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Tables

Table 1: First Quarter 2021 Water Level Measurements

Sample Area	Sample Location ID	Date Measured	Well Data				Water Levels		
			Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Bentonite Seal (feet bgs)	Casing Diameter (inches)	TOC Elevation (feet NAVD88)	Depth to Water (feet btoc)	Groundwater Elevation (feet NAVD88)
LDA - Shallow/Alluvial Groundwater	MW-1A	3/15/2021	44	28-43	2-26	2	609.83	27.01	582.82
	MW-2A	3/15/2021	40	25-40	2-23	2	603.61	20.83	582.78
	MW-3A	3/15/2021	20	4-20	2-4	2	685.51	5.26	680.25
	MW-4A	3/15/2021	20	5-20	2-4	2	701.85	3.72	698.13
	MW-5A	3/15/2021	40	25-40	2-23	2	607.61	24.81	582.80
	MW-6A	3/15/2021	39	24-39	2-22	2	605.35	22.58	582.77
Within LDA - Groundwater	P-14	3/15/2021	52	40-50	3-38	2	773.32	29.44	743.88
LDA - Bedrock Groundwater	MWB-1LDA	3/15/2021	135	115-135	2-105	2	701.08	22.01	679.07
	MWB-2LDA	3/15/2021	125	110-125	2-103	2	738.06	35.02	703.04
	MWB-3LDA	3/15/2021	145	125-145	2-115	2	740.59	1.06	739.53
DSP - Bedrock Groundwater	MWB-1SDSP	3/15/2021	160	150-160	138-148	2	932.69	34.96	897.73
	MWB-1DDSP	3/15/2021	265	255-265	243-253	2	931.77	48.74	883.03
	MWB-2DSP	3/15/2021	258	238-258	-	2	931.22	197.42	733.80
	MWB-4SDSP	3/15/2021	43	32-42.8	-	2	928.81	17.69	911.12
	MWB-5DSP	3/15/2021	83	73-83	2-61	2	931.45	16.91	914.54
	MWB-6DSP	3/15/2021	195	120-195	2-108	2	920.65	21.56	899.09

-	Not measured or not available
feet bgs	Feet below ground surface
feet bmp	Feet below measuring point
feet NAVD88	Feet in NAVD88 datum
TOC	Top of casing

Table 2: First Quarter 2021 Field Parameters and Analytical Data

Sample Area	Sample Location ID	Date Sampled	Field Parameters									Gen. Chem.	Total Metals (mg/L)				
			TOC Elevation (feet NAVD88)	Depth to Water (feet btoc)	Groundwater Elevation (feet NAVD88)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
LDA - Shallow/Alluvial Groundwater	MW-1A	3/3/2021	609.83	27.01	582.82	8.6	383.0	5.7	248	0.6	6.8	299	0.00116	0.05 U	0.0001 U	0.004 U	17.4
	MW-2A	3/3/2021	603.61	20.83	582.78	8.9	330	5.24	217	12.4	7.18	268	0.0018	**0.34**	0.000219	0.0126	61.1
	MW-2A Duplicate (MW-45A)	3/3/2021	-	-	-	-	-	-	-	-	-	256	0.00184	**0.336**	0.000197	0.0143	63.6
	MW-3A	3/4/2021	685.51	5.26	680.25	7.0	364	0.59	47	1.54	7.42	319	0.00152	0.121	0.000134	0.371	74.2
	MW-4A	3/4/2021	701.85	3.72	698.13	8.3	304	2.83	137	0.49	6.47	255	0.000192 J	0.0546	0.0001 U	0.0274	0.876
	MW-5A	3/3/2021	607.61	24.81	582.80	9.2	**899**	3.04	225	3.09	7.60	**792**	0.00374	0.0999	0.000132	0.0052	247
	MW-6A	3/3/2021	605.35	22.58	582.77	7.1	**760**	1.74	208	5.60	8.04	**722**	0.00309	0.182	0.000307	0.0174	243
Within LDA - Groundwater	P-14	3/3/2021	773.32	29.44	743.88	12.0	**12836**	0.05	-87	1.54	**13.09**	**4060**	0.0841	0.25 U	0.00964	0.0106 J	1490
LDA - Bedrock Groundwater[3]	MWB-1LDA	3/5/2021	701.08	22.01	679.07	10.2	266	0.04	-50	0.42	7.64	214	0.0105	0.21	0.0001 U	0.0407	1.12
	MWB-2LDA	3/5/2021	738.06	35.02	703.04	11.1	255	0.04	-80	2.29	7.65	176	0.00552	**0.321**	0.0001 U	0.0166	1.09
	MWB-3LDA	3/5/2021	740.59	1.06	739.53	10.9	172	3.43	132	0.69	7.26	136	0.00184	0.107	0.0001 U	0.0075	0.877
LDA- Surface Water	South Pond	3/4/2021	-	-	-	8.1	**1271**	1.98	38	8.02	**10.35**	**4820**	0.0506	**4.37**	0.0357	**0.0864**	435
	Still Well	3/4/2021	-	-	-	7.7	**4728**	0.05	-42	0.85	**11.94**	**1470**	0.0618	0.1 U	0.00149	0.008 U	512
	Weir	3/4/2021	-	-	-	4.9	427	7.11	146	2.50	7.86	424	0.0037	0.0386 J	0.000114	0.0156	80.6
	Infiltration Ponds	3/3/2021	-	-	-	8.3	**1446**	7.87	217	15.5	**8.56**	**1310**	0.0353	0.118	0.00611	0.0079 J	509
	Infiltration Ponds Duplicate (MW-35A)	3/3/2021	-	-	-	-	-	-	-	-	-	**1310**	0.0352	0.153	0.00599	0.0067 J	513

Table 2: First Quarter 2021 Field Parameters and Analytical Data

Sample Area	Sample Location ID	Date Sampled	Field Parameters									Gen. Chem.	Total Metals (mg/L)				
			TOC Elevation (feet NAVD88)	Depth to Water (feet btoc)	Groundwater Elevation (feet NAVD88)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
DSP - Bedrock Groundwater[3]	MWB-1SDSP	3/5/2021	932.69	34.96	897.73	11	**1257**	0.26	-38	0.24	6.95	**1200**	0.0195	-	0.0001 U	-	6.15
	MWB-1DDSP	3/5/2021	931.77	48.74	883.03	10.7	**724**	0.27	-222	0.61	7.36	**592**	0.00406	-	0.0001 U	-	3.88
	MWB-2DSP	3/5/2021	931.22	197.42	733.80	10.0	398	3.79	112	1.17	7.37	-	-	-	-	-	-
	MWB-4SDSP	3/5/2021	928.81	17.69	911.12	11.3	497	6.84	90	1.46	7.91	-	-	-	-	-	-
	MWB-5DSP	3/5/2021	931.45	16.91	914.54	11.3	641	0.19	-77	0.45	7.09	473	0.00484	-	0.0001 U	-	2.45
	MWB-6DSP	3/4/2021	920.65	21.56	899.09	10.8	363	0.16	-9	1.29	7.30	280	0.0011	-	0.0001 U	-	1.24
	MWB-6DSP Duplicate	3/4/2021	-	-	-	-	-	-	-	-	-	280	0.00109	-	0.0001 U	-	1.21
	Portal	3/4/2021	-	-	-	9.3	416	5.8	33	17.1	6.89	364	0.00414	-	0.0001 U	-	20
Preliminary Standard[a]			-	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

bold	Bold values indicate parameter results above the Preliminary Standard.	TOC	Top of casing inside PVC well
-	Not measured or not available.	°C	Degrees Celsius
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date.	feet bmp	Feet below measuring point
<	Analyte not detected above the reporting limit shown.	feet NAVD88	Feet in NAVD88 datum
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest.	mg/L	Milligrams per liter
b	Site background arsenic value to be determined (TBD).	mV	Millivolts
J	Data validation code; estimated value.	NTU	Nephelometric Turbidity Unit
J+	Data validation code; estimated value with positive bias	µmhos/cm	Micromhos per centimeter
U	Data validation code; not detected at the Reporting Limit (RL).		
1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012.		
2	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016.		
3	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated October 10, 2019.		
4	ORP measurements not available due to faulty sensor.		
DRY	Location is dry. Unable to collect field parameters or samples.		

Table 3: Preliminary Standards

Parameter	Preliminary Standard	Reference
Conductivity	700 µmhos/cm	WAC 246-290-310(3)(a)
pH	6.5 – 8.5	WAC 173-200; WSDOE Permit 2005
Turbidity	None	None
Total Dissolved Solids	500 mg/L	WAC 173-200
Dissolved Iron	0.3 mg/L	WAC 173-200
Dissolved Lead	0.05 mg/L	WAC 173-200
Dissolved Manganese	0.05 mg/L	WAC 173-200
Dissolved Arsenic	TBD	TBD
Dissolved Potassium	None	None

µmhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter
WAC	Washington State Administrative Code
WSDOE	Washington State Department of Ecology
TBD	Site background arsenic value to be determined

Table 4: Interceptor Trench Discharge Monitoring

Date Sampled	Time Sampled	Flow (gpm)	Field pH (standard units)	Turbidity (NTU)	Total Dissolved Solids (mg/L)
19-Oct-13	8:45	0.3	7.47	-	-
19-Nov-13	9:25	0.7	7.52	-	-
23-Dec-13	15:25	1.2	7.27	-	-
20-Jan-14	11:15	0.8	7.58	1.0	277
-	-	-	-	-	-
31-Mar-14	11:12	1.0	7.22	1.6	257
22-Apr-14	16:05	3.6	6.85	474	214
27-May-14	15:30	0.8	7.12	21.9	294
27-Jun-14	11:10	0.3	7.13	13.3	136
31-Jul-14	19:45	0.2	6.95	4.1	305
28-Aug-14	14:00	0.1	7.20	1.8	294
29-Sep-14	13:39	0.1	7.87	1.4	340
29-Oct-14	11:45	0.3	7.03	1.1	319
24-Nov-14	11:50	0.8	7.09	0.7	229
22-Dec-14	8:00	0.4	7.08	0.4	253
30-Jan-15[1]	10:10	1.1	7.09	0.7	270
4-May-15	9:30	0.3	7.54	2.1	290
4-Aug-15	12:20	0.1	7.61	1.5	268
3-Nov-15	13:15	0.8	7.38	36.9	320
8-Feb-16	10:40	1.9	7.23	9.3	279
2-May-16	16:00	0.5	7.77	22.5	431
22-Aug-16	11:00	0.1	7.78	3.3	302
1-Nov-16	11:40	2.4	8.16	96.3	345
2-Feb-17	9:25	4.5	7.61	0.9	514
30-May-17	15:45	4.5	7.33	4.0	324
18-Aug-17	8:50	0.1	7.57	34.0	300
10-Nov-17	11:20	1.1	6.81	12.9	365

Table 4: Interceptor Trench Discharge Monitoring

Date Sampled	Time Sampled	Flow (gpm)	Field pH (standard units)	Turbidity (NTU)	Total Dissolved Solids (mg/L)
28-Feb-18	10:16	2.2	7.02	37.9	381
2-May-18	11:45	1.2	7.46	2.9	339
22-Aug-18	10:00	0.1	7.32	19.3	287
7-Nov-18	14:40	0.3	7.24	3.1	342
13-Mar-19	11:31	1.4	7.61	19.4	313
9-May-19	10:30	0.9	7.77	8.9	394
26-Aug-19	18:15	0.4	7.25	26.4	361
14-Nov-19	13:30	0.4	7.05	34.5	447
13-Feb-20	12:35	1.6	6.95	1.8	306
13-Aug-20	12:00	0.2	7.32	20.8	339
10-Dec-20	12:22	3.8	7.70	228	691
4-Mar-21	12:20	3.5	7.23	116	584

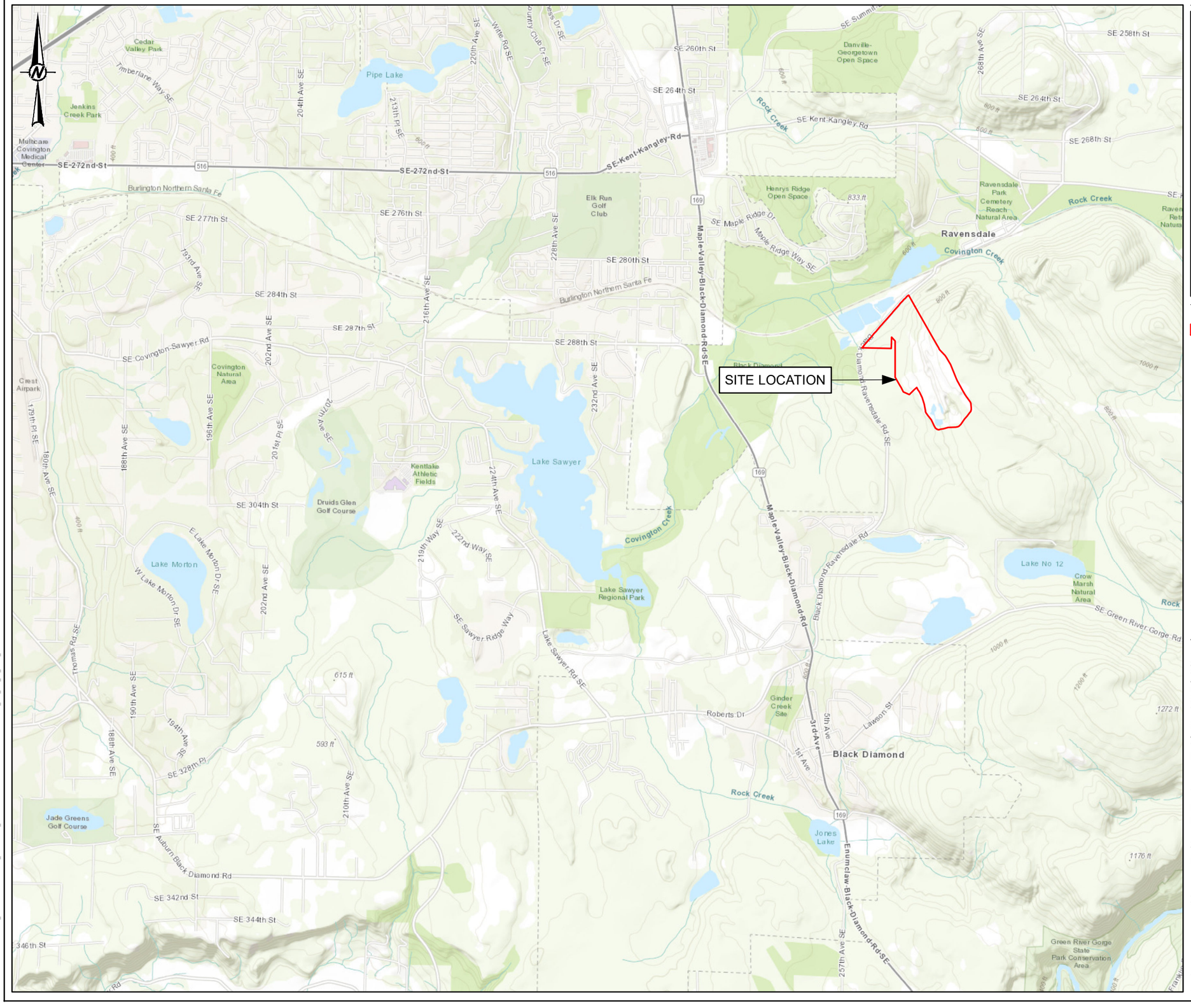
-	Not measured or not available
gpm	Gallons per minute
NTU	Nephelometric Turbidity Unit
mg/L	Milligrams per liter
1	Reduction in monitoring frequency to quarterly approved by Public Health

Table 5: First Quarter 2021 Treatment System Metals Monitoring

Sample Location	Sample ID	Date Sampled	Arsenic (mg/L)	Lead (mg/L)
Influent	Tank-Effluent	15-Mar-21	0.0404	0.1260
Effluent	As2-Effluent	15-Mar-21	0.0020	0.0111

- Not measured or not available
mg/L Milligrams per liter

Figures



LEGEND

Property Boundary

0 3,000 6,000

1 " = 3,000 FEET FEET

REFERENCE(S)

1. ASPECT CONSULTING (PROPERTY BOUNDARY)
2. ESRI (WASHINGTON STATE COUNTY BOUNDARY)
3. COORDINATE SYSTEM: NAD 1983 STATEPLANE WASHINGTON NORTH FIPS 4601 FEET
4. MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

CLIENT
HOLCIM

PROJECT
RI WORK PLAN 2020
RAVENSDALE, WA

TITLE
SITE LOCATION MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2021-02-10
DESIGNED	TL
PREPARED	TL
REVIEWED	JX
APPROVED	GZ

PROJECT NO.	PHASE	REV.	FIGURE
152030420	004	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 1in

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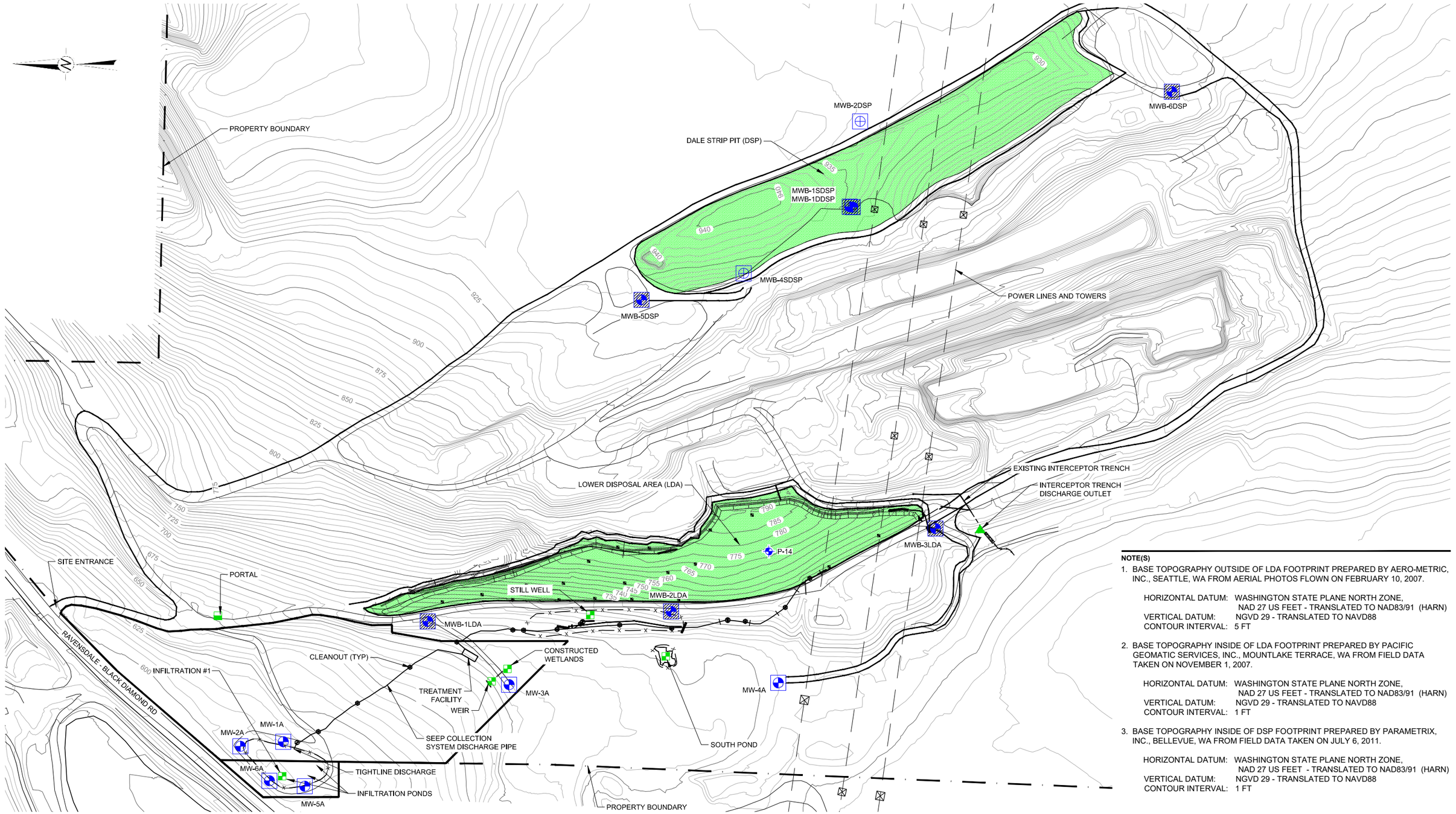


NOTE(S)

1. BASE TOPOGRAPHY OUTSIDE OF LDA FOOTPRINT PREPARED BY AERO-METRIC, INC., SEATTLE, WA FROM AERIAL PHOTOS FLOWN ON FEBRUARY 10, 2007.

   HORIZONTAL DATUM: WASHINGTON STATE PLANE NORTH ZONE, NAD 27 US FEET - TRANSLATED TO NAD83/91 (HARN)
   VERTICAL DATUM: NGVD 29 - TRANSLATED TO NAVD88
   CONTOUR INTERVAL: 5 FT

2. BASE TOPOGRAPHY INSIDE OF LDA FOOTPRINT PREPARED BY PACIFIC GEOMATIC SERVICES, INC., MOUNTLAKE TERRACE, WA FROM FIELD DATA TAKEN ON NOVEMBER 1, 2007.

   HORIZONTAL DATUM: WASHINGTON STATE PLANE NORTH ZONE, NAD 27 US FEET - TRANSLATED TO NAD83/91 (HARN)
   VERTICAL DATUM: NGVD 29 - TRANSLATED TO NAVD88
   CONTOUR INTERVAL: 1 FT

3. BASE TOPOGRAPHY INSIDE OF DSP FOOTPRINT PREPARED BY PARAMETRIX, INC., BELLEVUE, WA FROM FIELD DATA TAKEN ON JULY 6, 2011.

   HORIZONTAL DATUM: WASHINGTON STATE PLANE NORTH ZONE, NAD 27 US FEET - TRANSLATED TO NAD83/91 (HARN)
   VERTICAL DATUM: NGVD 29 - TRANSLATED TO NAVD88
   CONTOUR INTERVAL: 1 FT

LEGEND

- COVER AREA
- MW-1A — ALLUVIAL MONITORING WELL
- MWB-1DDSP — BEDROCK MONITORING WELL
- MWB-2DSP — BEDROCK MONITORING WELL (NOTE 4)
- DISPOSAL AREA MONITORING WELL
- LDA SURFACE WATER SAMPLING LOCATION
- DSP BEDROCK SAMPLING LOCATION (PORTAL)
- INTERCEPTOR TRENCH SAMPLING LOCATION
- FENCE LINE

0 150 300
1" = 150' FEET

CLIENT
HOLCIM

CONSULTANT
GOLDER

YYYY-MM-DD	2021-02-12
DESIGNED	JX
PREPARED	REDMOND
REVIEWED	JX
APPROVED	GZ

PROJECT
RI WORK PLAN 2020
RAVENSDALE, WA

TITLE
SITE PLAN

PROJECT NO.	PHASE	REV.	FIGURE
152030420	004	A	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

APPENDIX A

Summary Data Tables for Individual Wells and Monitoring Locations

APPENDIX A-1

Summary of Lower Disposal Area – Surface Water Sampling Results

Table A-1a: Summary of Lower Disposal Area - Surface Water Sampling Results - Still Well
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
1-Feb-05	8.10	10658	-	-	6.59	12.87	2860	12.58	0.04990	<0.100	0.00552	<0.0100	-
9-Mar-05	13.23	7393	-	-	7.42	12.51	2860	12.53	0.11500	0.228	0.01470	<0.0100	-
5-Apr-05	9.50	11310	-	-	10.90	12.44	2900	12.32	0.05560	<0.100	0.01160	<0.0200	-
10-May-05	13.99	11871	-	-	3.60	12.53	2810	12.57	0.05540	<0.100	0.01250	<0.0200	-
7-Jun-05	13.83	10888	-	-	22.60	12.54	2490	12.51	<0.00500	<0.100	<0.00500	<0.0200	-
15-Jul-05[a]	18.21	11331	-	-	14.80	12.50	3800	12.6	0.00272	<0.150	0.00607	<0.0100	-
15-Jul-05[b]	-	-	-	-	-	-	2540	12.61	0.03980	<0.100	0.00757	<0.0200	-
9-Aug-05[a]	21.45	12087	-	-	17.90	11.78	3500	12.6	0.12000	0.288	0.01090	0.0101	-
9-Aug-05[b]	-	-	-	-	-	-	2820	12.46	0.09150	<0.100	0.00953	<0.0200	-
14-Sept-05[a]	17.38	9507	-	-	14.00	12.36	3600	12.5	0.11800	<0.750	0.01120	<0.0500	-
14-Sept-05[b]	-	-	-	-	-	-	2830	12.61	0.11500	0.363	0.01440	-	-
5-Oct-05	13.31	11481	-	-	62.70	12.47	3020	12.6	0.08520	<0.100	0.01190	<0.0200	-
9-Nov-05	9.58	14417	-	-	11.00	12.34	3400	12.6	0.07400	<0.150	<0.01000	<0.0100	-
9-Dec-05	6.18	7138	-	-	12.50	12.82	2800	12.6	0.01450	<0.150	0.00107	<0.0100	-
19-Jan-06	8.66	8265	1.74	-	11.80	13.06	1900 J	12.6 J	0.01520 J	<0.150	<0.00100	<0.0100	-
16-Feb-06	8.13	9019	2.81	195.6	6.16	12.27	3200 J	12.6	0.01340 J	<0.150	0.00189	<0.0100	-
15-Mar-06	7.98	9033	0.79	114.8	8.93	12.60	3300 J	12.6	0.00236	<0.150	0.00250 J	<0.0100	-
7-Apr-06	9.98	10450	0.57	34.8	6.08	12.51	3400	12.6	0.01520	<0.150	0.00283	<0.0100	-
16-May-06	12.79	11060	0.14	45.4	9.28	12.40	3500	12.6	0.00404	<0.150	0.00159	<0.0100	-
23-Jun-06	13.29	11680	0.44	-	14.60	12.90	3600	12.6	0.05260	<0.150	0.01650	<0.0100	-
20-Jul-06	16.20	12240	0.14	-217.8	10.40	12.47	4300	12.7	0.01930	<0.150	0.00357	<0.0100	-
22-Aug-06	17.14	10920	1.22	-146.0	13.30	12.66	3800	12.7	0.14400	<0.150	0.00914 J	<0.0100	-
26-Sep-06	15.72	9599	0.42	-263.3	61.40	12.59	3800	12.5	0.12300	0.171	0.00463	0.0154	-
26-Oct-06	10.99	9955	0.88	-207.5	82.30	12.93	3600	12.6	0.16100	<1.500	0.01950	<0.1000	-
15-Nov-06	10.58	12040	1.82	149.2	188.00	12.87	3400	12.5	0.03060 J	<0.150	0.00450	<0.0100	-
20-Dec-06	8.85	10990	0.71	-152.0	32.80	13.02	2600 J	12.8	0.05260	<0.150	0.01300	<0.0100	-
24-Jan-07	8.29	10440	0.97	-139.8	13.70	13.05	2500 J	12.4	0.05860	<0.150	0.01310	<0.0100	-
12-Feb-07	8.88	10590	0.86	-125.8	56.40	13.06	3400	12.5	0.06130	<0.150	0.01400	<0.0100	-
27-Mar-07	9.45	9163	1.25	-42.4	18.40	11.53	2900 J	12.5 J	0.04410	<0.150	0.00181	<0.0100	-
18-Apr-07	8.90	8155	2.63	2.3	37.20	12.77	3300 J	12.4	0.02930	<0.150	0.00198	<0.0100	-
31-May-07	20.12	11050	5.30	-153.9	9.31	11.59	2800 J	12.5	0.04850	<0.150	0.01510 J	<0.0100	-
20-Jun-07	18.28	12000	5.41	-122.5	16.10	12.04	4300 J	12.4 J	0.02680	<0.150	0.00233	<0.0100	-
31-Jul-07	16.53	12200	1.70	-151.6	24.80	12.48	6000	12.6 J	0.08760	<0.150	0.00103	<0.0100	-
29-Aug-07	17.00	9570	1.12	-183.1	268.00	12.78	4600 J	12.6 J	0.10600	<0.150	0.00946	<0.0100	-
27-Sep-07	14.49	8263	52.40	-183.0	211.00	12.42	2800	12.5 J	0.12500	<0.150	0.01540	<0.0100	-
26-Oct-07	9.49	6144	4.88	-147.2	92.40	12.85	3300 J	12.3 J	0.12400	0.260	0.02490	0.0101	-
30-Nov-07	5.53	7703	2.13	-122.6	127.00	12.67	2200	12.4 J	0.17400	0.184	0.01410	<0.0100	-
12-Dec-07	5.24	11609	3.43	-144.8	116.00	12.60	4100	12.4 J	0.11000	<0.150	0.01130	<0.0100	-
24-Jan-08	3.73	9649	13.81	-138.0	-	10.74	2500	11.8 J	0.10100	1.530	0.00974	0.0815	-
28-Feb-08	-	-	-	-	51.20	-	2900	12.4 J	0.05850	<0.150	0.01260	<0.0100	-
25-Mar-08	7.06	8623	5.52	-11.2	17.40	11.26	3400	12.5 J	0.07430	<0.150	0.01040	<0.0100	-
29-Apr-08	9.74	11332	4.29	-1.3	27.70	12.82	3000 J	12.5 J	0.07660	<0.150	0.01330	<0.0100	-
20-May-08	14.53	11955	1.74	-35.8	72.70	12.82	3400	12.5 J	0.08730	<0.150	0.01510	<0.0100	-
18-Jun-08	12.77	10267	3.34	-27.0	34.00	12.86	3200 J	12.4 J	0.06320	<0.150	0.01690	<0.0100	-
26-Aug-08	15.86	7703	1.06	-72.8	38.30	12.67	2600 J	12.2 J	0.43000	1.220	0.03500	0.0497	759
20-Nov-08	9.59	8762	0.91	-65.6	74.10	13.32	3500	12.4 J	0.07000	<0.150	0.01680	<0.0100	848
12-Feb-09	3.25	554	14.29	-	108.00	13.03	550	11.8 J	0.04720	<0.150	0.01370	<0.0100	551
19-May-09	11.53	276	8.80	26.0	43.40	9.83	2500 J	12.4 J	0.03780	<0.150	0.01500	<0.0100	689
22-Sep-09	12.47	9760	1.50	159.1	625.00	12.47	3000	-	0.16000	0.200	0.03700	0.0100 J	990
15-Dec-09	5.20	11650	1.90	237.0	26.30	12.85	3000	-	0.08600	0.067 J	0.02100	0.0047 J	900 J
22-Mar-10	9.70	1035	-	182.0	19.40	12.58	3000	-	0.07300	<0.200	0.01700	<0.0200	870
17-Jun-10	11.70	9610	0.08	-	6.59	12.48	2700	-	0.06600	0.095 J	0.01500	0.0020 J	780
21-Sep-10	15.00	6710	1.26	152.6	140.00	12.29	2400	-	0.30000	1.100 J+	0.03900	0.0300 J+	570
8-Dec-10	8.30	10110	1.00	-	5.44	12.63	2600	-	0.06400	<0.200	0.01000	<0.0200	860
30-Mar-11	8.60	4810	0.46	136.3	13.70	14.31	2500 J	-	0.06500	<0.200	0.00960	<0.0200	720
21-Jun-11	16.60	10420	1.63	111.9	3.40	12.36	5200	-	0.06000	<0.200	0.00910	0.0017 J	770
28-Sep-11	14.80	5270	2.34	70.0	66.70	12.17	2200	-	0.22000	0.360	0.01100	0.0072 J	1000

Table A-1a: Summary of Lower Disposal Area - Surface Water Sampling Results - Still Well
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
15-Dec-11	6.00	7330	2.47	104.2	18.30	13.09	2800	-	0.08300	<0.200	0.00290	<0.0200	880
21-Mar-12	5.50	11040	3.15	294.2	12.00	12.39	2600	-	0.06700	<0.200	0.00470	<0.0200	760
19-Jun-12	5.50	11040	3.15	294.2	12.00	12.39	2600	-	0.05800	<0.200	0.00670	<0.0200	690
20-Sep-12	16.10	9560	3.27	76.0	10.70	12.35	2900	-	0.08400	<0.200	0.00300	<0.0200	830
19-Dec-12	4.10	1320	10.11	303.1	5.86	9.69	700	-	0.07500	0.690	0.00430	0.0710	250
26-Feb-13	7.30	9950	1.77	161.8	25.50	12.66	2000	-	0.07000	<0.500	0.00029 J	<0.0200	720
23-May-13	11.50	8040	2.23	266.8	22.70	12.47	2500	-	0.05700	<0.500	0.00340	<0.0200	690
22-Aug-13	17.40	8810	2.42	10.8	38.50	12.79	2590	-	0.05780	<0.100	0.00150	0.0020	863
19-Nov-13	9.00	7090	2.47	79.0	62.80	12.54	2720	-	0.05250	<0.100	0.00420	<0.0020	909
1-Apr-14	10.30	6080	0.55	128.2	37.10	6.08	1890	-	0.05460	<0.100	0.00110	<0.0013	687
22-May-14	13.60	7360	1.22	34.4	-	11.75	2330	-	0.06090	<0.100	0.00200	<0.0020	689
13-Aug-14	18.26	7844	0.33	1.2	7.30	12.53	2770	-	0.07000	<0.100	0.00210	<0.0020	849
12-Nov-14	9.00	585	3.17	-47.8	17.50	12.93	2450	-	0.08320	<0.100	0.00390	<0.0020	837
12-Feb-15	10.70	7540	2.68	-18.6	9.64	12.71	2150	-	0.05160	<0.100	0.00030	<0.0020	690
4-May-15	12.90	9140	2.73	110.4	26.80	13.02	2520	-	0.05460	<0.100	0.00022 J	<0.0020	734
5-Aug-15	19.50	8060	2.58	-29.8	61.10	12.62	2980	-	0.06390	<0.250	0.00170	0.0047 J	898
3-Nov-15	11.10	5150	0.37	38.6	171.00	8.93	1840	-	0.10900	0.270	0.02170	0.0130	747
9-Feb-16	9.70	7390	0.78	80.8	7.79	13.07	2170	-	0.05360	<0.100	0.00120	0.0060	601
3-May-16	14.70	7530	1.40	358.1	2.65	12.98	2480	-	0.0542	<0.100	0.00170 J-	0.0020	711
22-Aug-16	20.50	8	2.10	-	59.00	12.95	2780	-	0.09130	<0.250	0.00587	0.0023 J	831
1-Nov-16	12.30	2884	2.66	-72.1	19.10	13.17	2620	-	0.04620	<0.100	0.00964	<0.0020	841
31-Jan-17	7.40	8510	2.37	-167.0	7.35	13.17	2050	-	0.05250	0.026 J	0.00119	0.0016 J	582
31-May-17	14.60	7500	2.44	-	4.17	12.89	1900	-	0.04540	0.011 J	0.00068 J+	0.0007 J	615
17-Aug-17	18.30	8460	3.35	-84.0	15.90	12.79	2680	-	0.05680	0.003 J	0.00214	0.0013 J	750
9-Nov-17	8.20	7215	3.48	90.9	18.20	12.65	2360	-	0.0621	<0.1	0.00352	0.0025	822
27-Feb-18	6.60	5312	3.75	2.3	2.49	12.11	1970	-	0.0502	<0.1	0.00753	0.0025	521
2-May-18	11.10	8260	1.70	-	13.00	12.92	2360	-	0.0434	0.133	0.02170 J+	0.0088	552
21-Aug-18	20.22	6260	4.71	-42.1	5.84	12.58	2100	-	0.0522	0.10 U	0.000138	<0.002	629
7-Nov-18	9.70	995	6.72	126.8	20.60	9.15	1880	-	0.644	1.35	0.0802	0.0491	502 J+
11-Mar-19	10.60	1354	5.93	-18.7	7.19	10.31	1710	-	0.0528	0.0091 J	0.0212	0.0013 J	501
9-May-19	13.80	6973	6.40	18.1	16.70	12.36	1980	-	0.0416	0.0079 J	0.0134	0.0008 J	521
26-Aug-19	17.80	6405	3.91	Note 1	5.15	12.56	2570	-	0.0425	<0.1	0.0154	0.001 J	722
14-Nov-19	9.70	6065	0.41	-53.3	12.00	12.67	1750	-	0.167	0.121 J	0.0239	0.0065	563
13-Feb-20	7.60	4936	0.37	-139.0	2.56	12.66	1630	-	0.0486	0.0136 J	0.00608	0.0031	490
13-Aug-20	15.00	6817	2.55	-42.8	2.02	12.39	2620	-	0.0419	0.0063 J	0.00086	0.0009 J	659
10-Dec-20	8.80	4534	0.55	-26.2	5.87	12.79	1670	-	0.0827	0.241	0.0111	0.0108	510
4-Mar-21	7.70	4728	0.05	-42	0.85	11.94	1470	-	0.0618	0.1 U	0.00149	0.008 U	512
Preliminary Standard[c]	-	700	-	-	-	6.5-8.5	500	6.5-8.5	TBD[d]	0.3	0.05	0.05	-

Notes:

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not analyzed or not available
<	Analyte not detected above the reporting limit shown
a	North Creek Analytical, Inc.
b	Severn Trent Laboratories
c	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
d	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-1b: Summary of Lower Disposal Area - Surface Water Sampling Results - Infiltration Ponds #1
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
1-Feb-05	8.17	1315	-	-	8.13	9.95	874	9.75	0.08490	0.234	0.00499	0.0249	-
9-Mar-05	14.04	1183	-	-	23.00	9.59	960	9.46	0.09620	0.470	0.00392	0.0321	-
5-Apr-05	11.00	1115	-	-	43.70	9.80	800	9.49	0.06230	0.574	0.00321	<0.0200	-
10-May-05	14.91	1275	-	-	564.00	9.83	844	9.79	0.07650	0.790	<0.00500	0.0462	-
7-Jun-05	15.11	1140	-	-	239.00	9.61	804	9.53	0.08430	0.722	<0.00500	0.0327	-
15-Jul-05[a]	23.56	1276	-	-	94.40	9.30	1100	9.54	0.09250	<0.300	0.00414	0.0534	-
15-Jul-05[b]	-	-	-	-	-	-	874	9.45	0.09990	0.533	0.00382	<0.0200	-
9-Aug-05[a]	19.05	1744	-	-	57.20	9.44	1000	9.22	0.12300	0.792	0.00510	0.0499	-
9-Aug-05[b]	-	-	-	-	-	-	1030	9.05	0.14000	0.339	0.00612	0.0308	-
14-Sept-05[a]	13.59	1154	-	-	99.80	8.97	790	9.04	0.11000	<0.750	0.00354	<0.0500	-
14-Sept-05[b]	-	-	-	-	-	-	806	9.03	0.11800	0.877	0.00518	-	-
5-Oct-05	14.82	970	-	-	82.70	8.98	736	8.73	0.08930	0.329	0.00283	0.0263	-
9-Nov-05	8.43	1285	-	-	135.00	8.83	970	9.28	0.04600	0.194	<0.01000	0.0295	-
9-Dec-05	2.12	1361	-	-	14.20	9.71	980	9.54	0.06460	0.179	0.00311	0.0399	-
19-Jan-06	6.66	728	7.96	-	64.70	10.13	470 J	9.77	0.04070	0.181	0.00229	0.0402	-
16-Feb-06	2.63	624	9.75	30.3	25.20	8.54	530 J	8.99	0.01330	<0.150	<0.00100	0.1190	-
15-Mar-06	7.16	639	11.61	236.8	23.10	9.22	530 J	9.19	0.02250	0.167	<0.00100	0.0791	-
7-Apr-06	11.91	1013	10.81	27.8	18.80	9.98	780	9.72	0.06380	0.344	0.00324	0.0483	-
16-May-06	15.58	1160	7.58	50.6	16.50	9.57	950	9.65	0.07790	0.462	0.00249	0.0505	-
23-Jun-06	18.63	1261	7.41	-	126.00	9.85	920	9.35	0.07070	0.228	0.00365	0.0366	-
20-Jul-06	20.65	932	5.36	-35.1	279.00	8.94	980	8.79	0.10800	0.287	0.00348	0.0285	-
22-Aug-06	15.65	860	7.64	86.5	218.00	9.22	760	9.15	0.11600	0.734	0.00384	0.0237	-
26-Sep-06	21.86	903	8.98	-72.8	263.00	8.89	820	8.76	0.07580	0.616	0.00306	0.0558	-
26-Oct-06	11.04	702	9.97	90.4	221.00	8.56	760	8.59	0.06830	<1.500	0.00166	<0.1000	-
15-Nov-06	7.73	715	9.21	149.2	33.60	9.07	500	9.25	0.02080	0.174	0.00229	0.0367	-
20-Dec-06	4.98	1082	9.05	86.3	9.29	9.78	680	9.83	0.05130	0.269	0.00267	0.0549	-
24-Jan-07	2.12	1058	10.71	130.4	20.50	9.97	640 J	9.97	0.06610	<0.150	0.00758	0.0403	-
12-Feb-07	10.10	1218	12.40	-61.8	103.00	9.98	860	9.97	0.09010	0.642	0.00449	0.0451	-
27-Mar-07	7.94	772	9.67	13.3	25.50	8.27	540 J	9.96 J	0.04980	<0.150	0.00274	0.0336	-
18-Apr-07	7.52	2418	9.23	84.4	58.10	11.73	1400	11.4 J	0.07920	0.212	0.01050	0.0296	-
31-May-07	15.45	1879	6.47	-92.2	3.15	9.79	1300	10 J	0.16500	<0.750	0.00811	0.1340	-
20-Jun-07	24.18	1925	10.88	-52.1	251.00	10.24	1300 J	10.1 J	0.14400	<0.150	0.00534	<0.0100	-
31-Jul-07	19.05	1418	5.97	-36.1	128.00	9.81	1200	9.4 J	0.14000	1.070	0.00723	0.0433	-
29-Aug-07	18.00	1193	5.60	-35.4	158.00	9.29	1300 J	9.48 J	0.16400	0.427 J	0.00701	0.0277 J	-
27-Sep-07	14.97	987	5.44	45.9	186.00	8.99	970	9.15 J	0.19600	0.438	0.00549	0.0326	-
26-Oct-07	2.66	504	6.02	63.1	282.00	8.64	770 J	8.17 J	0.04290	0.422	0.00225	0.0602	-
30-Nov-07	1.86	955	9.77	190.1	163.00	10.02	570	8.9 J	0.04890	0.205	0.00162	0.0271	-
12-Dec-07	4.22	790	11.11	126.8	56.00	9.40	520	9.05 J	0.03430	0.179	0.00167	0.0175	-
24-Jan-08	2.12	875	19.35	142.0	-	8.68	640	9.24 J	0.04280	0.162	0.00166	0.0155	-
28-Feb-08	-	-	-	-	25.60	-	510	9.18 J	0.04130	<0.150	0.00266	0.0159	-
25-Mar-08	5.27	937	14.46	91.0	86.80	9.60	630	9.55 J	0.05020	0.180	0.00215	0.0213	-
29-Apr-08	9.02	1079	10.56	190.8	61.30	9.87	670 J	9.76 J	0.06600	0.27 J	0.00287	0.0286	-
20-May-08	15.42	1191	7.58	160.0	91.40	9.75	820	9.7 J	0.08590	0.334	0.00485	0.0432	-
18-Jun-08	12.94	1124	9.62	167.3	76.90	9.65	810 J	9.55 J	0.07760	0.486	0.00367	0.0222	-
26-Aug-08	15.95	880	3.75	53.5	490.00	8.00	650 J	7.81 J	0.07690	0.334	0.00164	0.0713	144
20-Nov-08	6.91	897	7.02	183.5	376.00	10.22	960	10.1 J	0.08720	0.196	0.00421	0.0584 J	313
12-Feb-09	1.29	-	13.72	-	10.20	10.52	800	10.1 J	0.11800	0.177	0.00584	0.0561	271
19-May-09	11.90	862	6.52	71.9	133.00	9.59	840 J	9.9 J	0.09130	0.350	0.00399	0.0366	238
18-Nov-09	5.70	852	6.61	185.9	68.00	9.88	490	-	0.04000	0.700	0.00440	0.0350	160
15-Dec-09	2.30	1162	8.22	460.1	63.30	9.97	640	-	0.07100	0.850	0.00720	0.0500	220
24-Mar-10	13.00	1299	5.83	408.2	13.00	10.48	1,000	-	0.14000	0.720	0.00850	0.0370	340
17-Jun-10	12.00	947	4.45	332.1	33.60	10.56	540	-	0.06200	0.660	0.00620	0.0630	220
22-Sep-10	15.60	1736	3.14	342.5	33.00	9.84	1300	-	0.13000	2.900	0.02100	0.1700 J+	360
8-Dec-10	5.40	1382	7.73	371.1	12.10	10.75	870	-	0.10000	0.490	0.01200	0.0370	300
29-Mar-11	9.60	627	5.16	577.6	19.80	11.05	760 J	-	0.07800	0.200 J+	0.00310	0.0210	270
21-Jun-11	21.00	1778	5.46	239.1	11.60	10.44	1700 J	-	0.07800	0.810	0.01100	0.0650	340
27-Sep-11	14.80	1382	3.98	239.8	33.40	9.58	1600	-	0.12000	1.600	0.01300	0.0820	670

Table A-1b: Summary of Lower Disposal Area - Surface Water Sampling Results - Infiltration Ponds #1
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
14-Dec-11	3.10	1046	5.60	281.7	15.70	9.93	1100	-	0.08700	1.100	0.01400	0.0630	330
20-Mar-12	6.10	986	11.04	271.1	11.70	10.32	500	-	0.07100	0.470	0.00330	0.0590	180
19-Jun-12	14.80	862	7.83	352.2	38.80	9.57	500	-	0.06400	0.560 J+	0.00370	0.0540	180
20-Sep-12	12.40	1961	1.81	419.0	10.30	9.43	4600 J	-	0.13000	0.480	0.00210	0.0470	440
19-Dec-12	4.10	1320	10.11	303.1	5.86	9.69	700	-	0.07500	0.690	0.00430	0.0710	250
25-Feb-13	7.10	1963	9.30	234.7	26.60	11.30	1000	-	0.09000	0.100 J	0.00600	0.0230	370
22-May-13	10.50	4380	7.72	411.7	202.00	12.56	1400	-	0.02500	<0.500	0.01100	0.0064 J	530
21-Aug-13	20.10	12850	1.24	-2.3	18.20	12.18	3430	-	0.10600	0.270	0.04750	0.0210	1180
20-Nov-13	5.70	1198	8.03	131.9	22.20	10.23	704	-	0.04130	0.210	0.00620	0.0400	260
1-Apr-14	9.80	1708	9.77	136.4	8.79	12.26	832	-	0.02410	0.049 J	0.00300	0.0050 J+	317
23-May-14	12.63	6574	8.63	120.8	-	12.61	2120	-	0.00480	<0.100	0.03540	<0.0020	811
13-Aug-14	18.99	3273	6.29	77.7	89.00	12.34	1660	-	0.07140	<0.100	0.00630 J	0.0070	548
11-Nov-14	8.80	578	3.55	179.2	62.50	12.73	2000	-	0.05670	<0.100	0.02040	<0.0020	739
11-Feb-15	9.70	487	9.97	66.2	42.00	9.40	337	-	0.00910	0.120	0.00090	0.0120	87.7
4-May-15	14.30	4210	5.60	281.2	7.67	12.53	1670	-	0.03530	0.039 J	0.00740	0.0014 J	589
5-Aug-15	19.90	4890	5.14	18.8	89.80	11.79	3080	-	0.08540	0.390	0.01810	0.0120	1150
3-Nov-15	9.20	760	6.39	129.9	34.60	9.78	707	-	0.02350	0.270	0.00530	0.0150	235
9-Feb-16	10.20	-	10.29	100.3	8.01	12.78	1330	-	0.00530	<0.1000	0.02480	0.0030	530
2-May-16 [e]	-	-	-	-	-	-	2490	-	0.02400	0.0754 J	0.0370 J-	0.0041 J	996
23-Aug-16	19.30	4250	3.95	386.5	46.30	11.76	2970	-	0.10500	0.404	0.01430	0.0113	989
1-Nov-16	11.70	229	9.26	185.2	48.90	10.33	508	-	0.01260	0.155	0.00079	0.0067	164
1-Feb-17	2.40	8890	10.78	26.1	3.17	13.36	2220	-	0.01010	<0.250	0.04680	<0.0050	854
30-May-17	14.70	6800	56.90	17.7	1.38	12.73	1720	-	0.00175	0.030 J	0.03160 J+	0.0009 J	759
17-Aug-17	18.10	5410	3.88	-19.5	14.90	11.93	3080	-	0.06260	0.122 J	0.03280	0.0111	1150
10-Nov-17	7.90	2016	7.72	64.4	30.70	12.00	1520	-	0.063	0.156	0.0322	0.0141	578
27-Feb-18	5.70	5062	8.76	42.0	3.74	12.28	1620	-	0.015	<0.1	0.0546	<0.002	678
1-May-18	12.30	6620	5.25	-	1.94	12.73	2070	-	0.00242	0.0117 J	0.03010 J+	0.0010 J	745
21-Aug-18	23.85	5058	2.95	106.0	5.62	11.64	3090	-	0.0773	0.25 U	0.0288	0.0094	1200
6-Nov-18	11.70	1078	3.50	-5.4	46.90	8.48	1180	-	0.00603	<0.5	0.00544	0.0298	359 J+
13-Mar-19	3.90	331	8.08	183.7	29.10	10.72	455	-	0.0119	0.131	0.00221	0.0053	185
8-May-19	17.20	6113	6.38	6.4	6.17	12.39	2040	-	0.0077	0.0246 J	0.0268	0.0018 J	830
26-Aug-19	24.22	4177	2.47	Note 1	7.21	9.12	2840	-	0.0172 J	0.405 J	0.00527 J	0.0172 J	1020
13-Nov-19	8.70	2523	1.61	-201.7	33.00	8.67	1930	-	0.0325	0.211	0.00444	0.024	726
12-Feb-20	7.80	971	7.99	150.3	16.00	7.92	836	-	0.0143	0.0234 J	0.00396	0.0279	243
12-Aug-20	18.30	3655	4.33	123.5	5.74	8.98	2570	-	0.0208	0.124 J	0.00259	0.0048 J	988
9-Dec-20	8.30	740	7.80	202.0	18.40	8.21	632	-	0.0149	0.686	0.00511	0.0172	207
3-Mar-21	8.30	1446	7.87	217	15.50	8.56	1310	-	0.0353	0.118	0.00611	0.0079 J	509
Preliminary Standard[c]	-	700	-	-	-	6.5-8.5	500	6.5-8.5	TBD[d]	0.3	0.05	0.05	-

Notes:
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not analyzed or not available
<	Analyte not detected above the reporting limit shown
a	North Creek Analytical, Inc.
b	Severn Trent Laboratories
c	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
d	Site background arsenic value to be determined (TBD)
e	Field parameters for Infiltration Ponds #1 were inadvertently not collected during May 2016 sampling
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-1c: Summary of Lower Disposal Area - Surface Water Sampling Results - Weir
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters							General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (NTU)	pH (standard units)	Weir Flow Rate (gpm)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
1-Feb-05	8.47	2205	-	-	6.24	10.23	-	1440	10.37	0.14900	0.323	0.01070	0.0569	-
9-Mar-05	11.38	2054	-	-	7.80	10.15	2.64	1630	10.11	0.20000	0.526	0.01190	0.0938	-
5-Apr-05	7.7	2169	-	-	7.99	10.42	10.00	1420	10.18	0.12900	1.150	0.00861	0.0540	-
10-May-05	14.1	1912	-	-	562.00	9.87	25.00	1210	9.85	0.10500	1.460	0.00763	0.0818	-
7-Jun-05	15.74	2588	-	-	11.60	10.03	6.82	1570	10.18	0.13800	1.470	0.01010	0.1170	-
15-Jul-05[a]	20.38	3184	-	-	8.91	10.36	0.94	3200	10.3	0.19200	0.367	0.00998	0.2060	-
15-Jul-05[b]	-	-	-	-	-	-	-	1990	10.44	0.18900	1.460	0.01080	0.1640	-
9-Aug-05[a]	-	-	-	-	-	-	Dry	-	-	-	-	-	-	-
9-Aug-05[b]	-	-	-	-	-	-	Dry	-	-	-	-	-	-	-
14-Sept-05[a]	15.60	3792	-	-	14.50	9.92	0.07	2800	10	0.20800	1.250	0.05780	0.1000	-
14-Sept-05[b]	-	-	-	-	-	-	-	2730	10.16	0.22300	1.070	0.07330	-	-
5-Oct-05	12.96	3237	-	-	4.99	9.89	0.32	2150	9.97	0.17000	1.430	0.01250	0.2250	-
9-Nov-05	8.40	2545	-	-	13.80	9.64	7.50	1900	9.88	0.07820	0.167	<0.01000	0.0835	-
9-Dec-05	3.34	1377	-	-	8.03	10.43	5.00	1700	10.4	0.13000	0.189	0.00612	0.0857	-
19-Jan-06	7.37	1424	7.92	-	12.20	10.61	7.50	1000 J	10.4	0.08950	0.449	0.00481	0.1040	-
16-Feb-06	3.74	1680	12.19	*	14.60	10.78	7.50	1400 J	10.8	0.10500	0.343	0.00546	0.0817	-
15-Mar-06	7.21	1634	12.61	194.4	7.44	10.63	5.28	1300 J	10.7	0.12800	0.204	0.00638	0.0750	-
7-Apr-06	14.33	2055	8.54	55.3	9.21	10.84	3.17	1500	10.4	0.14300	0.552	0.00663	0.1140	-
16-May-06	21.65	2474	6.09	11.6	9.37	10.69	0.83	2000	10.6	0.15700	0.921	0.00819	0.2000	-
23-Jun-06	24.58	2820	6.66	-	15.40	11.64	0.63	1400	10.6	0.15400	0.210	0.01310	0.1090	-
20-Jul-06	21.17	3291	8.56	-85.5	68.30	10.75	Dry*	2300	10.8	0.13100	0.454	0.00941	0.0406	-
22-Aug-06	-	-	-	-	-	-	Dry	-	-	-	-	-	-	-
26-Sep-06	16.38	2997	3.00	-57.1	31.60	9.92	Dry*	2900	9.94	0.10300	1.070	0.01680	0.1010	-
26-Oct-06	11.00	2650	5.35	59.6	25.80	9.65	0.63	2300	9.45	0.13200	2.220	0.02630	<0.100	-
15-Nov-06	8.51	1708	8.16	-35.7	34.70	10.15	17.14	1200	10.1	0.06740	0.518	0.00807	0.0794	-
20-Dec-06	5.07	1927	8.84	14.8	7.94	10.67	10.91	1200	10.5	0.09970	0.384	0.00478	0.0844	-
24-Jan-07	2.30	1846	10.72	5.9	11.70	10.37	9.00	1100 J	10.6	0.12600	0.359	0.01610	0.0729	-
12-Feb-07	9.26	1777	11.75	-91.3	26.70	10.56	6.00	1100	10.3	0.13900	0.283	0.00712	0.0808	-
27-Mar-07	8.71	1219	9.18	-12.6	13.80	8.70	24.00	840 J	10.2 J	0.08850	0.289	0.00486	0.0821	-
18-Apr-07	7.39	4563	8.65	41.0	16.80	12.12	9.00	2000	11.9 J	0.09750	0.830	0.03250	0.0408	-
31-May-07	-	3916	6.33	-149.5	10.70	10.96	1.36	2100	11.5 J	0.27500	<0.750	0.02290	0.1560	-
20-Jun-07	22.59	3336	8.50	-20.4	42.50	10.46	0.29	2400 J	10.4 J	0.25500	<0.150	0.02740	0.0309	-
31-Jul-07	18.94	3915	7.85	-69.2	41.30	10.92	0.06	3300	10.8 J	0.23600	1.100	0.01260	0.0846	-
29-Aug-07	21.52	2406	5.75	-5.3	24.10	9.72	Dry*	2300 J	9.53 J	0.12900	0.627	0.00845	0.1940	-
27-Sep-07	13.88	2009	5.75	15.5	28.30	9.56	0.06	1600	9.51 J	0.20700	1.150	0.00437	0.4170	-
26-Oct-07	7.68	1662	9.06	80.5	13.00	9.92	2.04	1800 J	9.74 J	0.13200	0.591	0.00753	0.1960	-
30-Nov-07	4.34	2446	9.63	26.7	11.70	9.86	2.63	1600	9.74 J	0.13500	0.432	0.00827	0.1000	-
12-Dec-07	5.88	2056	10.34	39.3	10.30	10.18	2.63	1500	9.85 J	0.10500	0.324	0.00573	0.0784	-
24-Jan-08	3.05	1601	15.03	42.3	-	9.40	2.63	1000	9.73 J	0.08740	0.451	0.00406	0.1500	-
28-Feb-08	-	-	-	-	9.22	-	4.13	1200	10.1 J	0.11800	0.260	0.00892	0.0714	-
25-Mar-08	6.80	1622	12.37	95.1	16.40	9.98	5.25	1100	9.98 J	0.11000	0.307	0.00386	0.0683	-
29-Apr-08	7.53	1997	9.10	137.4	11.90	10.29	7.50	1100 J	10.4 J	0.12400	0.328	0.00705	0.0789	-
20-May-08	16.35	2504	9.03	77.4	32.90	10.92	7.50	1700	10.8 J	0.14600	0.558	0.01470	0.1580	-
18-Jun-08	11.82	2925	8.32	68.3	25.70	11.14	1.69	1800 J	10.9 J	0.20800	0.351	0.00848	0.1540	-
26-Aug-08	17.69	3376	7.98	62.8	41.10	10.43	0.84	2200 J	10.3 J	0.28700	0.391	0.01320	0.4630	647
20-Nov-08	8.10	1447	9.65	112.0	43.70	11.00	11.25	1400	10.6 J	0.12100	0.386	0.01620	0.0888	485
12-Feb-09	2.99	1214	14.46	-	14.60	10.93	4.06	1200	10.6 J	0.21900	0.410	0.01180	0.0986	434
19-May-09	13.05	1962	7.92	32.6	36.70	10.23	7.50	1800 J	10.8 J	0.21000	0.620	0.01370	0.1430	521
24-Sep-09	16.30	2792	1.59	263.8	13.70	8.82	Dry*	2400	-	0.13000	8.600	0.05300	0.6400	730
15-Dec-09	2.80	1702	7.47	343.0	-	10.18	6.67	1200	-	0.17000	2.300	0.02200	0.1200	330
24-Mar-10	13.80	2629	2.09	270.7	263.00	11.46	6.03	1800	-	0.18000	0.660	0.02000	0.0360	600
17-Jun-10	12.00	1876	0.01	-	157.00	10.76	14.15	1200	-	0.02700	1.600	0.00390	0.1700	410
20-Sep-10	11.40	3100	6.34	198.6	12.20	10.63	2.38	2800	-	0.25000	4.800	0.04000	0.4600	580
7-Dec-10	6.60	2455	4.03	154.0	11.00	11.61	16.69	1600	-	0.24000	1.300	0.02600	0.0710	510
30-Mar-11	8.10	848	0.22	136.1	31.50	13.08	58.61	940 J	-	0.09100	0.720 J+	0.00990	0.0500	330
22-Jun-11	14.40	2286	5.68	164.2	13.20	11.28	5.68	2600 J	-	0.12000	1.200	0.02500	0.1000	490

Table A-1c: Summary of Lower Disposal Area - Surface Water Sampling Results - Weir
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters							General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (NTU)	pH (standard units)	Weir Flow Rate (gpm)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
27-Sep-11	16.20	1911	4.62	253.4	39.10	10.07	13.40	2100	-	0.17000	4.900	0.04500	0.4400	880
15-Dec-11	4.10	1439	7.40	139.4	10.60	10.33	6.65	1400	-	0.18000	2.000	0.02100	0.1100	500
20-Mar-12	5.20	1687	8.50	27.5	9.60	11.17	60.00	410	-	0.13000	0.970	0.00740	0.1700	290
18-Jun-12	14.70	2336	0.11	326.9	15.60	11.25	60.00	410	-	0.13000	1.000 J+	0.00980	0.0540	430
20-Sep-12	15.30	2972	7.81	106.0	12.10	9.55	0.10	1400 J	-	0.13000	0.460	0.00220	0.0480	450
18-Dec-12	4.80	1908	9.34	-14.2	7.41	10.28	18.50	870	-	0.12000	1.100	0.00810	0.3000	390
26-Feb-13	5.80	6470	11.27	161.6	22.00	12.46	9.90	1800	-	0.09900	<0.500	0.06200	0.0200	710
23-May-13	10.50	1625	9.14	291.8	14.40	9.93	4.84	980	-	0.09400	2.100	0.02100	0.1500	310
21-Aug-13	15.70	7260	7.69	51.6	9.00	10.71	0.32	2780	-	0.34200	0.770	0.01830	0.1610	954
19-Nov-13	8.10	2032	10.00	87.4	9.95	11.19	25.40	1270	-	0.07080	0.350	0.01690	0.0800	487
1-Apr-14	13.70	3420	9.11	129.4	59.00	12.57	20.77	1300	-	0.03730	0.120	0.01200	0.0160	572
23-May-14	12.83	986	11.63	105.7	-	9.36	-	822	-	0.04700	0.550	0.01390	0.1950	274
13-Aug-14	18.38	2000	5.52	63.6	8.93	8.02	2.00	1250	-	0.01340	0.050	0.00060	0.4140	326
11-Nov-14	6.70	259	9.77	164.8	4.27	8.09	1.50	955	-	0.01900	0.080	0.00020	0.0780	315
12-Feb-15	10.00	669	11.13	142.9	2.75	8.62	40.00	1490	-	0.01490	0.310	0.00180	0.2020	155
4-May-15	13.70	1293	8.69	181.7	155.00	9.38	0.09	1100	-	0.04330	0.660	0.01130	0.1700	292
5-Aug-15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
3-Nov-15	9.70	1296	7.66	165.6	13.70	8.03	1.98	1200	-	0.01140	0.120	0.00080	0.1690	355
9-Feb-16	9.10	838	8.79	181.4	2.17	7.87	0.69	529	-	0.00780	0.110	0.00050 J+	0.0630	145
2-May-16	23.40	1126	6.16	128.1	7.59	7.63	Dry*	688	-	0.00760	0.023 J	0.00006 J-	0.3240	162
23-Aug-16	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
1-Nov-16	11.70	332	7.12	97.5	7.71	7.76	7.24	703	-	0.00918	0.097	0.00030	0.0223	207
1-Feb-17	2.30	925	11.55	39.1	2.04	7.71	0.30	567	-	0.00490	<0.050	0.00009 J	0.0397	135
30-May-17	13.30	817	57.50	8.3	22.20	7.40	0.30	516	-	0.01310	0.526	0.00008 J+	3.4700	94
17-Aug-17	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
9-Nov-17	7.00	851	7.57	88.0	67.30	8.43	-	865	-	0.0366	1.33	0.0107	0.284	236
27-Feb-18	5.50	498	10.68	106.0	5.39	8.60	-	503	-	0.00970	0.174	0.00123	0.0488	127
1-May-18	12.80	894	8.87	-	2.39	7.97	-	656	-	0.00781	0.0212 J	<0.00010 J	0.0762	195
21-Aug-18	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
7-Nov-18	8.50	1079	7.37	166.6	5.48	7.94	-	1030	-	0.01570	<0.05	0.000089 J	0.0244	322 J+
11-Mar-19	5.00	525	9.79	146.3	1.28	7.76	-	541	-	0.00421	0.0035 J	<0.0001	0.0050	133
9-May-19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
26-Aug-19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
14-Nov-19	7.40	842	4.10	214.3	19.00	7.74	Dry*	783	-	0.01130	0.0146 J	0.000076 J	0.1560	242
12-Feb-20	7.20	401	8.41	-38.3	2.47	7.53	3.96	348	-	0.00481	0.0201 J	0.0001 U	0.0106	87
13-Aug-20	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	-	DRY	DRY	DRY	DRY	DRY
10-Dec-20	7.20	581	6.72	185.0	0.96	7.80	8	560	-	0.00513	0.029 J	0.0001 U	0.0089	126
4-Mar-21	4.90	427	7.11	146	2.50	7.86	2.68	424	-	0.00370	0.0386 J	0.00011	0.0156	81
Preliminary Standard[c]	-	700	-	-	-	6.5-8.5	-	500	6.5-8.5	TBD[d]	0.3	0.05	0.05	-

Notes:
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

*	Sample collected from constructed wetland (alternative sampling location) upstream of weir
-	Not analyzed or not available
Dry	Weir dry; unable to collect field parameters or samples
<	Analyte not detected above the reporting limit shown
a	North Creek Analytical, Inc.
b	Severn Trent Laboratories
c	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
d	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias

°C	Degrees Celsius	gpm	Gallons per minute
µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-1d: Summary of Lower Disposal Area - Surface Water Sampling Results - South Pond
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
1-Feb-05	7.13	9580	-	-	4.19	13.02	4080	12.61	0.17400	1.140	0.02430	0.0694	-
9-Mar-05	14.28	9979	-	-	6.79	12.52	4640	12.57	0.24000	0.988	0.04210	0.0853	-
5-Apr-05	9.90	10820	-	-	43.50	11.99	3830	12.31	0.13300	2.520	0.00985	0.1280	-
10-May-05	15.10	6091	-	-	45.60	12.14	3270	12.4	0.09290	0.866	0.02550	0.0339	-
7-Jun-05	14.49	8257	-	-	24.20	12.19	3780	12.32	0.13200	1.540	0.02470	0.0526	-
15-Jul-05[a]	18.34	6937	-	-	6.89	11.69	5000	11.6	0.28100	1.260	0.03180	0.0922	-
15-Jul-05[b]	-	-	-	-	-	-	4260	11.8	0.23700	0.286	0.03420	<0.0200	-
9-Aug-05[a]	23.53	7654	-	-	17.l	10.26	6600	10.3	0.32200	8.360	0.04450	0.1480	-
9-Aug-05[b]	-	-	-	-	-	-	5580	10.35	0.34000	0.648	0.03710	0.0828	-
14-Sept-05[a]	18.55	6730	-	-	10.00	10.51	5100	11.1	0.23500	1.860	0.01930	0.1550	-
14-Sept-05[b]	-	-	-	-	-	-	4750	11.78	0.26800	2.270	0.03420	-	-
5-Oct-05	12.14	4323	-	-	17.60	9.80	3090	10.15	0.13000	0.947	0.02650	0.0638	-
9-Nov-05	6.78	3784	-	-	11.80	11.12	2600	11.5	0.12100	0.504	0.02170	0.0802	-
9-Dec-05	3.22	8745	-	-	12.90	12.85	3900	12.3	0.17500	5.720	0.01410	0.1490	-
19-Jan-06	7.73	5215	5.43	-	13.30	12.52	2000 J	12.3 J	0.02030	0.556	0.00324	0.0355	-
16-Feb-06	3.96	9342	8.97	231.2	9.08	12.30	4100 J	12.6	0.04300	1.480	0.02560	0.0548	-
15-Mar-06	8.72	12910	9.59	222.1	7.64	12.60	5100 J	12.7	0.03860	<0.150	0.04180	<0.0100	-
7-Apr-06	14.26	15220	6.90	18.9	3.65	12.92	5700	12.7	0.04850	0.382	0.06560	0.0119	-
16-May-06	19.75	10880	2.61	33.8	15.40	12.46	5100	12.6	0.13000	3.200	0.09210	0.0916	-
23-Jun-06	22.76	7586	2.98	-	14.10	12.65	5100	11.9	0.13000	0.606	0.05790	0.0618	-
20-Jul-06	24.33	7457	0.73	-148.4	16.70	11.33	6400	11.5	0.27200	1.180	0.05130	0.0418	-
22-Aug-06	15.03	7481	3.75	61.0	14.10	10.40	6100	10.3	0.31800	0.824	0.03320	0.0390	-
26-Sep-06	17.30	8409	1.31	-312.4	15.10	12.38	5500	12.2	0.23000	0.966	0.04570	0.0490	-
26-Oct-06	10.95	6075	4.10	-265.6	13.30	12.18	4600	11.7	0.24300	3.980	0.04150	<0.2000	-
15-Nov-06	8.07	5022	7.71	-152.7	21.50	12.24	2600	11.9	0.07620	0.217	0.00368	0.1110	-
20-Dec-06	6.32	9148	5.73	-139.6	12.20	12.85	2900 J	12.6	0.04610	1.630	0.00128	0.0820	-
24-Jan-07	2.15	12690	9.24	-98.4	9.74	13.10	3000 J	12.4	0.01920	<0.150	0.02680	<0.0100	-
12-Feb-07	9.35	14110	8.43	-86.7	32.50	13.13	4700	12.6	0.09620	<0.150	0.08350	0.0233	-
27-Mar-07	9.16	10560	8.41	-46.2	7.42	11.31	2900 J	12.5 J	0.00598	<0.150	0.01450	<0.0100	-
18-Apr-07	8.27	14570	8.32	10.8	10.30	12.79	5200	12.5 J	0.01980	<0.300	0.02210	<0.0200	-
31-May-07	23.66	13410	6.42	-95.0	31.20	11.77	5100	12.5 J	0.07840	<1.500	0.05040	<0.100	-
20-Jun-07	26.35	10050	5.53	-195.7	27.90	12.29	5300 J	12.4 J	0.11200	0.315	0.03820	0.0207	-
31-Jul-07	21.39	6666	4.76	-106.4	72.00	10.86	6300	10.9 J	0.20800	2.540	0.06880	0.1160	-
29-Aug-07	22.61	6950	1.57	-193.4	61.80	12.05	6300 J	11.7 J	0.14900	0.835	0.03060	0.0710	-
27-Sep-07	11.45	5059	2.66	-180.4	78.40	11.43	4800	11.3 J	0.19000	1.430	0.01740	0.1140	-

Table A-1d: Summary of Lower Disposal Area - Surface Water Sampling Results - South Pond
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
26-Oct-07	6.98	4147	1.44	-204.7	39.50	12.48	3900 J	11.8 J	0.16800	1.510	0.02550	0.0861	-
30-Nov-07	2.86	5030	8.50	-74.9	12.40	12.20	2600	11.7 J	0.12100	0.885	0.01430	0.1120	-
12-Dec-07	4.45	3564	2.03	-141.8	20.70	10.93	2700	11 J	0.07930	1.130	0.00987	0.1640	-
24-Jan-08	1.13	4859	4.10	-186.8	-	11.19	2200	12.4 J	0.08610	<0.150	0.00679	<0.0100	-
28-Feb-08	-	-	-	-	18.10	-	2800	11.2 J	0.18300	0.499	0.07340	0.0279	-
25-Mar-08	7.37	5413	7.88	-58.2	122.00	12.29	2900	11.7 J	0.18200	0.548	0.01300	0.0583	-
29-Apr-08	8.43	3685	9.04	59.3	19.20	11.63	2400 J	11.2 J	0.15200	0.708	0.01600	0.0520	-
20-May-08	18.03	3554	6.69	58.0	156.00	11.01	2100	10.8 J	0.13700	0.406	0.03830	0.0688	-
18-Jun-08	13.01	5680	6.46	57.5	71.80	11.14	4000 J	11 J	0.27900	0.381	0.03440	0.0423	-
26-Aug-08	18.02	2800	5.72	16.9	49.80	10.08	2500 J	9.9 J	0.09170	0.404	0.01860	0.0532	557
20-Nov-08	7.46	2011	9.04	38.3	23.60	10.49	2300	10.1 J	0.07290	1.980	0.00920	0.1710	566
12-Feb-09	1.63	1870	11.74	-	46.10	10.83	2300	10.6 J	0.12900	0.982	0.01720	0.1130	738
19-May-09	12.73	1895	5.37	-16.4	168.00	9.82	1700 J	9.94 J	0.07890	1.320	0.01130	0.0736	515
23-Sep-09	21.50	4190	0.09	175.1	14.40	9.70	4100	-	0.12000	4.500	0.09900	0.0890	1300
14-Dec-09	+	+	+	+	+	+	+	+	+	+	+	+	+
22-Mar-10	13.10	2480	-	342.0	15.60	10.05	1700	-	0.07600	5.700	0.03400	0.1400	520
17-Jun-10	13.40	2429	5.14	-	26.10	10.77	2100	-	0.12000	7.700	0.08900	0.1100	630
21-Sep-10	16.30	2733	1.10	216.8	21.50	9.81	2200	-	0.02500	4.400 J	0.02700	0.2400	510
8-Dec-10	6.00	1994	2.70	-	18.70	10.05	1400	-	0.05300	6.000	0.01800	0.2100	490
30-Mar-11	9.10	509	0.37	179.2	13.80	12.04	730 J	-	0.03600	3.000	0.01400	0.0760	260
21-Jun-11	21.60	2092	1.90	192.2	13.60	10.07	2800 J	-	0.06200	4.300	0.02900	0.0890	380
27-Sep-11	14.60	1516	9.34	220.4	32.50	9.34	1800	-	0.07800	2.800	0.03600	0.0580	780
15-Dec-11	3.00	1449	1.90	94.6	13.80	10.75	2100	-	0.14000	6.200	0.07400	0.0810	630
21-Mar-12	2.60	1088	8.10	285.7	13.10	9.95	780	-	0.03000	2.800	0.00720	0.0580	240
19-Jun-12	17.10	1747	5.54	345.3	10.80	9.93	780	-	0.07000	4.200	0.02900	0.0620	400
20-Sep-12	-	-	-	-	-	-	-	-	-	-	-	-	-
19-Dec-12	4.00	1771	6.37	104.0	6.12	10.71	1300	-	0.04700	4.000	0.01800	0.0960	440
26-Feb-13	6.90	3720	5.40	196.7	10.60	11.86	1100	-	0.14000	4.000	0.03900	0.1000	690
23-May-13	11.50	2335	5.21	323.5	44.10	12.48	1800	-	0.13000	3.100	0.05000	0.0510	530
22-Aug-13	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
19-Nov-13	8.20	1256	4.12	79.3	18.20	9.89	1260	-	0.03980	0.650	0.02040	0.0590	487
1-Apr-14	15.30	2053	4.42	130.9	772.00	11.27	1800	-	0.11300	1.270	0.04220	0.0520	649
23-May-14	14.15	2187	5.50	77.3	-	10.19	1860	-	0.11200	1.180	0.02360	0.0840	623
13-Aug-14	20.29	1298	5.35	40.1	24.80	9.63	949	-	0.04490	0.560	0.02280	0.0480	306
12-Nov-14	1.30	315	4.55	-0.5	22.10	10.45	2440	-	0.12200	1.160	0.03420	0.0480	804

Table A-1d: Summary of Lower Disposal Area - Surface Water Sampling Results - South Pond
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters						General Chemistry		Metals (mg/L)				
	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	pH measured in lab (standard units)	Arsenic	Iron	Lead	Manganese	Potassium
12-Feb-15	11.10	1267	4.01	-8.2	23.90	10.20	905	-	0.02720	2.500	0.00960	0.0440	320
4-May-15	15.60	3200	4.35	240.5	9.21	10.42	2280	-	0.15400	1.320	0.03080	0.0580	774
5-Aug-15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
3-Nov-15	8.30	1143	2.01	88.1	35.40	9.22	1050	-	0.02800	0.660	0.02820	0.0430	364
9-Feb-16	7.30	1672	3.45	95.9	7.79	10.45	1170	-	0.05100 J+	0.880	0.03400	0.0540	410
3-May-16	14.20	3150	3.61	335.2	63.80	10.35	2260	-	0.14800	1.430	0.09790 J-	0.0600	777
24-Aug-16	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
1-Nov-16	12.10	401	5.56	-65.9	15.00	9.43	742	-	0.02190	0.423	0.01410	0.0213	356
1-Feb-17	2.10	2064	4.82	5.0	17.80	10.27	1330	-	0.05760	0.963	0.13900	0.0693	455
31-May-17	14.50	2594	5.36	-	22.70	9.93	1920	-	0.10500	0.888	0.05150 J+	0.0472	664
17-Aug-17	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
9-Nov-17	6.50	1049	6.38	92.3	14.40	10.13	1260	-	0.0588	1.46	0.0534 J+	0.0661	441
27-Feb-18	6.50	1379	4.05	-71.0	6.11	10.94	865	-	0.06170	0.752	0.0477 J-	0.0267	429
2-May-18	11.60	2547	-	-	25.30	10.36	1860	-	0.08590	0.886	0.02670 J+	0.0436	611
22-Aug-18	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
7-Nov-18	9.70	995	6.72	126.8	20.60	9.15	1040	-	0.07600	0.950	0.06550	0.0450	333 J+
11-Mar-19	10.60	1354	5.93	-18.7	7.19	10.31	1270	-	0.04930	0.708	0.04170	0.0833	458
9-May-19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
26-Aug-19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	-	Dry	Dry	Dry	Dry	Dry
14-Nov-19	8.70	1180	5.98	30.9	7.38	9.03	1120	-	0.0672	0.787	0.0764	0.0599	418
13-Feb-20	4.30	1032	2.51	-126.9	6.10	10.46	927	-	0.0281	0.466	0.0130	0.0680	348
13-Aug-20	DRY	DRY	DRY	DRY	DRY	DRY	DRY	-	DRY	DRY	DRY	DRY	DRY
10-Dec-20	5.60	1000	2.52	66.8	6.02	9.66	952	-	0.0120	0.993	0.0066	0.0382	318
4-Mar-21	8.10	1271	1.98	38	8.02	10.35	4820	-	0.0506	4.370	0.0357	0.0864	435
Preliminary Standard[c]	-	700	-	-	-	6.5-8.5	500	6.5-8.5	TBD[d]	0.3	0.05	0.05	-

Notes:

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not analyzed or not available
<	Analyte not detected above the reporting limit shown
+	South Pond frozen; unable to collect field parameters or samples
Dry	South Pond dry; unable to collect field parameters or samples
a	North Creek Analytical, Inc.
b	Severn Trent Laboratories
c	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
d	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

APPENDIX A-2

Summary of Lower Disposal Area – Shallow/Alluvial Groundwater Sampling Results

Table A-2a: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-1A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	35.43	574.40	15.17	883	-	-	358.00	7.03	664	0.00847	<0.100	<0.00200	0.6020	-
9-Nov-05	31.83	578.00	10.77	1037	-	-	22.20	6.89	680	0.00345	<0.150	<0.00100	0.0286	-
15-Feb-06	23.91	585.92	9.14	623	1.53	497.4	6.76	7.26	470 J	0.00325	<0.150	<0.00100	<0.0100	-
17-May-06	31.91	577.92	11.32	1029	1.33	121.6	10.30	7.18	600	0.00518	<0.150	<0.00100	0.3160	-
23-Aug-06	35.35	574.48	19.21	481	5.97	60.4	6.30	6.67	340	0.00170	<0.150	<0.00100	0.0234	-
14-Nov-06	20.00	589.83	10.35	635	4.55	95.1	22.20	7.23	550	0.00307	<0.150	<0.00100	0.0131	-
14-Feb-07	29.29	580.54	11.13	435	3.88	85.6	32.10	6.76	260	0.00200	<0.150	<0.00100	0.0116	-
30-May-07	32.90	576.93	10.30	545	6.63	145.7	6.93	6.81	320	0.00248	<0.150	<0.00100	<0.0100	-
27-Aug-07	35.68	574.15	10.49	428	7.13	76.7	8.65	6.95	260 J	0.00187	<0.150	<0.00100	0.0189	-
29-Nov-07	32.75	577.08	10.10	625	7.14	144.3	12.20	6.96	340 J	0.00232	<0.150	<0.00100	<0.0100	-
27-Feb-08	27.83	582.00	-	-	-	-	19.60	-	320	0.00258	<0.150	<0.00100	<0.0100	-
20-May-08	31.86	577.97	10.22	471	6.38	177.0	109.00	6.48	290 J	0.00224	<0.150	<0.00100	0.0253	-
27-Aug-08	36.04	573.79	9.84	427	7.40	118.4	63.60	7.08	260	0.00205	<0.150	<0.00100	0.0173	23.0
26-Sep-08	*Test Trench Drain Line Installed*													
16-Oct-08	35.65	574.18	9.51	443	9.78	113.9	38.00	7.38	260 J	0.00179	<0.150	<0.00100	0.0136	22.9
20-Nov-08	25.62	584.21	9.49	563	6.11	231.0	5.48	7.18	430	0.00368	<0.150	<0.00100	<0.0100	106.0
30-Dec-08	23.14	586.69	9.84	402	8.40	106.9	8.92	7.25	280 J	0.00247	<0.150	<0.00100	0.0130	43.9
15-Jan-09	20.66	589.17	8.40	336	9.65	229.6	1.07	6.88	290	0.00225	<0.150	<0.00100	<0.0100	35.7
12-Feb-09	30.00	579.83	9.05	372	8.46	-	16.70	7.34	320	0.00193	<0.150	<0.00100	0.0165	27.0
12-Mar-09	31.30	578.53	9.13	409	8.60	174.9	15.80	7.03	340	0.00166	<0.150	<0.00100	<0.0100	20.6
16-Apr-09	23.88	585.95	8.17	343	10.24	131.8	13.50	6.78	310	0.00177	<0.150	<0.00100	<0.0100	24.6
19-May-09	30.50	579.33	8.99	392	8.69	82.6	23.70	7.75	340 J	0.00156	<0.150	<0.00100	<0.0100	19.6
23-Jun-09	34.00	575.83	9.21	480	9.56	79.0	22.90	7.89	430	<0.00200	<0.200	<0.00200	<0.0200	20.0
25-Aug-09	36.95	572.88	13.10	373	6.47	311.9	4.98	6.76	270 J+	0.00064 J	<0.200	<0.00200	0.0042 J	17.0
23-Sep-09	37.12	572.71	11.30	336	6.90	368.3	21.30	6.73	240	<0.00200	0.054 J	0.00018 J	0.0120 J	14.0
15-Dec-09	28.30	581.53	9.20	643	5.30	567.0	18.00	6.72	330	<0.00200	0.033 J	<0.00200	0.0065 J	26.0
24-Mar-10	30.03	579.80	9.80	562	5.72	545.9	5.04	6.74	370	0.00190 J	<0.200	<0.00200	<0.0200 U	19.0
16-Jun-10	23.55	586.28	9.20	506	5.93	405.4	16.10	6.53	<40	0.00360	0.110 J	<0.00200	0.0110 J	20.0
21-Sep-10	35.89	573.94	10.40	593	4.82	288.5	117.00	6.96	370	0.00260	<0.200	0.00023 J	0.0350 J+	19.0
7-Dec-10	27.39	582.44	10.00	504	1.45	198.4	139.00	7.15	330	0.00230	0.650	<0.00200	0.1700	14.0
29-Mar-11	29.76	580.07	8.10	247	2.47	169.0	6.81	7.14	300	0.00240	0.290 J+	<0.00200	0.0540	15.0
21-Jun-11	30.45	579.38	9.30	606	4.58	332.9	3.56	7.17	400 J	<0.00500	<0.200	<0.00200	0.0100 J	16.0
27-Sep-11	36.65	573.18	9.90	366	7.27	356.2	2.18	6.85	310	<0.00500	<0.200	<0.00200	0.0060 J	17.0
14-Dec-11	31.53	578.30	9.20	407	1.97	234.7	20.40	7.09	370	<0.00500	0.330	<0.00200	0.0860	16.0
20-Mar-12	21.60	588.23	7.70	561	7.06	385.4	4.80	7.18	280	0.00230	<0.200	<0.00040	0.0029 J	16.0

Table A-2a: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-1A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Jun-12	21.60	588.23	10.00	575	7.04	378.2	5.60	7.31	330	0.00250	<0.200	<0.00040	0.0068 J	16.0
19-Sep-12	36.42	573.41	11.30	561	8.76	286.0	2.49	7.02	310	0.00240	<0.200	<0.00040	<0.0200	17.0
19-Dec-12	23.43	586.40	9.30	671	6.67	348.2	0.74	7.26	<20	0.00170	<0.200	<0.00040	<0.0200	17.0
25-Feb-13	29.32	580.51	8.00	572	9.51	337.0	26.00	7.28	300	0.00250	<0.500	<0.00040	<0.0200	16.0
22-May-13	31.23	578.60	9.00	518	8.59	397.7	4.68	7.40	310	0.00180	<0.500	<0.00040	<0.0200	15.0
21-Aug-13	37.02	572.81	10.20	534	9.27	152.7	1.46	7.11	227	0.00120	<0.050	<0.00010	0.0030	14.1
20-Nov-13	29.69	580.14	9.50	852	7.62	243.5	39.50	6.75	419	0.00160	<0.050	<0.00010	0.0020	19.9
1-Apr-14	23.29	586.54	8.90	347	7.60	248.1	2.54	7.30	247	0.00200	<0.050	<0.00010	<0.0007	16.5
21-May-14	28.31	581.52	9.50	349	4.02	178.6	-	7.12	280	0.00180	<0.050	<0.00010	0.0150	15.1
13-Aug-14	36.52	573.31	12.10	441	9.22	51.9	6.20	7.10	283	0.00140	<0.050	<0.00010	0.0030	15.2
13-Nov-14	31.63	578.20	11.50	438	8.80	173.0	14.70	7.10	352	0.00160	<0.050	<0.00010	0.0020	17.1
11-Feb-15	23.02	586.81	9.40	498	3.89	98.1	10.50	7.72	319	0.00910	0.180	0.00030	0.0040	42.9
4-May-15	31.93	577.90	9.80	578	7.35	416.9	1.05	7.26	413	0.00170	0.008 J	<0.00010	0.0100	16.0
6-Aug-15	37.65	572.18	10.70	447	0.17	71.6	49.00	7.21	343	0.00390	0.110	<0.00010	0.2140	10.3
4-Nov-15	32.89	576.94	9.50	657	8.56	240.5	5.70	6.92	554	0.00230	0.013 J	<0.00010	<0.0010	49.3
10-Feb-16	25.39	584.44	9.80	322	7.36	204.8	3.21	7.31	202	0.00200	0.0076 J	<0.00010	0.0070	22.2
2-May-16	32.32	577.51	10.80	579	5.95	250.2	4.70	7.02	350	0.00180	<0.050	0.00004 J-	0.0040	17.8
23-Aug-16	37.66	572.17	11.00	488	1.34	459.9	259.00	7.08	413	0.00388	0.130	0.00007 J	0.6220	14.6
2-Nov-16	31.30	578.53	9.70	280	3.94	225.0	6.13	7.18	531	0.00213	<0.050	0.00012	0.0020	37.7
1-Feb-17	29.01	580.82	8.60	510	5.26	187.7	0.97	7.04	270	0.00147	<0.050	<0.00010	0.0035	19.0
30-May-17	28.47	581.36	9.50	483	6.89	4.7	4.85	6.96	290	0.00209	0.005 J	<0.00010	0.0034	15.7
17-Aug-17	36.30	573.53	10.50	536	3.79	82.5	6.44	6.96	283	0.00155	0.061	<0.00010	0.0524	15.5
9-Nov-17	32.20	577.63	9.20	460	5.89	75.1	2.70	7.01	380	0.00163	<0.05	<0.0001	0.0019	16.3
27-Feb-18	25.18	584.65	8.90	215	7.35	121.6	6.04	6.31	186	0.00172	<0.05	<0.0001	0.0084	15.5
1-May-18	26.98	582.85	9.50	391	7.82	-	3.06	6.94	214	0.00165	0.0042 J	<0.00010 J	<0.0003	14.1
21-Aug-18	37.29	572.54	10.02	266	7.37	75.6	129.00	6.84	215	0.00151	0.148	<0.0001	0.0150	13.3
6-Nov-18	34.18	575.65	9.60	340	9.13	215.4	1.00	6.93	327	0.00167	<0.05	<0.0001	<0.001	16.6
11-Mar-19	27.75	582.08	8.90	323	5.65	185.3	4.29	6.94	269	0.00136	<0.05	<0.0001	0.0111	14.4
8-May-19	30.05	579.78	9.80	448	7.77	97.6	1.11	6.87	320	0.00125	0.0068 J	<0.0001	0.0005 J	15.1
26-Aug-19	37.02	572.81	9.83	329	1.16	Note 1	7.97	7.11	258	0.00090	0.0039 J	<0.0001	0.0317	10.7
13-Nov-19	35.13	574.70	9.20	376	5.50	144.0	8.26	6.87	320	0.00123	0.0133 J	<0.0001	0.0055	15.8
12-Feb-20	20.38	589.45	9.00	381	2.58	191.6	1.33	7.15	268	0.00125	0.0083 J	0.0001 U	0.0228	26.6
12-Aug-20	36.61	573.22	9.50	285	5.01	198.7	0.80	6.96	214	0.00114	0.0034 J	0.0001 U	0.0009 J	14.1
9-Dec-20	32.05	577.78	9.10	425	7.17	211.0	1.57	6.86	347	0.00111	0.0185 J	0.0001 U	0.004 U	17.1
3-Mar-21	27.01	582.82	8.60	383	5.71	248	0.60	6.83	299	0.00116	0.05 U	0.0001 U	0.004 U	17.4
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 609.83
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.

µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-2b: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-2A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	29.18	574.43	13.78	853	-	-	28.30	7.70	606	<0.00200	<0.100	<0.00200	0.2090	-
9-Nov-05	25.64	577.97	10.95	860	-	-	3.82	7.43	550	0.00131	<0.150	<0.00100	0.4490	-
15-Feb-06	17.64	585.97	7.81	709	0.82	467.7	3.96	7.86	520 J	0.00106	<0.150	<0.00100	0.1340	-
17-May-06	25.76	577.85	9.67	810	2.17	246.1	3.01	7.06	490	0.00113	<0.150	<0.00100	0.0596	-
23-Aug-06	29.13	574.48	12.86	759	2.60	12.0	9.82	7.40	570	0.00154	<0.150	<0.00100	0.2300	-
14-Nov-06	13.74	589.87	10.44	649	3.72	63.6	9.78	7.72	460	0.00136	<0.150	<0.00100	0.0553	-
14-Feb-07	22.09	581.52	10.77	648	1.69	11.5	52.40	7.51	380	0.00107	<0.150	<0.00100	0.1650	-
30-May-07	26.72	576.89	11.46	732	2.05	72.2	12.80	7.44	480	0.00117	<0.150	<0.00100	0.1870	-
27-Aug-07	29.45	574.16	10.80	829	7.41	62.8	117.00	7.58	590 J	0.00109	<0.150	<0.00100	0.1160	-
29-Nov-07	26.57	577.04	10.74	899	2.00	81.1	392.00	6.05	490	0.00103	<0.150	<0.00100	0.1260	-
27-Feb-08	21.45	582.16	-	-	-	-	446.00	-	400	0.00109	<0.150	<0.00100	0.1230	-
20-May-08	25.73	577.88	9.48	706	3.07	110.2	419.00	7.26	420 J	0.00121	<0.150	<0.00100	0.0835	-
27-Aug-08	29.84	573.77	9.87	824	4.74	91.5	571.00	7.43	550 J	0.00130	<0.150	<0.00100	0.0929	65.1
26-Sep-08	*Test Trench Drain Line Installed*													
16-Oct-08	29.13	574.48	9.76	820	4.56	53.6	227.00	7.33	520 J	0.00130	<0.150	<0.00100	0.0496	76.3
20-Nov-08	19.48	584.13	9.31	462	5.24	240.1	6.16	7.35	360	0.00176	<0.150	<0.00100	0.0149	67.0
30-Dec-08	16.93	586.68	9.85	480	6.18	66.8	56.10	7.35	390 J	0.00155	<0.150	<0.00100	0.0157	61.5
15-Jan-09	14.46	589.15	7.71	402	7.47	177.8	1.61	7.61	360	0.00157	<0.150	<0.00100	<0.0100	58.5
12-Feb-09	23.84	579.77	9.63	-	8.72	-	74.90	7.54	390	0.00130	<0.150	<0.00100	0.0371 J	48.1
12-Mar-09	25.15	578.46	9.11	454	7.22	163.7	573.00	7.19	400	0.00117	<0.150	<0.00100	0.0135	43.1
16-Apr-09	17.72	585.89	8.40	417	8.27	126.4	128.00	7.26	400	0.00140	<0.150	<0.00100	0.0107	48.8
19-May-09	24.38	579.23	8.80	448	6.88	72.0	178.00	7.95	410 J	0.00110	<0.150	<0.00100	<0.0100	44.0
23-Jun-09	27.85	575.76	8.95	507	7.76	61.9	256.00	8.07	490	<0.00200	<0.200	<0.00200	<0.0200	39.0
25-Aug-09	30.68	572.93	10.50	707	6.94**	307.4	4.38	7.17	530 J+	<0.00200	0.091 J	0.00018 J	0.0300	49.0
23-Sep-09	30.84	572.77	11.20	661	5.41	374.7	15.00	7.28	500	<0.00200	<0.200	<0.00200	0.0041 J	51.0
15-Dec-09	22.10	581.51	9.50	720	5.10	579.0	39.00	6.92	380	<0.00200	<0.200	<0.00200	<0.0200	42.0
24-Mar-10	23.82	579.79	10.00	602	4.10	535.3	43.30	6.93	370	0.00170 J	0.062 J	<0.00200	<0.0200 U	39.0
17-Jun-10	17.45	586.16	9.30	547	4.06	-	157.00	6.57	350	0.00390	0.063 J	<0.00200	0.0030 J	39.0
22-Sep-10	29.66	573.95	10.20	722	5.77	360.2	7.20	7.22	450	0.00330	<0.200	<0.00200	<0.0200	55.0
8-Dec-10	22.10	581.51	9.90	566	6.69	-	64.60	7.09	350	<0.00200	<0.200	<0.00200	0.0018 J	35.0
29-Mar-11	19.94	583.67	8.40	251	6.95	620.0	28.00	7.13	250 J	0.00140 J	<0.200	<0.00200	0.0030 J	30.0
21-Jun-11	24.25	579.36	9.90	628	5.23	344.3	37.00	7.29	410 J	<0.00500	<0.200	<0.00200	0.0056 J	28.0
28-Sep-11	30.41	573.20	9.50	58	6.54	481.7	13.80	7.24	500	<0.00500	<0.200	<0.00200	<0.0200	54.0
14-Dec-11	25.35	578.26	9.30	441	3.86	346.5	386.00	7.26	440	<0.00500	<0.200	<0.00200	0.0037 J	29.0
20-Mar-12	15.45	588.16	7.70	580	1.53	382.0	32.30	7.40	280	0.00220	0.200	<0.00040	<0.0200	26.0

Table A-2b: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-2A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Jun-12	23.88	579.73	9.00	590	1.85	388.1	55.70	7.74	320	0.00250	<0.200	<0.00040	<0.0200	23.0
19-Sep-12	30.18	573.43	11.10	695	7.03	297.0	9.31	7.41	420	0.00270	<0.200	<0.00040	<0.0200	42.0
19-Dec-12	17.24	586.37	9.40	704	6.33	317.0	55.20	7.40	310	0.00170	<0.200	<0.00040	<0.0200	25.0
25-Feb-13	23.12	580.49	9.10	585	6.04	339.0	110.00	7.46	370	0.00250	<0.500	<0.00040	<0.0200	24.0
22-May-13	25.05	578.56	8.60	537	8.41	391.5	12.30	7.51	310	0.00190	<0.500	<0.00040	<0.0200	22.0
21-Aug-13	30.75	572.86	10.60	684	8.42	150.2	5.85	7.74	419	0.00150	<0.050	0.00020	0.0020	27.7
20-Nov-13	23.51	580.10	9.60	513	6.19	230.4	32.10	6.81	364	0.00130	<0.050	<0.00010	0.0010	27.5
1-Apr-14	17.11	586.50	8.50	386	7.32	243.1	14.60	7.46	294	0.00140	0.009 J	<0.00010	<0.0005	31.7
21-May-14	22.07	581.54	9.10	365	6.02	212.7	-	6.93	273	0.00130	<0.050	<0.00010	<0.0010	24.7
12-Aug-14	31.32	572.29	13.16	552	6.56	76.7	6.80	7.36	394	0.00150	<0.050	<0.00010	<0.0010	25.3
13-Nov-14	25.48	578.13	12.30	460	7.22	189.8	7.20	7.19	367	0.00140	<0.050	<0.00010	0.0010	25.5
11-Feb-15	16.83	586.78	9.30	447	6.76	134.4	36.60	7.52	286	0.00170	0.026 J	<0.00010	0.0007 J	30.4
4-May-15	25.78	577.83	10.20	619	6.27	407.1	7.70	7.36	382	0.00140	<0.050	<0.00010	0.0004 J	25.2
6-Aug-15	31.87	571.74	11.30	500	9.18	207.1	28.10	7.23	394	0.00150	<0.050	<0.00010	0.0030	22.0
4-Nov-15	26.74	576.87	9.90	481	8.76	222.6	16.80	6.88	381	0.00110	<0.050	<0.00010	0.0190	21.8
10-Feb-16	19.19	584.42	9.00	376	7.35	206.0	40.20	7.68	261	0.00360	0.0140 J	<0.00010	0.0040	37.1
2-May-16	26.14	577.47	11.30	552	3.19	194.5	87.80	7.35	344	0.00210	0.0045 J	0.00001 J-	0.0020	31.2
23-Aug-16	31.64	571.97	10.50	545	7.62	486.5	10.80	7.18	412	0.00154	<0.050	<0.00010	0.0011	32.6
2-Nov-16	25.12	578.49	10.20	220	4.01	238.9	245.00	7.19	431	0.00140	<0.050	<0.00010	0.0015	30.6
1-Feb-17	22.84	580.77	9.10	580	5.06	186.3	13.60	7.35	317	0.00317	0.010 J	<0.00010	<0.0010	51.1
30-May-17	22.31	581.30	9.40	520	7.01	5.0	40.20	7.18	322	0.00178	0.010 J	<0.00010	<0.0010	34.1
17-Aug-17	30.08	573.53	10.60	626	5.63	134.2	32.30	7.21	370	0.00128	0.014 J	<0.00010	0.0009 J	28.9
9-Nov-17	26.04	577.57	9.80	480	5.79	74.4	68.80	7.00	391	0.00139	<0.05	<0.0001	0.0005 J	25.4
27-Feb-18	19.03	584.58	8.80	293	7.43	185.2	15.10	6.90	254	0.00398	<0.05	<0.0001	<0.001	41.9
1-May-18	20.84	582.77	9.10	531	7.46	-	25.00	7.35	316	0.00300	0.0216 J	<0.00010 J	0.0018	40.6
21-Aug-18	31.09	572.52	10.39	437	7.33	115.2	19.10	7.04	358	0.00148	0.05 U	<0.0001	0.0011	26.9
6-Nov-18	28.00	575.61	9.70	420	8.17	210.3	6.74	6.97	418	0.00130	<0.05	<0.0001	<0.001	23.4
11-Mar-19	21.61	582.00	9.00	351	9.20	187.1	20.60	7.11	312	0.00157	0.0057 J	<0.0001	0.0012	32.7
8-May-19	23.88	579.73	9.80	443	8.05	109.6	7.79	7.06	316	0.00166	0.005 J	<0.0001	0.0005 J	32.9
26-Aug-19	30.90	572.71	10.91	495	8.65	Note 1	12.70	6.91	394	0.00128	<0.05	<0.0001	0.0004 J	21.1
13-Nov-19	28.91	574.70	9.80	506	7.81	180.4	14.40	6.87	429	0.00134	0.0031 J	<0.0001	<0.001	22.9
12-Feb-20	14.21	589.40	8.10	319	9.95	189.3	14.60	7.27	277	0.00195	0.0093 J	0.0001 U	0.001 U	56.3
12-Aug-20	30.41	573.20	9.50	463	6.60	185.5	72.90	7.03	359	0.00120	0.0151 J	0.0001 U	0.0013	22.4
9-Dec-20	25.91	577.70	9.40	533	6.44	213.0	9.96	6.97	400	0.00138	0.255 J	0.00049 J	0.0149	26.8
3-Mar-21	20.83	582.78	8.90	330	5.24	216.5	12.40	7.18	268	0.00180	0.340	0.00022	0.0126	61.1
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 603.61
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available		
<	Analyte not detected above the reporting limit shown		
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date		
**	Dissolved Oxygen meter working incorrectly at the time of sample collection		
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest		
b	Site background arsenic value to be determined (TBD)		
U	Data validation code; not detected at the Reporting Limit (RL)		
J	Data validation code; estimated value		
J+	Data validation code; estimated value with positive bias		
°C	Degrees Celsius		
Note 1	ORP measurements not available due to faulty sensor.		
µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-2c: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-3A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	6.09	679.42	13.80	1124	-	-	30.30	6.96	922	0.00241	<0.100	<0.00200	0.6280	-
10-Nov-05	5.50	680.01	10.80	1518	-	-	2.32	6.88	960	0.01050	4.800	<0.00100	3.6000	-
15-Feb-06	5.31	680.20	9.52	1357	0.46	217.4	58.20	6.33	930 J	0.00666	4.290	<0.00100	2.8500	-
16-May-06	6.25	679.26	10.40	1296	0.96	91.0	11.40	6.91	910	0.01010	6.560	<0.00100	3.3800	-
22-Aug-06	8.85	676.66	12.84	1362	1.28	-64.8	56.00	6.97	900	0.01210	7.060	<0.00100	2.8500	-
13-Nov-06	5.03	680.48	11.24	1392	2.12	-74.4	234.00	6.89	910	0.00573	4.750	<0.00100	2.6900	-
16-Feb-07	5.55	679.96	8.99	1155	0.75	-71.3	12.30	6.96	770	0.00374	3.770 J	<0.00100	2.6100 J	-
30-May-07	6.72	678.79	11.86	1297	0.75	-25.2	12.50	7.04	790	0.00520	5.840	<0.00100	2.2200	-
27-Aug-07	8.38	677.13	12.65	1483	0.71	-96.3	15.30	6.73	1100 J	0.00874	9.160	<0.00100	2.3200	-
28-Nov-07	5.66	679.85	10.47	1363	1.05	-72.9	26.90	7.31	730	0.00424	5.460	<0.00100	2.2700	-
27-Feb-08	5.57	679.94	-	-	-	-	121.00	-	860	0.00976	5.990	<0.00100	2.4900	-
19-May-08	5.94	679.57	9.39	1346	0.66	-52.6	20.00	6.93	820 J	0.00664	8.740	<0.00100	2.3300	-
26-Aug-08	6.44	679.07	12.15	1495	0.85	-53.6	5.85	6.88	820	0.00342	2.610	<0.00100	1.5300	30.3
18-Nov-08	5.50	680.01	10.50	975	1.87	-67.4	225.00	6.93	880 J	0.00748	10.100	<0.00100	2.2900	62.5
11-Feb-09	5.62	679.89	7.67	877	0.98	-	68.00	7.28	810	0.00520	5.710	<0.00100	2.2700	50.6
19-May-09	5.60	679.91	8.52	847	0.91	-63.4	52.00	8.21	750 J	0.00251	<0.150	<0.00100	2.2000	49.5
22-Sep-09	8.36	677.15	15.70	1149	0.10	132.1	75.10	7.05	910	0.00660	5.200	<0.00200	1.8000	53.0
17-Dec-09	4.59	680.92	8.90	1300	0.40	194.0	401.00	7.08	710	<0.00200	0.740	<0.00200	2.2000	62.0
24-Mar-10	5.40	680.11	11.20	1010	0.12	-	226.00	6.76	800	0.00380	4.400	<0.00200	2.1000	46.0
16-Jun-10	5.27	680.24	10.10	1123	0.20	188.0	6.19	8.43	570	0.01300	6.400	<0.00200	1.9000	49.0
21-Sep-10	6.01	679.50	12.70	1314	0.19	177.7	2.97	6.91	1,000	0.00620	2.800	0.00019 J	1.3000	160.0
7-Dec-10	5.23	680.28	9.70	1183	0.23	182.7	25.30	6.86	840	0.00320	4.100	<0.00200	1.9000	82.0
30-Mar-11	5.04	680.47	8.30	498	0.28	174.0	4.93	7.89	700	0.00360	3.700	<0.00200	1.4000	36.0
22-Jun-11	6.77	678.74	9.70	895	0.43	172.2	9.18	7.01	700 J	<0.00500	5.100	<0.00200	1.5000	34.0
28-Sep-11	7.83	677.68	12.60	99	0.18	141.8	6.07	6.83	840	0.00880	7.700	<0.00200	2.7000	83.0
15-Dec-11	5.40	680.11	9.00	785	0.60	179.8	24.40	6.98	760	0.00450 J	2.400	<0.0020	1.9000	73.0
20-Mar-12	4.96	680.55	7.10	1092	0.16	22.6	12.10	7.11	470	0.00520	2.300	<0.0020	1.6000	73.0
19-Jun-12	6.76	678.75	10.30	1077	0.11	198.6	11.30	7.07	660	0.01200	8.500	<0.0004	1.8000	78.0
20-Sep-12	8.67	676.84	12.30	1235	0.15	111.0	1.96	6.99	710	0.01100	7.500	0.00005 J	2.1000	100.0
18-Dec-12	4.98	680.53	8.70	1450	0.30	-40.6	18.70	7.25	740	0.00480	1.800	<0.00040	1.6000	150.0
26-Feb-13	5.25	680.26	7.80	1211	0.15	186.6	27.80	7.21	740	0.00470	3.100	<0.00040	2.0000	98.0
23-May-13	6.56	678.95	9.90	1000	0.18	242.3	16.90	7.21	460	0.01400	5.100	0.00280	0.9100	150.0
21-Aug-13	9.01	676.50	12.10	917	0.12	-14.2	1.24	7.27	772	0.00760	5.210	0.00005 J	1.8100	94.0
19-Nov-13	6.09	679.42	9.90	697	0.07	61.8	2.93	6.77	852	0.01230	9.660	0.00020	1.5300	169.0
1-Apr-14	5.75	679.76	9.00	722	0.10	131.3	4.47	7.07	624	0.01050	11.100	0.00006 J	1.7600	104.0
22-May-14	5.80	679.71	9.80	580	1.08	185.3	-	6.85	494	0.00520	4.170	0.00010	1.4300	66.5
13-Aug-14	8.54	676.97	11.48	915	2.85	-67.6	8.16	7.09	740	0.00690	5.140	<0.00010	1.5100	116.0
12-Nov-14	5.97	679.54	11.10	314	2.79	-85.1	15.30	6.87	744	0.00690	3.400	<0.00010	2.0000	89.1
12-Feb-15	5.50	680.01	9.80	980	0.52	-54.5	1.28	7.04	696	0.00420	3.570	<0.00010	2.1900	73.2
4-May-15	5.80	679.71	10.80	994	0.17	143.4	15.40	7.12	701	0.00930	7.970	<0.00010	1.8800	100.0
5-Aug-15	10.12	675.39	12.60	881	0.13	-90.4	0.89	7.07	724	0.00730	5.000	<0.00010	2.0000	70.3
3-Nov-15	5.30	680.21	12.00	865	1.23	105.5	5.06	6.97	1020	0.00170	0.180	0.00020	0.6750	195.0
9-Feb-16	5.14	680.37	9.10	954	0.55	154.6	4.82	7.03	625	0.00340	3.000	<0.00010	1.8700	92.7
2-May-16	4.74	680.77	11.30	844	0.19	96.8	2.21	7.16	621	0.01050	7.310	0.00004 J-	1.7200	105.0
23-Aug-16	9.04	676.47	13.20	946	0.03	156.2	3.48	6.97	924	0.00819	6.780	0.00009 J	1.7000	148.0
1-Nov-16	6.18	679.33	11.90	349	0.15	18.5	2.43	7.11	744	0.00263	0.730	<0.00010	0.8630	180.0
1-Feb-17	5.91	679.60	7.50	1114	0.17	-67.4	6.05	7.08	694	0.00640	4.810	<0.00010	1.9200	100.0
30-May-17	7.40	678.11	10.40	753	2.20	8.6	3.28	7.12	465	0.00952	5.240	<0.00010	1.3800	89.3
17-Aug-17	9.71	675.80	12.40	1101	0.25	-60.2	3.39	7.01	737	0.00847	5.730	<0.00010	2.1700	72.0
9-Nov-17	6.06	679.45	9.60	833	0.64	75.3	2.01	7.08	748	0.00184	<0.05	<0.0001	0.5540	191.0

Table A-2c: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-3A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
27-Feb-18	5.16	680.35	7.60	791	0.21	-75.4	9.52	6.64	506	0.00297	1.410	<0.0001	1.3800	92.0
1-May-18	5.41	680.10	10.00	847	0.93	-	5.82	7.36	547	0.00381	0.961	<0.00010 J	0.8960	120.0
21-Aug-18	10.81	674.70	14.54	909	2.96	-17.2	1.67	6.92	722	0.00648	2.610	<0.0001	2.0700	101.0
7-Nov-18	5.85	679.66	11.20	931	0.66	179.0	0.87	6.97	828	0.00203	<0.05	0.000073 J	0.2780	202 J+
11-Mar-19	5.26	680.25	6.10	478	1.25	53.7	2.39	7.34	486	0.00144	0.051	<0.0001	0.3490	125.0
9-May-19	5.44	680.07	10.20	678	3.72	-9.4	1.85	7.04	574	0.00302	0.274	0.000083 J	0.5940	143.0
26-Aug-19	9.30	676.21	13.96	1041	0.60	Note 1	0.02	6.83	843	0.00615	2.160	<0.0001	2.3600	142.0
13-Nov-19	5.58	679.93	9.40	803	0.31	12.8	0.02	6.97	724	0.00220	0.132	0.000077 J	0.4760	174.0
12-Feb-20	5.10	680.41	7.80	349	0.37	-62.4	1.40	7.25	287	0.00186	0.257	0.0001 U	0.4760	74.2
13-Aug-20	9.33	676.18	11.80	884	0.64	-81.6	4.28	6.76	683	0.01090	3.290	0.0001 U	2.1600	119.0
10-Dec-20	5.08	680.43	8.50	688	3.06	210.0	0.90	7.29	566	0.00236	0.070	0.00016	0.2920	128.0
4-Mar-21	5.26	680.25	7.00	364	0.59	47	1.54	7.42	319	0.00152	0.121	0.00013	0.3710	74.2
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 685.51
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available		
<	Analyte not detected above the reporting limit shown		
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date		
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest		
b	Site background arsenic value to be determined (TBD)		
U	Data validation code; not detected at the Reporting Limit (RL)		
J	Data validation code; estimated value		
J+	Data validation code; estimated value with positive bias		
°C	Degrees Celsius		
Note 1	ORP measurements not available due to faulty sensor.		
µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-2d: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-4A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	4.60	697.25	12.43	629	-	-	6.07	6.45	490	<0.00200	<0.100	<0.00200	0.4260	-
10-Nov-05	3.70	698.15	11.98	441	-	-	7.40	6.22	290	<0.00100	<0.150	<0.00100	0.0991	-
19-Jan-06	3.56	698.29	8.29	319	0.42	-	1.46	6.53	290 J	<0.00100	<0.150	<0.00100	0.0908	-
15-Feb-06	3.82	698.03	8.32	326	0.62	99.7	3.50	7.39	220 J	<0.00100	<0.150	<0.00100	0.0341	-
15-Mar-06	3.79	698.06	7.58	254	0.87	201.9	0.82	6.65	210 J	<0.00100	<0.150	<0.00100	0.0650	-
7-Apr-06	3.87	697.98	9.36	295	0.55	157.4	0.24	6.34	220	<0.00100	<0.150	<0.00100	0.0724	-
16-May-06	4.92	696.93	10.80	321	0.45	142.1	0.99	6.36	220	<0.00100	<0.150	<0.00100	0.0376	-
23-Jun-06	4.41	697.44	12.62	316	0.57	-	2.05	6.25	200	<0.00100	<0.150	0.00264	0.0638	-
20-Jul-06	6.90	694.95	13.43	347	0.23	-20.9	0.32	6.11	120	<0.00100	<0.150	<0.00100	0.1040	-
22-Aug-06	8.46	693.39	13.68	406	0.90	153.5	2.20	6.13	280	<0.00100	<0.150	<0.00100	0.1510	-
26-Sep-06	6.50	695.35	14.59	417	2.47	-35.2	2.42	6.33	290	<0.00100	<0.150	<0.00100	0.0835	-
26-Oct-06	5.98	695.87	12.82	434	3.30	124.1	0.82	6.12	320	<0.00100	<0.150	<0.00100	0.2160	-
13-Nov-06	3.02	698.83	11.70	386	5.06	187.8	2.47	6.13	280	<0.00100	<0.150	<0.00100	0.0442	-
20-Dec-06	3.60	698.25	9.64	379	4.30	150.5	1.03	6.07	250	<0.00100	<0.150	<0.00100	0.0568	-
23-Jan-07	3.68	698.17	8.37	239	3.96	58.9	0.66	6.28	220	<0.00100	<0.150	<0.00100	0.1800	-
14-Feb-07	3.74	698.11	8.18	325	2.85	110.8	0.53	6.25	210	<0.00100	<0.150	<0.00100	0.0398	-
27-Mar-07	3.32	698.53	8.27	289	2.07	61.5	0.88	6.83	210 J	<0.00100	<0.150	<0.00100	0.2290	-
17-Apr-07	3.89	697.96	9.59	306	1.80	102.3	2.31	6.34	190	<0.00100	<0.150	<0.00100	0.2220	-
30-May-07	4.70	697.15	11.27	285	1.78	101.7	1.37	6.37	180	<0.00100	<0.150	<0.00100	0.0246	-
20-Jun-07	4.69	697.16	12.37	350	1.67	9.3	1.25	6.90	240 J	<0.00100	<0.150	<0.00100	0.0321	-
31-Jul-07	6.38	695.47	14.57	402	1.15	5.5	0.60	6.37	250	0.00129	<0.150	<0.00100	0.0307	-
29-Aug-07	7.44	694.41	13.78	353	1.11	128.3	1.87	6.18	280 J	<0.00100	<0.150	<0.00100	0.0490	-
27-Sep-07	8.25	693.60	13.60	375	0.96	142.6	0.70	6.70	300	<0.00100	<0.150	<0.00100	0.1170	-
26-Oct-07	4.09	697.76	12.16	343	2.27	75.9	3.93	6.10	310 J	<0.00100	<0.150	<0.00100	0.0117	-
29-Nov-07	3.93	697.92	10.13	428	3.17	197.3	1.63	6.32	270	<0.00100	<0.150	<0.00100	0.0164	-
12-Dec-07	5.82	696.03	9.51	384	3.37	185.0	0.80	6.06	260	<0.00100	<0.150	<0.00100	0.0392	-
24-Jan-08	3.86	697.99	7.74	354	3.09	109.0	-	6.35	250	<0.00100	<0.150	<0.00100	0.0376	-
28-Feb-08	4.04	697.81	-	-	-	-	1.06	-	220	<0.00100	<0.150	<0.00100	0.0275	-
19-May-08	4.35	697.50	9.79	329	1.38	209.2	1.20	6.08	200 J	<0.00100	<0.150	<0.00100	0.0191	-
26-Aug-08	7.83	694.02	12.66	431	1.38	210.5	0.28	6.19	270	<0.00100	<0.150	<0.00100	0.0493	<3.0
18-Nov-08	3.64	698.21	10.43	235	3.95	217.5	0.66	6.03	210	<0.00100	<0.150	<0.00100	0.0208	<3.0
11-Feb-09	4.09	697.76	7.24	188	2.13	-	0.12	6.54	180	<0.00100	<0.150	<0.00100	0.0180	<3.0
19-May-09	3.79	698.06	8.19	173	1.28	111.9	1.78	7.18	170 J	<0.00100	<0.150	<0.00100	0.0163	<3.0
22-Sep-09	9.70	692.15	16.50	440	0.82	383.3	12.50	6.31	370 J	<0.00200	<0.200	<0.00200	0.0700	1.2 J
17-Dec-09	3.47	698.38	9.20	311	4.37	470.0	16.00	6.25	110	<0.00200	<0.200	<0.00200	0.0200 J	0.7 J
24-Mar-10	3.87	697.98	9.40	410	0.34	204.8	30.70	6.65	240	0.00081 J	<0.200	<0.00200	0.1700	1.3 J
16-Jun-10	3.77	698.08	10.30	298	0.99	397.8	1.11	7.40	180	0.00360	0.049 J	<0.00200	0.0320	0.9 J
21-Sep-10	5.82	696.03	13.70	350	1.01	302.5	1.04	6.25	200	0.00140 J	<0.200	0.0002 J	<0.0200	1.2 J
7-Dec-10	3.83	698.02	9.60	283	0.72	405.6	0.42	6.16	190	<0.00200	<0.200	<0.00200	0.0090 J	0.8 J
30-Mar-11	3.91	697.94	8.20	133	0.51	248.2	0.29	9.87	140 J	0.00035 J	<0.200	<0.00200	0.0091 J	5.0
22-Jun-11	3.99	697.86	11.00	219	0.16	222.5	0.22	6.13	160	<0.00500	0.180 J	<0.00200	0.1900	0.7 J
28-Sep-11	8.54	693.31	14.30	35	0.26	333.9	2.45	6.30	270	<0.00500	0.110 J	<0.00200	0.1300	2.1 J
15-Dec-11	4.12	697.73	9.40	217	1.15	414.3	2.74	6.28	200	<0.00500	<0.200	<0.00200	0.0170 J	1.2 J
21-Mar-12	3.35	698.50	8.40	346	0.42	438.4	0.48	6.14	220	0.00480	<0.200	<0.00040	0.0280	1.3 J
19-Jun-12	3.78	698.07	11.30	290	0.09	314.0	0.46	6.28	170 J+	0.00130	<0.200	<0.00040	0.0710	<3.3
20-Sep-12	8.53	693.32	14.40	419	0.26	309.0	1.07	6.39	240	0.00160	0.085 J	<0.00040	0.1300	2.9 J
18-Dec-12	3.49	698.36	9.10	491	2.56	264.4	1.38	6.63	170	<0.00100	<0.200	<0.00040	0.0480	1.2 J
26-Feb-13	3.91	697.94	8.40	324	2.59	404.2	1.01	7.03	140	0.00110	<0.500	<0.00040	0.0079 J	3.4
23-May-13	3.76	698.09	10.60	338	1.15	465.9	0.57	6.31	190	<0.00100	<0.500	<0.00040	0.0060 J	<3.3
22-Aug-13	8.28	693.57	13.10	284	0.33	32.2	0.89	6.34	220	0.00040	<0.050	<0.00010	0.0320	1.3
19-Nov-13	3.33	698.52	10.30	323	1.70	109.2	0.64	6.27	200	0.00020	<0.050	<0.00010	0.0070	0.8
1-Apr-14	3.69	698.16	8.20	244	0.45	180.7	0.28	6.33	173	0.00018 J	<0.050	<0.00010	0.0050 J+	0.7
22-May-14	4.52	697.33	10.80	195	0.65	75.0	-	7.20	152	0.00030	<0.050	0.00010	0.0240	0.6
13-Aug-14	7.56	694.29	12.62	269	0.44	37.7	1.12	5.89	181	0.00080	0.200	<0.00010	0.0930	0.9
12-Nov-14	3.73	698.12	11.70	231	1.29	108.2	1.32	6.17	191	0.00030	<0.050	<0.00010	0.0450	1.0
11-Feb-15	3.50	698.35	9.20	270	0.53	-34.2	0.73	6.30	170	0.00020	0.021 J	<0.00010	0.0160	0.7
4-May-15	4.69	697.16	10.90	250	0.28	378.1	0.57	6.29	341	0.00020	0.012 J	<0.00010	0.0790	0.6
5-Aug-15	9.44	692.41	13.90	316	0.72	-38.1	1.16	6.45	262	0.00030	<0.050	<0.00010	0.0150	1.2
3-Nov-15	4.21	697.64	11.80	192	8.59	205.6	5.39	6.34	166	0.00020 J	<0.050	<0.00010	0.0008 J	0.8

Table A-2d: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-4A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
9-Feb-16	3.82	698.03	9.20	292	4.61	230.7	0.49	6.45	164	0.00017 J	<0.050	<0.00010	0.0050	0.8
3-May-16	4.61	697.24	10.90	310	2.39	253.0	1.01	6.34	178	0.00030	<0.050	0.00001 J-	0.0020	0.9
24-Aug-16	8.76	693.09	13.20	287	1.24	490.4	1.01	6.35	177	0.00020 J	<0.050	<0.00010	0.0093	0.8
1-Nov-16	3.34	698.51	12.20	100	3.69	177.2	0.40	6.38	205	0.00019 J	<0.050	<0.00010	0.0062	1.0
2-Feb-17	3.94	697.91	7.80	363	3.11	190.0	0.10	6.39	223	0.00017 J	<0.050	<0.00010	0.0080	0.8
31-May-17	4.68	697.17	10.30	300	4.50	-	2.48	6.30	182	0.00020	<0.050	<0.00010	0.0145	0.8
18-Aug-17	8.61	693.24	12.70	393	0.51	120.2	0.87	6.44	228	0.00031	0.096	<0.00010	0.0516	1.3
10-Nov-17	3.58	698.27	11.00	264	3.88	56.5	0.76	6.01	217	0.000186 J	<0.05	<0.0001	0.0054	0.7
27-Feb-18	3.76	698.09	8.30	302	3.19	221.1	0.55	6.29	238	0.000176 J	<0.05	<0.0001	0.0045	0.9
2-May-18	4.02	697.83	10.00	343	3.02	-	0.59	6.36	215	0.00015 J	0.0026 J	<0.00010 J	0.0045	1.0
22-Aug-18	9.35	692.50	12.17	330	1.99	142.0	2.31	6.27	265	0.00032	0.05 U	<0.0001	0.0310	1.2
7-Nov-18	5.25	696.60	11.70	317	5.45	124.4	0.76	6.23	250	0.000199 J	<0.05	<0.0001	0.0007 J	0.8
11-Mar-19	3.96	697.89	7.60	226	3.96	220.8	0.70	6.38	233	0.000146 J	<0.05	<0.0001	0.0034	0.9
9-May-19	4.70	697.15	12.50	283	3.60	82.3	1.56	6.14	230	0.000154 J	0.007 J	<0.0001	0.0041	0.8
26-Aug-19	8.20	693.65	13.13	374	0.86	Note 1	0.02	6.30	264	0.00030	0.0324 J	<0.0001	0.0547	0.9
14-Nov-19	4.35	697.50	10.80	309	3.19	109.5	0.02	6.15	240	0.00025	0.082	<0.0001	0.0723	0.9
13-Feb-20	3.70	698.15	7.90	284	2.98	102.2	0.91	6.18	283	0.000176 J	0.067	0.0001 U	0.0723	0.9
13-Aug-20	7.73	694.12	13.50	334	0.62	58.3	0.51	6.19	238	0.00071	0.248	0.0001 U	0.1710	0.9
10-Dec-20	3.45	698.40	9.80	364	6.11	169.0	1.56	6.51	297	0.00030	0.159	0.0001 U	0.0511	1.3
4-Mar-21	3.72	698.13	8.30	304	2.83	137	0.49	6.47	255	0.000192 J	0.055	0.0001 U	0.0274	0.9
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 701.85
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available		
<	Analyte not detected above the reporting limit shown		
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date		
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest		
b	Site background arsenic value to be determined (TBD)		
U	Data validation code; not detected at the Reporting Limit (RL)		
J	Data validation code; estimated value		
J+	Data validation code; estimated value with positive bias		
°C	Degrees Celsius		
Note 1	ORP measurements not available due to faulty sensor.		
µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-2e: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-5A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	33.33	574.28	12.02	956	-	-	496.00	7.34	600	0.00201	<0.100	<0.00200	1.1300	-
10-Nov-05	29.62	577.99	11.24	1,212	-	-	27.60	7.32	800	0.00840	<0.150	<0.00100	0.0183	-
15-Feb-06	21.70	585.91	6.45	665	2.59	280.3	11.10	7.86	520 J	0.02230	0.256	<0.00100	0.0169	-
17-May-06	29.80	577.81	7.74	831	0.88	101.9	8.67	7.79	580	0.01100	<0.150	<0.00100	0.0207	-
23-Aug-06	33.25	574.36	15.19	737	1.76	33.5	19.60	7.32	660	0.00253	<0.150	<0.00100	0.5820	-
14-Nov-06	17.79	589.82	10.86	699	4.50	76.3	38.70	7.55	490	0.00315	<0.150	<0.00100	0.0134	-
16-Feb-07	27.08	580.53	8.08	630	6.07	2.3	57.60	8.26	500	0.01440	<0.150 UJ	<0.00100	0.016 J	-
30-May-07	30.75	576.86	9.60	894	2.59	13.3	13.40	7.76	540	0.00843	<0.150	<0.00100	<0.0100	-
29-Aug-07	33.60	574.01	9.56	684	7.64	67.0	-	7.10	670 J	0.00197	<0.150	<0.00100	0.4540	-
29-Nov-07	30.60	577.01	11.00	1075	3.53	151.5	23.50	8.37	560	0.00517	<0.150	<0.00100	<0.0100	-
27-Feb-08	25.68	581.93	-	-	-	-	29.90	-	400	0.01070	<0.150	<0.00100	<0.0100	-
20-May-08	29.73	577.88	7.93	768	4.27	180.7	77.80	7.39	480 J	0.00567	<0.150	<0.00100	0.0124	-
27-Aug-08	33.97	573.64	10.17	862	4.07	81.2	-	7.43	540 J	0.00117	<0.150	<0.00100	0.0644	87.5
26-Sep-08	*Test Trench Drain Line Installed*													
16-Oct-08	33.55	574.06	8.89	845	5.39	86.3	852.00	7.53	440 J	0.00103	<0.150	<0.00100	0.0578	90.7
20-Nov-08	23.48	584.13	9.34	577	5.27	234.3	9.48	7.50	470	0.00624	<0.150	<0.00200	0.0121	138.0
30-Dec-08	20.88	586.73	8.39	510	8.89	99.0	44.80	8.02	430 J	0.01420	0.202	0.00111	0.0251	138.0
15-Jan-09	18.50	589.11	4.97	347	8.90	154.8	17.20	8.47	380	0.02440	0.172	<0.00100	0.0238 J	104.0
12-Feb-09	27.90	579.71	8.47	-	10.21	-	22.00	7.60	420 J	0.00611	<0.150	<0.00100	<0.0100	99.0
12-Mar-09	29.19	578.42	7.47	521	6.15	171.7	26.80	7.39	480	0.00897	<0.150	<0.00100	<0.0100	124.0
16-Apr-09	21.70	585.91	6.99	456	7.60	151.6	72.70	8.66	470	0.02820	0.162	0.00101	0.0135	126.0
19-May-09	28.37	579.24	8.08	509	6.38	64.4	31.30	8.07	450 J	0.00919	<0.150	<0.00100	<0.0100	105.0
23-Jun-09	31.95	575.66	8.84	551	5.97	69.1	74.30	8.28	500	0.00430	<0.200	<0.00200	<0.0200	71.0
25-Aug-09	35.08	572.53	-	-	-	-	-	-	-	-	-	-	-	-
24-Sep-09	35.29	572.32	11.70	714	2.28	371.9	258.00	7.26	550 J	0.00076 J	0.180 J	0.00017 J	0.1200	88.0
15-Dec-09	26.11	581.50	8.60	928	2.89	544.0	89.00	7.14	450	0.00110 J	<0.200	<0.00200	0.0024 J	110.0
24-Mar-10	27.86	579.75	8.30	697	3.52	505.1	18.10	7.47	450	0.02300	0.160 J	0.00046 J	0.0280	110.0
16-Jun-10	21.35	586.26	10.70	783	2.07	379.0	41.40	7.73	340	0.05300	0.760	0.00210	0.0300	150.0
22-Sep-10	33.88	573.73	10.40	938	4.30	467.1	7.93	7.10	620	0.00500	<0.200	<0.00200	0.0770 J+	100.0
7-Dec-10	25.22	582.39	10.20	781	3.86	353.7	11.10	7.39	500	0.01200	0.094 J	0.00053 J	0.011 J	130.0
29-Mar-11	23.59	584.02	7.00	354	3.47	708.0	22.22	9.52	440 J	0.06300	0.650 J+	0.00140 J	0.0250	140.0
21-Jun-11	28.33	579.28	11.60	1000	2.22	285.3	10.60	9.06	1100 J	0.04300	0.420	0.00120 J	0.0230	180.0
27-Sep-11	34.70	572.91	12.70	641	1.46	307.2	12.80	7.30	680	<0.00500	0.063 J	0.00023 J	0.2800	100.0
14-Dec-11	29.46	578.15	9.50	691	1.95	757.1	9.69	7.35	690	0.00690	<0.200	0.00018 J	0.0019 J	180.0
20-Mar-12	19.50	588.11	6.20	841	3.98	320.2	8.52	8.25	350	0.02600	0.470	0.00100 J	0.0300	140.0

Table A-2e: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-5A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Jun-12	27.91	579.70	10.20	800	3.22	365.9	2.76	7.66	510	0.00870	<0.200	<0.00040	0.0290	120.0
20-Sep-12	34.53	573.08	11.00	859	0.73	387.0	46.80	7.64	530	0.00260	<0.200	<0.00040	0.6300	100.0
19-Dec-12	21.26	586.35	8.90	983	1.73	279.0	778.00	7.71	530	0.01100	0.110 J	0.00062	0.0670	180.0
25-Feb-13	27.19	580.42	7.50	682	7.61	330.5	4.36	7.85	380	0.01300	<0.500	0.00015 J	0.0110 J	74.0
22-May-13	29.09	578.52	8.80	828	3.88	411.4	8.11	8.29	350	0.02500	0.085 J	0.00053	0.0220	100.0
21-Aug-13	35.15	572.46	17.10	1248	3.41	114.2	144.00	7.78	1060	0.00150	0.060	0.00005 J	0.4870	95.0
20-Nov-13	27.45	580.16	10.00	1032	4.13	196.5	31.70	7.18	699	0.01450	0.100	0.00140	0.0080	202.0
1-Apr-14	21.08	586.53	8.40	567	3.04	168.2	15.70	10.24	413	0.06270	0.210	0.00150	0.0140	150.0
21-May-14	26.11	581.50	10.30	670	0.49	198.4	-	7.45	565	0.09500	0.200	0.00160	0.0480	166.0
12-Aug-14	34.56	573.05	14.07	812	3.64	87.7	1519.00	7.51	560	0.00300	0.070	<0.00010	0.1370	107.0
13-Nov-14	29.48	578.13	12.90	1135	3.50	241.7	10.46	7.69	956	0.02080	<0.050	0.00010	0.0020	295.0
11-Feb-15	20.81	586.80	7.70	619	6.17	81.4	18.00	9.63	430	0.03920	0.380	0.00130	0.0110	126.0
4-May-15	29.80	577.81	10.50	924	2.54	361.3	8.70	9.74	623	0.04230	0.110	0.00050	0.0130	192.0
6-Aug-15	36.08	571.53	12.80	781	2.40	129.6	261.00	7.24	Dry	Dry	Dry	Dry	Dry	Dry
4-Nov-15	30.80	576.81	10.70	1234	4.98	205.6	11.80	7.13	1130	0.00660	0.048 J	0.00030	0.0020	318.0
10-Feb-16	23.56	584.05	6.40	602	1.62	197.7	11.90	10.19	451	0.13200	0.190	0.00140	0.0190	148.0
2-May-16	30.19	577.42	11.50	1008	0.80	110.6	9.76	10.14	751	0.17100	0.250	0.00270 J-	0.0480	232.0
23-Aug-16	35.79	571.82	13.10	729	2.00	436.2	51.40	7.20	1010	0.00401	<0.050	<0.00010	0.1820	137.0
2-Nov-16	29.06	578.55	10.90	570	4.98	103.1	32.10	7.55	1180	0.01120	0.185	0.00056	0.0050	372.0
1-Feb-17	26.86	580.75	8.10	992	2.21	99.7	7.19	9.73	632	0.10900	0.089	0.00097	0.0179	194.0
30-May-17	26.86	580.75	10.50	814	6.12	5.8	5.74	9.73	487	0.04250	0.084	0.00036 J+	0.0044	168.0
17-Aug-17	34.23	573.38	11.70	1054	5.43	125.1	5.68	7.65	731	0.00652	0.029 J	<0.00010	0.0604	156.0
10-Nov-17	29.96	577.65	10.00	1077	4.65	85.2	10.50	7.18	953	0.00582	0.069	0.00034	0.0042	308.0
27-Feb-18	23.02	584.59	7.70	584	1.91	120.4	12.60	9.96	530	0.08630	0.143	0.00064	0.0068	174.0
1-May-18	24.85	582.76	9.10	1082	2.16	-	11.80	10.34	682	0.11300	0.214	.000775 J+	0.0222	196.0
21-Aug-18	35.17	572.44	14.83	1095	4.02	131.0	123.00	7.40	936	0.00365	0.05 U	<0.0001	0.8700	214.0
6-Nov-18	32.00	575.61	10.30	1192	5.93	198.1	2.35	7.49	1200	0.00487	<0.05	0.000077 J	<0.001	363 J+
13-Mar-19	25.12	582.49	7.40	695	2.19	189.7	15.80	9.48	632	0.04410	0.091	0.00063	0.0076	200.0
8-May-19	27.89	579.72	10.70	844	4.95	60.5	5.19	9.30	697	0.04190	0.0953 J	0.00068	0.0140	182.0
26-Aug-19	35.02	572.59	11.89	1111	1.52	Note 1	22.90	7.26	995	0.00246	0.0152 J	<0.0001	0.9700	177.0
13-Nov-19	33.00	574.61	9.80	932	5.27	66.1	0.02	7.18	776	0.00389	0.0049 J	<0.0001	0.0006 J	211.0
12-Feb-20	18.23	589.38	7.00	533	7.58	140.4	10.60	8.32	463	0.00631	0.0436 J	0.00015	0.0015	183.0
12-Aug-20	34.50	573.11	11.20	1381	4.00	125.0	2.75	7.52	1250	0.00537	0.012 J	0.0001 U	0.0839	333.0
9-Dec-20	29.90	577.71	9.80	1105	4.51	222.0	8.32	7.29	897	0.00312	0.196	0.00030	0.0064	263.0
3-Mar-21	24.81	582.80	9.20	899	3.04	225	3.09	7.60	792	0.00374	0.100	0.00013	0.0052	247.0
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 607.61
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date
Dry	Well went dry during sampling. Unable to collect sample.
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.

µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-2f: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-6A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
15-Jul-05	30.89	574.46	15.26	735	-	-	303.00	7.60	612	<0.00200	<0.100	<0.00200	0.3490	-
10-Nov-05	27.25	578.10	11.79	700	-	-	13.70	7.51	460	0.00216	<0.150	<0.00100	0.4510	-
15-Feb-06	19.42	585.93	6.17	759	2.00	162.9	9.42	8.27	550 J	0.00754	<0.150	<0.00100	0.6160	-
17-May-06	27.55	577.80	11.99	835	1.31	248.3	4.16	7.46	550	0.01100	<0.150	<0.00100	0.1060	-
23-Aug-06	30.99	574.36	15.92	862	1.60	-26.4	15.50	7.40	810	0.00134	<0.150	<0.00100	0.6820	-
14-Nov-06	15.30	590.05	10.56	712	4.59	84.1	14.50	7.32	500	0.00171	<0.150	<0.00100	0.0163	-
16-Feb-07	24.22	581.13	8.49	581	3.64	38.6	139.00	7.21	420	0.00160	<0.150 UJ	<0.00100	0.1710 J	-
30-May-07	28.50	576.85	13.93	1092	2.72	180.7	210.00	7.40	740	0.01620	<0.150	<0.00100	0.1570	-
29-Aug-07	31.34	574.01	10.15	701	4.48	84.8	662.00	7.80	620 J	0.00141	<0.150	<0.00100	0.3520	-
29-Nov-07	28.32	577.03	11.30	731	6.23	154.0	-	6.26	420	0.00178	<0.150	<0.00100	0.1760	-
27-Feb-08	23.42	581.93	-	-	-	-	-	-	410	0.00147	<0.150	<0.00100	0.0220	-
20-May-08	27.49	577.86	8.14	791	3.93	176.5	-	7.64	540 J	0.00818	0.170	<0.00100	0.0410	-
27-Aug-08	31.72	573.63	9.33	776	4.83	142.0	-	7.32	660 J	0.00186	<0.150	<0.00100	0.2660	109.0
26-Sep-08	*Test Trench Drain Line Installed*													
16-Oct-08	31.29	574.06	9.17	923	4.60	115.4	-	7.13	590 J	0.00185	<0.150	<0.00100	0.0910	106.0
20-Nov-08	21.18	584.17	9.70	578	5.22	249.4	11.70	7.40	460	0.00442	<0.150	<0.00200	0.0202	110.0
30-Dec-08	18.64	586.71	8.45	448	9.27	137.9	75.80	7.89	370 J	0.01190	0.209	0.00114	0.0267	106.0
15-Jan-09	16.23	589.12	6.84	344	9.25	181.9	2.77	7.47	320	0.00488	<0.150	<0.00100	<0.0100	72.9
12-Feb-09	25.64	579.71	7.89	-	10.82	-	71.70	7.70	420	0.01100	0.177	<0.00100	<0.0100	103.0
12-Mar-09	26.92	578.43	7.27	524	8.31	166.7	116.00	7.76	500	0.02350	0.244	<0.00100	0.0167	125.0
16-Apr-09	19.46	585.89	7.33	406	7.57	182.8	91.80	8.33	430	0.02410	0.154	0.00109	0.0244	101.0
19-May-09	26.10	579.25	9.07	554	6.39	65.6	161.00	8.32	550 J	0.01340	<0.150	<0.00100	<0.0100	115.0
23-Jun-09	29.67	575.68	9.51	522	6.05	71.4	-	8.17	540	0.00310	<0.200	<0.00200	0.0630	74.0
25-Aug-09	32.72	572.63	14.80	795	3.25	282.7	22.00	7.28	630 J	0.00075 J	<0.200	<0.00200	0.0330	100.0
24-Sep-09	32.93	572.42	10.60	745	4.02	361.3	29.80	7.27	560 J	0.00028 J	<0.200	<0.00200	0.0068 J	100.0
15-Dec-09	23.87	581.48	9.50	815	4.20	556.0	20.00	7.15	450	<0.00200	<0.200	<0.00200	0.0030 J	120.0
24-Mar-10	25.61	579.74	8.50	704	4.93	205.6	20.50	8.53	490	0.04700	0.370	0.00090 J	<0.0200 U	140.0
16-Jun-10	19.11	586.24	10.40	553	4.79	399.8	13.40	7.22	310	0.01600	0.100 J	<0.00200	0.0036 J	90.0
22-Sep-10	31.61	573.74	11.30	1019	3.89	413.8	20.30	7.10	770	0.00620	<0.200	0.00024 J	<0.0200	130.0
8-Dec-10	23.10	582.25	87.90	751	6.24	437.1	9.55	8.77	520	0.04300	0.220	0.00130 J	0.0100 J	130.0
29-Mar-11	21.32	584.03	7.10	303	4.76	809.4	13.40	9.35	350 J	0.04300	0.400 J+	0.00055 J	0.0110 J	110.0
21-Jun-11	26.04	579.31	11.20	840	3.24	300.2	8.50	8.40	790	0.01800	0.160 J	0.00058 J	0.0092 J	110.0
28-Sep-11	32.43	572.92	10.90	67	3.92	415.6	8.32	7.30	590	<0.00500	0.040 J	0.00019 J	0.0025 J	110.0
14-Dec-11	27.19	578.16	9.00	605	1.56	329.9	21.90	7.89	570	0.01100	0.280	0.00079 J	0.0085 J	150.0
20-Mar-12	17.23	588.12	6.70	639	5.03	362.5	59.90	7.79	200	0.01700	0.091 J	<0.00200	<0.0200	79.0

Table A-2f: Summary of Lower Disposal Area - Shallow/Alluvial Groundwater Sampling Results - Well MW-6A
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Jun-12	25.63	579.72	9.60	681	5.24	373.2	5.94	7.43	430	0.00740	<0.200	<0.00040	<0.0200	76.0
19-Sep-12	32.12	573.23	11.70	786	3.49	290.0	7.36	7.38	460	0.00570	<0.200	<0.00040	<0.0200	81.0
19-Dec-12	19.00	586.35	8.90	977	4.55	308.0	26.90	7.98	440	0.02000	0.490	0.00130	0.0120 J	150.0
25-Feb-13	24.93	580.42	7.10	766	7.59	306.9	6.18	8.20	450	0.03400	0.190 J	0.00073	0.0120 J	120.0
22-May-13	26.84	578.51	9.10	705	3.94	412.9	5.97	9.33	430	0.04300	0.150 J	0.00052	0.0054 J	140.0
21-Aug-13	32.84	572.51	11.20	879	4.54	110.2	8.28	8.28	548	0.00950	<0.050	<0.00010	0.0040	106.0
20-Nov-13	25.21	580.14	11.10	1264	4.69	201.4	30.80	7.55	640	0.02490	0.140	0.00190	0.0130	163.0
1-Apr-14	18.81	586.54	8.40	448	3.50	194.9	14.70	8.87	342	0.01480	0.060	0.00030	0.0040 J+	78.4
21-May-14	23.84	581.51	10.60	122	1.32	199.3	-	8.46	352	0.01800	<0.050	0.00020	0.0330	80.4
13-Aug-14	32.25	573.10	12.46	796	5.77	54.0	8.01	8.68	628	0.01610	<0.050	<0.00010	0.0040	165.0
13-Nov-14	27.21	578.14	13.30	837	4.02	234.3	11.40	8.63	711	0.04410	0.090	0.00040	0.0030	203.0
11-Feb-15	18.54	586.81	8.40	609	1.75	16.0	87.40	9.71	435	0.03620	0.420	0.00100	0.0120	117.0
4-May-15	27.52	577.83	9.90	974	3.27	356.5	12.30	10.14	654	0.04160	0.100	0.00050	0.0070	199.0
6-Aug-15	33.98	571.37	11.70	822	1.77	113.7	4.02	8.83	670	0.01910	<0.050	<0.00010	0.0020	210.0
4-Nov-15	28.51	576.84	11.70	1207	4.85	206.3	21.20	7.48	1090	0.00770	0.100	0.00100	0.0060	370.0
10-Feb-16	20.96	584.39	6.90	712	2.30	145.8	20.10	10.82	575	0.12100	0.190	0.00110	0.0290	173.0
2-May-16	28.91	576.44	10.60	1856	0.19	111.2	15.60	11.53	1010	0.19900	0.220	0.00250 J-	0.0250	347.0
23-Aug-16	33.58	571.77	11.40	1241	0.43	462.0	8.89	9.51	1150	0.03890	0.084	0.00034	0.0049	349.0
2-Nov-16	26.92	578.43	11.60	409	5.05	14.4	40.60	9.15	911	0.02560	0.448	0.00149	0.0133	297.0
1-Feb-17	24.61	580.74	6.20	1757	2.34	72.1	11.70	11.97	880	0.14100	0.037 J	0.00034	0.0026	283.0
30-May-17	24.56	580.79	10.80	1026	2.45	5.7	16.90	10.50	629	0.07280	0.081	0.00052 J+	0.0064	210.0
17-Aug-17	32.04	573.31	13.10	1019	3.94	87.3	42.70	9.36	726	0.02030	0.048 J	0.00015	0.0083	219.0
10-Nov-17	27.72	577.63	11.60	1090	4.17	109.6	38.20	9.12	931	0.02430	0.251	0.00277	0.0161	356.0
27-Feb-18	20.78	584.57	7.00	823	3.99	59.3	12.00	11.29	635	0.09930	0.077	0.00056	0.0045	203.0
1-May-18	22.58	582.77	8.90	1442	3.52	-	17.70	11.49	817	0.11900	0.182	0.000831 J+	0.0085	250.0
21-Aug-18	33.09	572.26	13.18	1153	1.01	139.8	9.68	10.06	989	0.05360	0.10 U	0.00035	0.0102	334.0
6-Nov-18	29.74	575.61	11.10	1719	3.85	218.4	6.49	8.13	1860	0.00304	<0.1	0.00037	0.0007 J	701 J+
13-Mar-19	22.90	582.45	5.80	748	5.04	145.7	32.00	10.55	737	0.03910	0.0479 J	0.00046	0.0045	246.0
8-May-19	25.63	579.72	9.10	936	5.95	75.9	7.60	10.38	747	0.05470	0.142	0.00127	0.0071	246.0
26-Aug-19	32.90	572.45	11.18	1622	0.88	Note 1	6.57	8.97	1510	0.01880	0.0895 J	0.00051	0.0169	478.0
13-Nov-19	30.92	574.43	10.20	1320	1.45	172.7	5.10	8.33	1140	0.00631	0.0099 J	<0.0001	0.0027	422.0
12-Feb-20	15.95	589.40	7.70	438	1.40	150.6	19.70	8.13	379	0.00212	0.0144 J	0.0001 U	0.0023	122.0
12-Aug-20	32.30	573.05	11.00	2360	2.25	162.9	13.40	8.16	2060	0.00628	0.0089 J	0.000088 J	0.0061	709.0
9-Dec-20	27.60	577.75	10.80	1750	1.95	209.0	22.00	8.22	1500	0.00314	0.592	0.00098	0.0216	539.0
3-Mar-21	22.58	582.77	7.10	760	1.74	208	5.60	8.04	722	0.00309	0.182	0.00031	0.0174	243.0
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 605.35
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

APPENDIX A-3

Summary of Lower Disposal Area – Bedrock Groundwater Sampling Results

Table A-3a: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-1LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Dec-06	26.51	674.57	10.96	546	0.43	-115.4	1.05	7.70	310	0.15100	<0.150	<0.00100	0.0377	-
14-Feb-07	26.08	675.00	10.62	397	1.02	-90.8	3.07	7.53	240	0.16000	0.208	<0.00100	0.0463	-
31-May-07	25.96	675.12	10.83	386	0.36	-172.8	4.20	8.20	220	0.12200	0.183	<0.00100	0.0442	-
27-Aug-07	25.66	675.42	10.97	372	0.76	-128.2	1.08	7.51	240	0.08990	0.166	<0.00100	0.0466	-
28-Nov-07	26.81	674.27	10.56	371	0.42	-121.2	1.29	8.03	220	0.08830	<0.150	<0.00100	0.0547	-
27-Feb-08	25.80	675.28	10.62	371	2.01	-	1.07	-	230	0.08090	0.159	<0.00100	0.0553	<3.0
20-May-08	25.62	675.46	10.61	391	0.36	-53.0	1.11	7.28	230	0.06430	0.162	<0.00100	0.0521	-
27-Aug-08	26.14	674.94	10.58	394	0.50	-63.9	1.02	7.35	230 J	0.06400	0.170	<0.00100	0.0482	<3.0
19-Nov-08	25.16	675.92	10.33	269	0.45	-88.6	0.48	7.51	230	0.05960	0.166	<0.00100	0.0536	<3.0
11-Feb-09	25.08	676.00	10.04	268	0.48	-	0.97	7.89	230	0.05600	0.182	<0.00100	0.0519	<3.0
18-May-09	24.83	676.25	10.10	271	0.42	-50.5	1.81	8.05	230 J	0.04660	<0.150	<0.00100	0.0500	<3.0
24-Sep-09	26.32	674.76	11.80	323	0.24	202.0	3.59	7.57	260	0.02700	0.080 J	<0.00200	0.0650	1.1 J
17-Dec-09	25.06	676.02	10.10	370	0.94	179.0	4.16	7.77	<40	0.03400	0.052 J	<0.00200	0.0700	1.2 J
23-Mar-10	24.83	676.25	10.90	344	0.21	397.4	3.17	7.57	240	0.02500	0.058 J	<0.00200	0.0660	1.3 J
15-Jun-10	24.38	676.70	10.50	355	0.08	195.5	0.42	7.66	150	0.02700	0.083 J	<0.00200	0.0590	1.1 J
20-Sep-10	25.74	675.34	10.50	354	0.06	192.9	0.20	7.65	200	0.02200	<0.200	<0.00200	0.0660 J+	1.1 J
6-Dec-10	24.59	676.49	10.00	347	0.09	99.3	0.17	7.86	230	0.02200	<0.200	<0.00200	0.0510	1.0 J
28-Mar-11	24.01	677.07	10.00	173	0.16	90.6	0.88	7.58	200	0.02200	<0.200	<0.00200	0.0500	1.0 J
20-Jun-11	24.11	676.97	10.30	330	0.07	121.5	0.17	7.65	250	0.02200	0.110 J	<0.00200	0.0510	0.9 J
26-Sep-11	25.39	675.69	10.40	2906	0.06	123.6	0.43	7.65	280	0.01500	0.130 J	<0.00200	0.0560	1.1 J
14-Dec-11	24.61	676.47	9.90	245	0.10	193.8	1.76	7.57	230	0.02100	0.110 J	<0.00200	0.0540	1.2 J
21-Mar-12	23.70	677.38	10.10	392	0.07	392.0	0.22	7.47	240	0.02300	0.110 J	<0.00200	0.0480	1.1 J
18-Jun-12	23.90	677.18	10.50	383	0.02	342.8	0.30	7.67	230	0.02000	<0.200	<0.00040	0.0510	<3.3
19-Sep-12	25.38	675.70	10.30	402	0.01	151.0	0.44	7.63	220	0.01900	0.110 J	<0.00040	0.0550	1.0 J
18-Dec-12	23.59	677.49	10.10	492	0.00	-45.7	0.16	7.70	92	0.01700	0.120 J	<0.00040	0.0490	1.2 J
25-Feb-13	23.73	677.35	9.90	377	0.00	177.1	0.37	7.53	270 J	0.01900	0.140 J	<0.00040	0.0450	1.0 J
22-May-13	23.85	677.23	9.90	398	0.00	430.4	0.44	7.73	290	0.01700	0.130 J	<0.00040	0.0460	<3.3
21-Aug-13	25.34	675.74	10.40	467	0.01	-31.7	0.55	7.68	238	0.01680	0.140	0.00008 J	0.0480	1.1
19-Nov-13	24.25	676.83	10.10	361	0.00	70.3	0.32	7.30	232	0.01570	0.160	<0.00010	0.0500	1.0
31-Mar-14	22.36	678.72	10.70	286	0.01	107.4	0.21	7.79	211	0.01380	0.160	<0.00010	0.0490	1.0
21-May-14	23.29	677.79	8.54	271	1.35	54.3	-	7.14	198	0.01310	0.160	<0.00010	0.0460	1.0
12-Aug-14	24.87	676.21	14.79	335	0.41	-16.0	2.02	7.05	216	0.01190	0.140	<0.00010	0.0450	1.0
11-Nov-14	24.96	676.12	10.10	262	0.79	11.1	1.51	7.49	221	0.01360	0.160	<0.00010	0.0450	1.1
10-Feb-15	23.23	677.85	10.40	319	0.25	-114.0	0.36	7.70	240	0.01330	0.160	<0.00010	0.0450	1.0
4-May-15	23.62	677.46	10.20	370	0.05	175.1	0.16	7.70	224	0.01170	0.180	<0.00010	0.0480	1.0
4-Aug-15	25.30	675.78	11.00	279	0.06	-30.5	0.72	7.72	234	0.01440	0.180	<0.00010	0.0460	1.0
4-Nov-15	25.35	675.73	10.60	263	0.00	51.2	0.46	7.46	233	0.01100	0.170	<0.00010	0.0450	1.2
8-Feb-16	23.03	678.05	10.20	319	0.03	206.5	0.20	7.77	210	0.01210	0.190	<0.00010	0.0480	1.1
2-May-16	23.49	677.59	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-16	25.00	676.08	11.10	323	0.02	-55.2	1.10	7.64	Monitored Annually[1]					
1-Nov-16	24.29	676.79	Monitored Semi-Annually[1]						Monitored Annually[1]					
31-Jan-17	23.06	678.02	10.20	391	0.05	169.3	0.13	7.66	223	0.01190	0.177	<0.00010	0.0418	1.0
30-May-17	22.45	678.63	Monitored Semi-Annually[1]						Monitored Annually[1]					
16-Aug-17	24.27	676.81	10.70	385	0.15	123.4	0.40	7.64	Monitored Annually[1]					
9-Nov-17	22.01	679.07	Monitored Semi-Annually[1]						Monitored Annually[1]					

Table A-3a: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-1LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
28-Feb-18	22.04	679.04	10.10	276	0.20	-96.4	0.25	7.44	221	0.01080	0.192	<0.00010	0.0412	1.0
1-May-18	22.11	678.97	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-18	24.42	676.66	11.37	277	5.25	-59.6	0.18	7.61	Monitored Annually[1]					
6-Nov-18	24.57	676.51	Monitored Semi-Annually[1]						Monitored Annually[1]					
11-Mar-19	22.61	678.47	10.10	248	0.60	-70.8	0.68	7.60	224	0.00874	0.224	<0.0001	0.0475	1.07
8-May-19	22.68	678.40	Monitored Semi-Annually[1]						Monitored Annually[1]					
27-Aug-19	24.54	676.54	11.45	282	0.58	Note 1	0.04	7.30	Monitored Annually[1]					
13-Nov-19	24.15	676.93	Monitored Semi-Annually[1]						Monitored Annually[1]					
13-Feb-20	22.04	679.04	10.10	280	0.34	-133.4	0.57	7.51	207	0.00882	0.231	0.0001 U	0.0428	1.05
13-Aug-20	23.92	677.16	11.00	284	0.60	-113.5	0.44	7.55	Monitored Annually[1]					
9-Dec-20	23.35	677.73	Monitored Semi-Annually[1]						Monitored Annually[1]					
5-Mar-21	22.01	679.07	10.20	266	0.04	-50	0.42	7.64	214	0.0105	0.210	0.0001 U	0.0407	1.1
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Note:

Top of casing elevation (feet msl): 701.08

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
-	Not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all bedrock LDA wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-3b: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-2LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Dec-06	36.82	701.24	12.15	394	0.57	114.6	1.84	7.58	230	0.00849	<0.150	<0.00100	0.0242	-
14-Feb-07	36.30	701.76	11.69	339	1.40	-85.7	2.72	7.39	200	0.00609	0.232	<0.00100	0.0266	-
31-May-07	36.93	701.13	12.13	346	0.20	-223.7	3.04	8.28	210	0.00695	0.255	<0.00100	0.0297	-
27-Aug-07	37.99	700.07	12.18	336	0.49	-169.7	0.84	7.54	210	0.00749	0.262	<0.00100	0.0313	-
28-Nov-07	37.89	700.17	11.82	338	0.28	-146.6	1.32	7.93	250	0.00691	0.259	<0.00100	0.0320	-
27-Feb-08	37.24	700.82	11.87	340	0.23	-	0.87	7.41	210	0.00746	0.254	<0.00100	0.0309	<3.0
20-May-08	37.31	700.75	11.91	359	0.23	-86.6	0.67	7.27	200	0.00631	0.315	<0.00100	0.0267	-
27-Aug-08	38.37	699.69	11.84	362	0.35	-77.6	0.70	7.21	210 J	0.00636	0.279	<0.00100	0.0231	<3.0
19-Nov-08	37.50	700.56	11.53	254	0.44	-105.9	2.08	7.45	200	0.00586	0.279	<0.00100	0.0231	<3.0
11-Feb-09	37.10	700.96	11.25	254	0.48	-	0.63	7.91	220	0.00561	0.290	<0.00100	0.0238	<3.0
18-May-09	37.00	701.06	11.42	258	0.42	-71.9	1.11	8.00	210 J	0.00517	<0.150	<0.00100	0.0208	<3.0
25-Sep-09	38.88	699.18	13.10	297	0.14	140.7	3.09	7.54	230	0.00650	0.250	<0.00200	0.0290	1.2 J
17-Dec-09	37.19	700.87	10.80	341	0.51	129.0	4.85	7.71	74	0.00430	0.250	<0.00200	0.0290	1.1 J
23-Mar-10	36.60	701.46	12.60	323	0.27	355.0	5.28	7.54	110	0.00760	0.220	<0.00200	0.0290	1.2 J
15-Jun-10	36.25	701.81	11.40	326	0.08	171.1	-	7.62	98	0.00880	0.310	<0.00200	0.0230	1.1 J
20-Sep-10	37.85	700.21	11.60	324	0.08	144.0	0.16	7.61	160	0.00650	0.310 J+	<0.00200	0.0280 J+	1.2 J
6-Dec-10	36.60	701.46	11.00	319	0.21	78.3	0.20	7.81	210	0.00290	0.180 J	<0.00200	0.0200	0.9 J
29-Mar-11	35.98	702.08	11.20	156	0.15	215.0	0.75	7.48	200	0.00560	0.320 J+	<0.00200	0.0200	1.5 J
21-Jun-11	36.34	701.72	11.80	352	0.06	101.5	0.24	7.59	220	<0.00500	0.270	<0.00200	0.0280	1.0 J
27-Sep-11	38.14	699.92	11.50	2484	0.06	114.4	0.45	7.60	220	<0.00500	0.290	<0.00200	0.0220	1.0 J
14-Dec-11	36.91	701.15	11.00	228	0.05	127.2	4.04	7.54	190	0.00670	0.280	<0.00200	0.0210	1.2 J
21-Mar-12	35.68	702.38	11.00	359	0.05	93.9	0.30	7.43	210	0.00690	0.270	<0.00200	0.0170 J	1.1 J
18-Jun-12	36.06	702.00	11.70	350	0.02	211.9	0.23	7.62	220	0.00620	0.350 J+	<0.00040	0.0170 J	<3.3
19-Sep-12	38.07	699.99	11.60	367	0.00	102.0	0.34	7.59	200	0.00650	0.290	<0.00040	0.0220	1.0 J
18-Dec-12	34.88	703.18	10.90	463	0.00	-97.8	0.17	7.81	68	0.00600	0.280	<0.00040	0.0170 J	1.2 J
25-Feb-13	35.70	702.36	10.90	347	0.09	112.6	0.27	7.56	190	0.00660	0.270 J	<0.00040	0.0180 J	1.1 J
22-May-13	36.24	701.82	11.00	412	0.00	412.5	0.43	7.71	190	0.00600	0.280 J	<0.00040	0.0170 J	<3.3
20-Aug-13	38.13	699.93	12.20	406	0.02	-41.5	0.64	7.48	211	0.00550	0.290	<0.00010	0.0220	1.0
19-Nov-13	36.56	701.50	11.10	344	0.01	43.6	0.32	7.35	206	0.00520	0.310	<0.00010	0.0190	1.1
31-Mar-14	35.36	702.70	11.50	285	0.00	93.1	0.31	7.71	207	0.00510	0.320	<0.00010	0.0200	1.1
22-May-14	35.80	702.26	10.05	260	0.24	17.5	-	7.22	186	0.00500	0.310	<0.00010	0.0190	1.0
13-Aug-14	37.50	700.56	13.10	294	0.57	-37.5	3.28	7.19	190	0.00540	0.400	0.00210 J	0.0280	1.1
11-Nov-14	37.06	701.00	10.10	241	0.68	-39.7	2.10	7.48	206	0.00540	0.320	<0.00010	0.0180	1.1
10-Feb-15	35.70	702.36	11.40	295	0.11	-123.2	2.11	7.69	206	0.00510	0.310	<0.00010	0.0190	1.0
4-May-15	36.34	701.72	11.70	336	0.05	340.2	0.72	7.73	204	0.00480	0.310	<0.00010	0.0200	1.0
4-Aug-15	38.42	699.64	12.70	263	0.04	-81.8	0.77	7.72	204	0.00580	0.330	<0.00010	0.0200	1.0
4-Nov-15	37.81	700.25	11.60	244	0.04	26.9	2.13	7.45	201	0.00470	0.320	<0.00010	0.0180	1.1
8-Feb-16	35.68	702.38	11.60	307	0.00	208.4	0.74	7.68	186	0.00550	0.330	<0.00010	0.0220	1.1
2-May-16	36.03	702.03	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-16	37.92	700.14	12.20	306	0.02	-137.6	1.58	7.67	Monitored Annually[1]					
1-Nov-16	37.07	700.99	Monitored Semi-Annually[1]						Monitored Annually[1]					
31-Jan-17	36.00	702.06	10.90	348	0.10	120.5	0.86	7.67	195	0.00566	0.306	<0.00010	0.0168	1.1
30-May-17	35.44	702.62	Monitored Semi-Annually[1]						Monitored Annually[1]					
16-Aug-17	37.69	700.37	12.30	356	0.14	-77.2	3.27	7.67	Monitored Annually[1]					
9-Nov-17	37.11	700.95	Monitored Semi-Annually[1]						Monitored Annually[1]					

Table A-3b: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-2LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
28-Feb-18	34.95	703.11	10.90	261	0.21	-115.5	0.80	7.48	205	0.00569	0.310	<0.00010	0.0173	1.0
1-May-18	35.11	702.95	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-18	37.90	700.16	12.31	262	1.64	-80.3	0.92	7.56	Monitored Annually[1]					
6-Nov-18	37.66	700.40	Monitored Semi-Annually[1]						Monitored Annually[1]					
12-Mar-19	35.68	702.38	10.70	239	0.58	-75.1	0.59	7.48	188	0.0055	0.352	<0.0001	0.0182	1.08
8-May-19	35.86	702.20	Monitored Semi-Annually[1]						Monitored Annually[1]					
27-Aug-19	37.85	700.21	12.30	265	0.43	Note 1	0.02	7.46	Monitored Annually[1]					
13-Nov-19	37.22	700.84	Monitored Semi-Annually[1]						Monitored Annually[1]					
13-Feb-20	35.10	702.96	10.80	261	0.39	-135.9	0.96	7.50	185	0.00545	0.349	0.0001 U	0.018	1.15
13-Aug-20	37.21	700.85	11.60	266	0.54	-118.2	1.35	7.50	Monitored Annually[1]					
9-Dec-20	36.55	701.51	Monitored Semi-Annually[1]						Monitored Annually[1]					
5-Mar-21	35.02	703.04	11.10	255	0.04	-80	2.29	7.65	176	0.00552	0.321	0.0001 U	0.0166	1.1
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Note:
Top of casing elevation (feet msl): 738.06
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
-	Not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all bedrock LDA wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-3c: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-3LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
19-Dec-06	7.08	733.51	11.37	670	0.42	-171.2	1.20	9.23	500	0.02570	0.173	<0.00100	0.0476	-
23-Jan-07	5.62	734.97	13.07	383	0.51	-275.0	1.53	8.63	270	0.01840	0.450	<0.00100	0.0787	-
14-Feb-07	5.81	734.78	12.57	328	1.09	-158.2	115.00	7.86	310	0.01510	<0.150	<0.00100	0.0718	-
29-Mar-07	4.78	735.81	12.44	458	0.57	-140.8	4.25	7.78	260 J	0.03790	0.261	<0.00100	0.0601	-
17-Apr-07	4.86	735.73	12.79	389	0.27	-102.4	1.22	7.46	240	0.02300	0.451	<0.00100	0.0900	-
31-May-07	6.39	734.20	12.98	394	0.29	-223.8	3.32	8.14	240	0.02120	0.443	<0.00100	0.0998	-
20-Jun-07	6.86	733.73	13.41	412	6.10	-128.5	1.35	8.02	230 J	0.02380	0.274	<0.00100	0.0898	-
31-Jul-07	7.96	732.63	13.47	417	0.77	-174.1	0.92	7.64	250	0.01890	0.609	<0.00100	0.1190	-
27-Aug-07	8.50	732.09	12.84	395	0.46	-132.4	1.97	7.43	250	0.01760	0.315	<0.00100	0.1040	-
27-Sep-07	9.58	731.01	12.68	294	0.51	-133.8	0.53	7.87	250	0.01930	0.451	<0.00100	0.1170	-
26-Oct-07	9.65	730.94	12.49	288	0.84	-111.9	9.83	7.60	240 J	0.01100	0.949	<0.00100	0.1970	-
28-Nov-07	10.23	730.36	11.95	362	0.64	-86.1	1.58	7.87	200	0.01780	0.315	<0.00100	0.0819	-
12-Dec-07	9.66	730.93	11.83	334	0.26	-93.2	0.63	7.63	280 J	0.01740	0.458	<0.00100	0.0953	-
24-Jan-08	8.20	732.39	11.09	335	0.44	-108.3	-	7.46	220	0.01920	0.456	<0.00100	0.0861	-
26-Feb-08	7.61	732.98	12.26	337	0.48	-	2.40	7.45	210	0.02200	0.448	<0.00100	0.0916	<3.0
25-Mar-08	7.22	733.37	11.94	337	1.01	-48.6	2.80	7.51	210	0.01780	0.296	<0.00100	0.0789	-
29-Apr-08	6.75	733.84	12.53	332	0.77	-50.3	1.95	7.41	200 J	0.01820	0.449	<0.00100	0.0826	-
19-May-08	7.17	733.42	12.37	336	0.57	-57.2	2.19	7.34	200 J	0.01870	0.373	<0.00100	0.0758	-
18-Jun-08	7.26	733.33	12.11	323	0.48	-64.1	0.83	7.13	190 J	0.01950	0.461	<0.00100	0.0896	-
26-Aug-08	8.78	731.81	12.31	329	1.16	-36.5	2.89	7.30	200 J	0.01770	0.298	<0.00100	0.0532	<3.0
19-Nov-08	9.03	731.56	11.91	243	0.52	-93.1	1.69	7.40	190	0.01820	0.394	<0.00100	0.0690	<3.0
11-Feb-09	7.07	733.52	11.74	227	0.65	-	1.03	7.76	180	0.01770	0.582	<0.00100	0.1020	<3.0
18-May-09	6.50	734.09	12.11	225	0.67	-63.9	1.51	7.83	190 J	0.01290	<0.150	<0.00100	0.0886	<3.0
25-Sep-09	10.47	730.12	13.50	260.1	0.36	215.3	4.14	7.61	220	0.01700	0.260	0.00094 J	0.0440	12.0
17-Dec-09	8.39	732.20	11.50	301.0	0.44	110.0	3.10	7.71	270	0.02300	0.610	<0.00200	0.0970	1.3 J
23-Mar-10	6.46	734.13	12.20	294.8	0.43	332.5	3.52	7.57	150 J	0.02700	0.380	<0.00200	0.0760	1.3 J
16-Jun-10	5.34	735.25	11.10	281.7	0.05	117.0	-	7.71	160	0.02700	0.490	<0.00200	0.0760	1.3 J
21-Sep-10	7.72	732.87	11.80	276.3	0.06	169.5	0.36	7.54	140	0.02300	0.600 J+	<0.00200	0.0910 J+	1.3 J
7-Dec-10	6.48	734.11	11.00	263.0	0.15	77.2	0.38	7.58	180	0.02000	0.360	<0.00200	0.0680	1.2 J
28-Mar-11	4.42	736.17	10.80	134.0	0.44	75.6	1.06	7.46	160 J	0.02100	0.610 J+	<0.00200	0.0720	1.7 J
20-Jun-11	4.76	735.83	12.10	252.7	0.07	68.4	0.13	7.48	200 J	0.01600	0.650	<0.00200	0.08900	1.0 J
27-Sep-11	7.86	732.73	11.90	2064.0	0.04	102.6	0.37	7.48	170	0.01800	0.620	<0.00200	0.08300	1.1 J
14-Dec-11	7.17	733.42	11.00	188.2	0.03	140.8	1.87	7.50	770	0.02200	0.310	<0.00200	0.05600	1.3 J
21-Mar-12	4.68	735.91	10.70	297.8	0.07	130.6	0.41	7.39	170	0.02100	0.360	<0.00200	0.04600	1.1 J
18-Jun-12	4.75	735.84	11.60	289.0	0.16	271.3	0.55	7.54	150 J+	0.01900	0.440 J+	<0.00040	0.05300	<3.3
19-Sep-12	7.65	732.94	12.60	299.9	0.10	121.0	0.42	7.50	160	0.01800	0.370	<0.00040	0.05500	1.1 J
18-Dec-12	5.58	735.01	10.90	384.0	0.03	15.6	1.39	7.50	200	0.01900	0.150 J	<0.00040	0.04100	1.3 J
25-Feb-13	4.80	735.79	10.60	284.2	0.03	140.4	0.30	7.53	150	0.02200	0.390 J	<0.00040	0.05400	1.2 J
22-May-13	4.81	735.78	11.00	294.9	0.14	387.7	0.52	7.61	160	0.01800	0.420 J	<0.00040	0.05800	<3.3
20-Aug-13	7.63	732.96	12.60	383.0	0.81	-8.4	0.80	7.26	164	0.01670	0.350	<0.00010	0.05200	1.1
19-Nov-13	7.11	733.48	11.30	218.1	0.14	54.3	0.73	7.20	169	0.01660	0.290	<0.00010	0.05200	1.1
1-Apr-14	4.08	736.51	10.70	222.6	0.15	158.5	1.12	7.50	168	0.01330	0.480	<0.00010	0.07300	1.1
22-May-14	4.21	736.38	9.98	206.0	1.59	27.1	-	7.17	158	0.01120	0.150	<0.00010	0.06500	1.0
13-Aug-14	6.95	733.64	13.50	237.0	1.14	9.8	4.70	6.92	154	0.01050	0.160	<0.00010	0.07900	1.0
12-Nov-14	6.04	734.55	8.40	185.1	0.28	-10.1	3.42	7.36	162	0.01610	0.440	<0.00010	0.09300	1.1
11-Feb-15	4.62	735.97	11.50	205.1	1.20	68.1	1.32	7.41	169	0.00900	<0.050	<0.00010	0.07900	1.1
4-May-15	4.93	735.66	12.20	262.0	1.64	190.2	0.84	7.43	168	0.01090	0.640	<0.00010	0.12400	1.0
4-Aug-15	7.44	733.15	13.20	211.3	1.62	81.9	2.02	7.39	173	0.00680	0.043 J	<0.00010	0.05100	1.0
5-Nov-15	8.14	732.45	12.50	186.0	1.49	166.9	1.87	7.10	162	0.00350	0.017 J	<0.00010	0.08600	1.0
8-Feb-16	3.20	737.39	11.70	240.5	2.13	196.9	0.88	7.23	150	0.01120	1.060	<0.00010	0.13300	1.0
2-May-16	3.77	736.82	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-16	6.81	733.78	13.10	238.0	2.40	168.5	2.39	7.41	Monitored Annually[1]					
1-Nov-16	6.59	734.00	Monitored Semi-Annually[1]						Monitored Annually[1]					
31-Jan-17	4.02	736.57	11.30	265.8	2.79	218.2	1.39	7.34	154	0.00323	0.008 J	<0.00010	0.02720	1.0
30-May-17	2.32	738.27	Monitored Semi-Annually[1]						Monitored Annually[1]					

Table A-3c: Summary of Lower Disposal Area - Bedrock Groundwater Sampling Results - Well MWB-3LDA
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water* (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
16-Aug-17	5.48	735.11	13.20	258.4	3.54	92.2	2.50	7.41	Monitored Annually[1]					
9-Nov-17	6.00	734.59	Monitored Semi-Annually[1]						Monitored Annually[1]					
28-Feb-18	1.13	739.46	10.80	186.9	4.11	142.0	1.83	7.18	159	0.00253	0.02 J	<0.00010	0.01230	0.8
1-May-18	1.60	738.99	Monitored Semi-Annually[1]						Monitored Annually[1]					
22-Aug-18	5.93	734.66	13.55	194	7.63	16.9	0.77	7.11	Monitored Annually[1]					
6-Nov-18	6.78	733.81	Monitored Semi-Annually[1]						Monitored Annually[1]					
12-Mar-19	2.32	738.27	10.50	166	4.32	167.7	1.34	7.14	149	0.00187	0.0023 J	<0.0001	<0.001	0.953
8-May-19	2.57	738.02	Monitored Semi-Annually[1]						Monitored Annually[1]					
27-Aug-19	5.76	734.83	13.62	192	3.94	Note 1	0.02	7.09	Monitored Annually[1]					
13-Nov-19	6.00	734.59	Monitored Semi-Annually[1]						Monitored Annually[1]					
13-Feb-20	1.69	738.90	10.70	180	3.20	88.5	1.21	7.11	140	0.00169	0.05 U	0.0001 U	0.0062	0.915
13-Aug-20	4.59	736.00	13.60	188.7	4.26	50.3	1.60	7.19	Monitored Annually[1]					
9-Dec-20	4.22	736.37	Monitored Semi-Annually[1]						Monitored Annually[1]					
5-Mar-21	1.06	739.53	10.90	172.0	3.43	132	0.69	7.26	136	0.00184	0.107	0.0001 U	0.00750	0.9
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Note:
Top of casing elevation (feet msl): 740.59
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
-	Not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all bedrock LDA wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

APPENDIX A-4

Summary of Dale Strip Pit – Bedrock Groundwater Sampling Results

Table A-4a: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-1SDSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
2-Dec-02	69.87	862.82	9.5	1690	-	-	-	7.29	910	0.04660	0.00268	-
3-Mar-03	36.83	895.86	11.5	1260	-	-	24.10	7.15	860	0.00973	-	-
3-May-03	34.88	897.81	12.8	1520	-	-	38.00	7.09	950	-	-	-
3-Aug-03	52.02	880.67	19.19	1460	-	-	11.40	7.01	990	-	-	-
1-Nov-03	53.61	879.08	11.60	915	-	-	8.97	7.19	1010	0.00858	0.00070	-
1-Feb-04	32.75	899.94	11.52	1033	-	-	7.36	6.78	1060	-	-	-
1-May-04	42.50	890.19	14.87	1126	-	-	7.53	7.23	1020	-	-	-
1-Aug-04	49.26	883.43	13.72	1234	-	-	8.07	6.98	981	-	-	-
1-Nov-04	42.81	889.88	11.88	1429	-	-	9.06	6.92	1060	0.01000	<0.00100	-
1-Feb-05	33.62	899.07	13.06	1615	-	-	7.11	7.01	1020	-	-	-
1-May-05	34.88	897.81	12.91	1459	-	-	6.54	6.85	1000	-	-	-
1-Aug-05	43.80	888.89	10.40	1472	-	-	10.40	6.80	1090	-	-	-
1-Nov-05	52.80	879.89	10.40	1458	-	-	6.02	6.64	1100	0.01030	<0.00100	-
1-Feb-06	42.70	889.99	10.40	1343	1.10	48.3	11.10	7.08	1100 J	-	-	-
1-May-06	37.81	894.88	11.52	1686	1.64	49.2	10.50	6.83	1100	-	-	-
1-Aug-06	46.11	886.58	14.10	1357	2.33	43.0	10.70	7.11	1100	-	-	-
1-Nov-06	46.47	886.22	-	-	-	-	-	-	-	-	-	-
28-Dec-06	33.20	899.49	-	-	-	-	-	-	-	-	-	-
7-Feb-07	34.50	898.19	-	-	-	-	-	-	-	-	-	-
7-May-07	36.48	896.21	15.19	1484	0.52	-83.4	6.78	7.60	1100	-	-	-
7-Aug-07	47.57	885.12	11.21	1488	8.80	107.4	9.53	6.51	1200	-	-	-
27-Nov-07	51.25	881.44	13.60	1483	1.82	-129.5	434.00	7.11	1000 J	0.00572	<0.00100	-
8-Feb-08	35.12	897.57	14.71	1489	3.11	-	10.20	6.97	1100	-	-	-
8-May-08	37.60	895.09	14.50	1594	3.99	112.5	4.71	6.90	1200 J	-	-	-
8-Aug-08	46.98	885.71	13.27	1617	2.49	105.3	5.32	6.96	1200 J	0.00782	<0.00100	5.6
1-Nov-08	43.35	889.34	11.17	1096	7.29	127.1	47.30	7.70	1100	0.00980	<0.00100	5.6
11-Feb-09	37.00	895.69	10.28	1112	4.15	-	7.68	7.25	1100	0.00752	<0.00100	5.6
9-May-09	36.53	896.16	13.87	1209	2.93	89.0	5.45	7.41	990 J	0.00757	<0.00100	5.6
24-Sep-09	53.61	879.08	12.10	1328	1.98	331.0	3.26	6.92	1200	0.00790	<0.00200	5.7
14-Dec-09	33.72	898.97	10.20	1519	0.55	393.0	2.82	6.99	1100	0.00340	<0.00200	5.7
22-Mar-10	35.11	897.58	10.90	1463	-	508.0	3.95	6.94	1200	0.01000	<0.00200	5.6
15-Jun-10	33.26	899.43	11.00	1485	0.20	210.3	1.50	7.02	1100	0.01100	<0.00200	5.9
20-Sep-10	45.81	886.88	11.30	1484	0.06	159.7	0.91	6.98	1100	0.00910	0.00048 J	6.0
6-Dec-10	36.20	896.49	10.70	1494	0.08	35.4	0.24	7.21	1200	0.00680	0.00034 J	5.2
28-Mar-11	35.07	897.62	10.70	749	0.08	136.8	0.16	6.88	1100	0.00680	<0.00200	5.5
20-Jun-11	38.53	894.16	11.40	1439	0.08	-19.2	0.21	6.99	1400	0.00460 J	<0.00200	5.5
26-Sep-11	50.43	882.26	11.20	1249	0.07	38.5	0.41	7.01	1200	0.00450 J	<0.00200	5.7
13-Dec-11	51.30	881.39	10.40	1308	0.06	50.3	2.03	7.07	530	0.00760	<0.00200	6.1
22-Mar-12	43.75	888.94	10.60	1695	0.08	125.1	0.28	6.99	1200	0.01200	<0.00200	5.7
18-Jun-12	44.86	887.83	Monitored Semiannually[1]									
18-Sep-12	55.74	876.95	12.90	1506	0.05	99.5	0.36	7.08	1300	0.01000	<0.00040	5.8
18-Dec-12	41.94	890.75	Monitored Semiannually[1]									
21-Feb-13	37.86	894.83	10.40	1730	0.02	131.5	0.41	7.27	1200	0.01300	<0.00040	6.3
22-May-13	39.34	893.35	Monitored Semiannually[1]									
20-Aug-13	49.40	883.29	11.90	1707	0.05	-37.6	0.69	7.00	1240	0.01020	<0.00010	6.0
19-Nov-13	44.94	887.75	Monitored Semiannually[1]									
31-Mar-14	33.31	899.38	11.20	1256	0.01	103.5	0.27	7.00	1200	0.01310	<0.00010	6.6
21-May-14	33.37	899.32	Monitored Semiannually[1]									
15-Aug-14	45.31	887.38	13.43	1467	0.71	-1.1	2.32	6.79	1150	0.01340	<0.00010	6.1
14-Nov-14	44.83	887.86	Monitored Semiannually[1]									
10-Feb-15	35.97	896.72	11.00	1423	0.04	-109.4	2.16	7.00	1200	0.01300	<0.00010	6.3

Table A-4a: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-1SDSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
4-May-15	38.67	894.02	Monitored Semiannually[1]									
4-Aug-15	49.21	883.48	12.50	1253	0.04	-100.7	0.26	7.07	1230	0.01390	<0.00010	6.1
5-Nov-15	56.85	875.84	11.20	1159	0.02	57.4	0.91	6.75	1190	0.01490	<0.00010	7.0
8-Feb-16	33.02	899.67	11.60	1429	0.00	167.6	0.10	7.05	1190	0.01940	<0.00010	6.7
2-May-16	37.48	895.21	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-16	49.78	882.91	12.10	1232	0.06	-143.8	0.77	7.00	Monitored Annually[2]			
1-Nov-16	47.49	885.20	Monitored Semiannually[2]						Monitored Annually[2]			
31-Jan-17	35.57	897.12	11.10	1620	0.05	-241.6	0.24	6.99	1260	0.02180	<0.00010	6.7
30-May-17	34.70	897.99	Monitored Semiannually[2]						Monitored Annually[2]			
16-Aug-17	44.32	888.37	11.90	1621	0.12	-144.5	0.47	6.97	Monitored Annually[2]			
9-Nov-17	44.71	887.98	Monitored Semiannually[2]						Monitored Annually[2]			
28-Feb-18	32.04	900.65	10.70	1278	0.16	-58.5	0.11	6.82	1244	0.02240	<0.00010	6.5
1-May-18	33.99	898.70	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-18	47.95	884.74	11.97	1246	1.17	4.10	0.17	6.88	Monitored Annually[2]			
6-Nov-18	52.94	879.75	Monitored Semiannually[2]						Monitored Annually[2]			
12-Mar-19	33.09	899.60	10.40	1157	0.55	-23.0	0.62	6.81	1200	0.02	<0.0001	0.95
8-May-19	34.37	898.32	Monitored Semiannually[2]						Monitored Annually[2]			
27-Aug-19	47.88	884.81	12.51	1314	0.15	Note 1	0.39	6.80	Monitored Annually[2]			
13-Nov-19	47.03	885.66	Monitored Semiannually[2]						Monitored Annually[2]			
14-Feb-20	31.08	901.61	10.60	1249	0.38	-82.2	0.10	6.61	1230	0.0183	0.0001 U	6.36
13-Aug-20	43.99	888.70	11.70	1176	0.56	-67.7	0.18	6.78	Monitored Annually[2]			
9-Dec-20	39.67	893.02	Monitored Semiannually[2]						Monitored Annually[2]			
5-Mar-21	34.96	897.73	11.00	1257	0.26	-38	0.24	6.95	1200	0.0195	0.0001 U	6.2
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:
Top of casing elevation (feet msl): 932.69
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

- Not measured or not available
< Analyte not detected above the reporting limit shown
1 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012
2 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
a Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b Site background arsenic value to be determined (TBD)
U Data validation code; not detected at the Reporting Limit (RL)
J Data validation code; estimated value
J+ Data validation code; estimated value with positive bias
°C Degrees Celsius
Note 1 ORP measurements not available due to faulty sensor.

µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-4b: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-1DDSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
2-Dec-02	87.28	844.49	11.1	557	-	-	-	7.72	540	0.03270	<0.00050	-
3-Mar-03	48.63	883.14	12.0	623	-	-	24.00	7.48	370	0.00708	-	-
3-May-03	47.12	884.65	12.1	548	-	-	264.00	7.54	440	-	-	-
3-Aug-03	64.60	867.17	23.23	675	-	-	195.00	7.36	450	-	-	-
1-Nov-03	66.14	865.63	11.0	400	-	-	15.50	8.10	437	0.00603	<0.00050	-
1-Feb-04	46.55	885.22	10.68	455	-	-	8.70	7.15	440	-	-	-
1-May-04	55.82	875.95	13.61	508	-	-	12.40	7.58	429	-	-	-
1-Aug-04	61.89	869.88	13.15	585	-	-	15.70	7.47	399	-	-	-
1-Nov-04	56.83	874.94	10.94	655	-	-	9.40	7.22	477	0.00308	<0.00100	-
1-Feb-05	47.31	884.46	12.80	778	-	-	8.39	7.35	451	-	-	-
1-May-05	48.60	883.17	12.86	743	-	-	4.22	7.25	432	-	-	-
1-Aug-05	56.80	874.97	14.17	746	-	-	3.10	6.99	518	-	-	-
1-Nov-05	66.85	864.92	10.20	702	-	-	5.36	7.11	470	0.00360	<0.00100	-
1-Feb-06	47.88	883.89	10.11	648	0.71	109.4	2.72	7.53	450 J	-	-	-
1-May-06	52.23	879.54	12.22	686	1.82	43.7	3.68	7.43	450	-	-	-
1-Aug-06	59.41	872.36	12.28	665	1.06	-74.0	14.20	7.36	480	-	-	-
1-Nov-06	61.84	869.93	-	-	-	-	-	-	-	-	-	-
28-Dec-06	48.26	883.51	-	-	-	-	-	-				
7-Feb-07	49.64	882.13	-	-	-	-	-	-	-	-	-	-
7-May-07	53.24	878.53	12.44	722	0.74	-150.8	6.06	7.94	470	-	-	-
7-Aug-07	60.45	871.32	13.76	712	0.79	-50.0	4.53	7.28	500	-	-	-
27-Nov-07	63.40	868.37	14.41	711	0.45	-194.4	7.07	7.34	470 J	0.00289	<0.00100	-
8-Feb-08	49.23	882.54	14.07	737	0.62	-	6.28	7.46	500	-	-	-
8-May-08	51.31	880.46	13.52	793	0.55	27.9	4.42	7.40	520 J	-	-	-
8-Aug-08	59.69	872.08	13.73	812	0.67	-24.7	9.33	7.37	560 J	0.00226	<0.00100	<3.0
1-Nov-08	57.38	874.39	14.75	619	0.89	-42.5	4.40	7.45	480	0.00222	<0.00100	<3.0
10-Feb-09	50.92	880.85	6.50	618	10.51	-	655.00	7.69 J	530	0.00219	<0.00100	3.0
9-May-09	51.25	880.52	13.95	637	2.21	39.3	5.87	7.74	540 J	0.00242	<0.00100	<3.0
25-Sep-09	65.46	866.31	13.20	678	2.25	331.8	2.29	7.15	570	0.00180 J	<0.00200	3.3
17-Dec-09	49.40	882.37	10.60	794	0.99	224.0	3.97	7.58	440	0.00070 J	<0.00200	3.2 J
22-Mar-10	49.18	882.59	10.40	762	-	245.0	0.74	7.39	580	0.00450	<0.00200	3.2 J
15-Jun-10	46.88	884.89	12.10	762	0.05	142.1	0.47	7.50	420	0.00550	<0.00200	3.3
20-Sep-10	58.97	872.80	11.40	765	0.07	89.6	0.47	7.47	520	0.00470	0.00027 J	3.4
6-Dec-10	50.66	881.11	10.20	763	0.19	58.9	0.32	7.72	550	0.00130 J	<0.00200	3.2 J
28-Mar-11	48.89	882.88	10.50	376	0.55	165.0	0.73	7.53	470	0.00370	<0.00200	3.0 J
20-Jun-11	52.13	879.64	13.40	718	0.45	-65.1	0.75	7.53	600 J	<0.00500	<0.00200	3.5
26-Sep-11	63.02	868.75	11.80	633	1.73	-6.0	1.72	7.61	560	<0.00500	<0.00200	3.5
13-Dec-11	63.88	867.89	8.60	678	0.69	-24.7	1.95	7.56	530	0.00570	<0.00200	4.1
22-Mar-12	56.96	874.81	5.60	877	1.89	-26.6	0.84	7.69	540	0.00340	<0.00040	3.0 J
18-Jun-12	58.01	873.76	Monitored Semiannually[1]									
18-Sep-12	67.78	863.99	26.30	838	3.62	12.4	1.27	7.70	540	0.00310	<0.00040	3.1 J
18-Dec-12	56.10	875.67	Monitored Semiannually[1]									
21-Feb-13	51.62	880.15	4.30	895	7.54	31.3	0.83	8.04	510	0.00360	<0.00040	3.6
22-May-13	53.14	878.63	Monitored Semiannually[1]									
20-Aug-13	62.35	869.42	12.30	526	0.08	-60.4	2.91	7.47	585	0.00320	<0.00010	3.2
19-Nov-13	58.70	873.07	Monitored Semiannually[1]									
31-Mar-14	46.60	885.17	11.10	622	0.04	48.4	0.45	7.52	561	0.00180	<0.00010	3.3
21-May-14	46.96	884.81	Monitored Semiannually[1]									
15-Aug-14	58.62	873.15	12.48	732	0.90	-62.4	2.04	7.16	564	0.00200	0.00020	3.1
14-Nov-14	59.59	872.18	Monitored Semiannually[1]									
10-Feb-15	49.61	882.16	10.90	717	0.03	-114.4	1.82	7.48	551	0.00290	<0.00010	3.3

Table A-4b: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-1DDSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
4-May-15	52.25	879.52	Monitored Semiannually[1]									
4-Aug-15	61.71	870.06	12.00	618	0.04	-115.0	0.35	7.56	552	0.00300	<0.00010	3.4
5-Nov-15	68.72	863.05	11.10	625	0.05	27.5	1.26	7.21	603	0.00160	<0.00010	3.6
8-Feb-16	46.93	884.84	11.40	794	0.00	155.1	0.17	7.57	599	0.00210	<0.00010	3.8
2-May-16	50.77	881.00	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-16	62.11	869.66	11.60	770	0.04	-251.0	0.86	7.50	Monitored Annually[2]			
1-Nov-16	61.71	870.06	Monitored Semiannually[2]						Monitored Annually[2]			
31-Jan-17	49.02	882.75	10.60	916	0.13	-310.4	0.35	7.47	676	0.00187	<0.00010	3.4
30-May-17	48.11	883.66	Monitored Semiannually[2]						Monitored Annually[2]			
16-Aug-17	57.17	874.60	11.80	898	0.12	-210.9	0.22	7.42	Monitored Annually[2]			
9-Nov-17	58.71	873.06	Monitored Semiannually[2]						Monitored Annually[2]			
28-Feb-18	45.21	886.56	10.20	758	0.19	-166.6	0.20	7.26	694	0.00287	<0.00010	3.34
1-May-18	47.40	884.37	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-18	60.25	871.52	11.58	705	2.22	-153.0	0.14	7.37	Monitored Annually[2]			
6-Nov-18	65.30	866.47	Monitored Semiannually[2]						Monitored Annually[2]			
12-Mar-19	46.35	885.42	9.80	707	0.58	-119.9	0.16	7.24	668	0.00496	<0.0001	4.21
8-May-19	47.20	884.57	Monitored Semiannually[2]						Monitored Annually[2]			
27-Aug-19	59.87	871.90	11.95	762	0.39	Note 1	0.02	7.20	Monitored Annually[2]			
13-Nov-19	60.20	871.57	Monitored Semiannually[2]						Monitored Annually[2]			
14-Feb-20	44.28	887.49	10.30	760	0.30	-169.3	1.09	7.11	717	0.0046	0.0001 U	4.07
13-Aug-20	57.57	874.20	11.10	739	0.91	-145.8	0.31	7.17	Monitored Annually[2]			
9-Dec-20	54.25	877.52	Monitored Semiannually[2]						Monitored Annually[2]			
5-Mar-21	48.74	883.03	10.70	724	0.27	-222	0.61	7.36	592	0.00406	0.0001 U	3.9
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:
Top of casing elevation (feet msl): 931.77
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

- Not measured or not available
< Analyte not detected above the reporting limit shown
1 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012
2 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
a Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b Site background arsenic value to be determined (TBD)
U Data validation code; not detected at the Reporting Limit (RL)
J Data validation code; estimated value
J+ Data validation code; estimated value with positive bias
°C Degrees Celsius
Note 1 ORP measurements not available due to faulty sensor.

µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-4c: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-5DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
18-Dec-06	20.56	910.89	11.30	1054	0.59	-10.5	6.76	7.01	630	0.00446	<0.00100	-
7-Jan-07	18.48	912.97	12.53	700	0.61	-70.6	33.50	7.11	540	0.00519	<0.00100	-
7-Feb-07	21.53	909.92	11.59	557	0.57	-59.1	33.50	6.88	530	0.00519	<0.00100	-
7-Mar-07	15.34	916.11	11.71	817	0.45	-2.4	91.20	6.52	550 J	0.00491	<0.00100	-
7-Apr-07	17.97	913.48	11.96	909	0.25	0.2	121.00	6.91	560	0.00475	<0.00100	-
1-May-07	26.92	904.53	12.55	880	4.20	-14.3	63.70	7.13	540	0.00490	<0.00100	-
7-Jun-07	29.94	901.51	13.12	1016	3.20	-5.6	3.58	7.52	600 J	0.00437	<0.00100	-
7-Jul-07	35.27	896.18	13.00	910	1.74	-27.4	9.97	7.24	550	0.00491	<0.00100	-
7-Aug-07	39.55	891.90	12.40	1065	0.92	-14.6	4.62	6.99	590	0.00446	<0.00100	-
7-Sep-07	44.69	886.76	12.36	696	0.68	-33.3	3.22	7.29	590	0.00492	<0.00100	-
26-Oct-07	38.90	892.55	11.46	667	0.56	-18.3	22.60	6.98	620 J	0.00443	<0.00100	-
27-Nov-07	38.79	892.66	11.71	914	0.56	-46.7	3.32	6.91	560 J	0.00490	<0.00100	-
12-Dec-07	35.33	896.12	12.61	909	0.53	-27.3	4.28	6.87	820	0.00409	<0.00100	-
24-Jan-08	28.97	902.48	10.72	872	0.78	-49.1	-	7.14	550	0.00472	<0.00100	-
8-Feb-08	26.00	905.45	11.25	888	0.44	-	4.18	6.85	550	0.00450	<0.00100	-
8-Mar-08	26.03	905.42	10.94	915	0.59	-95.6	3.19	6.89	550	0.00521	<0.00100	-
8-Apr-08	25.03	906.42	11.27	931	0.61	-20.1	3.44	6.89	550 J	0.00488	<0.00100	-
8-May-08	27.33	904.12	11.68	949	0.68	-6.7	5.37	6.62	580 J	0.00534	<0.00100	-
8-Jun-08	28.38	903.07	11.40	948	0.75	-50.4	1.59	6.68	580 J	0.00445	<0.00100	-
8-Aug-08	39.80	891.65	11.80	970	0.68	-78.6	1.72	6.84	610 J	0.00464	<0.00100	<3.0
1-Nov-08	33.96	897.49	11.20	682	0.63	-115.4	0.95	6.82	540	0.00480	<0.00100	<3.0
10-Feb-09	25.56	905.89	10.54	671	0.71	-71.7	0.98	7.05	610	0.00473	<0.00100	<3.0
9-May-09	25.79	905.66	11.23	682	0.55	-5.8	0.86	7.68	560 J	0.00340	<0.00100	<3.0
22-Sep-09	46.68	884.77	18.70	737	0.64	214.5	0.99	6.91	580 J	0.00390	<0.00200	2.7 J
14-Dec-09	30.45	901.00	9.80	901	0.18	200.0	0.70	6.96	450	0.00170 J	<0.00200	2.5 J
23-Mar-10	19.92	911.53	11.30	773	0.25	148.0	4.40	6.86	510	0.00560	<0.00200	2.6 J
15-Jun-10	16.74	914.71	11.00	838	0.10	202.3	2.89	7.01	860 J	0.00820	<0.00200	2.8 J
20-Sep-10	33.31	898.14	11.20	852	0.09	174.7	0.60	6.97	540	0.00620	<0.00200	2.7 J
6-Dec-10	19.81	911.64	10.80	838	0.10	30.5	0.47	7.17	530	0.00380	<0.00200	2.3 J
28-Mar-11	17.16	914.29	10.80	403	0.15	48.4	1.13	6.89	500 J	0.00230	<0.00200	2.3 J
20-Jun-11	18.95	912.50	11.10	775	0.05	-29.1	0.37	7.01	610 J	<0.00500	<0.00200	2.4 J
26-Sep-11	33.71	897.74	11.20	690	0.03	-8.7	0.54	7.00	560	0.00410 J	<0.00200	2.8 J
13-Dec-11	24.48	906.97	10.50	730	0.05	93.6	1.92	7.07	520	0.00610	<0.00200	2.8 J
21-Mar-12	15.54	915.91	10.70	883	0.06	106.9	0.34	6.90	500	0.00650	<0.00200	2.4 J
19-Jun-12	17.01	914.44	Monitored Semiannually[1]									
19-Sep-12	29.82	901.63	11.90	877	0.00	122.0	0.47	7.08	490	0.00690	<0.00040	2.6 J
18-Dec-12	17.39	914.06	Monitored Semiannually[1]									
21-Feb-13	18.84	912.61	10.60	875	0.05	103.3	0.40	7.32	510	0.00590	<0.00040	2.6 J
22-May-13	20.25	911.20	Monitored Semiannually[1]									
20-Aug-13	30.15	901.30	12.10	530	0.06	-50.3	0.75	6.98	510	0.00560	<0.00010	2.5
19-Nov-13	22.73	908.72	Monitored Semiannually[1]									
31-Mar-14	15.50	915.95	11.30	574	0.06	95.7	0.53	7.15	447	0.00560	<0.00010	2.7
21-May-14	14.83	916.62	Monitored Semiannually[1]									
15-Aug-14	25.16	906.29	14.49	741	0.48	-24.0	2.92	6.87	477	0.00590	<0.00010	2.6
14-Nov-14	22.25	909.20	Monitored Semiannually[1]									
10-Feb-15	15.98	915.47	11.40	693	0.04	-117.5	0.80	7.13	503	0.00590	<0.00010	2.6
4-May-15	20.05	911.40	Monitored Semiannually[1]									
4-Aug-15	31.90	899.55	11.90	620	0.16	-71.1	0.47	7.13	517	0.00640	<0.00010	2.7
5-Nov-15	32.00	899.45	11.40	605	0.00	37.5	1.16	6.84	511	0.00530	<0.00010	3.1
8-Feb-16	17.13	914.32	11.80	720	0.00	160.4	0.08	7.34	480	0.00600	<0.00010	3.0

Table A-4c: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-5DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
2-May-16	23.31	908.14	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-16	34.07	897.38	12.50	571	0.00	-	0.66	7.11	Monitored Annually[2]			
1-Nov-16	26.04	905.41	Monitored Semiannually[2]						Monitored Annually2			
31-Jan-17	19.36	912.09	12.20	808	0.07	-219.2	0.30	7.21	509	0.00676	<0.00010	2.8
30-May-17	17.31	914.14	Monitored Semiannually[2]						Monitored Annually[2]			
16-Aug-17	28.13	903.32	12.40	826	0.12	-71.9	0.66	7.10	Monitored Annually[2]			
9-Nov-17	27.17	904.28	Monitored Semiannually[2]						Monitored Annually[2]			
28-Feb-18	16.55	914.90	10.90	657	0.15	-97.6	0.35	7.02	528	0.00539	<0.00010	2.6
1-May-18	17.69	913.76	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-18	32.63	898.82	12.46	655	0.81	-46.4	0.26	7.01	Monitored Annually[2]			
6-Nov-18	32.44	899.01	Monitored Semiannually[2]						Monitored Annually[2]			
12-Mar-19	18.84	912.61	10.90	597	0.56	-28.1	0.86	6.96	512	0.00451	<0.0001	2.89
8-May-19	19.75	911.70	Monitored Semiannually[2]						Monitored Annually[2]			
27-Aug-19	33.26	911.70	13.08	688	0.26	Note 1	0.02	6.89	Monitored Annually[2]			
13-Nov-19	33.03	898.42	Monitored Semiannually[2]						Monitored Annually[2]			
14-Feb-20	16.70	914.75	10.90	626	0.34	-99.8	0.33	6.88	524	0.00431	0.0001 U	2.65
13-Aug-20	27.37	904.08	11.80	619	0.55	-70.6	0.40	6.89	Monitored Annually[2]			
9-Dec-20	24.68	906.77	Monitored Semiannually[2]						Monitored Annually[2]			
5-Mar-21	16.91	914.54	11.30	641	0.19	-77	0.45	7.09	473	0.00484	0.0001 U	2.5
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:
Top of casing elevation (feet msl): 931.45
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012
2	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
Note 1	ORP measurements not available due to faulty sensor.
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-4d: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-6DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
18-Dec-06	8.13	894.22	9.93	525	0.54	-54.5	0.61	7.78	300	0.00537	<0.00100	-
7-Feb-07	9.40	892.95	11.79	479	1.19	-30.0	7.40	7.41	330	0.00601	<0.00100	-
7-May-07	10.73	891.62	12.26	729	2.83	-103.6	16.40	7.63	480	0.01010	<0.00100	-
7-Aug-07	15.14	887.21	11.42	882	0.75	-11.5	1.82	7.10	470	0.00325	<0.00100	-
27-Nov-07	16.16	886.19	10.98	748	0.37	-47.9	0.83	6.99	440 J	0.00282	<0.00100	-
8-Feb-08	9.66	892.69	11.01	645	0.31	-	0.90	7.05	380	0.00268	<0.00100	-
8-May-08	10.34	892.01	11.27	665	0.64	13.4	1.52	6.93	380 J	0.00240	<0.00100	-
8-Aug-08	14.17	888.18	11.23	683	0.72	-8.2	2.49	7.05	390 J	0.00218	<0.00100	<3.0
1-Nov-08	12.98	889.37	10.61	488	0.60	-45.6	1.35	6.80	380	0.00204	<0.00100	<3.0
10-Feb-09	9.64	892.71	10.32	398	0.52	-57.0	1.20	7.31	350	0.00200	<0.00100	<3.0
9-May-09	9.91	892.44	10.50	405	0.73	-4.0	1.26	7.77	320 J	0.00169	<0.00100	<3.0
23-Sep-09	17.16	885.19	12.50	541	0.25	216.2	5.38	7.14	400 J	0.00091 J	<0.00200	1.3 J
14-Dec-09	12.73	889.62	9.10	580	0.47	231.0	2.70	7.23	270	<0.00200	<0.00200	1.3 J
22-Mar-10	9.62	892.73	10.90	504	-	321.7	3.50	7.22	320	0.00200	<0.00200	1.2 J
15-Jun-10	8.30	894.05	11.00	495	0.11	205.1	1.41	7.29	320	0.00420	<0.00200	1.3 J
20-Sep-10	14.90	887.45	10.90	560	0.10	187.2	0.28	7.29	270	0.00300	<0.00200	1.4 J
6-Dec-10	10.47	891.88	10.50	515	0.12	87.8	0.14	7.47	300	<0.00200	<0.00200	1.1 J
28-Mar-11	8.71	893.64	10.30	241	0.19	58.9	1.86	7.19	300	<0.00200	<0.00200	1.1 J
20-Jun-11	9.87	892.48	10.80	477	0.06	141.2	0.20	7.27	340	<0.00500	<0.00200	1.1 J
26-Sep-11	14.82	887.53	10.80	467	0.05	114.8	0.92	7.26	380	<0.00500	<0.00200	1.5 J
13-Dec-11	13.02	889.33	10.20	491	0.06	131.3	1.69	7.29	340	<0.00500	<0.00200	1.6 J
21-Mar-12	8.13	894.22	10.20	550	0.09	160.0	0.07	7.14	310	0.00250	<0.00040	1.2 J
18-Jun-12	-	-	Monitored Semiannually[1]									
18-Sep-12	14.76	887.59	12.50	587	0.00	122.0	0.35	7.31	370	0.00280	<0.00040	1.3 J
18-Dec-12	8.16	894.19	Monitored Semiannually[1]									
21-Feb-13	8.45	893.90	10.10	594	0.02	152.7	0.28	7.49	300	0.00190	<0.00040	1.3 J
22-May-13	9.36	892.99	Monitored Semiannually[1]									
20-Aug-13	13.28	889.07	11.70	478	0.01	-43.8	0.54	7.22	349 J	0.00160	<0.00010	1.3
19-Nov-13	9.71	892.64	Monitored Semiannually[1]									
31-Mar-14	8.42	893.93	10.70	455	0.06	166.1	0.27	7.35	315	0.00140	<0.00010	1.3
21-May-14	5.99	896.36	Monitored Semiannually[1]									
14-Aug-14	12.03	890.32	13.45	512	0.56	-21.4	1.99	6.95	317	0.00170	<0.00010	1.3
14-Nov-14	10.68	891.67	Monitored Semiannually[1]									

Table A-4d: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-6DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
10-Feb-15	7.39	894.96	10.90	482	0.03	-86.2	0.59	7.32	337	0.00140	<0.00010	1.2
4-May-15	9.17	893.18	Monitored Semiannually[1]									
4-Aug-15	13.64	888.71	12.40	449	0.18	-81.7	0.27	7.33	385	0.00170	<0.00010	1.3
5-Nov-15	13.98	888.37	11.50	435	2.23	85.2	1.09	7.04	354	0.00130	<0.00010	1.5
8-Feb-16	6.74	895.61	11.50	495	0.03	187.2	0.25	7.39	297	0.00140	<0.00010	1.4
2-May-16	8.64	893.71	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-16	13.27	889.08	12.20	559	0.03	-52.7	0.80	7.28	Monitored Annually[2]			
1-Nov-16	11.36	890.99	Monitored Semiannually[2]						Monitored Annually[2]			
31-Jan-17	7.91	894.44	10.90	539	0.08	124.4	0.18	7.31	321	0.00148	<0.00010	1.3
30-May-17	2.65	899.70	Monitored Semiannually[2]						Monitored Annually[2]			
16-Aug-17	12.08	890.27	12.10	573	0.12	-46.9	1.39	7.26	Monitored Annually[2]			
9-Nov-17	11.70	890.65	Monitored Semiannually[2]						Monitored Annually[2]			
28-Feb-18	6.50	895.85	11.00	423	0.19	-61.0	0.18	7.12	138	0.00156	<0.00010	1.2
1-May-18	6.80	895.55	Monitored Semiannually[2]						Monitored Annually[2]			
22-Aug-18	13.47	888.88	11.61	441	7.44	26.6	0.21	7.11	Monitored Annually[2]			
6-Nov-18	13.96	888.39	Monitored Semiannually[2]						Monitored Annually[2]			
12-Mar-19	7.30	895.05	10.30	363	0.56	-25.1	0.27	7.16	294	0.00147	<0.0001	1.34
8-May-19	7.77	894.58	Monitored Semiannually[2]						Monitored Annually[2]			
27-Aug-19	13.16	889.19	12.19	454	0.45	Note 1	0.02	7.05	Monitored Annually[2]			
13-Nov-19	26.35	894.30	Monitored Semiannually[2]						Monitored Annually[2]			
13-Feb-20	20.79	899.86	10.60	387	0.39	-76.5	1.05	7.13	313	0.00140	0.0001 U	1.33
13-Aug-20	25.94	894.71	11.70	403	0.65	-64.3	0.60	7.07	Monitored Annually[2]			
9-Dec-20	24.06	896.59	Monitored Semiannually[2]						Monitored Annually[2]			
4-Mar-21	21.56	899.09	10.80	363	0.16	-9.0	1.29	7.30	280	0.00110	0.0001 U	1.2
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:

Top of casing elevation (feet msl) prior to raising casing: 902.35

Top of casing elevation (feet msl) after raising casing (Q3 2019): 920.65

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012
2	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level

Note 1 ORP measurements not available due to faulty sensor.

mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

Table A-4e: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Portal Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
1-Mar-02	-	-	-	653	-	-	-	7.29	586	-	-	-
1-Jun-02	-	-	12	920	-	-	-	7.20	583	-	-	-
1-Sep-02	-	-	11	920	-	-	-	7.10	651	-	-	-
2-Dec-02	-	-	9.1	900	-	-	-	7.03	570	0.00444	<0.00050	-
3-Mar-03	-	-	10.1	873	-	-	-	7.09	530	-	-	-
3-May-03	-	-	11.2	981	-	-	10.00	6.94	590	-	-	-
3-Aug-03	-	-	12.78	1030	-	-	13.00	7.17	630	-	-	-
1-Nov-03	-	-	10.2	569	-	-	4.65	7.53	592	0.00333	<0.00050	-
1-Feb-04	-	-	9.31	568	-	-	5.41	6.85	560	-	-	-
1-May-04	-	-	10.93	952	-	-	5.98	7.12	615	-	-	-
1-Aug-04	-	-	12.10	835	-	-	6.29	7.11	601	-	-	-
1-Nov-04	-	-	10.20	941	-	-	6.58	6.94	656	0.00341	<0.00100	-
1-Feb-05	-	-	10.52	889	-	-	8.72	7.41	541	-	-	-
1-May-05	-	-	13.08	953	-	-	8.15	7.31	548	-	-	-
1-Aug-05	-	-	11.08	988	-	-	7.40	7.23	644	-	-	-
1-Nov-05	-	-	9.53	958	-	-	8.58	7.61	640	0.00315	<0.00100	-
1-Feb-06	-	-	9.23	669	7.88	*	7.93	6.78	450 J	-	-	-
1-May-06	-	-	11.49	947	7.60	38.5	10.40	7.01	570	-	-	-
1-Aug-06	-	-	10.52	835	8.82	-39.8	14.10	7.26	640	-	-	-
1-Nov-06	-	-	9.41	740	9.57	-32.2	12.50	7.23	510	0.00245	<0.00100	-
7-Feb-07	-	-	9.90	815	10.99	-6.2	27.80	7.74	510	-	-	-
7-May-07	-	-	18.39	810	11.05	-6.2	11.80	7.61	510	-	-	-
7-Aug-07	-	-	10.42	870	8.72	-44.9	25.20	7.42	560	-	-	-
30-Nov-07	-	-	9.41	783	9.56	-18.7	48.30	-	520	0.00317	<0.00100	-
8-Feb-08	-	-	10.02	708	10.04	-	50.00	7.20	420	-	-	-
8-May-08	-	-	10.83	815	12.13	0.1	7.28	7.29	480 J	-	-	-
8-Aug-08	-	-	10.63	906	11.05	-5.6	11.00	7.05	560 J	0.00369	<0.00100	41.6
1-Nov-08	-	-	9.79	553	10.70	-21.1	16.90	7.40	460	0.00320	<0.00100	35.5
11-Feb-09	-	-	9.16	488	6.99	-	15.40	7.52	430	0.00297	<0.00100	34.2
9-May-09	-	-	9.64	522	10.56	13.4	9.77	7.39	440 J	0.00201	<0.00100	32.4
23-Sep-09	-	-	10.70	745	8.95	271.7	14.70	6.88	570	<0.00200	<0.00200	40.0
15-Dec-09	-	-	8.60	713	5.20	279.0	12.50	6.67	350	<0.00200	<0.00200	30.0
24-Mar-10	-	-	9.90	681	6.14	370.7	-	6.57	470	0.00420	<0.00200	39.0
17-Jun-10	-	-	10.00	623	9.58	-	26.30	7.50	380	0.00590	<0.00200	28.0
22-Sep-10	-	-	10.00	783	9.02	225.9	17.40	7.00	510	0.00520	<0.00200	42.0
7-Dec-10	-	-	9.90	662	9.15	186.0	13.60	6.95	450	<0.00200	<0.00200	32.0
29-Mar-11	-	-	9.90	292	5.90	370.8	4.44	6.73	360 J	0.00410	<0.00200	25.0
20-Jun-11	-	-	10.50	591	6.42	219.1	4.44	7.01	420	<0.00500	<0.00200	26.0
26-Sep-11	-	-	10.70	623	5.76	240.5	11.90	6.83	520	<0.00500	<0.00200	39.0
15-Dec-11	-	-	8.80	472	4.92	310.4	7.32	6.78	430	0.00470 J	<0.00200	32.0
21-Mar-12			8.90	611	5.24	313.3	9.16	6.49	330	0.00480	<0.00040	20.0
18-Jun-12	Monitored Semiannually[1]											
18-Sep-12	-	-	14.20	652	9.70	148.0	20.80	7.48	450	0.00500	<0.00040	29.0
18-Dec-12	Monitored Semiannually[1]											
25-Feb-13	-	-	9.20	648	10.10	209.6	4.12	7.58	300	0.00500	<0.00040	25.0
25-Feb-13	Monitored Semiannually[1]											
21-Feb-13	-	-	9.20	648	10.10	209.6	4.12	7.58	300	0.00500	<0.00040	25.0
22-May-13	Monitored Semiannually[1]											
20-Aug-13	-	-	10.80	635	9.31	170.1	8.46	7.11	458	0.00390	<0.00010	32.3
19-Nov-13	Monitored Semiannually[1]											
31-Mar-14	-	-	10.60	448	9.29	213.5	87.20	7.30	321	0.00370	0.00018 J	21.1

Table A-4e: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Portal Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
21-May-14	Monitored Semiannually[1]											
15-Aug-14	-	-	10.01	595	10.01	-35.2	6.43	6.99	427	0.00350	<0.00010	31.5
14-Nov-14	Monitored Semiannually[1]											
10-Feb-15	-	-	10.60	515	9.88	183.5	6.84	7.26	363	0.00280	0.00007 J	27.2
4-May-15	Monitored Semiannually[1]											
4-Aug-15	-	-	10.90	554	9.98	95.8	8.68	7.48	438	0.00260	<0.00010	34.7
5-Nov-15	-	-	10.30	503	10.24	177.6	13.40	7.46	449	0.00280	<0.00010	31.8
8-Feb-16	-	-	9.30	541	11.30	215.0	5.12	7.30	293	0.00320	<0.00010	23.1
-	Monitored Semiannually[2]								Monitored Annually[2]			
24-Aug-16	-	-	13.40	585	9.32	410.0	8.50	7.23	Monitored Annually[2]			
1-Nov-16	-	-	10.90	242	9.13	51.4	7.57	7.41	Monitored Annually[2]			
31-Jan-17	-	-	8.90	663	10.87	-57.4	6.23	7.50	3390	0.00397	<0.00010	29.2
-	Monitored Semiannually[2]								Monitored Annually[2]			
17-Aug-17	-	-	11.40	712	9.67	-12.4	9.87	7.30	Monitored Annually[2]			
9-Nov-17	Monitored Semiannually[2]								Monitored Annually[2]			
27-Feb-18	-	-	9.50	427	9.94	-46.4	16.70	7.72	354	0.00411	<0.00010	20.4
1-May-18	Monitored Semiannually[2]								Monitored Annually[2]			
21-Aug-18	-	-	13.13	582	12.46	-23.0	23.10	7.24	Monitored Annually[2]			
6-Nov-18	Monitored Semiannually[2]								Monitored Annually[2]			
12-Mar-19	-	-	8.00	406	11.35	-2.8	10.70	7.97	388	0.00156	<0.0001	24.7
8-May-19	Monitored Semiannually[2]								Monitored Annually[2]			
27-Aug-19	-	-	10.55	576	11.80	Note 1	154.00	6.78	Monitored Annually[2]			
13-Nov-19	Monitored Semiannually[2]								Monitored Annually[2]			
13-Feb-20	-	-	9.20	382	9.19	-1.3	13.40	6.93	259	0.00365	0.0001 U	16.7
13-Aug-20	-	-	10.10	569	10.01	-27.0	12.20	7.12	Monitored Annually[2]			
9-Dec-20	Monitored Semiannually[2]								Monitored Annually[2]			
4-Mar-21	-	-	9.30	416	5.80	33.0	17.1	6.89	364	0.00414	0.0001 U	20.0
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available		
<	Analyte not detected above the reporting limit shown		
*	Measurement invalid and not shown		
1	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated May 16, 2012		
2	Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.		
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest		
b	Site background arsenic value to be determined (TBD)		
U	Data validation code; not detected at the Reporting Limit (RL)		
J	Data validation code; estimated value		
J+	Data validation code; estimated value with positive bias		
°C	Degrees Celsius		
Note 1	ORP measurements not available due to faulty sensor.		
µmhos/cm	Micromhos per centimeter	mg/L	Milligrams per liter
feet bmp	Feet below measuring point	mV	Millivolts
feet msl	Feet above mean sea level	NTU	Nephelometric Turbidity Unit

Table A-4f: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-2DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
1-Mar-02	-	-	-	542	-	-	-	7.22	467	-	-	-
1-Jun-02	197.34	731.88	12.00	750	-	-	-	7.10	459	-	-	-
1-Sep-02	199.29	729.93	14.00	660	-	-	-	6.90	499	-	-	-
2-Dec-02	200.09	729.13	10.80	675	-	-	-	6.89	440	<0.00100	<0.00050	-
3-Mar-03	190.21	739.01	11.90	763	-	-	-	6.98	450	-	-	-
3-May-03	191.78	737.44	12.30	730	-	-	233.00	6.98	550	-	-	-
3-Aug-03	199.82	729.40	16.50	848	-	-	17.00	6.92	520	-	-	-
1-Nov-03	199.97	729.25	11.60	559	-	-	9.20	7.04	522	0.00098	<0.00050	-
1-Feb-04	188.78	740.44	11.96	608	-	-	4.86	6.68	560	-	-	-
1-May-04	198.45	730.77	13.69	614	-	-	6.17	6.80	478	-	-	-
1-Aug-04	199.17	730.05	14.38	731	-	-	5.48	6.71	460	-	-	-
1-Nov-04	197.92	731.30	11.62	785	-	-	12.30	6.75	512	<0.00100	<0.00100	-
1-Feb-05	186.36	742.86	11.64	806	-	-	1.47	6.94	487	-	-	-
1-May-05	-	-	12.87	790	-	-	15.80	6.89	338	-	-	-
1-Aug-05	196.10	733.12	15.01	603	-	-	45.70	6.44	388	-	-	-
1-Nov-05	196.78	732.44	9.91	549	-	-	13.30	6.66	350	<0.00100	<0.00100	-
1-Feb-06	193.93	735.29	8.10	641	2.11	269.2	35.70	6.82	400 J	-	-	-
1-May-06	197.90	731.32	10.88	798	1.67	27.3	5.38	6.50	380	-	-	-
1-Aug-06	198.80	730.42	11.44	534	2.52	205.7	8.74	6.67	360	-	-	-
1-Nov-06	187.36	741.86	10.77	680	2.12	-19.9	18.90	7.06	430	<0.00100	<0.00100	-
28-Dec-06	192.37	736.85	-	-	-	-	-	-	-	-	-	-
7-Feb-07	197.46	731.76	10.24	621	0.64	-16.7	27.80	6.89	420	-	-	-
7-May-07	198.49	730.73	-	-	-	-	-	-	-	-	-	-
1-Aug-07	198.45	730.77	-	-	-	-	-	-	-	-	-	-
27-Nov-07	196.48	732.74	-	-	-	-	-	-	-	-	-	-
8-Feb-08	191.30	737.92	-	-	-	-	-	-	-	-	-	-
8-May-08	193.95	735.27	-	-	-	-	-	-	-	-	-	-
27-Sep-11	197.32	731.90	-	-	-	-	-	-	-	-	-	-
13-Dec-11	192.15	737.07	9.60	421	2.10	313.0	16.10	7.49	-	-	-	-
22-Mar-12	183.35	747.87	8.90	546	12.83	166.3	0.56	7.47	-	-	-	-
18-Jun-12	192.54	738.68	-	-	-	-	-	-	-	-	-	-
18-Sep-12	199.51	731.71	16.20	508	2.21	120.0	1.27	7.58	-	-	-	-
18-Dec-12	184.52	746.70	-	-	-	-	-	-	-	-	-	-
21-Feb-13	190.65	740.57	7.60	678	5.33	342.6	6.61	8.02	-	-	-	-
22-May-13	198.05	733.17	-	-	-	-	-	-	-	-	-	-
20-Aug-13	200.47	730.75	13.00	488	3.26	90.2	8.47	7.42	-	-	-	-
19-Nov-13	196.59	734.63	-	-	-	-	-	-	-	-	-	-
31-Mar-14	186.78	744.44	11.40	421	7.28	195.1	1.70	7.47	-	-	-	-
21-May-14	192.27	738.95	-	-	-	-	-	-	-	-	-	-
15-Aug-14	199.97	731.25	18.90	492	0.97	1.4	52.50	7.01	-	-	-	-
14-Nov-14	196.60	734.62	-	-	-	-	-	-	-	-	-	-
10-Feb-15	183.97	747.25	10.20	450	7.65	121.4	1.02	7.34	-	-	-	-
4-May-15	194.19	737.03	-	-	-	-	-	-	-	-	-	-
4-Aug-15	198.35	732.87	13.60	432	3.07	18.6	0.27	7.47	-	-	-	-
3-Nov-15	198.25	732.97	10.30	405	2.57	106.2	7.07	7.35	-	-	-	-
8-Feb-16	188.43	742.79	12.50	536	2.77	189.8	0.25	7.78	-	-	-	-
2-May-16	195.72	735.50	Monitored Semiannually[1]						-	-	-	-
22-Aug-16	197.89	733.33	14.00	418	1.27	-123.1	4.36	7.32	-	-	-	-
1-Nov-16	195.49	735.73	Monitored Semiannually[1]						-	-	-	-
31-Jan-17	186.94	744.28	9.20	506	5.26	-45.4	0.38	7.45	-	-	-	-
30-May-17	190.62	740.60	Monitored Semiannually[1]						-	-	-	-

Table A-4f: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-2DSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
16-Aug-17	197.55	733.67	13.30	540	2.31	37.3	3.42	7.37	-	-	-	-
9-Nov-17	197.11	734.11	Monitored Semiannually[1]						-	-	-	-
28-Feb-18	185.96	745.26	10.10	390	5.95	204.7	1.62	7.15	-	-	-	-
1-May-18	184.95	746.27	Monitored Semiannually[1]						-	-	-	-
22-Aug-18	197.40	733.82	13.70	412	3.10	85.5	1.66	7.27	-	-	-	-
6-Nov-18	197.94	733.28	Monitored Semiannually[1]						-	-	-	-
12-Mar-19	182.84	748.38	8.70	332	6.25	148.4	1.93	7.28	-	-	-	-
8-May-19	185.36	745.86	Monitored Semiannually[1]						-	-	-	-
27-Aug-19	196.56	734.66	11.92	411	8.82	Note 1	0.02	7.28	-	-	-	-
13-Nov-19	196.74	734.48	Monitored Semiannually[1]						-	-	-	-
13-Feb-20	177.10	754.12	9.30	453	3.03	91.0	2.31	7.56	-	-	-	-
13-Aug-20	200.97	730.25	12.20	422	3.04	35.0	0.96	7.42	-	-	-	-
9-Dec-20	197.86	733.36	Monitored Semiannually[1]						-	-	-	-
5-Mar-21	197.42	733.80	10.0	398	3.79	112	1.17	7.37	-	-	-	-
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:
Top of casing elevation (feet msl) prior to raising casing: 929.22
Top of casing elevation (feet msl) after raising casing (December 14, 2011): 931.22
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

1 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016. Field parameters collected semi-annually, analytical samples collected annually.
- Not measured or not available
< Analyte not detected above the reporting limit shown
a Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b Site background arsenic value to be determined (TBD)
U Data validation code; not detected at the Reporting Limit (RL)
J Data validation code; estimated value
J+ Data validation code; estimated value with positive bias
°C Degrees Celsius
Note 1 ORP measurements not available due to faulty sensor.
µmhos/cm Micromhos per centimeter
feet bmp Feet below measuring point
feet msl Feet above mean sea level
mg/L Milligrams per liter
mV Millivolts
NTU Nephelometric Turbidity Unit

Table A-4g: Summary of Dale Strip Pit - Bedrock Groundwater Sampling Results - Well MWB-4SDSP
Ravensdale Site, Ravensdale, Washington

Date Sampled	Field Parameters								Gen. Chem.	Metals (mg/L)		
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Lead	Potassium
26-Sep-11	25.77	903.04	11.40	553	0.86	197.2	-	7.21	-	-	-	-
13-Dec-11	24.94	903.87	9.70	625	1.73	658.0	22.70	7.68	-	-	-	-
22-Mar-12	23.80	905.01	9.60	785	3.71	242.6	8.14	7.30	-	-	-	-
19-Jun-12	24.09	904.72	-	-	-	-	-	-	-	-	-	-
18-Sep-12	25.68	903.13	16.50	664	2.37	150.0	19.20	7.34	-	-	-	-
18-Dec-12	23.02	905.79	-	-	-	-	-	-	-	-	-	-
21-Feb-13	23.50	905.31	10.00	840	6.55	352.4	3.42	7.42	-	-	-	-
22-May-13	23.84	904.97	-	-	-	-	-	-	-	-	-	-
20-Aug-13	25.08	903.73	13.50	539	2.91	45.1	1.87	7.22	-	-	-	-
19-Nov-13	22.76	906.05	-	-	-	-	-	-	-	-	-	-
31-Mar-14	21.39	907.42	12.20	511	6.31	197.3	1.38	7.58	-	-	-	-
21-May-14	19.82	908.99	-	-	-	-	-	-	-	-	-	-
15-Aug-14	24.00	904.81	12.81	647	0.82	7.5	5.42	6.62	-	-	-	-
14-Nov-14	22.28	906.53	-	-	-	-	-	-	-	-	-	-
10-Feb-15	21.10	907.71	12.30	636	2.56	-71.9	1.11	7.11	-	-	-	-
4-May-15	22.65	906.16	-	-	-	-	-	-	-	-	-	-
5-Aug-15	24.65	904.16	13.50	563	3.21	116.4	55.20	7.42	-	-	-	-
3-Nov-15	23.87	904.94	12.20	493	4.65	114.4	5.78	7.52	-	-	-	-
8-Feb-16	19.39	909.42	15.80	670	3.92	163.5	5.06	7.59	-	-	-	-
2-May-16	20.99	907.82	Monitored Semiannually[1]						-	-	-	-
22-Aug-16	24.42	904.39	17.60	527	5.01	106.0	1.39	7.44	-	-	-	-
1-Nov-16	21.31	907.50	Monitored Semiannually[1]						-	-	-	-
31-Jan-17	21.11	907.70	12.10	680	2.75	-146.1	1.48	7.35	-	-	-	-
30-May-17	18.49	910.32	Monitored Semiannually[1]						-	-	-	-
17-Aug-17	22.58	906.23	12.60	673	5.22	177.8	1.97	7.15		-	-	-
9-Nov-17	20.72	908.09	Monitored Semiannually[1]						-	-	-	-
28-Feb-18	17.09	911.72	11.10	509	8.34	29.0	0.72	7.37	-	-	-	-
1-May-18	17.76	911.05	Monitored Semiannually[1]						-	-	-	-
22-Aug-18	Could not be safely accessed due to wasp nests.								-	-	-	-
6-Nov-18	21.70	907.11	Monitored Semiannually[1]						-	-	-	-
12-Mar-19	18.30	910.51	10.10	215	9.65	18.9	0.39	7.86	-	-	-	-
8-May-19	19.09	909.72	Monitored Semiannually[1]						-	-	-	-
27-Aug-19	22.85	905.96	14.79	562	8.59	Note 1	3.60	7.80	-	-	-	-
13-Nov-19	21.95	906.86	Monitored Semiannually[1]						-	-	-	-
13-Feb-20	16.60	912.21	10.80	458	8.74	68.0	1.98	7.83	-	-	-	-
13-Aug-20	21.96	906.85	12.60	503	8.74	-39.8	1.89	7.83	-	-	-	-
9-Dec-20	20.58	908.23	Monitored Semiannually[1]						-	-	-	-
5-Mar-21	17.69	911.12	11.3	497	6.84	90	1.46	7.91	-	-	-	-
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.05	-

Notes:

Top of casing elevation (feet msl) prior to DSP Cover Upgrade: 935.82

Top of casing elevation (feet msl) after DSP Cover Upgrade (completed July 2011): 928.81

Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

1 Reduction in monitoring frequency approved by Public Health – Seattle and King County in a letter to Golder Associates Inc. dated April 7, 2016, extended October 10, 2019. Field parameters collected semi-annually, analytical samples collected annually.

\- Not measured or not available

a Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest

b Site background arsenic value to be determined (TBD)

°C Degrees Celsius

Note 1 ORP measurements not available due to faulty sensor.

µmhos/cm Micromhos per centimeter

feet bmp Feet below measuring point

feet msl Feet above mean sea level

mg/L Milligrams per liter

mV Millivolts

NTU Nephelometric Turbidity Unit

APPENDIX A-5

Summary of Lower Disposal Area – Disposal Area Groundwater Sampling Results

Table A-5 Well P-14

Table A-5: Summary of Lower Disposal Area - Disposal Area Groundwater Sampling Results - Well P-14
Ravensdale Site, Ravensdale, Washington

Date Sampled*	Field Parameters								Gen. Chem.	Metals (mg/L)				
	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (Rel mV)	Turbidity (NTU)	pH (standard units)	Total Dissolved Solids (mg/L)	Arsenic	Iron	Lead	Manganese	Potassium
11-Dec-20	32.53	740.79	11.6	18697	0.12	-61.2	17.9	13.30	6560	0.26300	0.293 J	0.01960	0.04 U	2540
3-Mar-21	29.44	743.88	12.0	12836	0.05	-87	1.54	13.09	4060	0.08410	0.25 U	0.00964	0.0106 J	1490
Preliminary Standard[a]	-	-	-	700	-	-	-	6.5-8.5	500	TBD[b]	0.3	0.05	0.05	-

Notes:
Top of casing elevation (feet msl): 773.32
Dissolved metals were analyzed at the Site until December 2020 (Q4 2020). Total metals were analyzed for Q4 2020 and will continue to be analyzed moving forward.

-	Not measured or not available
<	Analyte not detected above the reporting limit shown
*	Depth to water (DTW) measurements for all shallow/alluvial wells collected on the same day; date noted is sampling date
a	Preliminary standard is the standard listed or the site-specific (natural) background concentration, whichever is highest
b	Site background arsenic value to be determined (TBD)
U	Data validation code; not detected at the Reporting Limit (RL)
J	Data validation code; estimated value
J+	Data validation code; estimated value with positive bias
°C	Degrees Celsius
µmhos/cm	Micromhos per centimeter
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
mg/L	Milligrams per liter
mV	Millivolts
NTU	Nephelometric Turbidity Unit

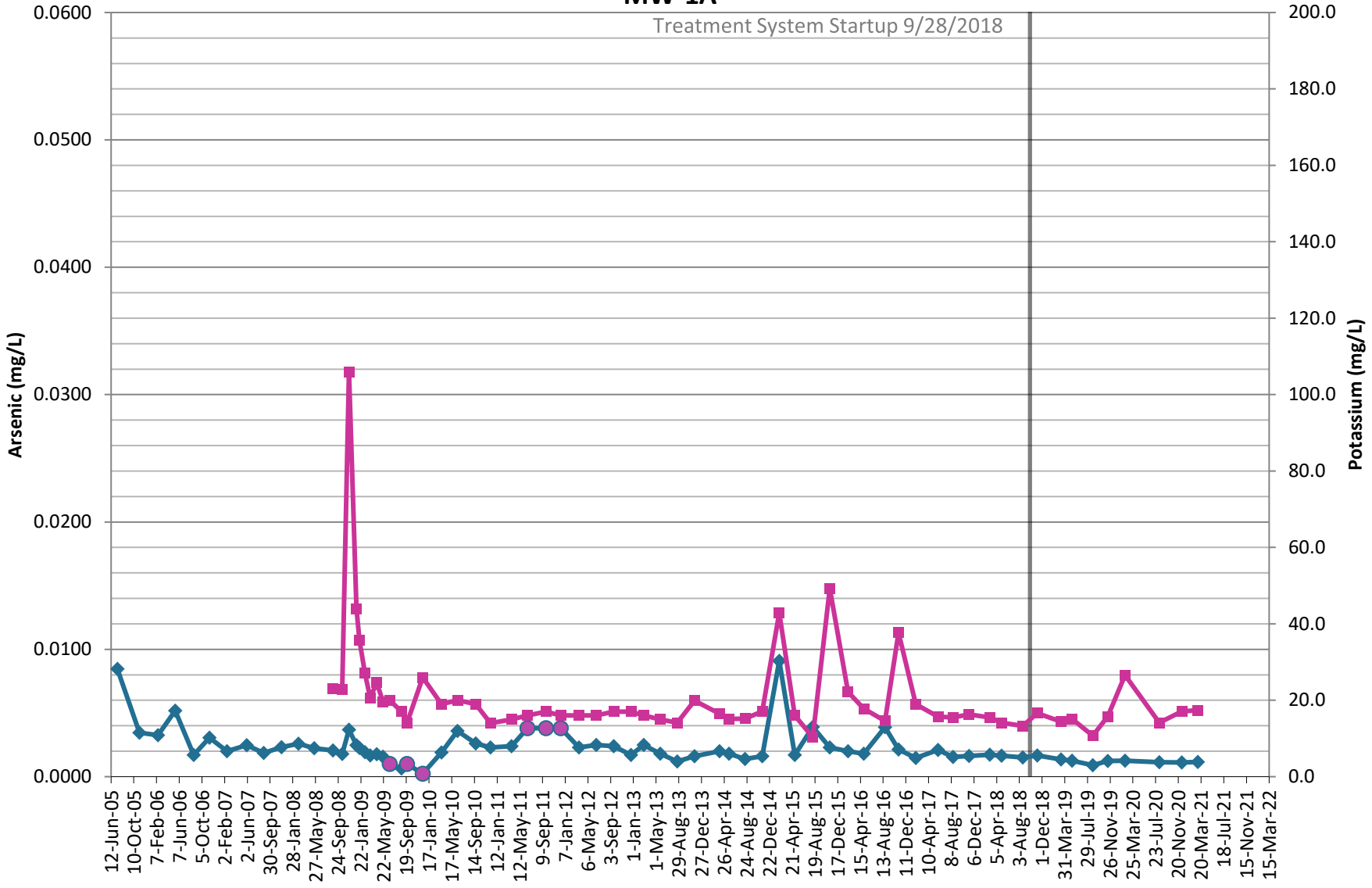
APPENDIX B

Data Graphs

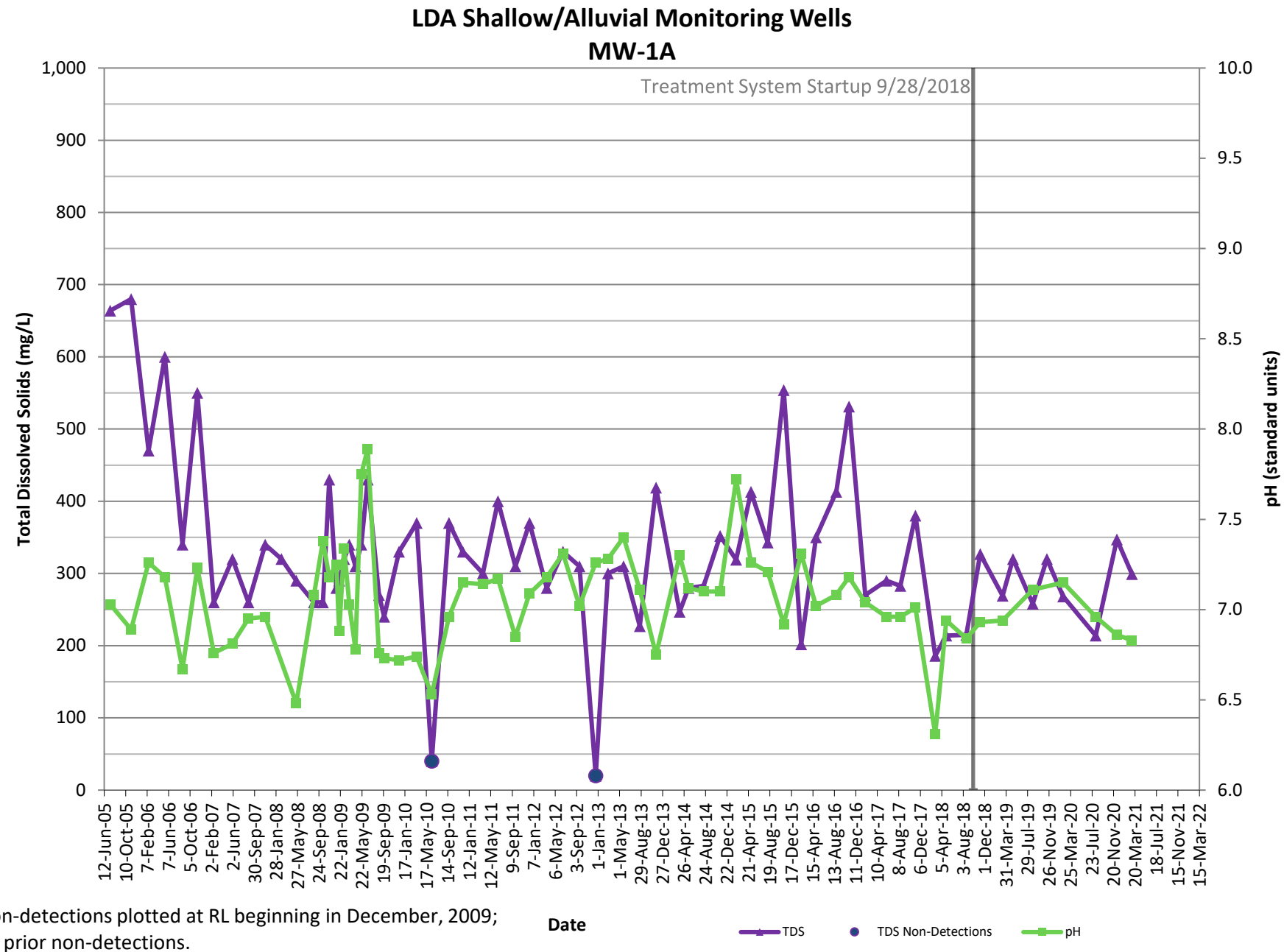
APPENDIX B-1

LDA Shallow/Alluvial Monitoring Wells Data Graphs

LDA Shallow/Alluvial Monitoring Wells
MW-1A

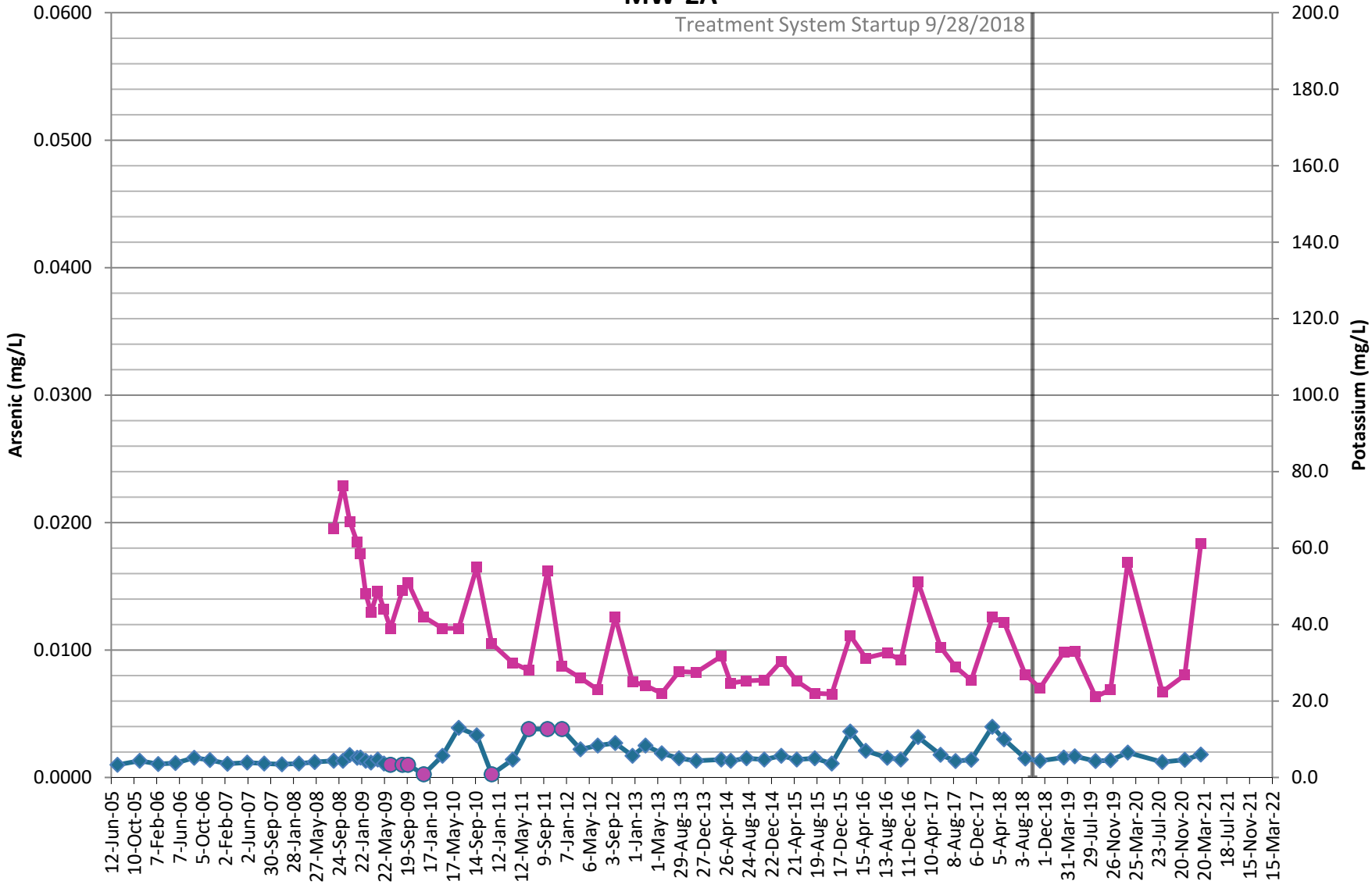


Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL



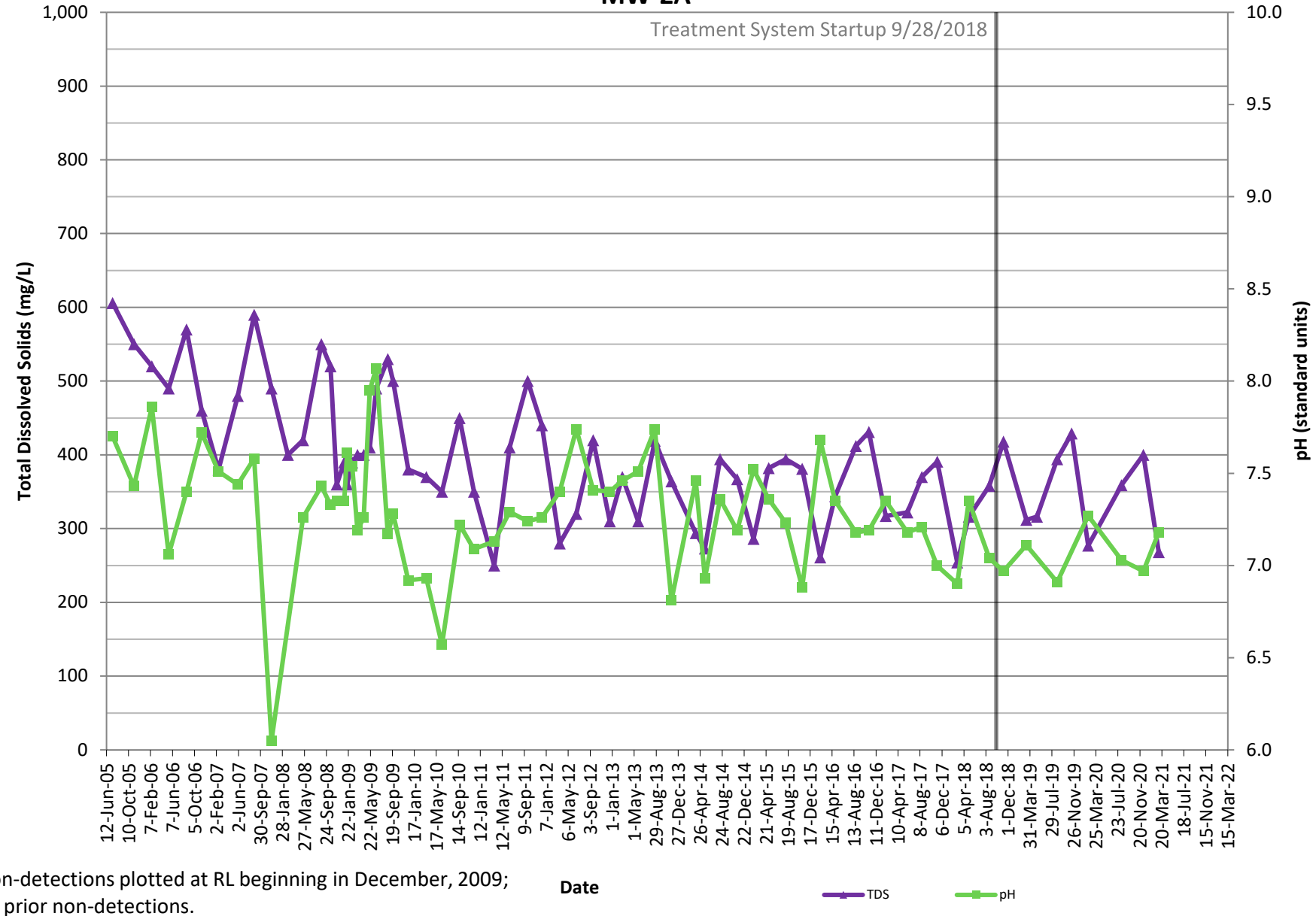
Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

LDA Shallow/Alluvial Monitoring Wells
MW-2A



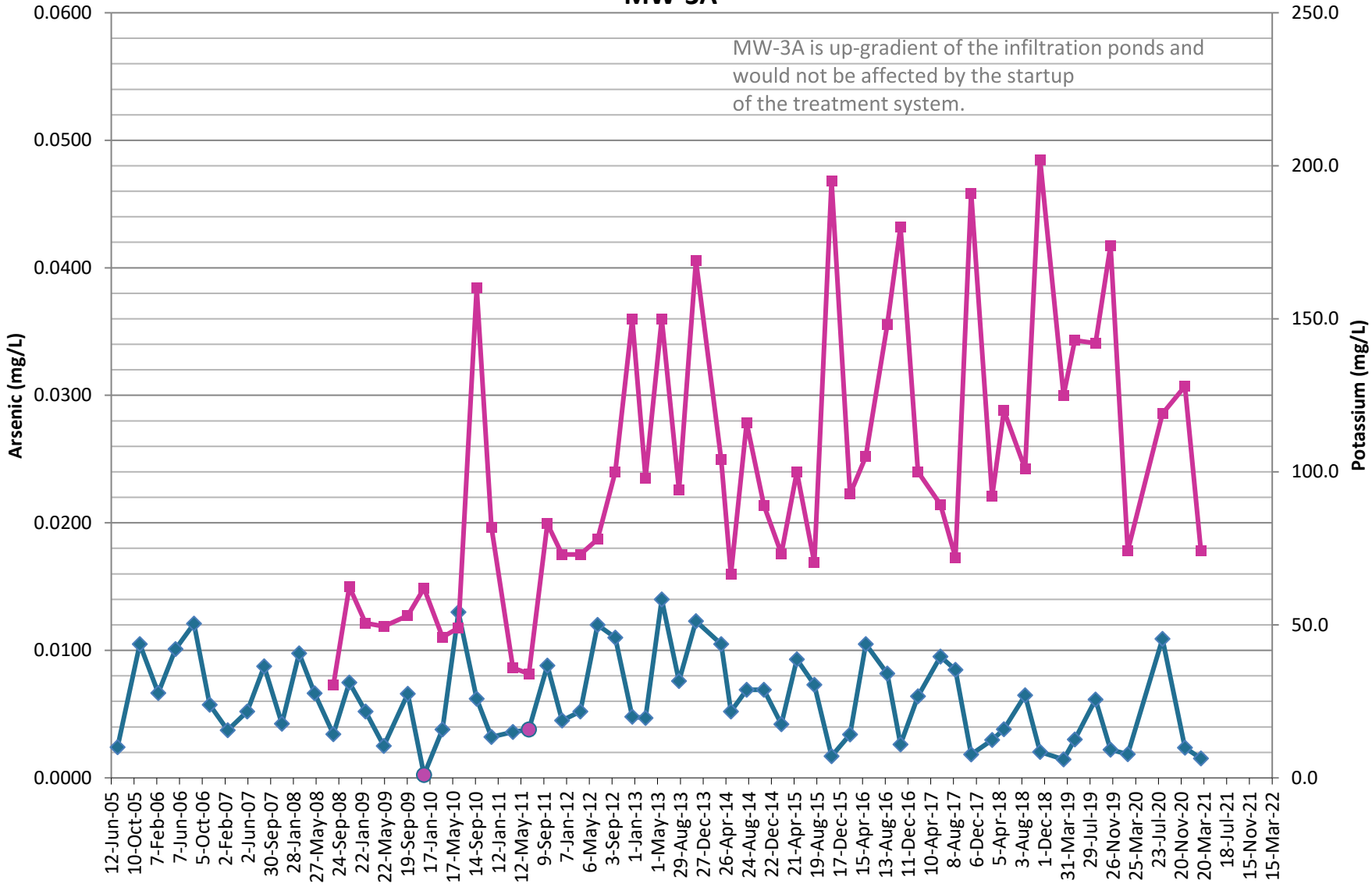
Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL

LDA Shallow/Alluvial Monitoring Wells
MW-2A

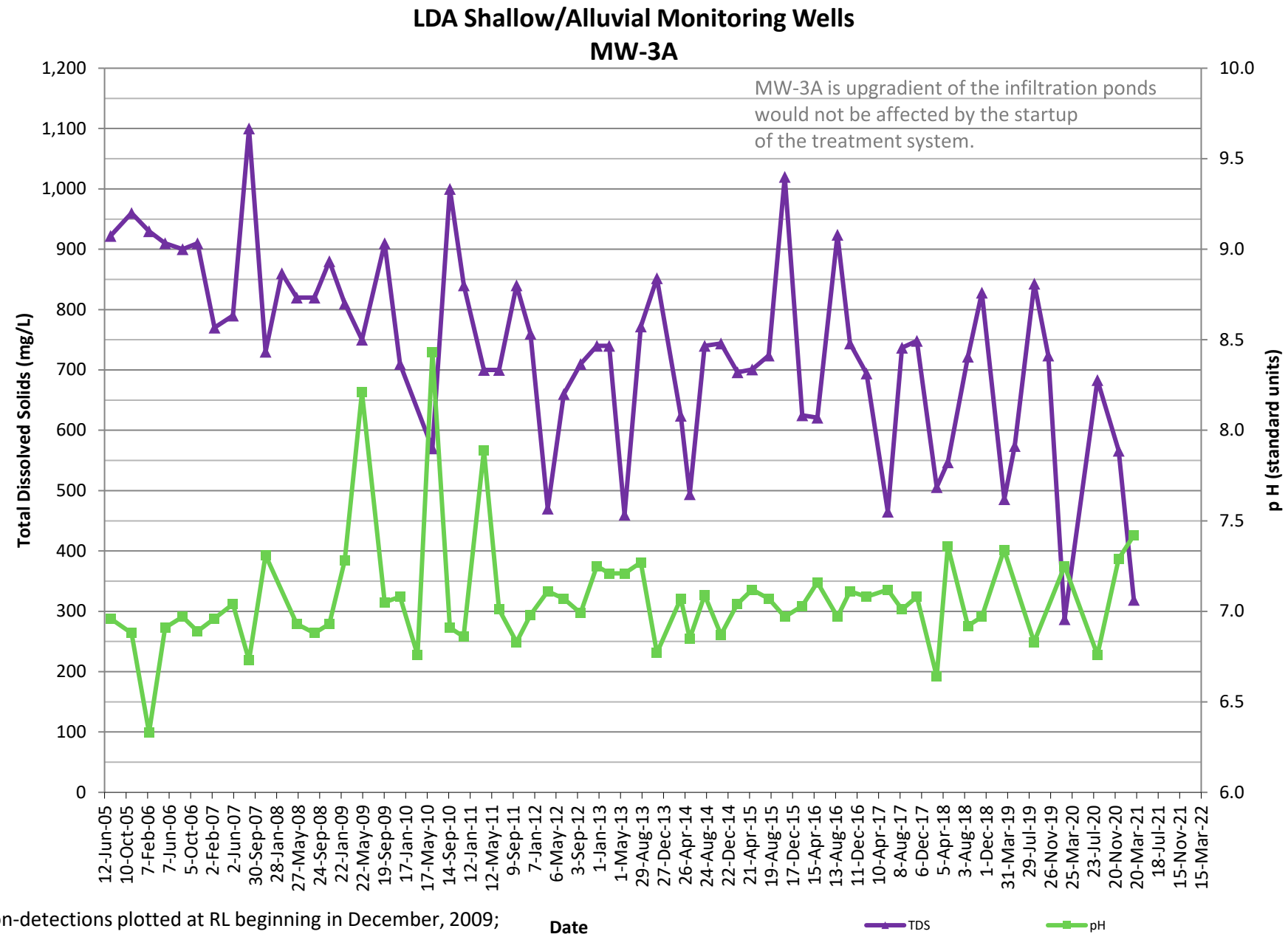


Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

LDA Shallow/Alluvial Monitoring Wells
MW-3A

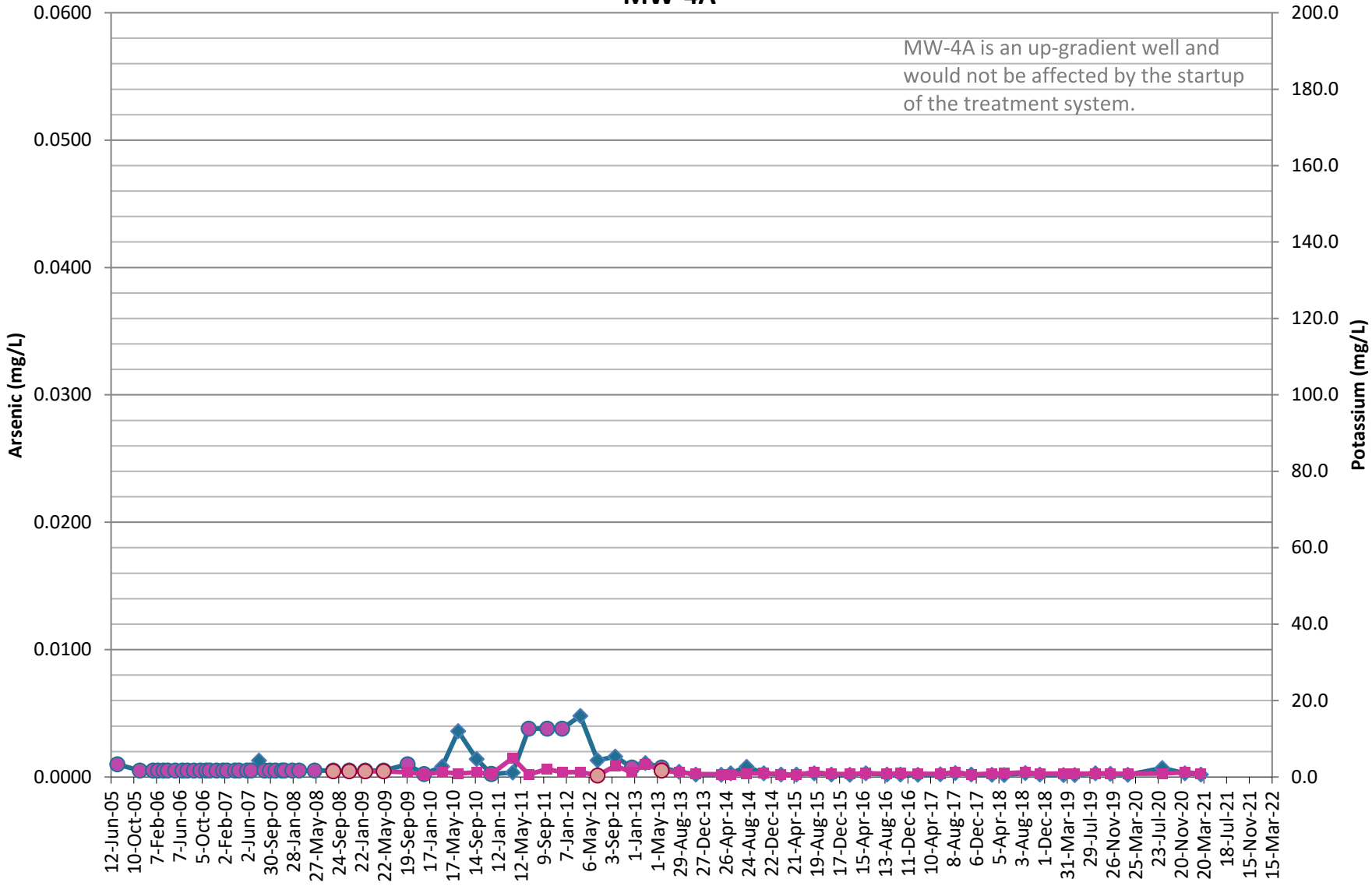


Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL



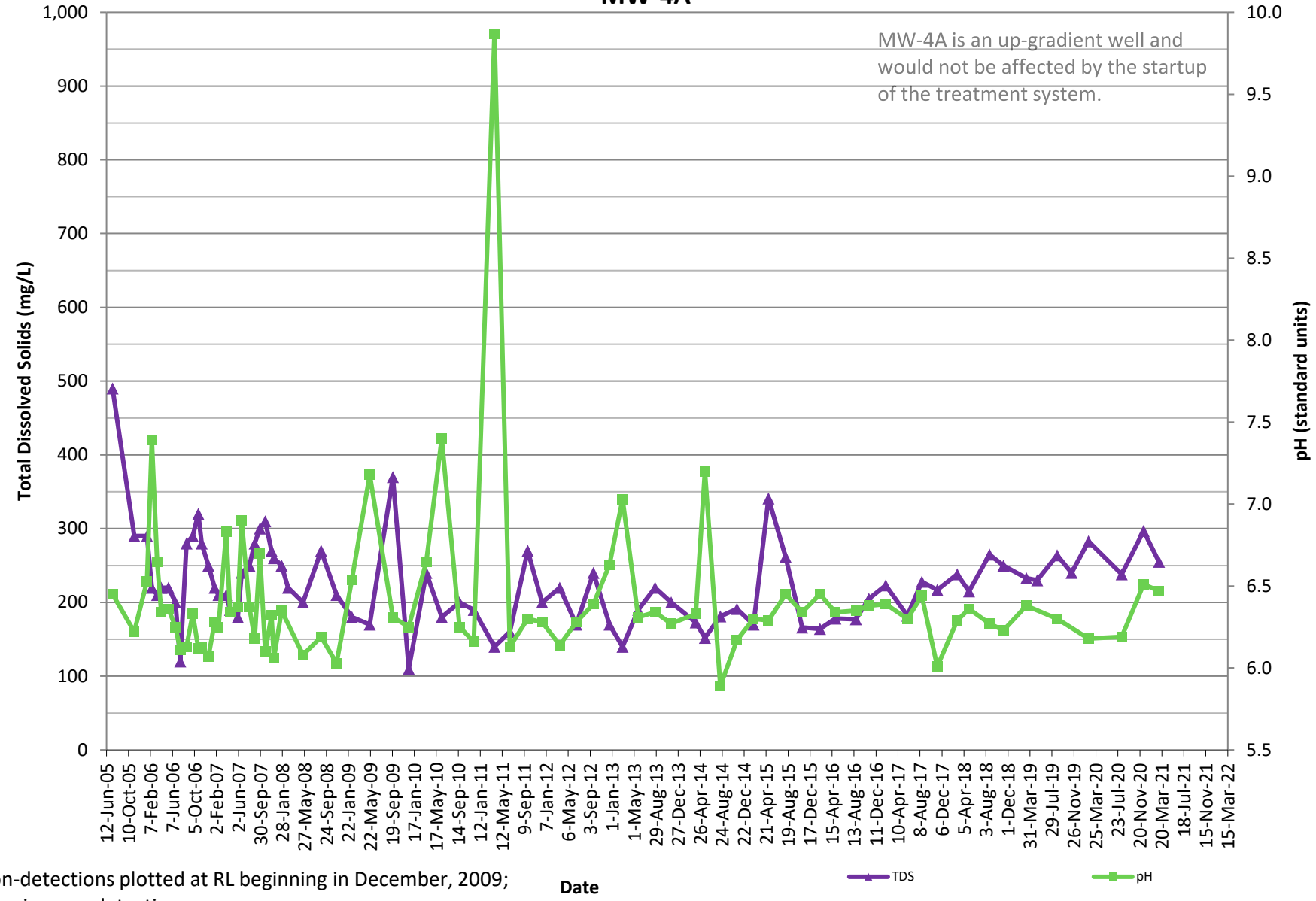
Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

LDA Shallow/Alluvial Monitoring Wells
MW-4A

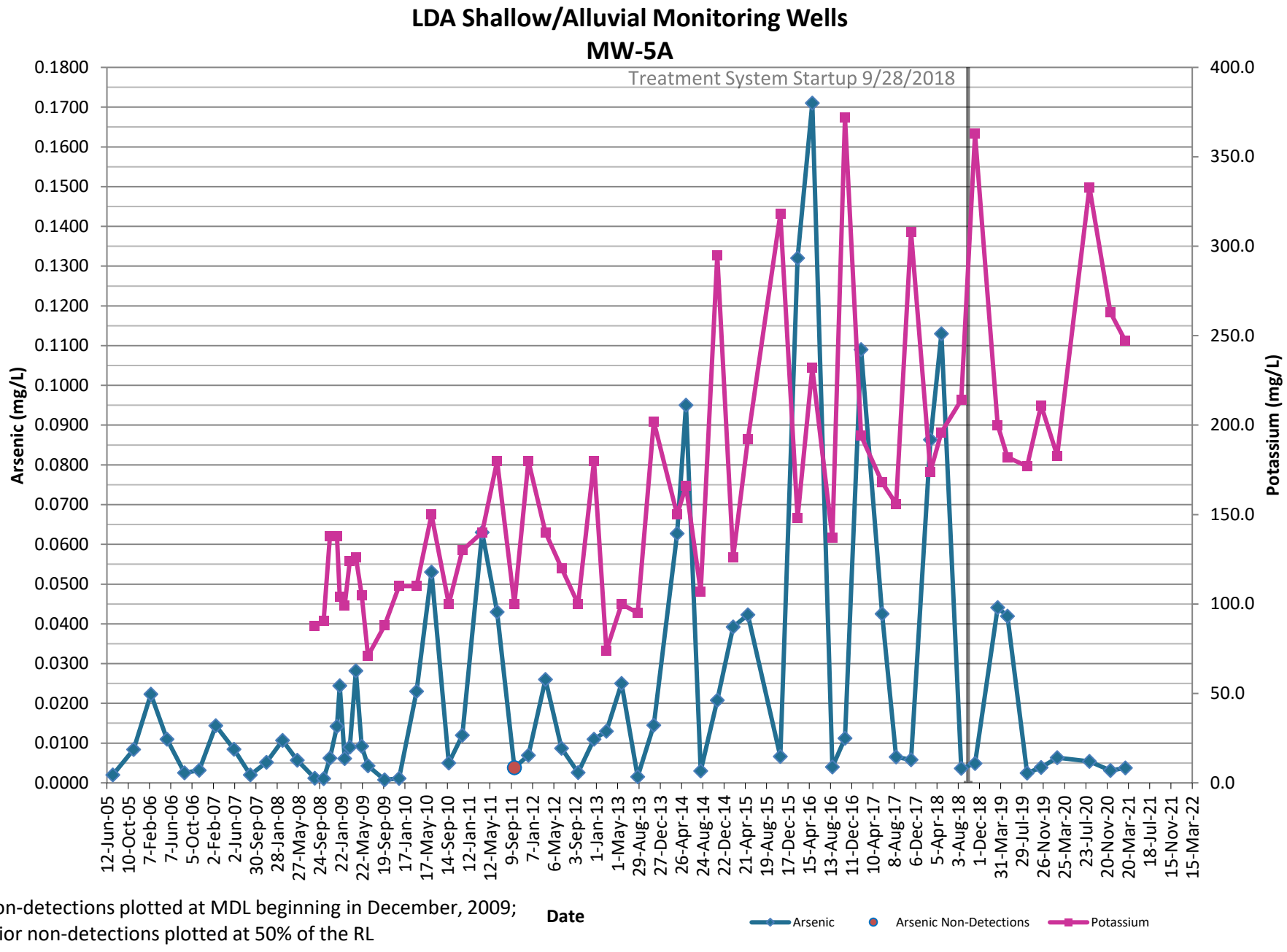


Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL

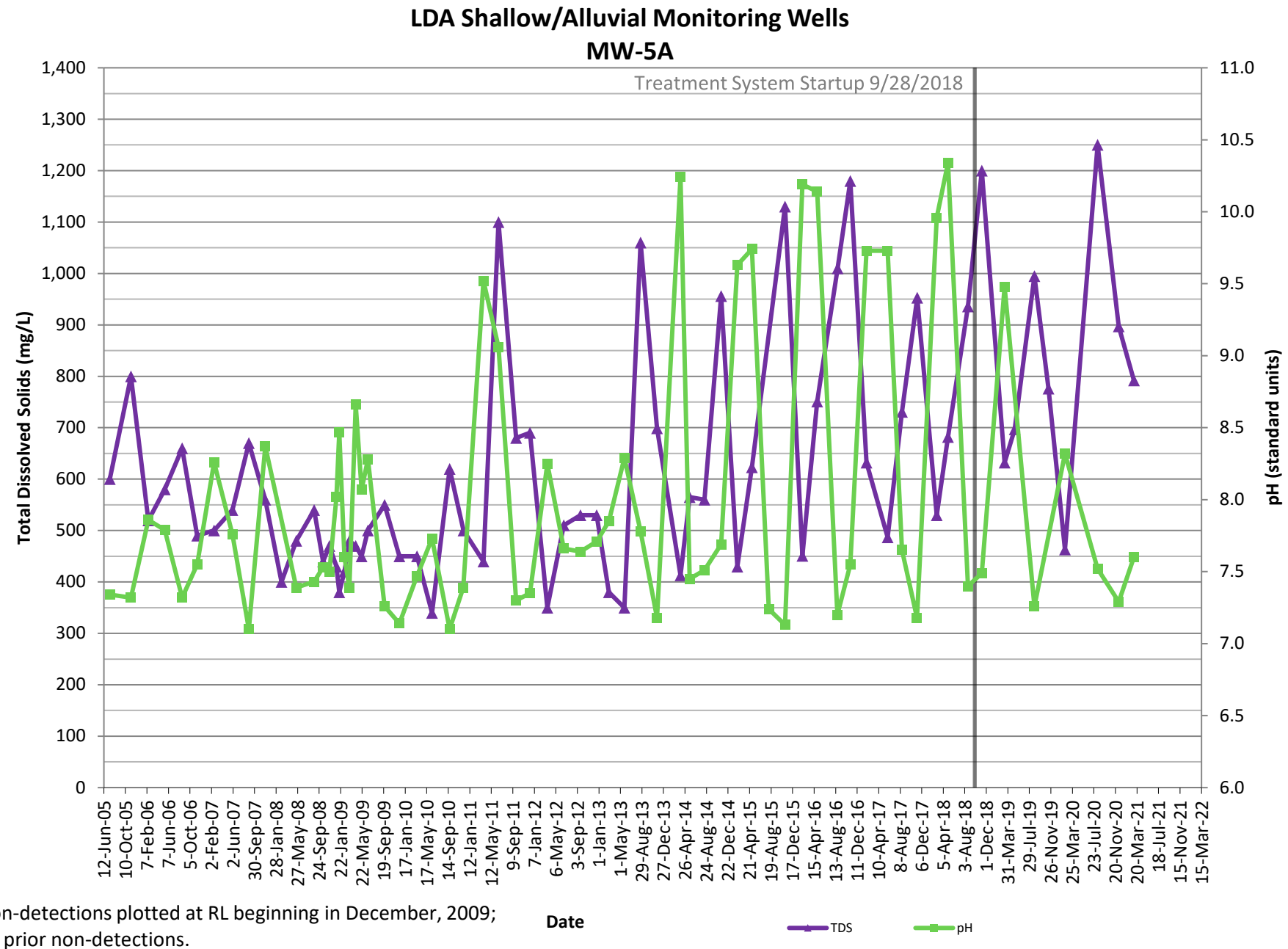
LDA Shallow/Alluvial Monitoring Wells
MW-4A



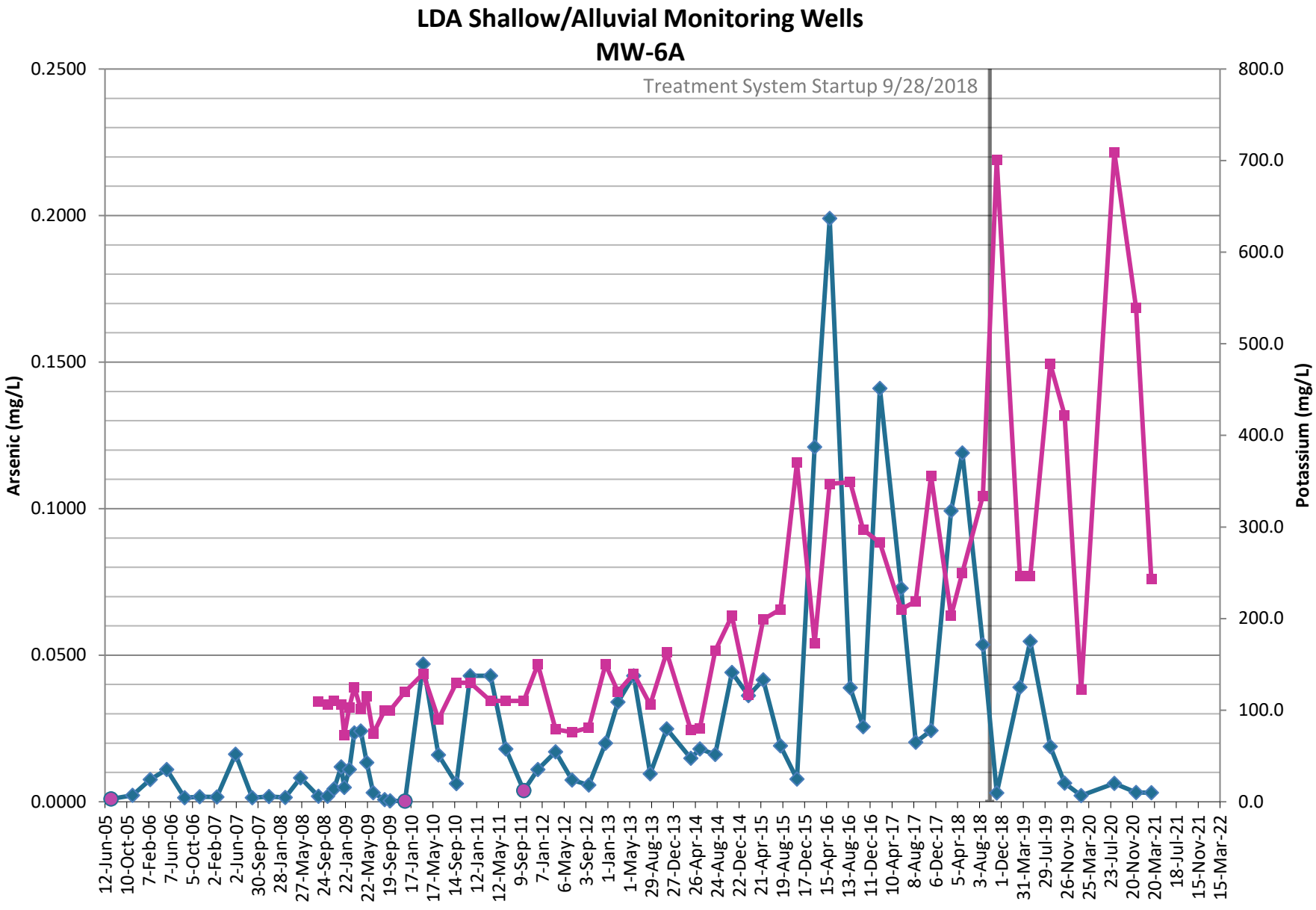
Non-detections plotted at RL beginning in December, 2009; no prior non-detections.



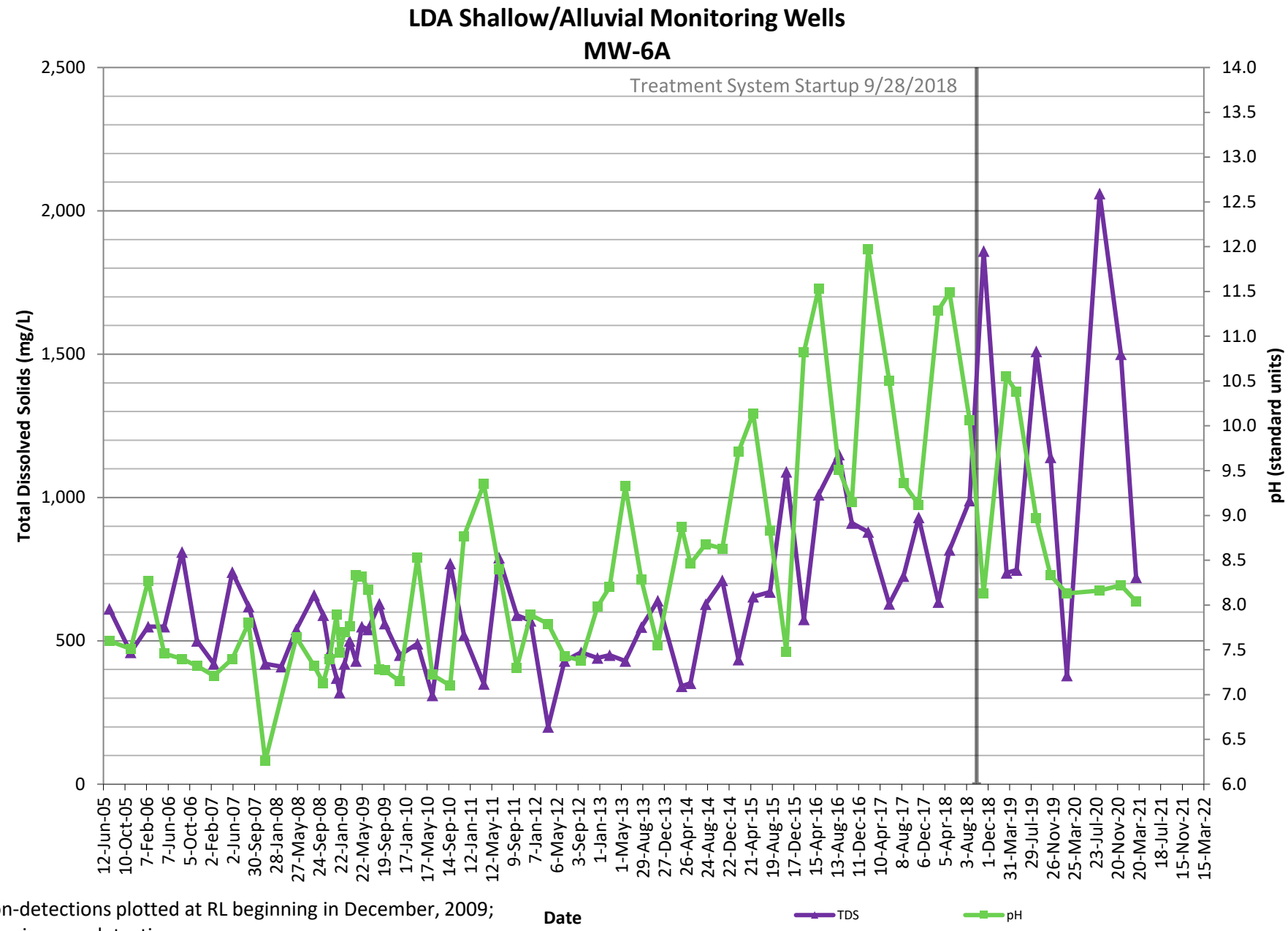
Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL



Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

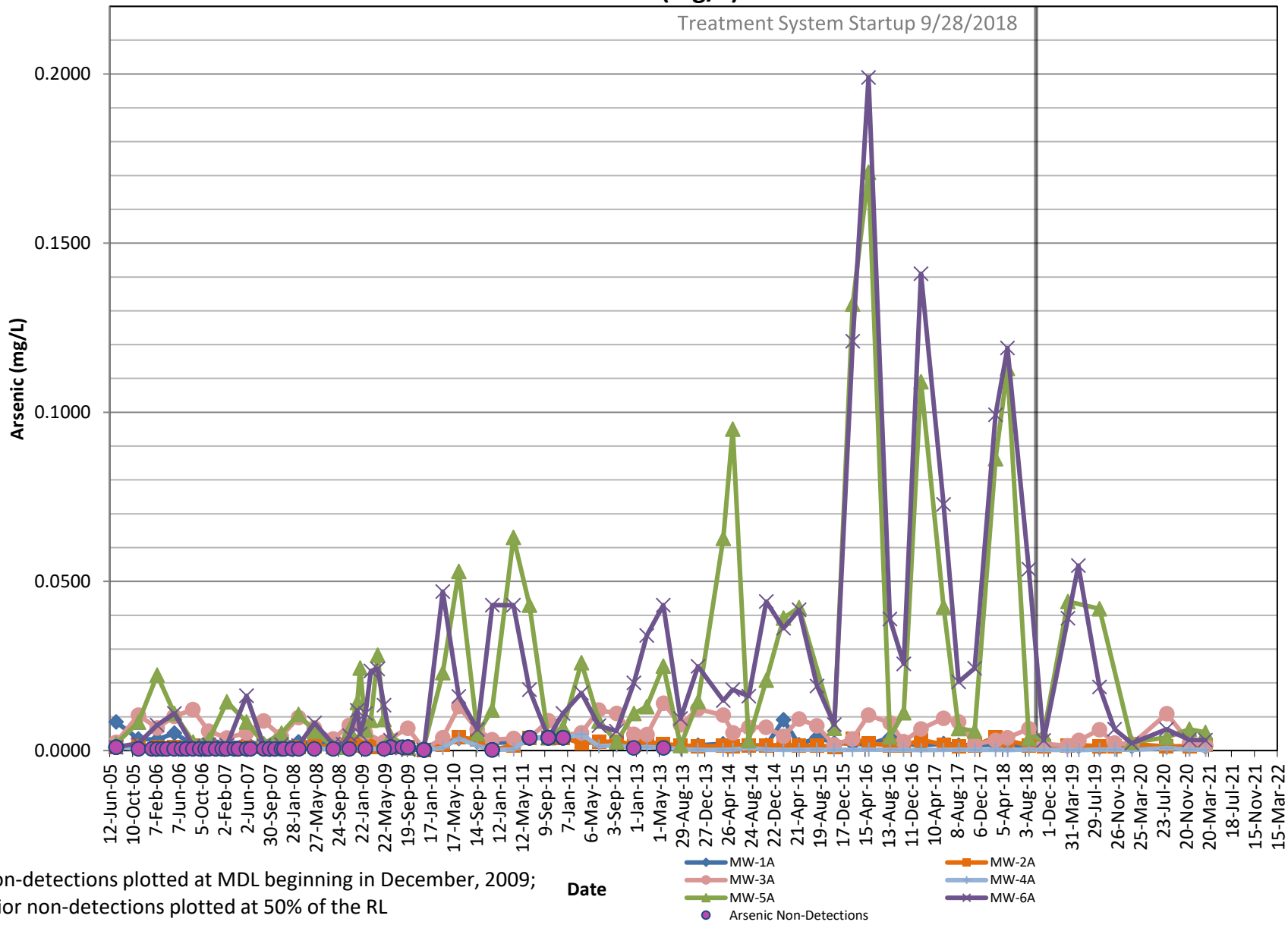


Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL



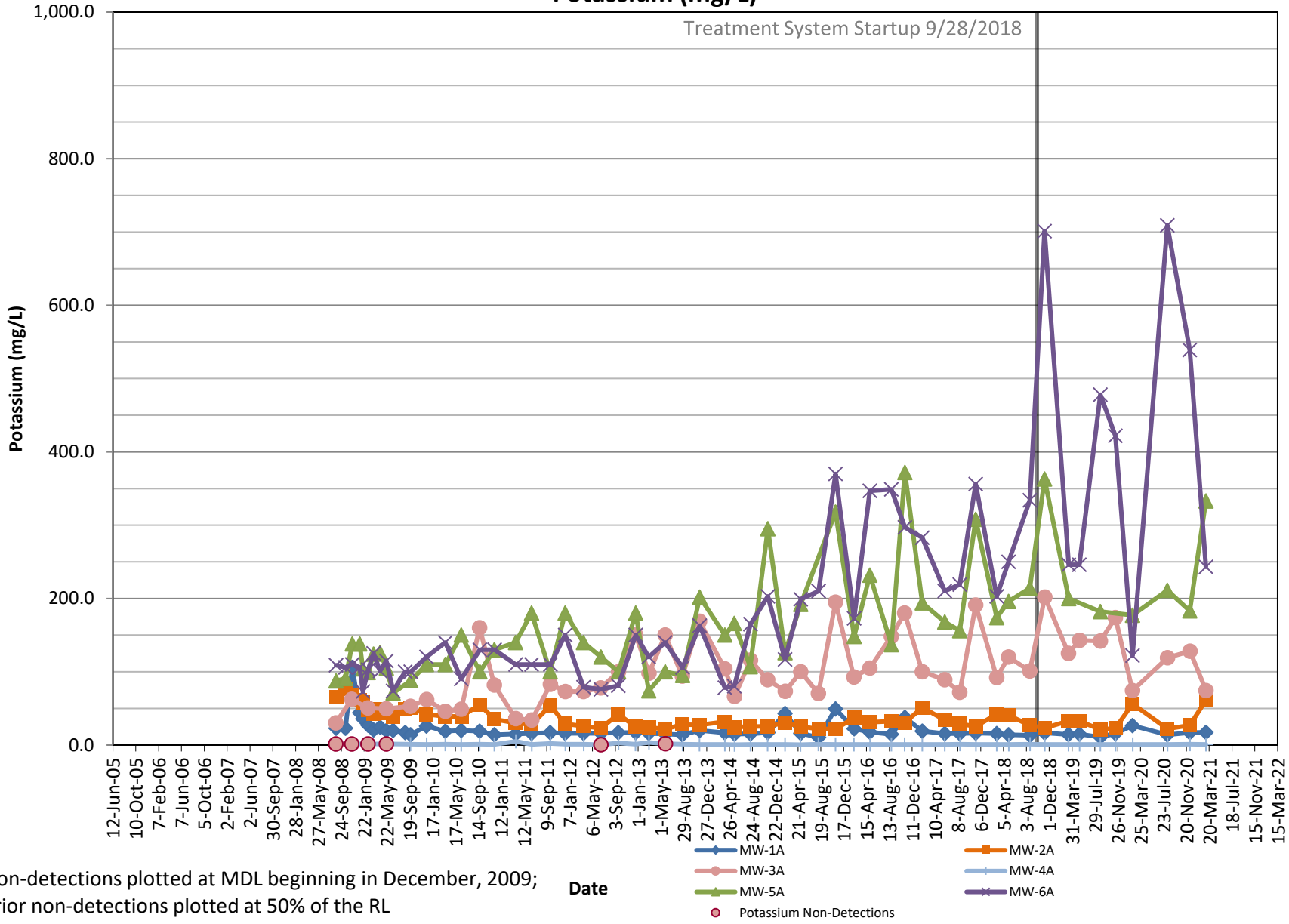
Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

LDA Shallow/Alluvial Monitoring Wells
Arsenic (mg/L)



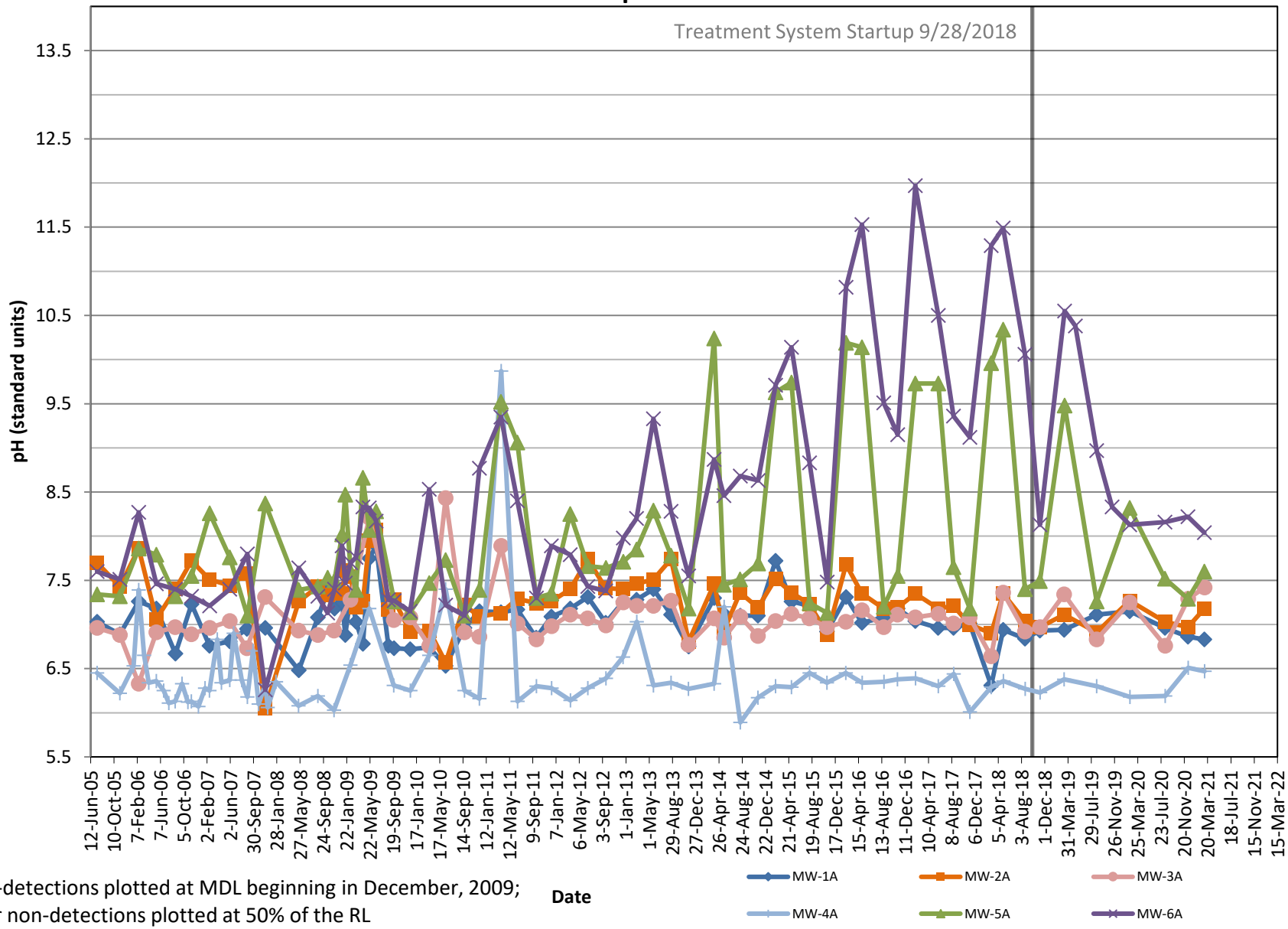
Non-detections plotted at MDL beginning in December, 2009;
prior non-detections plotted at 50% of the RL

LDA Shallow/Alluvial Monitoring Wells
Potassium (mg/L)

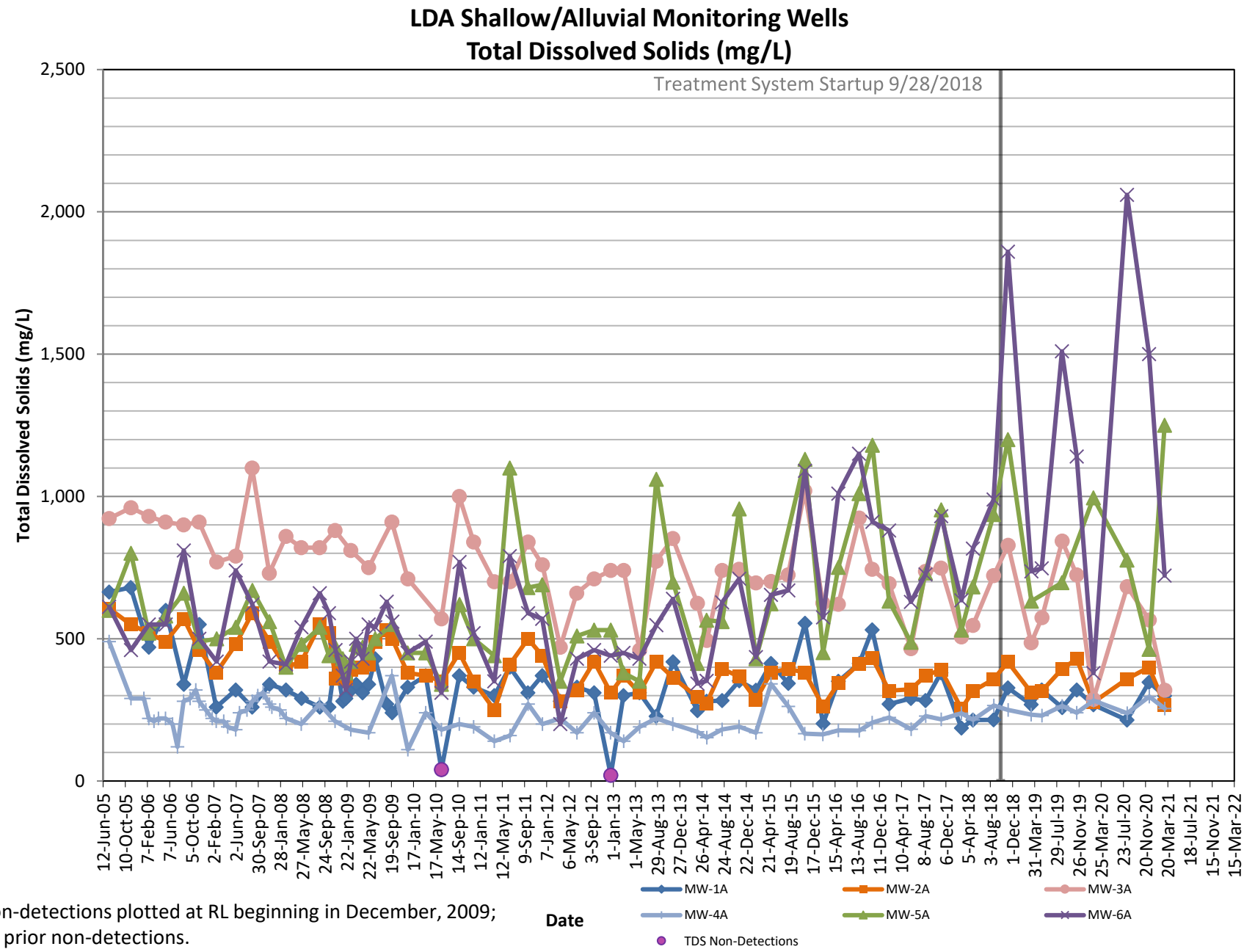


Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL

LDA Shallow/Alluvial Monitoring Wells
pH



Non-detections plotted at MDL beginning in December, 2009; prior non-detections plotted at 50% of the RL



Non-detections plotted at RL beginning in December, 2009; no prior non-detections.

APPENDIX C

Data Validation Report and Laboratory Analytical Results

DATA VALIDATION CHECKLIST

Project Name:	Ravensdale Project
Project Number:	152030420
Sample Identification(s):	Infiltration Ponds-0321, Weir-0321, South Pond-0321, Still Well-0321, Interceptor Trench-0321, MW-35A-0321, MW-1A-0321, MW-2A-0321, MW-3A-0321, MW-4A-0321, MW-5A-0321, MW-6A-0321, P-13-0321, MW-45A-0321, MWB-1LDA-0321, MWB-2LDA-0321, MWB-3LDA-0321, MWB-1SDSP-0321, MWB-1DDSP-0321, MWB-5DSP-0321, MWB-6DSP-0321, Portal-0321, MW-55A-0321, MW-99-1-0321
Sample Date(s):	3/3, 3/4, 3/5/2021
Sample Team:	Tom Haskins & Graydon Konzen, Golder Associates
Sample Matrix:	Aqueous
Analyzing Laboratory:	Analytical Resources, Inc. – Tukwila, WA
Analyses:	TDS (SM 2540 C), Total Metals (EPA 6010D, 200.8): As, Pb, K, Fe, Mn
Laboratory Report No.:	21C0114

FIELD DATA PACKAGE DOCUMENTATION

	Reported		**Performance Acceptable**		**Not Required**
Field Sampling Logs:	NO	YES	NO	YES	
1. Sampling dates noted		X		X	
2. Sampling team indicated		X		X	
3. Sampling identification traceable to location collected		X		X	
4. Sample location		X		X	
5. Collection technique (bailer, pump, etc.)		X		X	
6. Sample container type		X		X	
7. Preservation methods		X		X	
8. Chain-of-custody form completed		X		X	
9. Required analytical methods requested		X		X	
10. Field sample logs completed properly and signed		X		X	
11. Number and type of field QC samples collected		X		X	
12. Field equipment calibration		X		X	
13. Field equipment decontamination		X		X	

QC – quality control

COMMENTS:

Performance was acceptable, with no exceptions.

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Sample results		X		X	
2. Parameters analyzed		X		X	
3. Method of analysis		X		X	
4. Reporting limits of analysis		X		X	
5. Sample collection date		X		X	
6. Laboratory sample received date		X		X	
7. Sample preparation/extraction date		X		X	
8. Sample analysis date		X		X	
9. Copy of chain-of-custody form signed by lab sample custodian		X		X	
10. Narrative summary of QA or sample problems provided		X		X	

QA – quality assurance

COMMENTS:

Performance was acceptable, with the following notes:

- The reporting limits (RLs) and method detection limits (MDLs) of Analytical Resources Inc. were reviewed to ensure data quality objectives were met. The following table is a comparison of the laboratory RLs and MDLs as compared to the preliminary standards for the site. All RLs and MDLs were less than the preliminary standards.

	Preliminary Standards		Analytical Resources Inc.		
Parameter	**Method**	**(mg/L)**	**Method**	**RL (mg/L)**	**MDL (mg/L)**
Total Dissolved Solids (TDS)	EPA 160.1	500	SM 2540 C	200	200
Iron	EPA 6010B	0.3	EPA 6010C	0.05	0.0107
Manganese	EPA 6010B	0.05	EPA 6010C	0.004	0.0016
Potassium	EPA 6010B	NA	EPA 6010C	0.5	0.107
Arsenic	EPA 6020	TBD	EPA 200.8	0.0002	0.000022
Lead	EPA 6020	0.05	EPA 200.8	0.0001	0.000068

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INORGANIC ANALYSES

Metals (EPA 6010/200.8)	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Holding times		X		X	
2. Reporting limits		X		X	
3. Blanks					
a. Method blanks		X		X	
b. Equipment rinsate blanks		X		X	
4. Laboratory control sample (LCS) %R		X		X	
5. Matrix spike (MS) %R		X		X	
6. LCS duplicate (LCSD) %R	X				X
7. MS duplicate (MSD) %R		X		X	
8. MS / MSD RPD		X		X	
9. LCS / LCSD RPD	X				X
10. Laboratory Duplicate RPD		X		X	
11.Field duplicate comparison		X		X	

%R – percent recovery RPD – relative percent difference

COMMENTS:

Performance was acceptable, with the following exceptions and/or notes:

- The Equipment Blank (MW-99-1-0321) had a low detection of dissolved manganese (0.0022 J mg/L). Validation guidelines do not require qualification of equipment blank data. Following historic project practice, no formal qualifications are applied, but it is advisory that low detections of manganese in the primary samples may be biased high.
- The laboratory did not provide LCSD results. LCSD results are not required per method requirements if a laboratory duplicate is analyzed. Sufficient precision and accuracy data was provided by the lab with LCS and laboratory duplicate analyses.
- The laboratory duplicate BJC0409-DUP1 had RPD outside of criteria for manganese. No samples associated with Batch BJC0-0409 were analyzed for manganese with exception of the Equipment Blank (MW-99-1-0321). Using professional judgement, no qualifications are required and MW-99-1-0321 should retain the estimated (J) qualifier.
- The matrix spike recovered high for potassium for sample WEIR-0321. No qualifications were required when the sample result is greater than 4x the spike added.
- Field duplicates were collected at MW-2A (field duplicate ID is MW-45A), Infiltration Ponds (field duplicate ID is MW-35A), and MWB-6DSP (field duplicate ID is MW-55A). While iron for Infiltration Ponds and its duplicate MW-35A had an RPD above 20%, the sample and duplicate were both <5x RL and the absolute difference between the sample and duplicate is ≤RL and thus no qualification is necessary. All other precision is acceptable.

GENERAL WET CHEMISTRY

TDS (SM 2540C)	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Holding times		X		X	
2. Reporting limits		X		X	
3. Blanks					
a. Method blanks		X		X	
b. Equipment rinsate blanks	X				X
4. Laboratory control sample (LCS) %R		X		X	
5. Matrix spike (MS) %R	X				X
6. LCS duplicate (LCSD) %R	X				X
7. MS duplicate (MSD) %R	X				X
8. MS/MSD RPD	X				X
9. LCS/LCSD RPD	X				X
10. Laboratory Duplicate RPD		X		X	
11. Field duplicate comparison	X				X

%R – percent recovery RPD – relative percent difference

COMMENTS:

Performance was acceptable, with the following exceptions and/or notes:

- The laboratory did not provide LCSD results. LCSD results are not required per method requirements if a laboratory duplicate is analyzed. Sufficient precision and accuracy data was provided by the lab with LCS and laboratory duplicate analyses.

DATA VALIDATION CHECKLIST

SUMMARY AND DATA QUALIFIER CODES

Project Name:	Ravensdale Project
Project Number:	152030420
Sample Identification(s):	Infiltration Ponds-0321, Weir-0321, South Pond-0321, Still Well-0321, Interceptor Trench-0321, MW-35A-0321, MW-1A-0321, MW-2A-0321, MW-3A-0321, MW-4A-0321, MW-5A-0321, MW-6A-0321, P-13-0321, MW-45A-0321, MWB-1LDA-0321, MWB-2LDA-0321, MWB-3LDA-0321, MWB-1SDSP-0321, MWB-1DDSP-0321, MWB-5DSP-0321, MWB-6DSP-0321, Portal-0321, MW-55A-0321, MW-99-1-0321
Sample Date(s):	3/3, 3/4, 3/5/2021
Sample Team:	Tom Haskins & Graydon Konzen, Golder Associates
Sample Matrix:	Aqueous
Analyzing Laboratory:	Analytical Resources, Inc. – Tukwila, WA
Analyses:	TDS (SM 2540 C), Total Metals (EPA 6010D, 200.8): As, Pb, K, Fe, Mn
Laboratory Report No.:	21C0114

Sample ID	Analyte(s)	Old Result	Old Qualifier	New Result	New Qualifier	Reason(s)
All samples	All analytes	-	-	-	-	Remove any lab applied “D” qualifiers

VALIDATION PERFORMED BY:	Eric Adams, Joseph Xi Golder Associates
DATE:	March 23, 2021

		MW-2A	MW-45A Duplicate					
Client_Sample_ID	Analyte	Result	Result	RPD	Unit	Qualifier	RL	MDL
MW-2A	Arsenic	1.95	1.84	6%	ug/L		0.2	0.022
MW-2A	Lead	0.219	0.197	11%	ug/L		0.1	0.068
MW-2A	Iron	0.3400	0.3360	1%	mg/L		0.05	0.0107
MW-2A	Potassium	61.1	63.6	4%	mg/L		0.5	0.107
MW-2A	Manganese	0.0126	0.0143	13%	mg/L		0.004	0.0016
MW-2A	Dissolved Solids	268	256	5%	mg/L		10	10

		Infiltration Ponds	MW-35A Duplicate					
Client_Sample_ID	Analyte	Result	Result	RPD	Unit	Qualifier	RL	MDL
Infiltration Ponds	Arsenic	35.3	35.2	0%	ug/L		0.2	0.022
Infiltration Ponds	Lead	6.11	5.99	2%	ug/L		0.1	0.068
Infiltration Ponds	Iron	0.1180	0.1530	26%	mg/L		0.1	0.0214
Infiltration Ponds	Potassium	509	513	1%	mg/L		1	0.214
Infiltration Ponds	Manganese	0.0079	0.0067	16%	mg/L	J	0.008	0.0032
Infiltration Ponds	Dissolved Solids	1310	1310	0%	mg/L		20	20

		MWB-6DSP	MW-55A Duplicate					
Client_Sample_ID	Analyte	Result	Result	RPD	Unit	Qualifier	RL	MDL
MWB-6DSP	Arsenic	1.1	1.09	1%	ug/L		0.2	0.022
MWB-6DSP	Lead	0.1	0.1	--	ug/L	U	0.1	0.068
MWB-6DSP	Potassium	1.24	1.21	2%	mg/L		0.5	0.107
MWB-6DSP	Dissolved Solids	280	280	0%	mg/L		10	10

na - not applicable, non-detected value

Analytical Resources, Incorporated
Analytical Chemists and Consultants

19 March 2021

Gary Zimmerman
Golder Associates
18300 NE Union Hill Road Suite 200
Redmond, WA 98052-3333

RE: Ravensdale

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21C0114	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21C0114	Turn-around Requested: STANDARD
ARI Client Company: GOLDER	Phone: 425-883-0777
Client Contact: GARY ZIMMERMAN / JOSEPH XI	
Client Project Name: RAVENSDALE	
Client Project #: 152030402	Samplers: T. HASKINS

Page: 1 of 3	
Date: 3/5/21	Ice Present? Yes
No. of Coolers: 4	Cooler Temps: See COC

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TDS	Total Metals List #1	Dissolved Metals List #1 (Hold)	Total Metals List #2	Dissolved Metals List #2 (Hold)				Notes/Comments
INFILTRATION PONDS-0321	3/3/21	1450	SW	3	X	X							LIST 1: As, Fe, Pb, Mn, K LIST 2: As, Pb, K
WEIR-0321	3/4/21	0950	SW	5	X	X							+MS/MSD
SOUTH POND-0321	3/4/21	1145	SW	3	X	X							
STILL WELL-0321	3/4/21	1120	GW	3	X	X							
INTERCEPTOR TRENCH-0321	3/4/21	1220	SW	1	X								
MW-35A-0321	3/3/21	1455	SW	3	X	X							
MW-1A-0321	3/3/21	0925	GW	3	X	X							
MW-2A-0321	3/3/21	1115	GW	3	X	X							
MW-3A-0321	3/4/21	0920	GW	3	X	X							
MW-4A-0321	3/4/21	1350	GW	3	X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
- ANALYZE IN ACCORDANCE WITH MSA BETWEEN GOLDER AND ARI - ECOLOG EIM EDD	Printed Name: Tom Haskins	Printed Name: Samantha	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 3/5/21 1540	Date & Time: 03/05/2021 1540	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21C0114	Turn-around Requested: STANDARD
ARI Client Company: GOLDER	Phone: 425-883-0777
Client Contact: GARY ZIMMERMAN/JOSEPH X1	
Client Project Name: RAVENSDALE	
Client Project #: 152230402	Samplers: T. HASKINS

Page: 2 of 3

Date: 3/5/21 | Ice Present? Yes

No. of Coolers: 4 | Cooler Temps: See COC

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPS	TOTAL METALS LIST #2	DISSOLVED METALS LIST #2 (HOLD)	TOTAL METALS LIST #2	DISSOLVED METALS LIST #2 (HOLD)				Notes/Comments
MW-5A-0321	3/3/21	1410	GW	3	X	X							LIST 1: As, Fe, Pb, Mn, K LIST 2: As, Pb, K
MW-6A-0321	3/3/21	1240	GW	3	X	X							
P-14-0321	3/3/21	1738	GW	3	X	X							
MW-45A-0321	3/3/21	1120	GW	3	X	X							
MWB-2LDA-0321	3/5/21	0930	GW	3	X	X							
MWB-2LDA-0321	3/5/21	0940	GW	3	X	X							
MWB-3LDA-0321	3/5/21	1025	GW	3	X	X							
MWB-2SDSP-0321	3/5/21	1120	GW	3	X			X					
MWB-1DDSP-0321	3/5/21	1235	GW	3	X			X					
MWB-5DSP-0321	3/5/21	1355	GW	3	X			X					

Comments/Special Instructions
- ANALYZE IN ACCORDANCE WITH MSA BETWEEN ARI AND GOLDER
- ECOLOGY EIM EDD

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	TOM HASKINS			
Company:	GOLDER	ARI		
Date & Time:	3/5/21 1540	03/05/2021 1540		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21C0114	Turn-around Requested: STANDARD	Page: 3 of 3	
ARI Client Company: GOLDER	Phone: 425-883-0777	Date:	Ice Present? Yes
Client Contact: GARY ZIMMERMAN / JOSEPH XI		No. of Coolers: 4	Cooler Temps: See CRF
Client Project Name: RAVENSDALE			
Client Project #: 152030402	Samplers: T. HASKINS		

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Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TDS	Total Metals List #1	Dissolved Metals List #1 (Hold)	Total Metals List #2	Dissolved Metals List #2 (Hold)				Notes/Comments
MW3-6DSP-0321	3/4/21	1600	GW	3	X			X					LIST 1: As, Fe, Pb, Mn, K
PORTAL-0321	3/4/21	1725	SW	3	X			X					LIST 2: As, Pb, K
MW-55A-0321	3/4/21	1605	GW	3	X			X					

Comments/Special Instructions: -ANALYZE IN ACCORDANCE WITH MSA BETWEEN GOLDER AND ARI -ECOLOGY EIM EDD	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: TOM HASKINS	Printed Name: Jacob Lalt	Printed Name:	Printed Name:
	Company: GOLDER	Company: ARI	Company:	Company:
	Date & Time: 3/5/21 1540	Date & Time: 03/05/2021 1540	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INFILTRATION PONDS-0321	21C0114-01	Water	03-Mar-2021 14:50	05-Mar-2021 15:40
WEIR-0321	21C0114-03	Water	04-Mar-2021 09:50	05-Mar-2021 15:40
SOUTH POND-0321	21C0114-05	Water	04-Mar-2021 11:45	05-Mar-2021 15:40
STILL WELL-0321	21C0114-07	Water	04-Mar-2021 11:20	05-Mar-2021 15:40
INTERCEPTOR TRENCH-0321	21C0114-09	Water	04-Mar-2021 12:20	05-Mar-2021 15:40
MW-35A-0321	21C0114-10	Water	03-Mar-2021 14:55	05-Mar-2021 15:40
MW-1A-0321	21C0114-12	Water	03-Mar-2021 09:25	05-Mar-2021 15:40
MW-2A-0321	21C0114-14	Water	03-Mar-2021 11:15	05-Mar-2021 15:40
MW-3A-0321	21C0114-16	Water	04-Mar-2021 09:20	05-Mar-2021 15:40
MW-4A-0321	21C0114-18	Water	04-Mar-2021 13:50	05-Mar-2021 15:40
MW-5A-0321	21C0114-20	Water	03-Mar-2021 14:10	05-Mar-2021 15:40
MW-6A-0321	21C0114-22	Water	03-Mar-2021 12:40	05-Mar-2021 15:40
P-14-0321	21C0114-24	Water	03-Mar-2021 17:38	05-Mar-2021 15:40
MW-45A-0321	21C0114-26	Water	03-Mar-2021 11:20	05-Mar-2021 15:40
MWB-1LDA-0321	21C0114-28	Water	05-Mar-2021 08:30	05-Mar-2021 15:40
MWB-2LDA-0321	21C0114-30	Water	05-Mar-2021 09:40	05-Mar-2021 15:40
MWB-3LDA-0321	21C0114-32	Water	05-Mar-2021 10:25	05-Mar-2021 15:40
MWB-1SDSP-0321	21C0114-34	Water	05-Mar-2021 11:20	05-Mar-2021 15:40
MWB-1DDSP-0321	21C0114-36	Water	05-Mar-2021 12:35	05-Mar-2021 15:40
MWB-5DSP-0321	21C0114-38	Water	05-Mar-2021 13:55	05-Mar-2021 15:40
MWB-6DSP-0321	21C0114-40	Water	04-Mar-2021 16:00	05-Mar-2021 15:40
PORTAL-0321	21C0114-42	Water	04-Mar-2021 17:25	05-Mar-2021 15:40
MW-55A-0321	21C0114-44	Water	04-Mar-2021 16:05	05-Mar-2021 15:40
MW-99-1-0321	21C0114-46	Water	03-Mar-2021 14:40	05-Mar-2021 15:40

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

Work Order Case Narrative

Total Metals - EPA Method 200.8 and 6010D

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

The duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Ravensdale

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21C0114

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1540 — 1.2 0.5 0.3 1.7 ___ ___

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D00520 6

Cooler Accepted by: JG Date: 03/05/2021 Time: 1540

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	(NO) 3
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SC Date: 3/6/21 Time: 0852 Labels checked by: SC

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Additional Sample (MW-99-1-0321) not listed on CoC.

By: SC Date: 3/6/21

WORK ORDER

21C0114

Client: Golder Associates

Project: Ravensdale

Project Manager: Kelly Bottem

Project Number: 152030402

Preservation Confirmation

Container ID	Container Type	pH	
21C0114-01 A	Large OJ, 1000 mL		
21C0114-01 B	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21C0114-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-03 A	Large OJ, 1000 mL		
21C0114-03 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-03 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-03 D	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-05 A	Large OJ, 1000 mL		
21C0114-05 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-07 A	Large OJ, 1000 mL		
21C0114-07 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-09 A	Large OJ, 1000 mL		
21C0114-10 A	Large OJ, 1000 mL		
21C0114-10 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-12 A	Large OJ, 1000 mL		
21C0114-12 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-13 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-14 A	Large OJ, 1000 mL		
21C0114-14 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-15 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-16 A	Large OJ, 1000 mL		
21C0114-16 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-17 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-18 A	Large OJ, 1000 mL		
21C0114-18 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-19 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-20 A	Large OJ, 1000 mL		
21C0114-20 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-21 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-22 A	Large OJ, 1000 mL		
21C0114-22 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P

Reviewed By

Date

WORK ORDER

21C0114

Client: Golder Associates | **Project Manager:** Kelly Bottem

Project: Ravensdale | **Project Number:** 152030402

21C0114-23 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass (P)
21C0114-24 A	Large OJ, 1000 mL		
21C0114-24 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-25 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-26 A	Large OJ, 1000 mL		
21C0114-26 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-27 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-28 A	Large OJ, 1000 mL		
21C0114-28 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-29 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-30 A	Large OJ, 1000 mL		
21C0114-30 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-31 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-32 A	Large OJ, 1000 mL		
21C0114-32 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-33 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-34 A	Large OJ, 1000 mL		
21C0114-34 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-35 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-36 A	Large OJ, 1000 mL		
21C0114-36 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-37 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-38 A	Large OJ, 1000 mL		
21C0114-38 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-39 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-40 A	Large OJ, 1000 mL		
21C0114-40 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-41 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-42 A	Large OJ, 1000 mL		
21C0114-42 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-43 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-44 A	Large OJ, 1000 mL		
21C0114-44 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21C0114-45 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21C0114-46 A	Large OJ, 1000 mL		
21C0114-46 B	HDPE NM, 500 mL, 1:1 HNO3	<2	P

Reviewed By

Date

WORK ORDER

21C0114

Client: Golder Associates	**Project Manager: Kelly Bottem**
Project: Ravensdale	**Project Number: 152030402**

3C
Preservation Confirmed By

3/6/21
Date

Reviewed By

Date

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INFILTRATION PONDS-0321

21C0114-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 14:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 01:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-01 B 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	6.11	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INFILTRATION PONDS-0321

21C0114-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 14:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 01:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-01 B 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	35.3	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INFILTRATION PONDS-0321

21C0114-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 14:50
Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:26

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-01 B 02
Preparation Batch: BJC0411 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0214	0.100	0.118	mg/L	D
Manganese	7439-96-5	2	0.0032	0.0080	0.0079	mg/L	J, D
Potassium	7440-09-7	2	0.214	1.00	509	mg/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INFILTRATION PONDS-0321

21C0114-01 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 14:50
Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-01
Preparation Batch: BJC0164 — Sample Size: 50 mL
Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	20	20	1310	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

WEIR-0321

21C0114-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 09:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-03 D 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.114	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

WEIR-0321

21C0114-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 09:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-03 D 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.70	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

WEIR-0321

21C0114-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 09:50

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:03

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-03 D 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.0386	mg/L	J
Manganese	7439-96-5	1	0.0016	0.0040	0.0156	mg/L	
Potassium	7440-09-7	1	0.107	0.500	80.6	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

WEIR-0321

21C0114-03 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 09:50

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-03

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	424	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

SOUTH POND-0321

21C0114-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 11:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-05 B 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	5	0.340	0.500	35.7	ug/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

SOUTH POND-0321

21C0114-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 11:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-05 B 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.110	1.00	50.6	ug/L	D

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

SOUTH POND-0321

21C0114-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 11:45
Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:37

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-05 B 02
Preparation Batch: BJC0411 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.0535	0.250	4.37	mg/L	D
Manganese	7439-96-5	5	0.0080	0.0200	0.0864	mg/L	D
Potassium	7440-09-7	5	0.534	2.50	435	mg/L	D

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

SOUTH POND-0321

21C0114-05 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 11:45
Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-05
Preparation Batch: BJC0164 — Sample Size: 75 mL
Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	13	13	4820	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

STILL WELL-0321

21C0114-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 11:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-07 B 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	1.49	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

STILL WELL-0321

21C0114-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 19:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-07 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.110	1.00	61.8	ug/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

STILL WELL-0321

21C0114-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 11:20

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:29

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-07 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0214	0.100	ND	mg/L	U
Manganese	7439-96-5	2	0.0032	0.0080	ND	mg/L	U
Potassium	7440-09-7	2	0.214	1.00	512	mg/L	D

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

STILL WELL-0321

21C0114-07 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 11:20
Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-07
Preparation Batch: BJC0164 — Sample Size: 10 mL
Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	100	100	1470	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INTERCEPTOR TRENCH-0321

21C0114-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 12:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-09 A 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	2	0.136	0.200	3.95	ug/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INTERCEPTOR TRENCH-0321

21C0114-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 12:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-09 A 01
Preparation Batch: BJC0408 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0440	0.400	4.43	ug/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INTERCEPTOR TRENCH-0321

21C0114-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 12:20
Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 16:45

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-09 A 02
Preparation Batch: BJC0411 — Sample Size: 25 mL
Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	5.35	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	1.09	mg/L	
Potassium	7440-09-7	1	0.107	0.500	7.95	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

INTERCEPTOR TRENCH-0321

21C0114-09 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 12:20
Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-09
Preparation Batch: BJC0164 — Sample Size: 100 mL
Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	584	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-35A-0321

21C0114-10 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 14:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-10 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	5.99	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-35A-0321

21C0114-10 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 14:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-10 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	35.2	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-35A-0321

21C0114-10 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 14:55

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:32

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-10 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0214	0.100	0.153	mg/L	D
Manganese	7439-96-5	2	0.0032	0.0080	0.0067	mg/L	J, D
Potassium	7440-09-7	2	0.214	1.00	513	mg/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-35A-0321

21C0114-10 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 14:55

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-10

Preparation Batch: BJC0164 — Sample Size: 50 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	20	20	1310	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-1A-0321

21C0114-12 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 09:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-12 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-1A-0321

21C0114-12 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 09:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-12 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.16	ug/L	

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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-1A-0321

21C0114-12 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 09:25

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 16:51

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-12 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	ND	mg/L	U
Manganese	7439-96-5	1	0.0016	0.0040	ND	mg/L	U
Potassium	7440-09-7	1	0.107	0.500	17.4	mg/L	

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MW-1A-0321

21C0114-12 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 09:25

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-12

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	299	mg/L	

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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-2A-0321

21C0114-14 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 11:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-14 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.219	ug/L	

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MW-2A-0321

21C0114-14 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 11:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-14 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.80	ug/L	

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Golder Associates	Project: Ravensdale	
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MW-2A-0321

21C0114-14 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 11:15

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 16:54

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-14 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.340	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0126	mg/L	
Potassium	7440-09-7	1	0.107	0.500	61.1	mg/L	

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MW-2A-0321

21C0114-14 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 11:15

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-14

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	268	mg/L	

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-3A-0321

21C0114-16 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 09:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-16 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.134	ug/L	

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Golder Associates	Project: Ravensdale	
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MW-3A-0321

21C0114-16 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 09:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 02:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-16 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.52	ug/L	

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MW-3A-0321

21C0114-16 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 09:20

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 16:57

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-16 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.121	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.371	mg/L	
Potassium	7440-09-7	1	0.107	0.500	74.2	mg/L	

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MW-3A-0321

21C0114-16 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 09:20

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-16

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	319	mg/L	

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Golder Associates	Project: Ravensdale	
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MW-4A-0321

21C0114-18 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-18 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
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MW-4A-0321

21C0114-18 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-18 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.192	ug/L	J

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Golder Associates	Project: Ravensdale	
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MW-4A-0321

21C0114-18 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 13:50

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:36

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-18 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.0546	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0274	mg/L	
Potassium	7440-09-7	1	0.107	0.500	0.876	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
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MW-4A-0321

21C0114-18 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 13:50

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-18

Preparation Batch: BJC0164 — Sample Size: 200 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	255	mg/L	

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MW-5A-0321

21C0114-20 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 14:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-20 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.132	ug/L	

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Golder Associates	Project: Ravensdale	
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MW-5A-0321

21C0114-20 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 14:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-20 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.74	ug/L	

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Golder Associates	Project: Ravensdale	
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MW-5A-0321

21C0114-20 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 14:10

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:39

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-20 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.0999	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0052	mg/L	
Potassium	7440-09-7	1	0.107	0.500	247	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-5A-0321

21C0114-20 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 14:10

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-20

Preparation Batch: BJC0164 — Sample Size: 75 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	13	13	792	mg/L	

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Golder Associates	Project: Ravensdale	
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MW-6A-0321

21C0114-22 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 12:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-22 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.307	ug/L	

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-6A-0321

21C0114-22 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 12:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-22 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.09	ug/L	

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-6A-0321

21C0114-22 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 12:40

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:42

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-22 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.182	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0174	mg/L	
Potassium	7440-09-7	1	0.107	0.500	243	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-6A-0321

21C0114-22 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 12:40

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-22

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	722	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

P-14-0321

21C0114-24 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 17:38

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 19:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-24 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	5	0.340	0.500	9.64	ug/L	D

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

P-14-0321

21C0114-24 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 17:38

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 19:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-24 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.110	1.00	84.1	ug/L	D

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

P-14-0321

21C0114-24 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 17:38

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:35

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-24 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.0535	0.250	ND	mg/L	U
Manganese	7439-96-5	5	0.0080	0.0200	0.0106	mg/L	J, D
Potassium	7440-09-7	5	0.534	2.50	1490	mg/L	D

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

P-14-0321

21C0114-24 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 17:38

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-24

Preparation Batch: BJC0164 — Sample Size: 5 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	200	200	4060	mg/L	

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MW-45A-0321

21C0114-26 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-26 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.197	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-45A-0321

21C0114-26 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-26 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.84	ug/L	

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MW-45A-0321

21C0114-26 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 11:20

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:48

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-26 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.336	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0143	mg/L	
Potassium	7440-09-7	1	0.107	0.500	63.6	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-45A-0321

21C0114-26 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 11:20

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-26

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	256	mg/L	

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Golder Associates	Project: Ravensdale	
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MWB-1LDA-0321

21C0114-28 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 08:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-28 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-1LDA-0321

21C0114-28 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 08:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-28 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	10.5	ug/L	

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MWB-1LDA-0321

21C0114-28 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 08:30

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:51

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-28 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.210	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0407	mg/L	
Potassium	7440-09-7	1	0.107	0.500	1.12	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
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MWB-1LDA-0321

21C0114-28 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 08:30

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-28

Preparation Batch: BJC0164 — Sample Size: 200 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	214	mg/L	

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MWB-2LDA-0321

21C0114-30 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-30 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
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MWB-2LDA-0321

21C0114-30 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-30 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.52	ug/L	

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MWB-2LDA-0321

21C0114-30 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 09:40

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:54

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-30 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.321	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0166	mg/L	
Potassium	7440-09-7	1	0.107	0.500	1.09	mg/L	

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MWB-2LDA-0321

21C0114-30 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 09:40

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-30

Preparation Batch: BJC0164 — Sample Size: 200 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	176	mg/L	

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Golder Associates	Project: Ravensdale	
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MWB-3LDA-0321

21C0114-32 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-32 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
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MWB-3LDA-0321

21C0114-32 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-32 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.84	ug/L	

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MWB-3LDA-0321

21C0114-32 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 10:25

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:57

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-32 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	0.107	mg/L	
Manganese	7439-96-5	1	0.0016	0.0040	0.0075	mg/L	
Potassium	7440-09-7	1	0.107	0.500	0.877	mg/L	

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MWB-3LDA-0321

21C0114-32 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 10:25

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-32

Preparation Batch: BJC0164 — Sample Size: 200 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	136	mg/L	

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MWB-1SDSP-0321

21C0114-34 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-34 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-1SDSP-0321

21C0114-34 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 03:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-34 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	19.5	ug/L	

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MWB-1SDSP-0321

21C0114-34 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 11:20

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 17:59

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-34 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	6.15	mg/L	

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Golder Associates	Project: Ravensdale	
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MWB-1SDSP-0321

21C0114-34 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 11:20

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-34

Preparation Batch: BJC0164 — Sample Size: 75 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	13	13	1200	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-1DDSP-0321

21C0114-36 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 12:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-36 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
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MWB-1DDSP-0321

21C0114-36 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 12:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-36 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	4.06	ug/L	

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Golder Associates	Project: Ravensdale	
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MWB-1DDSP-0321

21C0114-36 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 12:35

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:20

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-36 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	3.88	mg/L	

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Golder Associates	Project: Ravensdale	
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MWB-1DDSP-0321

21C0114-36 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 12:35

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-36

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	592	mg/L	

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-5DSP-0321

21C0114-38 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/05/2021 13:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-38 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-5DSP-0321

21C0114-38 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/05/2021 13:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-38 B 01

Preparation Batch: BJC0408 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	4.84	ug/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-5DSP-0321

21C0114-38 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/05/2021 13:55

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 18:23

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-38 B 02

Preparation Batch: BJC0411 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	2.45	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-5DSP-0321

21C0114-38 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/05/2021 13:55

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-38

Preparation Batch: BJC0164 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	473	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-6DSP-0321

21C0114-40 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 16:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-40 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-6DSP-0321

21C0114-40 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 16:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-40 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.10	ug/L	

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18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-6DSP-0321

21C0114-40 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 16:00

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 16:21

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-40 B 02

Preparation Batch: BJC0409 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	1.24	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MWB-6DSP-0321

21C0114-40 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 16:00

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-40

Preparation Batch: BJC0165 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	280	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

PORTAL-0321

21C0114-42 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 17:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-42 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

PORTAL-0321

21C0114-42 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 17:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-42 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	4.14	ug/L	

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Golder Associates	Project: Ravensdale	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

PORTAL-0321

21C0114-42 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 17:25

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 15:16

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-42 B 02

Preparation Batch: BJC0409 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	20.0	mg/L	

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Golder Associates	Project: Ravensdale	
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PORTAL-0321

21C0114-42 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 17:25

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-42

Preparation Batch: BJC0165 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	364	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-55A-0321

21C0114-44 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/04/2021 16:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-44 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-55A-0321

21C0114-44 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/04/2021 16:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-44 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.09	ug/L	

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Golder Associates	Project: Ravensdale	
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MW-55A-0321

21C0114-44 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/04/2021 16:05

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 15:19

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-44 B 02

Preparation Batch: BJC0409 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Potassium	7440-09-7	1	0.107	0.500	1.21	mg/L	

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Golder Associates	Project: Ravensdale	
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MW-55A-0321

21C0114-44 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/04/2021 16:05

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-44

Preparation Batch: BJC0165 — Sample Size: 100 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	10	10	280	mg/L	

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-99-1-0321

21C0114-46 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 03/03/2021 14:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-46 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-99-1-0321

21C0114-46 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 03/03/2021 14:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/17/2021 04:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21C0114-46 B 01

Preparation Batch: BJC0407 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	ND	ug/L	U

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Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-99-1-0321

21C0114-46 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 03/03/2021 14:40

Instrument: ICP2 Analyst: SKM — Analyzed: 03/17/2021 15:22

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21C0114-46 B 02

Preparation Batch: BJC0409 — Sample Size: 25 mL

Prepared: 03/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0107	0.0500	ND	mg/L	U
Manganese	7439-96-5	1	0.0016	0.0040	0.0022	mg/L	J
Potassium	7440-09-7	1	0.107	0.500	ND	mg/L	U

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

MW-99-1-0321

21C0114-46 (Water)

Wet Chemistry

Method: SM 2540 C-97 — Sampled: 03/03/2021 14:40

Instrument: BAL2 Analyst: KLE — Analyzed: 03/07/2021 10:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21C0114-46

Preparation Batch: BJC0165 — Sample Size: 200 mL

Prepared: 03/07/2021 — Final Volume: 200 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dissolved Solids		1	5	5	ND	mg/L	U

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

Metals and Metallic Compounds - Quality Control

Batch BJC0407 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0407-BLK1)					Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 14:50							
Lead	208	ND	0.0680	0.100	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
LCS (BJC0407-BS1)					Prepared: 16-Mar-2021 Analyzed: 16-Mar-2021 14:55							
Lead	208	26.7	0.0680	0.100	ug/L	25.0		107	80-120			
Arsenic	75a	24.8	0.0220	0.200	ug/L	25.0		99.2	80-120			

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

Metals and Metallic Compounds - Quality Control

Batch BJC0408 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0408-BLK1)					Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 19:07							
Lead	208	ND	0.0680	0.100	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
LCS (BJC0408-BS1)					Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 19:11							
Lead	208	28.4	0.0680	0.100	ug/L	25.0		114	80-120			
Arsenic	75a	25.5	0.0220	0.200	ug/L	25.0		102	80-120			
Duplicate (BJC0408-DUP1)			**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 02:19							
Lead	208	0.103	0.0680	0.100	ug/L		0.114			10.10	20	
Arsenic	75a	3.64	0.0220	0.200	ug/L		3.70			1.66	20	
Matrix Spike (BJC0408-MS1)			**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 02:23							
Lead	208	24.8	0.0680	0.100	ug/L	25.0	0.114	98.9	75-125			
Arsenic	75a	29.4	0.0220	0.200	ug/L	25.0	3.70	103	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0408-MSD1)			**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 02:29							
Lead	208	24.9	0.0680	0.100	ug/L	25.0	0.114	99.3	75-125	0.38	20	
Arsenic	75a	29.5	0.0220	0.200	ug/L	25.0	3.70	103	75-125	0.21	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

Metals and Metallic Compounds - Quality Control

Batch BJC0409 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0409-BLK1)				Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 14:30							
Iron	ND	0.0107	0.0500	mg/L							U
Manganese	ND	0.0016	0.0040	mg/L							U
Potassium	ND	0.107	0.500	mg/L							U
LCS (BJC0409-BS1)				Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 14:51							
Iron	1.84	0.0107	0.0500	mg/L	2.00		92.0	80-120			
Manganese	0.470	0.0016	0.0040	mg/L	0.500		94.1	80-120			
Potassium	9.85	0.107	0.500	mg/L	10.0		98.5	80-120			
Duplicate (BJC0409-DUP1)		**Source: 21C0114-40**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 16:18							
Iron	0.204	0.0107	0.0500	mg/L		0.212			3.92	20	
Manganese	0.0308	0.0016	0.0040	mg/L		0.0450			37.60	20	*
Potassium	1.20	0.107	0.500	mg/L		1.24			3.17	20	
Matrix Spike (BJC0409-MS1)		**Source: 21C0114-40**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 16:24							
Iron	2.06	0.0107	0.0500	mg/L	2.00	0.212	92.2	75-125			
Manganese	0.502	0.0016	0.0040	mg/L	0.500	0.0450	91.4	75-125			
Potassium	11.4	0.107	0.500	mg/L	10.0	1.24	101	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0409-MSD1)		**Source: 21C0114-40**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 16:27							
Iron	2.06	0.0107	0.0500	mg/L	2.00	0.212	92.6	75-125	0.39	20	
Manganese	0.507	0.0016	0.0040	mg/L	0.500	0.0450	92.3	75-125	0.87	20	
Potassium	11.5	0.107	0.500	mg/L	10.0	1.24	102	75-125	0.93	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Golder Associates	Project: Ravensdale	
18300 NE Union Hill Road Suite 200	Project Number: 152030402	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	19-Mar-2021 19:46

Metals and Metallic Compounds - Quality Control

Batch BJC0411 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0411-BLK1)				Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 16:03							
Iron	ND	0.0107	0.0500	mg/L							U
Manganese	ND	0.0016	0.0040	mg/L							U
Potassium	ND	0.107	0.500	mg/L							U
LCS (BJC0411-BS1)				Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 16:31							
Iron	1.74	0.0107	0.0500	mg/L	2.00		86.8	80-120			
Manganese	0.443	0.0016	0.0040	mg/L	0.500		88.7	80-120			
Potassium	9.48	0.107	0.500	mg/L	10.0		94.8	80-120			
Duplicate (BJC0411-DUP1)		**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 17:00							
Iron	0.0367	0.0107	0.0500	mg/L		0.0386			5.06	20	J
Manganese	0.0151	0.0016	0.0040	mg/L		0.0156			3.13	20	
Potassium	82.7	0.107	0.500	mg/L		80.6			2.58	20	
Matrix Spike (BJC0411-MS1)		**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 17:05							
Iron	1.91	0.0107	0.0500	mg/L	2.00	0.0386	93.6	75-125			
Manganese	0.498	0.0016	0.0040	mg/L	0.500	0.0156	96.4	75-125			
Potassium	92.3	0.107	0.500	mg/L	10.0	80.6	117	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJC0411-MSD1)		**Source: 21C0114-03**		Prepared: 16-Mar-2021 Analyzed: 17-Mar-2021 17:08							
Iron	1.95	0.0107	0.0500	mg/L	2.00	0.0386	95.4	75-125	1.90	20	
Manganese	0.503	0.0016	0.0040	mg/L	0.500	0.0156	97.5	75-125	1.06	20	
Potassium	93.8	0.107	0.500	mg/L	10.0	80.6	132	75-125	1.61	20	HC

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Wet Chemistry - Quality Control

Batch BJC0164 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0164-BLK1)				Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:10							
Dissolved Solids	ND	5	5	mg/L							U
LCS (BJC0164-BS1)				Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:10							
Dissolved Solids	499	10	10	mg/L	500		99.8	90-110			
Duplicate (BJC0164-DUP1)		**Source: 21C0114-03**		Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:10							
Dissolved Solids	391	10	10	mg/L		424			8.10	20	

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Wet Chemistry - Quality Control

Batch BJC0165 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0165-BLK1)				Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:24							
Dissolved Solids	ND	5	5	mg/L							U
LCS (BJC0165-BS1)				Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:24							
Dissolved Solids	510	10	10	mg/L	500		102	90-110			
Duplicate (BJC0165-DUP1)		**Source: 21C0114-40**		Prepared: 07-Mar-2021 Analyzed: 07-Mar-2021 10:24							
Dissolved Solids	291	10	10	mg/L		280			3.85	20	

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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Lead-208	WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 6010D in Water	
Iron	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Iron	WADOE,DoD-ELAP
Iron	NELAP,DoD-ELAP
Potassium	WADOE,DoD-ELAP
Potassium	NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,DoD-ELAP
Manganese	NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
SM 2540 C-97 in Water	
Dissolved Solids	DoD-ELAP,WADOE,NELAP
Dissolved Solids	DoD-ELAP,WADOE,WA-DW,NELAP
Dissolved Solids	DoD-ELAP,WADOE,WA-DW
Dissolved Solids	DoD-ELAP,WA-DW,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022

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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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