REPORT

Annual Coal Combustion Residuals Groundwater Monitoring and Corrective Action Report – 2023

Great River Energy, Stanton Station

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Executive Summary

This report presents the results from groundwater monitoring and corrective action events that occurred at Great River Energy's Stanton Station in 2023 to meet the requirements of the United States Environmental Protection Agency's (USEPA's) Coal Combustion Residuals (CCR) rule (40 Code of Federal Regulations [CFR] 257.90 through 257.98) and the North Dakota Department of Environmental Quality's (NDDEQ) CCR rule (North Dakota Administrative Code [NDAC] 33.1-20-08), hereafter referred to as the Federal and State CCR rules. The Bottom Ash Landfill entered 2023 in assessment monitoring under a corrective measures program with samples collected in the first quarter (Q1), second quarter (Q2), and fourth quarter (Q4) of 2023. The Bottom Ash Impoundment remained in detection monitoring in 2023 with detection monitoring samples collected in Q2 and Q4 2023.

Detection Monitoring Summary – Bottom Ash Impoundment and Bottom Ash Landfill

Comparative statistics for detection monitoring samples collected in Q4 2022, Q1 2023, and Q2 2023 were completed in 2023. Comparative statistics for the Q4 2023 detection monitoring sampling event will be completed within 90 days of receipt of the final analytical results in Q1 2024.

- Verified statistically significant increases (SSIs) for detection monitoring parameters.
  - Background (upgradient/side-gradient wells).
    - SSI for chloride at MW-6B, initially verified in Q3 2021.
    - SSI for chloride at MW-7B, initially verified in Q4 2020.
    - Per the Statistical Methods Certification (GAUSA 2021), no alternative source demonstration (ASD) has been conducted for MW-6B or MW-7B, as they are background locations.
  - Bottom Ash Impoundment downgradient wells.
    - SSI for total dissolved solids at MW-104.
      - Following the Q4 2022 monitoring event, well MW-104 was removed from the Bottom Ash Impoundment monitoring network with approval of the NDDEQ (2023).
    - SSIs for boron, sulfate, and total dissolved solids (TDS) at MW-203.
      - Identified as potential exceedances in Q2 2023 and verified through confirmatory resampling.
      - An ASD was attempted for the verified SSIs at MW-203, but was unsuccessful (Appendix E). As a result, assessment monitoring will be initiated for the Bottom Ash Impoundment in Q1 2024.
  - Bottom Ash Landfill downgradient wells.
    - In 2023, SSIs for calcium, chloride, fluoride, field-measured pH, and TDS were detected at MW-9N.
    - In 2023, SSIs for boron, calcium, chloride, fluoride, sulfate, and TDS were detected at MW-103.
    - In 2023, an SSI for field-measured pH was detected at MW-102.

  - ASDs have not been completed for the detection monitoring parameters at the Bottom Ash Landfill downgradient wells as the Bottom Ash Landfill is already in assessment monitoring under a corrective measures program.

At the beginning of 2024, the Bottom Ash Impoundment is entering into assessment monitoring. The first assessment monitoring sample will be collected within 90 days of January 8, 2024.

Assessment Monitoring Summary – Bottom Ash Landfill

Comparative statistics following the Q4 2022, Q1 2023, and Q2 2023 assessment monitoring sampling events were completed in 2023. Comparative statistics following the Q4 2023 assessment monitoring sampling event will be completed in within 90 days of receipt of the final analytical results in Q1 2024.

- statistically significant levels (SSLs) above groundwater protection standards (GWPS) for assessment monitoring parameters
  - MW-103 (downgradient, Bottom Ash Landfill), arsenic
    - assessment of corrective measures finalized November 21, 2022; SSL ongoing in Q4 2022, Q1 2023, and Q2 2023
    - final remedy selection ongoing throughout 2023

At the beginning of 2024, the Bottom Ash Landfill remains in assessment monitoring under a corrective measures program.

As described in the *Coal Combustion Residuals Groundwater Monitoring System Certification* (GAI 2020) and the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), the groundwater monitoring and analytical procedures meet the general requirements of both the Federal and State CCR rules.

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1.0 INTRODUCTION

WSP USA Inc. (WSP) has prepared this report of the 2023 groundwater sampling and comparative statistical analysis and corrective actions for Great River Energy's (GRE) Stanton Station to meet the requirements of the United States Environmental Protection Agency's (USEPA's) Coal Combustion Residuals (CCR) rule (40 Code of Federal Regulations [CFR] 257.90 through 257.98) and the North Dakota Department of Environmental Quality's (NDDEQ) CCR rule (North Dakota Administrative Code [NDAC] 33.1-20-08-06), hereafter referred to as the Federal and State CCR rules. The CCR units discussed in this report are regulated by the NDDEQ under Permit Number 0043 in accordance with NDAC Article 33.1-20, Solid Waste Management and Land Protection. This report has been prepared in accordance with the requirements of NDDEQ Permit 0043, the current site *Groundwater Monitoring Plan* (GMP) (GAI 2019a), the *Coal Combustion Residuals Groundwater Monitoring System Certification* (GAI 2020), the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), and both the Federal and State CCR rules pertaining to the disposal of CCRs in landfills and surface impoundments.

1.1 Purpose

The Federal CCR rule established specific requirements for reporting of actions related to groundwater monitoring and corrective actions in 40 CFR 257.90 to 40 CFR 257.98, and as amended. In accordance with part (e) of 40 CFR 257.90, owners and operators of CCR units must prepare an annual groundwater monitoring and corrective action report.

NDAC Chapter 33.1-20-08 established North Dakota-specific requirements for reporting of actions related to groundwater monitoring and corrective actions associated with CCR landfills and surface impoundments, which mirror the requirements of the Federal CCR rule. In accordance with Part (e) of NDAC 33.1-20-08-06.1, owners and operators of CCR units must prepare an annual groundwater monitoring and corrective action report.

1.2 Site Background

Stanton Station was a coal-fired electric generation facility located along the Missouri River in Mercer County, approximately 3 miles southeast of Stanton, North Dakota. Stanton Station began generating power in 1966 and CCRs were managed in composite-lined surface water impoundment cells and dry waste units regulated and permitted by the NDDEQ. Stanton Station ceased power production in February 2017 and demolition of the industrial site was finished in 2019, with site restoration completed in 2020.

Stanton Station has two CCR units that are within the purview of the Federal and State CCR rules:

- Bottom Ash CCR Landfill (Bottom Ash Landfill)
- Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment)

Locations of the CCR units and groundwater monitoring wells are shown in Figures 1 and 2.

1.3 Site Closure and Restoration

CCR unit closure and site restoration activities began in 2019 and were completed in the summer of 2020. This included closure of the Bottom Ash Landfill and Bottom Ash Impoundment as described as follows, as well as regrading the former industrial site to promote stormwater drainage and vegetative growth.

The north and center cells of the Bottom Ash Impoundment were closed by removal of CCR and liner systems in the fall of 2019. Bottom ash remaining in the north and center cells along with the geomembrane liner and clayey

soils underlying the geomembrane liner were excavated and placed in the south cell of the Bottom Ash Impoundment or the Bottom Ash Landfill. The south cell of the Bottom Ash Impoundment was closed with permitted wastes remaining in place and in accordance with the final cover design outlined in the *Closure and Post-closure Plan* (GAI 2019b).

The Bottom Ash Landfill was closed by consolidating the landfill footprint, then closing with permitted wastes remaining in place and in accordance with the final cover design outlined in the *Closure and Post-closure Plan* (GAI 2019a). This included removing CCR and soil from the west end of the permitted footprint and placing the removed materials on the east end where disposal had historically occurred. A new soil berm was also constructed along the new west edge of CCR placement.

As part of the power plant demolition, the remaining bottom ash and economizer ash from the plant and construction and demolition material from plant demolition activities, as well as coal and coal yard soil, were placed in the Bottom Ash Landfill or the south cell of the Bottom Ash Impoundment, as approved through the NDDEQ state permit program.

2.0 GROUNDWATER MONITORING NETWORK PROGRAM STATUS

Through Q2 2019, the CCR groundwater monitoring system at Stanton Station consisted of a total of 12 monitoring locations (five background and seven downgradient wells). During site restoration, two monitoring wells were abandoned downgradient of the Bottom Ash Landfill, leading to an interim period in 2019 and 2020 where the network consisted of five background and five downgradient wells. Following completion of site restoration in 2020, three additional downgradient monitoring wells were installed. The current monitoring locations are shown in Figure 1 and Figure 2 and listed in Table 1. Additional information on the groundwater monitoring system can be found in the *Coal Combustion Residuals Groundwater System Certification*, Revision 1 (GAI 2020). Each CCR unit is currently part of a monitoring network consisting of at least one upgradient and three downgradient wells.

The groundwater monitoring system at Stanton Station is currently divided as follows:

- The background monitoring wells are located south and west of the CCR units. Based on groundwater elevations, groundwater flow directions, and the distance from the CCR units (see Figure 1 and Figure 2), the background wells are not expected to have been influenced by CCR deposition. There are four upgradient monitoring wells (MW-7A, MW-7B, MW-8B, and MW-105) and one side-gradient monitoring well (MW-6B) shared between both CCR units.
- The Bottom Ash Landfill has three downgradient monitoring wells (MW-102, MW-9N, and MW-103).
- The Bottom Ash Impoundment has three downgradient monitoring wells (MW-201, MW-202, and MW-203).
    - The NDDEQ approved removal of MW-1R and MW-104 from the Bottom Ash Impoundment monitoring network in June 2023 (NDDEQ 2023) based on their distance from the current unit boundary. The two wells have been removed from the monitoring network, but have not been decommissioned, and were sampled throughout 2023.

2.1 Completed Key Actions in 2023

The following key actions were completed in 2023:

- The 2022 annual CCR groundwater monitoring and corrective action report was completed and placed in the operating record and on the publicly accessible CCR website (WSP 2023a).
- Comparative statistical analysis was completed for the November (fourth quarter [Q4]) 2022 detection monitoring samples within 90 days of receipt of the final analytical results.
- Comparative statistical analysis was completed for the November (Q4) 2022 assessment monitoring samples within 90 days of receipt of final analytical results. Arsenic at monitoring well MW-103 was identified at a statistically significant level (SSL) in comparison to the site groundwater protection standard (GWPS).
- A drilling investigation was conducted downgradient of the Bottom Ash Landfill in support of the ongoing assessment of corrective measures for MW-103 to meet the requirements of 40 CFR 257.95(g)(1)(i) and NDAC 33.1-20-08-06(5)(g)(1)(a). Section 2.2 includes a discussion of installed wells.
- Detection monitoring samples were collected in June (second quarter [Q2]) and November (Q4) 2023 and analyzed for the detection monitoring constituent list associated with the Federal and State CCR rules for the background wells, Bottom Ash Landfill downgradient wells, and the Bottom Ash Impoundment downgradient wells.
- Comparative statistical analysis was completed for the Q2 2023 detection monitoring samples, which were collected within 90 days of receipt of the final analytical results.
- Confirmatory resamples stemming from the Q2 2023 detection monitoring comparative statistical analysis were collected in September 2023 separate from the regularly scheduled detection monitoring samples.
- An alternative source demonstration (ASD) was attempted for boron, sulfate, and total dissolved solids (TDS) at MW-203 following identification of statistically significant increases (SSIs). The associated report is included in Appendix E.
- Assessment monitoring samples were collected in March (first quarter [Q1]), June (Q2), and November (Q4) 2023 and analyzed for the assessment monitoring constituent list associated with the Federal and State CCR rules for the background locations and the Bottom Ash Landfill downgradient wells.
- Comparative statistical analysis was completed for the Q1 2023 and Q2 2023 assessment monitoring samples within 90 days of receipt of the final analytical results. Arsenic at monitoring well MW-103 was identified at an SSL in comparison to the site GWPS for both monitoring events.
- A semi-annual corrective measures report was completed in July 2023.

2.2 Installation and Decommissioning of Wells

Eleven monitoring wells were installed at Stanton Station in February 2023 to further characterize the nature and extent of arsenic downgradient of the Bottom Ash Landfill, consistent with the requirements of 40 CFR 257.95(g)(1)(j) and NDAC 33.1-20-08-06(5)(g)(1)(a). Wells MW-215, MW-216, MW-217, MW-218, MW-219, MW-220, MW-221, and MW-222 were installed downgradient of the Bottom Ash Landfill. Further, two additional monitoring wells (MW-300, MW-301) were installed further downgradient to assist in groundwater gradient and flow direction evaluation, and one additional monitoring well was installed at the downgradient property boundary

adjacent to the Missouri River in the direction of groundwater flow (MW-PB3) to meet the requirements of 40 CFR 257.95(g)(1)(iii) and NDAC 33.1-20-08-06(5)(g)(1)(c). Information regarding the newly installed wells is included in Appendix A.

2.3 Problems and Resolutions

During the Q4 2023 monitoring events, groundwater monitoring was split across multiple weeks based on challenges with accessing the wells following periods of heavy precipitation in October 2023. No other problems were identified in 2023 that required resolution.

2.4 Key Activities for 2024

The following key activities are anticipated to be completed in 2024:

- The 2023 annual CCR groundwater monitoring and corrective action report will be completed and placed in the operating record and on the publicly accessible CCR website. The report will also be provided to the NDDEQ for review and approval.
- Comparative statistical analysis for the Q4 2023 detection monitoring samples will be completed within 90 days of receipt of the final analytical results.
- Comparative statistical analysis for the Q4 2023 assessment monitoring samples will be completed within 90 days of receipt of the final analytical results.
- Detection monitoring sampling events consisting of the detection monitoring parameters will occur semi-annually in 2024 in Q2 and Q4. Comparative statistical analysis for the collected detection monitoring samples will be completed within 90 days of receipt of the final analytical results.
- Assessment monitoring sampling events, consisting of a minimum of three events (one annual sampling event during Q1 2024 for the complete assessment monitoring sampling list and at least two sampling events in Q2 and Q4 2024 consisting of the detected assessment monitoring parameters), will occur for the background wells (upgradient and side-gradient), downgradient Bottom Ash Landfill wells, nature and extent wells associated with the Bottom Ash Landfill, and the downgradient Bottom Ash Impoundment wells. Comparative statistical analysis for the downgradient program wells will be completed within 90 days of receipt of the final analytical results.
- Semi-annual reports detailing progress towards remedy selection under the assessment of corrective measures for the Bottom Ash Landfill will be completed by January 31, 2024 (this report) and July 31, 2024.

3.0 GROUNDWATER MONITORING ANALYTICAL PROGRAM STATUS

Analytical activities associated with the groundwater monitoring program are described as follows.

3.1 Collected Samples

Samples were collected by field staff from Minnesota Valley Testing Laboratory (MVTL) on the following dates. Precise dates can be found in the tables included in Appendix B.

- Detection monitoring samples were collected from the background locations, the Bottom Ash Landfill downgradient, and the Bottom Ash Impoundment downgradient wells in June (Q2) and November (Q4) 2023.
- Confirmatory resamples associated with the Q2 2023 statistical analysis were collected in September 2023.

- Assessment monitoring samples were collected from the background locations and the Bottom Ash Landfill downgradient wells in March (Q1), June (Q2), and November (Q4) 2023.
- March (Q1) 2023 samples were collected and analyzed for detection monitoring parameters for the background and downgradient Bottom Ash Landfill monitoring locations. These samples were collected and analyzed at GRE's discretion and were not required as part of either the detection or assessment monitoring programs. Results of these analyses have been included in the tables in Appendix B and in the discussion of comparative statistics in Section 3.3.
- Samples were collected from nature and extent wells at different times throughout 2023 (not all nature and extent wells were sampled during each of the Q1, Q2, Q3, and Q4 events).

Samples were collected using low-flow methodology. The sampling procedures and analytical testing methods are in accordance with USEPA-accepted procedures and the site groundwater monitoring plan (Golder 2019).

3.1.1 Groundwater Elevation and Flow Rate

Depths to groundwater were measured at sampled wells during each sampling event prior to purging. Groundwater elevations can be found in Appendix B. Groundwater elevations from the June (Q2) 2023 monitoring event are shown in Figure 1. Groundwater elevations from the November/December (Q4) 2023 monitoring event are shown in Figure 2. Based on the Q2 and Q4 2023 groundwater elevations, the shallow groundwater at the Stanton Station CCR facilities generally flows to the north and northeast towards the Missouri River.

The groundwater flow rate across each facility was estimated with the equation:

$$V_s = k \times {}^{i}/_{n_e}, \qquad \textit{Equation 1}$$

where:

V_s = the groundwater flow rate in feet per day (ft/day)
k = the hydraulic conductivity in ft/day, estimated from slug testing results from system wells
i = the hydraulic gradient in feet per feet (ft/ft), calculated based on groundwater elevations for the presented monitoring events
n_e = the effective porosity, a unitless parameter, estimated to be 0.25 for a silt/sand (Duffield 2007), reflective of site soils

The range of groundwater flow velocities estimated for the units during the Q2 and Q4 2023 monitoring events are shown as follows. Hydraulic conductivity (k) values measured on site ranged from 0.043 ft/day to 8.1 ft/day. As the Bottom Ash Landfill and Bottom Ash Impoundment are adjacent to one another and intersect similar geologic formations within the uppermost water-bearing zone, the groundwater flow rates are assumed to be approximately the same for the facilities during each sampling event and are presented below:

- June (Q2) 2023: 0.0011 ft/day to 0.21 ft/day
- November/December (Q4) 2023: 0.0012 ft/day to 0.23 ft/day

3.2 Monitoring Data (Analytical Results)

Analytical results for samples collected in 2023 for monitoring wells within the networks are shown in Appendix B. Collected results for metals are presented as total data.

3.3 Comparative Statistical Analysis for Detection Monitoring Parameters

The comparative statistical analysis for the Q4 2022 and Q2 2023 detection monitoring results is presented as follows, with the results presented in the tables included as Appendix C. Additionally, comparative statistics are presented for the results of detection monitoring parameters collected in Q1 2023. Comparative statistical analysis for the Q4 2023 detection monitoring event will occur within 90 days of receipt of the final analytical data. Based on the timing of the detection monitoring sampling event in Q4 2023 and the date of receipt of the final analytical data, comparative statistical analysis for the Q4 2023 event will be completed in Q1 2024. A full description of the steps taken for comparative statistical analysis is provided in the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), available on GRE's publicly accessible CCR website.

Comparative statistical analysis is conducted following each event consisting of the detection monitoring parameters. For both Shewhart-CUSUM (cumulative summation) limits and non-parametric prediction limits (NP-PL), the comparative statistical analysis consists of a comparison of detection monitoring results collected during the period of interest to the statistical limit calculated from the baseline data. At present, no parameters are currently analyzed using alternative comparative methods due to trending datasets. However, if well–constituent pairs with increasing trends were identified during the baseline period, those well–constituent pairs would be evaluated with an alternative trend test, such as that described by the Electric Power Research Institute (EPRI) (2015) or a Sen's slope trend test, to determine compliance. For well–constituent pairs with decreasing trends during the baseline period, a Sen's slope test would be used to assess the compliance results.

For reporting purposes, non-detect results for compliance samples are shown at the primary quantitation limit (PQL) in the tables included as Appendix C.

3.3.1 Definitions

The following definitions will be used in discussion of the comparative statistical analysis for detection monitoring parameters:

- Elevated CUSUM: occurs when the calculated CUSUM value is greater than the Shewhart-CUSUM limit established by the baseline statistical analysis, but the analytical result does not exceed the Shewhart-CUSUM limit. An elevated CUSUM is an indication that concentrations are gradually increasing and that analytical results may exceed the Shewhart-CUSUM limit in the future. For elevated CUSUM values in the case of two-tailed analysis for field-measured pH, the calculated CUSUM value may also be below the lower Shewhart-CUSUM limit established by the baseline statistical analysis.
- Potential exceedance: an initial elevated calculated CUSM value or an initial analytical result that exceeds the parametric prediction limit (PL), the Shewhart-CUSUM limit, or the NP-PL established by the baseline statistical analysis. Confirmatory resampling will determine if the potential exceedance is a false positive or a verified SSI. Non-detect results that exceed the statistical limit are not considered potential exceedances.
- False positive: an analytical result that exceeds the statistical limit that can clearly be attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory resampling. False positives are not used in calculation of any subsequent CUSUM values.
- Confirmatory resampling: a sample collected for statistical confirmation following identification of a potential exceedance (the next sample collected following identification of a potential exceedance).

- Verified SSI:two consecutive exceedances (the original sample and the confirmatory resample for analytical results, two consecutive elevated CUSM values, or a combination of an analytical result above the statistical limit and an elevated CUSM value in either event order) for the same constituent at the same well.

3.3.2 Q4 2022 Comparative Statistical Analysis

Results for the comparative statistical analysis for the Q4 2022 detection monitoring event are summarized as follows, with the results presented in the tables included as Appendix C.

3.3.2.1 Potential Exceedances

A potential exceedance was identified for calcium at MW-103 (downgradient, Bottom Ash Landfill) during the Q4 2022 sampling event. A confirmatory sample was collected in Q1 2023, with results discussed below.

3.3.2.2 False Positives

The following potential exceedances identified during the June Q2 2022 sampling event were determined to be false positives following confirmatory sampling during the Q4 2022 sampling event:

- MW-203 (downgradient, Bottom Ash Impoundment), boron
- MW-203 (downgradient, Bottom Ash Impoundment), sulfate
- MW-203 (downgradient, Bottom Ash Impoundment), TDS

3.3.2.3 Verified Statistically Significant Increases

The following verified SSIs were identified during the Q4 2022 comparative statistical analysis:

- MW-6B (background, side-gradient): chloride (ongoing, initially verified in Q3 2021)
- MW-7B (background, upgradient): chloride (ongoing, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill): calcium (ongoing, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill): chloride (ongoing, initially verified in Q2 2019)
- MW-9N (downgradient, Bottom Ash Landfill): fluoride (ongoing, initially verified in Q2 2021)
- MW-9N (downgradient, Bottom Ash Landfill): TDS (ongoing, initially verified in Q2 2021)
- MW-103 (downgradient, Bottom Ash Landfill): boron (ongoing, initially verified in Q2 2020)
- MW-103 (downgradient, Bottom Ash Landfill): chloride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill): fluoride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill): sulfate (ongoing, initially verified in Q1 2021)
- MW-103 (downgradient, Bottom Ash Landfill): TDS (ongoing, initially verified in Q2 2020).
- MW-104 (downgradient, Bottom Ash Impoundment): TDS (ongoing, initially verified in Q4 2021).

MW-104 was recommended to be removed from the routine detection monitoring network for the Bottom Ash Impoundment in the 2022 annual groundwater monitoring report provided to the NDDEQ, based on the distance from the well to the current downgradient boundary of the Bottom Ash Impoundment. As of June 2023, MW-104

has been removed from the detection monitoring network as approved by the NDDEQ (NDDEQ 2023) but has been retained for use in the nature and extent evaluation.

A discussion on the applicable next steps based on the verified SSIs that were identified during the Q4 2022 monitoring event is included in Section 4.1.1.

3.3.3 Q1 2023 and Q2 2023 Comparative Statistical Analysis

Results for the comparative statistical analysis for the Q1 2023 and Q2 2023 detection monitoring events are summarized as follows, with the results presented in the tables included as Appendix C.

3.3.3.1 Potential Exceedances

Potential exceedances were identified for the following well–constituent pairs during the Q1 2023 sampling event:

- MW-9N (downgradient, Bottom Ash Landfill): field-measured pH
- MW-102 (downgradient, Bottom Ash Landfill): field-measured pH

For field-measured pH at MW-103 (downgradient, Bottom Ash Landfill), the Q2 2022, Q4 2022, and Q1 2023 analytical values and calculated CUSUM values were within the associated statistical limits. The Q2 2022 value was listed as an ongoing verified SSI, while the Q4 2022 and Q1 2023 values are listed as within statistical limits. Both the Q2 2023 analytical result and lower CUSUM value are below the lower statistical limit, resulting in a new potential exceedance.

Potential exceedances were identified for the following well–constituent pairs during the Q2 2023 sampling event:

- MW-203 (downgradient, Bottom Ash Impoundment): boron
- MW-203 (downgradient, Bottom Ash Impoundment): sulfate
- MW-203 (downgradient, Bottom Ash Impoundment): TDS

Confirmatory resamples were collected September 13, 2023. Results of the confirmatory resampling are discussed as follows.

3.3.3.2 False Positives

No false positives were identified based on the Q1 2023 or Q2 2023 sampling events.

3.3.3.3 Verified Statistically Significant Increases

The following verified SSIs were identified during the comparative statistical analysis following the Q2 2023 sampling event:

- MW-6B (background, side-gradient): chloride (ongoing, initially verified in Q3 2021)
- MW-7B (background, upgradient): chloride (ongoing, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill): calcium (ongoing, initially verified in Q4 2020)
- MW-9N (downgradient, Bottom Ash Landfill): chloride (ongoing, initially verified in Q2 2019)
- MW-9N (downgradient, Bottom Ash Landfill): fluoride (ongoing, initially verified in Q2 2021)
- MW-9N (downgradient, Bottom Ash Landfill): field-measured pH

- MW-9N (downgradient, Bottom Ash Landfill): TDS (ongoing, initially verified in Q2 2021)
- MW-102 (downgradient, Bottom Ash Landfill): field-measured pH
- MW-103 (downgradient, Bottom Ash Landfill): boron (ongoing, initially verified in Q2 2020)
- MW-103 (downgradient, Bottom Ash Landfill): calcium (initially verified Q1 2023, ongoing in Q2 2023)
- MW-103 (downgradient, Bottom Ash Landfill): chloride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill): fluoride (ongoing, initially verified in Q2 2019)
- MW-103 (downgradient, Bottom Ash Landfill): sulfate (ongoing, initially verified in Q1 2021)
- MW-103 (downgradient, Bottom Ash Landfill): TDS (ongoing, initially verified in Q2 2020).

The following SSIs were verified following confirmatory resampling for the Q2 2023 sampling event:

- MW-203 (downgradient, Bottom Ash Impoundment): boron
- MW-203 (downgradient, Bottom Ash Impoundment): sulfate
- MW-203 (DOWNGRADIENT, Bottom Ash Impoundment): TDS

A discussion on the applicable next steps based on the verified SSIs that were identified during both the Q2 2023 monitoring event and resampling following the Q2 2023 monitoring event is included in Section 4.1.1.

3.4 Groundwater Protection Standards

The current GWPS used at the site were presented in the 2022 annual CCR groundwater monitoring and corrective action report (WSP 2023a) and used groundwater data collected between 2016 and 2021 from the upgradient and side-gradient monitoring wells. As additional data is collected from the upgradient and side-gradient monitoring wells (MW-6B, MW-7A, MW-7B, MW-8B, and MW-105), the suitability of these GWPS are reviewed following each monitoring event. No changes are anticipated for the site GWPS at present based on the results collected from the upgradient and side-gradient background data from 2022 through 2023. Changes in the background water quality will continue to be monitored during each sampling event.

3.5 Comparative Statistical Analysis for Assessment Monitoring Parameters

To determine if detected assessment monitoring constituents have statistically exceeded the associated GWPS, a confidence interval approach was used for determining compliance. Per recommendations in the Unified Guidance (USEPA 2009) and detailed by EPRI (2015), a confidence interval statistically defines the upper and lower bound (the upper and lower confidence limit) of the true mean associated with a groundwater population. The Unified Guidance recommends confidence intervals for assessment monitoring. A confidence interval statistically defines the confidence range and the upper and lower bound of a true mean, median, or other statistical measure of compliance monitoring dataset. Confidence intervals identify SSLs through comparison against a fixed standard, namely the GWPS for each parameter.

The specific type of confidence interval for each well–constituent pair is based on three factors:

1) the detection frequency of the compliance data

2) the distribution of the compliance data

3) the determination of the presence of statistically significant trends within the compliance data

Prior to constructing the confidence intervals for each monitoring event, an initial data review was conducted on the compliance data for determining the detection frequency and data distribution, as described in the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021). Additionally, compliance data was tested for trends using Sen's slope methodology prior to constructing confidence intervals.

A parametric confidence interval around the mean was used if the compliance dataset had less than 50% non-detects (ND) and was either normally distributed or transform-normally distributed. A confidence (α) of 95% was used for calculating the parametric upper confidence limit (UCL) and lower confidence limit (LCL) of the compliance data. Parametric confidence intervals (*CI*) were calculated using the following equation:

$$CI = \bar{x} \pm t_{(1-\alpha,n-1)} \frac{s}{\sqrt{n}} \qquad \textit{Equation 2}$$

where:

$\bar{x}$ = the mean of the comparative sample population
s = the standard deviation of the comparative sample population
n = the number of samples in the comparative sample population
t = a value from a student's t-test derived from the desired level of confidence $(1-\alpha)$ and the degrees of freedom $(n-1)$.

Summarized values for t are compiled in the Unified Guidance in Table 16-1, Appendix D (USEPA 2009).

A non-parametric confidence interval around the median was used for datasets that did not show normal or transform-normal distributions and for compliance populations with greater than 50% ND. For non-parametric confidence intervals, the UCL and LCL are generally chosen as order statistics of the sample data dependent on the sample size of the compliance dataset (n), the desired confidence level $(1-\alpha)$, and the sample median.

For the determination of SSLs, the LCL is of primary interest. A confidence interval is only considered statistically above the associated GWPS if both the UCL and LCL exceed the GWPS. If only the UCL exceeds the GWPS while the LCL remains below the GWPS, the results of the test are considered inconclusive. The Unified Guidance (USEPA 2009) recommends results of this category be interpreted as "in compliance" and not consider the result to represent an SSL. If both the UCL and LCL are below the GWPS, the data are considered not statistically significant.

Confidence intervals are only constructed on data that do not display statistically significant trends. If compliance data was found to display a statistically significant trend, a confidence band would be constructed around the estimated trend line. Per the Unified Guidance, a confidence band is "essentially a continuous series of confidence intervals estimated along every point of the trend" (USEPA 2009). With the comparative points collected to data following the start of assessment monitoring, no data set results in a statistically significant trend using the Sen's slope test. Consequently, the data presented in this report have only been constructed using confidence intervals.

Results of the comparative statistical analysis for the downgradient wells at the Bottom Ash Landfill are shown in the tables of Appendix D.

Based on the comparative statistical analysis following the Q4 2022, Q1 2023, and Q2 2023 assessment monitoring sampling events, no results with SSLs were identified for MW-9N or MW-102. An SSL was initially identified for arsenic at MW-103 following the Q4 2021 assessment monitoring sampling event, which has been reconfirmed in each of the subsequent assessment monitoring sampling events, including the Q4 2022, Q1 2023, and Q2 2023 events for which data has been included in this report. The remainder of parameters at MW-103 were determined not to be statistically significant during each event.

4.0 PROGRAM TRANSITIONS

Prior to the start of detection monitoring in Q4 2017, baseline samples were collected that meet the requirements of 40 CFR 257.94(b) and NDAC 33.1-20-08-06(4)(b).

4.1 Detection Monitoring

Throughout CCR monitoring, detection monitoring samples are collected on at least a semi-annual basis for each program well beginning with the samples collected in Q4 2017. GRE plans to collect semi-annual samples for the detection monitoring program in Q2 2024 and Q4 2024.

40 CFR 257.94(e) states the conditions under which a CCR unit must transition to assessment monitoring or complete an ASD:

> "If the owner or operator of a CCR unit determines, pursuant to 40 CFR 257.93(h) that there is an SSI over background levels for one or more of the constituents listed in Appendix III to this part at any monitoring well at the waste boundary specified under 40 CFR 257.91(a)(2), the owner or operator must: (1) Except as provided for in paragraph (e)(2) of this section, within 90 days of detecting a SSI over background levels for any constituent, establish an assessment monitoring program meeting the requirements of 40 CFR 257.95. (2) The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant levels for a constituent or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." (USEPA 2015)

NDAC 33.1-20-08-06(4)(e) describes similar conditions for transitioning to assessment monitoring or completing an ASD with the additional requirement of NDDEQ review and approval for ASDs and the determination for remaining in detection monitoring.

4.1.1 Alternative Source Demonstrations

ASDs have not been pursued for either newly verified or ongoing detection monitoring parameter verified SSIs at the Bottom Ash Landfill downgradient wells since Q4 2020 following the beginning of assessment monitoring.

GRE evaluated possible alternate sources for boron, sulfate, and TDS at MW-203, part of the Bottom Ash Impoundment monitoring network, following verification of the SSIs discussed in Section 3.3.3.3. An ASD evaluation was completed on January 8, 2024, and is included as Appendix E of this report. The ASD evaluation determined that insufficient evidence was available to make conclusive statements regarding an alternative source for the boron verified SSI at MW-203. As a result, GRE is initiating an assessment monitoring program for the Bottom Ash Impoundment in Q1 2024.

4.1.2 Upgradient Locations

Per the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), an ASD will only be completed for verified SSIs identified in downgradient wells. ASDs are not planned for the verified SSIs for chloride at MW-6B and MW-7B, as the CCR units have been determined to not be the cause of the verified SSIs based on groundwater flow and direction.

4.2 Assessment Monitoring

Assessment monitoring was initiated for the Bottom Ash Landfill in Q1 2021 consistent with 40 CFR 257.95 and NDAC 33.1-20-08-06(5). Assessment monitoring samples have been collected at the background locations and the Bottom Ash Landfill since Q1 2021 to meet the assessment monitoring sampling frequency requirements detailed in 40 CFR 257.95(b) and (d) and NDAC 33.1-20-08-06(5)(b) and (d). A transition to assessment monitoring does not preclude the continued collection of detection monitoring parameters on at least a semi-annual basis. Detection monitoring parameters have continued to be collected at the Bottom Ash Landfill.

The Federal and State CCR rules require that concentrations of assessment monitoring constituents detected in downgradient wells during assessment monitoring be statistically compared to site-specific GWPS. If a GWPS is exceeded in one or more downgradient wells at SSLs, both the Federal and State CCR Rules require additional groundwater characterization and an Assessment of Corrective Measures unless the SSLs can be attributed to a source other than the CCR unit, an error in sampling, an error in statistical analysis, or natural variation in groundwater quality.

Based on the statistical methods selected for assessment monitoring and detailed in the *Coal Combustion Residuals Groundwater Statistical Method Certification* (GAUSA 2021), an SSL was initially identified for arsenic at MW-103 following the Q4 2021 sampling event within 90 days of receipt of the final analytical results in Q1 2022. GRE pursued an ASD following identification of the SSL for arsenic at MW-103, which was included in the 2022 annual report (WSP 2023a). The ASD evaluation determined that insufficient evidence was available to make conclusive statements about an alternative source for arsenic at MW-103.

Assessment monitoring is being initiated for the Bottom Ash Impoundment in Q1 2024 consistent with 40 CFR 257.95 and NDAC 33.1-20-08-06(5).

4.3 Assessment of Corrective Measures

Following identification of the SSL for arsenic at MW-103 and the ASD evaluation, GRE initiated an assessment of corrective measures (ACM) in June 2022 following the requirements of 40 CFR 257.96 and NDAC 33.1-20-08-06(6) for the Bottom Ash Landfill. An extension, as detailed in 40 CFR 257.96(a) and NDAC 33.1-20-08-06(6)(a), was requested in September 2022 prior to completion of the ACM and approved by the NDDEQ (2022; included in the 2022 annual report [WSP 2023a]). The ACM was completed and submitted to the NDDEQ for approval on November 21, 2022, and a copy of the ACM was included in the 2022 annual report (WSP 2023a).

In 2023, a semi-annual progress report was completed for the ACM (WSP 2023b), which is available via the publicly accessible CCR website and covers the activities conducted between January 2023 and July 2023.

4.3.1 Purpose

The purpose of the ACM was to identify potential corrective measures to prevent further releases and to remediate any identified releases to groundwater at the Bottom Ash Landfill. In particular, the ACM evaluated corrective measure alternatives for groundwater corrective action at the site given the specific site conditions and

constituent(s) of concern. Based on the results of the ACM, further evaluation is being performed, site-specific studies completed, and a final corrective action plan developed pursuant to 40 CFR 257.97 and -98 and NDAC 33.1-20-08-06(6) and (7). This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures to address the potential migration of CCR constituents in groundwater at the Bottom Ash Landfill.

4.3.2 Evaluation of Corrective Measures

Pursuant to 40 CFR 257.97 and NDAC 33.1-20-08-06(6), GRE is further evaluating the potential corrective measures identified in the ACM report (GAUSA 2022) to identify a remedy or combination of remedies as soon as feasible.

4.3.2.1 Source Control Corrective Measures

Prior to initiation of assessment monitoring and the ACM, the Bottom Ash Landfill was closed with an engineered final cover placed over CCR left in place. Closure in place was completed in accordance with the closure plan (GAI 2019) and was documented in the CQA report provided to the NDDEQ (GAUSA 2021). The cover system was designed to minimize infiltration and erosion and to meet or exceed the requirements of 40 CFR 257.102(d)(3) and NDAC 33.1-20-08-07(3)(d)(3). The previously completed closure in place of the Bottom Ash Landfill provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Due to the engineering properties of the final cover, and information indicating that groundwater is not anticipated to have continued significant interaction with placed CCR, the closure of the Bottom Ash Landfill is anticipated to perform well as a source control. Other source control corrective measures can be reconsidered in the future, if required in conjunction with the chosen groundwater remediation corrective measure(s).

4.3.2.2 Groundwater Remediation Corrective Measures

In addition to the source control corrective measures, several groundwater remediation corrective measures were identified in the ACM as potentially feasible for use at the Bottom Ash Landfill.

At present, the following groundwater remediation corrective measures are still being evaluated for implementation at the Bottom Ash Landfill:

- monitored natural attenuation (MNA) and enhanced MNA
- hydraulic containment (groundwater pump and treat)
- geochemical approaches (in situ injection)
- peremable reactive barriers

Phytoremediation is not currently being pursued due to the limitation with respect to groundwater depth but may be reconsidered in the future.

4.3.3 Summary of Work Completed – August 2023 to January 2024

The following sections summarize field investigation activities, desktop analyses, and supplemental data collected between August 1, 2023, and January 31, 2024, since completion of the July 2023 semi-annual report (WSP 2023b) to support continued site characterization and further delineation of the SSL (nature and extent), as well as evaluation of the groundwater remediation corrective measures presented in the ACM report (GAUSA 2022).

The collected data will be used to evaluate the feasibility, mechanisms, rates, and stability of identified corrective measure alternatives to address the SSL for arsenic in groundwater downgradient of the Bottom Ash Landfill. Evaluations of the data as they relate to remedy selection alternatives is ongoing and will be presented in future report(s).

4.3.3.1 Groundwater Monitoring Activities

As discussed in Section 3.1, samples were collected for the assessment monitoring program from the network wells during three monitoring events in 2023. Samples have also been collected and analyzed from additional wells installed for the nature and extent investigation during four monitoring events in 2023. Evaluation of the samples collected in Q4 2023 is ongoing and will be addressed within the required timeframes stipulated by the Federal and State CCR rules.

4.3.3.2 Supplemental Data Analysis

During installation of the additional nature and extent wells in February 2023, samples were collected for further chemical and mineralogical analyses to supplement testing completed on samples collected from the nature and extent wells installed in 2022. The following testing was finalized following the prior semi-annual report:

- chemical analyses
  - cation exchange capacity (CEC): a measure of how many cations (positively charged ions) can be retained on the surface of a soil particle
  - total organic carbon (TOC): a measure of the stored carbon within a soil, primarily through the soil organic matter
  - sequential extraction (SEP) (Tessier et al. 1979): a method for determining the extent of extractable metals partitioned in different phases of the soil column
- mineralogical analyses
  - X-ray diffraction with rietveld refinement: for determination of the mineralogical composition of the soils

Samples collected for these analyses were within the screened intervals of the installed wells below measured water levels. Results are included in Appendix F.

4.3.3.3 Hydraulic Conductivity Testing Activities

WSP performed in situ hydraulic conductivity testing (slug testing) for a subset of the site wells in 2023. The purpose of the testing was to further investigate the horizontal hydraulic conductivity of the materials encountered in the monitoring well screened intervals at the site in support of the evaluation of corrective measure alternatives.

Following completion of the testing, the collected data has been analyzed using the mathematical solution by Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989), which is applicable to fully or partially penetrating piezometers in unconfined or confined aquifers.

The computer software program AQTESOLV©, produced by HydroSOLVE, Inc., was used to assist in the analysis and plotting of the data. The best fit lines will initially be calculated by the computer software and then be adjusted manually, where necessary. Review of the conducted analyses is ongoing, and final results will be presented in a future report.

The data collected in 2023 will be used to supplement existing site hydraulic conductivity data. An updated understanding of aquifer properties, including hydraulic conductivity, will help to further refine the conceptual site model and support assessment of certain groundwater corrective measures.

4.3.3.4 Tier II and Tier III Monitored Natural Attenuation Analysis

A Tier II and Tier III MNA evaluation was initiated following completion of the Tier I MNA evaluation in April 2023. Tier II aims to determine the mechanisms and rates of the operative attenuation processes within the aquifer. Tier III evaluates the long-term capacity for attenuation within the aquifer as well as the stability of the immobilized constituents. Results of the Tier II and Tier III MNA evaluation are being finalized and will be included in the next semi-annual report.

Based on the preliminary findings of the Tier II and Tier III MNA evaluation, MNA remains a potential corrective action remedy for arsenic at the Bottom Ash Landfill, either alone or in combination with other corrective measures. However, in order for MNA to be considered as the chosen remedy, the final phase in the MNA phased approach should be conducted (Tier IV).

4.3.3.5 Well Redevelopment and Turbidity Analysis

As part of the data review associated with the nature and extent wells installed in both 2022 and 2023, an issue was identified with ongoing high levels of turbidity at the newly installed wells. The measured high turbidity levels may be affecting the measured total metals concentrations in groundwater, making it difficult to accurately define the extents of elevated arsenic within the groundwater downgradient of the Bottom Ash Landfill.

In an effort to address this issue, a subset of the nature and extent wells were redeveloped in October 2023. Additionally, a subset of parameters was collected and tested for both the dissolved and total fraction with the intention of aiding in determining if the excess turbidity may be affecting the collected sample results (specifically the total metals concentrations), and reflective of constituent concentrations in solids rather than the groundwater within the system. Review of the associated results is ongoing and will be presented in a future report.

In order to minimize future impacts from turbidity-related issues, dedicated low-flow pumps will be installed at the nature and extent wells similar to those installed in the system wells. While low-flow methodology has been used at the nature and extent wells throughout sampling, non-dedicated equipment has been used, which has been identified as a possible contributing factor related to the excess turbidity measurements.

4.3.4 Planned Activities

GRE has initiated activities as outlined in the ACM Report (GAUSA 2022) to support the corrective action remedy selection process and address potential changes in site conditions as appropriate. Selection and implementation of corrective measures can be iterative, and GRE will continue data collection efforts as necessary to further refine the site conceptual model and evaluate the feasibility of remedies identified in the ACM Report (GAUSA 2022).

Supplementary data collection and evaluation activities proposed to be completed in the next six months, until July 31, 2024, are summarized as follows:

- Complete evaluation of data collected from the nature and extent wells during the Q4 2023 monitoring event to support further delineation of the extents of arsenic above the GWPS downgradient of the Bottom Ash Landfill.
- Finalize Tier II and Tier III MNA evaluation.

- Finalize analysis of hydraulic conductivity testing data.
- Collect samples in Q1 and Q2 2024 for assessment monitoring parameter lists.
- Initiate Tier IV MNA evaluation.
- Install dedicated low-flow sampling pumps at nature and extent delineation wells.

GRE will continue to prepare semi-annual progress reports to document the progress in selecting and designing a groundwater remedy in accordance with 40 CFR 257.97 and -98 and NDAC 33.1-20-08-06(6) and (7). The next semi-annual report will be submitted July 31, 2024. GRE will include future semi-annual progress reports with the routine groundwater monitoring and corrective action reports to meet the requirements of 40 CFR 257.105(h)(12), 40 CFR 257.106(h)(9), and 40 CFR 257.107(h)(9) and NDAC 33.1-20-08-08(1)(h)(12), 33.1-20-08-08(2), and 33.1-20-08-08(3).

5.0 CLOSING

This report presents the analytical results for the 2023 monitoring events for the CCR groundwater monitoring programs at Stanton Station. Comparative statistics for samples collected between Q4 2022 and Q2 2023 at both the Bottom Ash Impoundment and Bottom Ash Landfill are included in the report. Comparative statistics for the Q4 2023 monitoring events conducted in November 2023 will occur within 90 days of final receipt of data during Q1 2024.

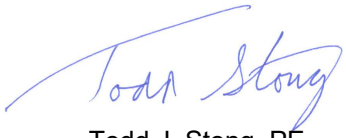
At the start of 2023, the Bottom Ash Impoundment entered the year under a detection monitoring program. At the close of 2023, an assessment monitoring program is being initiated for the Bottom Ash Impoundment. The first assessment monitoring samples for the Bottom Ash Impoundment will be collected in Q1 2024.

The Bottom Ash Landfill entered 2023 operating under an assessment monitoring program under a corrective measures program. The Bottom Ash Landfill remains in assessment monitoring under a corrective measures program at the start of 2024. Remedy selection for the chosen corrective measures is ongoing. The next semi-annual report detailing the remedy selection process will be completed by July 31, 2024.

Signature Page

WSP USA Inc.

Erin L. Hunter, PhD
Lead Consultant



Todd J. Stong, PE
Vice President

ELH/TJS/af

6.0 REFERENCES

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Tables

Table 1: Stanton Station Monitoring Well Summary

Location	Well ID	Date Constructed	TOC Elevation[(a)] ft AMSL	Ground Surface Elevation[(a)] ft AMSL	Screen Interval ft bgs	Top of Screen Elevation ft AMSL	Bottom of Screen Elevation ft AMSL	Sand Pack Interval ft bgs	Geologic Unit(s) Completed In
Upgradient/Side-gradient	MW-6B	9/8/1992	1,711.5	1,709.4	28.4-38.4	1,681.3	1,671.3	19.0-38.5	Outwash
	MW-7A	8/27/1992	1,713.7	1,711.3	7.0-17.0	1,704.1	1,694.1	5.0-18.0	Silty sand/clay
	MW-7B	9/9/1992	1,712.9	1,711.2	28.1-38.1	1,682.7	1,672.7	23.0-38.5	Silty sand/outwash
	MW-8B	9/3/1992	1,749.8	1,747.6	54.0-64.0	1,694.4	1,684.4	49.0-64.5	Outwash
	MW-105	11/18/2015	1,717.0	1,714.0	9.0-19.0	1,705.0	1,695.0	7.0-19.0	Clay/outwash
Bottom Ash Landfill Downgradient	MW-9N	7/19/2010	*1,703.5*	*1,701.0*	*11.5-21.5*	1,689.5	1,679.5	*9.5-21.5*	Sand, clayey sand, gravel
	MW-102	11/17/2015	1,712.1	1,708.8	14.0-24.0	1,694.8	1,684.8	12.0-24.0	Silty sand/clay
	MW-103	11/17/2015	1,709.5	1,706.2	14.0-24.0	1,692.2	1,682.2	12.0-24.0	Outwash
Bottom Ash Impoundment Downgradient	MW-201	8/10/2020	1,704.9	1,701.9	9.5-19.5	1,692.4	1,682.4	7.0-19.5	Fat clay, sand w/silt
	MW-202	8/10/2020	1,703.7	1,701.6	8.0 - 18.0	1,693.6	1,683.6	6.0-18.0	Fat clay, lean clay w/sand
	MW-203	8/10/2020	1,705.8	1,702.7	6.0 -16.0	1,696.7	1,686.7	5.0-16.0	Sand w/silt, fat clay
Bottom Ash Landfill Nature and Extent Delineation Wells	MW-1R	11/8/1995	*1,706.7*	*1,703.5*	*23.7-32.7*	1,679.8	1,670.8	*21.7-34.7*	Gravel, fat clay
	MW-104	11/17/2015	1,712.0	1,709.0	14.0-24.0	1,695.0	1,685.0	12.0-24.0	Outwash
	MW-210	5/9/2022	1,703.1	1,699.9	12.0 - 22.0	1,687.9	1,677.9	12.0 - 22.0	Sand w/silt
	MW-211	5/10/2022	1,708.7	1,705.4	12.0 - 22.0	1,693.4	1,683.4	10.0 - 22.0	Lean clay, sand w/silt
	MW-212	5/10/2022	1,709.6	1,706.4	13.5 - 23.5	1,692.9	1,682.9	10.0 - 23.5	Fat clay, lean clay silty sand
	MW-213	5/12/2022	1,706.0	1,702.7	19.5 - 29.5	1,683.2	1,673.2	19.5 - 29.5	Fat clay, lean clay silty sand
	MW-214	5/12/2022	1,709.2	1,705.8	5.0 - 15.0	1,700.8	1,690.8	4.0 - 15.0	Fat clay, silty sand
	MW-215	2/7/2023	1,702.0	1,699.0	9.0 - 19.0	1,690.0	1,680.0	6.0 - 19.0	Silty sand with gravel, poorly graded sand with gravel
	MW-216	2/8/2023	1,702.9	1,699.7	10.0 - 20.0	1,689.7	1,679.7	7.0 - 20.0	Silty sand, poorly graded sand with gravel
	MW-217	2/9/2023	1,700.0	1,697.0	9.5 - 19.5	1,687.5	1,677.5	7.0-19.5	Poorly graded sand with silt and gravel
	MW-218	2/9/2023	1,701.1	1,698.1	9.5 - 19.5	1,688.6	1,678.6	7.0 - 19.5	Silty sand, poorly graded gravel with sand
	MW-219	2/6/2023	1,705.1	1,702.2	10.0 - 20.0	1,692.2	1,682.2	8.0 - 20.0	Silty sand, clayey sand
	MW-220	2/8/2023	1,702.4	1,699.7	25.0 - 35.0	1,674.7	1,664.7	22.0 - 35.0	Poorly graded sand, clayey sand
	MW-221	2/10/2023	1,705.0	1,701.8	22.0 - 32.0	1,679.8	1,669.8	18.0 - 32.0	Poorly graded sand with silt and gravel
	MW-222	2/6/2023	1,721.9	1,719.0	26.0 - 36.0	1,693.0	1,683.0	23.0 - 36.0	Lean clay with sand, poorly graded sand with silt and gravel
	MW-300	2/9/2023	1,700.1	1,696.9	9.0 - 19.0	1,687.9	1,677.9	7.0 - 19.0	Silty sand, poorly graded sand with silt and gravel
	MW-301	2/10/2023	1,698.6	1,695.5	20.0 - 35.0	1,675.5	1,660.5	18.0 - 35.0	Lean clay, lean clay with sand, clayey sand
Property Boundary	MW-PB1	8/11/2020	1,698.8	1,695.9	15.0 - 25.0	1,680.9	1,670.9	13.0 - 25.0	Silt w/sand, silty sand
	MW-PB3	2/9/2023	1,701.6	1,698.5	24.0 - 39.0	1,674.5	1,659.5	18.0 - 39.0	Sandy lean clay

a. TOC (top of casing) and ground surface elevations surveyed by Interstate Engineering, Inc. in September 2020, October 2022, and April 2023.

Notes:

Well construction measurements are from the original bore log, well data sheet, or well construction form.

Well construction information for MW-9N and MW-1R shown in italics are estimates based on the original well logs, accounting for the casing reductions completed in June 2020.

ft AMSL: feet above mean sea level; ft bgs = feet below ground surface; GW = groundwater

Figures

LEGEND

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- NATURE AND EXTENT WELLS
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON JUNE 2023 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.

N

0 200 400
1" = 200' FEET

wsp

MONITORING WELL LOCATIONS AND Q2 2023 GROUNDWATER ELEVATIONS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

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LEGEND

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- NATURE AND EXTENT WELLS
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2023.
2. GROUNDWATER CONTOURS ARE BASED ON NOVEMBER AND DECEMBER 2023 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.

N

0 200 400
1" = 200' FEET

wsp

MONITORING WELL LOCATIONS AND Q4 2023 GROUNDWATER ELEVATIONS GREAT RIVER ENERGY - STANTON STATION

FIGURE 2

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APPENDIX A

New Well Boring Log and Construction Information

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-215

Location: See Exploration Plan

Northing: 591298 Easting: 793510

Depth (Ft.) Elevation.: 1698.979 (Ft.)

Depth (Ft.)	Elevation	Description	Installation Details	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.5	1698.5	**TOPSOIL AND ROOTZONE**, dark brown, frozen	PVC Cap Protecting Casing; Concrete							
		LEAN CLAY WITH SAND (CL), trace gravel, brown, frost to 3'								
4.0	1695	**SILTY SAND WITH GRAVEL (SM)**, fine to medium grained, grayish brown, medium dense	Bentonite							
5						18	11-9-10 N=19			
10						16	3-13-15 N=28		NP	19
12.0	1687	**POORLY GRADED SAND WITH GRAVEL (SP)**, trace silt, fine to coarse grained, grayish brown to gray, medium dense to very dense, varying amounts of gravel waterbearing at 14.5'	Silica Sand; PVC Screen	▽						
15						18	2-6-6 N=12			
20			End cap			10	4-13-42 N=55		NP	4
21.0	1678	**CLAYEY SAND (SC)**, fine to medium grained, gray, dense to very dense								
25			Silica sand backfill			18	14-14-23 N=37		30-11-19	49
30						12	12-31-49 N=80			
31.0	1668	***Boring Terminated at 31 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-07-2023

Well Completed
02-07-2023

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-29½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-216

Location: See Exploration Plan

Northing: 591283 Easting: 793712

Depth (Ft.) Elevation.: 1699.699 (Ft.)

Depth (Ft.)	Description	Elevation
0.5	**TOPSOIL AND ROOTZONE**, dark brown, frozen	1699.2
	LEAN CLAY WITH SAND (CL), brown, frost to 3'	
4.5		1695.2
	SILTY SAND (SM), trace gravel, fine to medium grained, light brown, very dense	
9.5		1690.2
11.0	**SILTY SAND (SM)**, fine grained, brownish gray, medium dense	1688.7
	POORLY GRADED SAND WITH GRAVEL (SP), trace sand, fine to medium grained, brown, loose to medium dense, varying amounts of gravel	
	waterbearing at 15.5'	
25.5		1674.2
	SILT (ML), gray, hard	
29.5		1670.2
31.0	**CLAYEY SAND (SC)**, fine to medium grained, gray, dense	1668.7
	Boring Terminated at 31 Feet	

Installation Details: PVC Cap; Protecting Casing; Concrete; Bentonite; Silica Sand; PVC Screen; End cap; Silica sand backfill

Depth (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
5		18	12-30-29 N=59			
10		16	3-3-9 N=12			
15		18	2-2-4 N=6		NP	3
20		11	3-5-7 N=12			
25		16	18-17-16 N=33			
30		18	6-12-18 N=30		30-13-17	36

Water Level Observations: ▽ While sampling

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-29½'

Abandonment Method
Boring converted to a monitoring well

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-07-2023

Well Completed
02-08-2023

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-217

Location: See Exploration Plan

Northing: 591424 Easting: 793434

Depth (Ft.) Elevation.: 1697.045 (Ft.)

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	0.5 **TOPSOIL AND ROOTZONE**, dark brown, frozen 1696.5							
	SILTY SAND (SM), fine to medium grained, brown, frost to 3'							
	4.5 1692.5							
	POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse grained, brown, medium dense, varying amounts of gravel							
	5		X	10	5-9-13 N=22			
	waterbearing at 9.5'	▽						
	10		X	15	6-9-6 N=15			
	large coal inclusions at 14.5'							
	15		X	16	4-8-9 N=17		NP	8
	20		X	7	11-13-13 N=26			
	21.0 1676							
	Boring Terminated at 21 Feet							

Installation Details: PVC Cap Protecting Casing; Concrete; Bentonite; PVC Screen; Silica Sand; End cap

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While sampling

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-19½'

Abandonment Method
Boring converted to a monitoring well

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-09-2023

Well Completed
02-09-2023

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-218

Location: See Exploration Plan

Northing: 591399 Easting: 793733

Depth (Ft.) Elevation.: 1698.094 (Ft.)

Graphic Log	Depth (Ft.)	Elevation (Ft.)	Description	Installation Details	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	0.5	1697.6	**TOPSOIL AND ROOTZONE**, dark brown, frozen	PVC Cap Protecting Casing; Concrete							
			CLAYEY SAND (SC), fine to medium grained, brown, medium dense, frost to 3'								
	5.5	1692.6	**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense, varying amounts of gravel	Bentonite			18	13-17-43 N=60			
	5										
	10						18	6-10-13 N=23			
	14.5	1683.6	**POORLY GRADED GRAVEL WITH SAND (GP)**, fine to coarse grained, brown, loose, waterbearing coal inclusions at 15.5'	Pre-packed PVC screen	▽		18	2-2-2 N=4			
	15			Silica Sand; End cap							
	20						12	1-2-2 N=4		NP	4
	21.0	1677.1	***Boring Terminated at 21 Feet***								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-08-2023

Well Completed
02-09-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-19½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-219

Location: See Exploration Plan

Northing: 590847 Easting: 793600

Depth (Ft.) Elevation.: 1702.172 (Ft.)

Depth (Ft.)	Elevation	Description
0.5	1701.7	**TOPSOIL AND ROOTZONE**, dark brown, frozen
		LEAN CLAY WITH SAND (CL), brown, medium stiff, frost to 3'
6.0	1696.2	**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, loose to medium dense
15.5	1686.7	**CLAYEY SAND (SC)**, fine to medium grained, brown, medium dense
20.5	1681.7	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)**, fine to coarse grained, brown to gray, medium dense to dense, varying amounts of sand and gravel
		waterbearing at 24.5'
31.0	1671.2	***Boring Terminated at 31 Feet***

Installation Details: PVC Cap Protecting Casing; Concrete; Bentonite; PVC Screen; Silica Sand; End cap; Silica sand backfill

Depth (Ft.)	Recovery (In.)	Field Test Results	Atterberg Limits LL-PL-PI	Percent Fines
5	10	2-3-3 N=6	46-15-31	76
10	13	3-3-5 N=8		
15	16	3-5-10 N=15		
20	18	5-8-14 N=22		
25	16	6-12-20 N=32	NP	6
30	10	6-10-12 N=22		

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While sampling

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-29½'

Abandonment Method
Boring converted to a monitoring well

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-06-2023

Well Completed
02-06-2023

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-220

Location: See Exploration Plan

Northing: 591282 Easting: 793719

Depth (Ft.) Elevation.: 1699.663 (Ft.)

Depth (Ft.)	Elevation	Description
0.5	1699.2	**TOPSOIL AND ROOTZONE**, dark brown, frozen
		CLAYEY SAND (SC), fine to medium grained, brown, dense, frost to 3'
5.5	1694.2	**SILTY SAND (SM)**, trace gravel, fine to medium grained, brown, dense
9.5	1690.2	
10.5	1689.2	**CLAYEY SAND (SC)**, fine to medium grained, grayish brown, medium dense
		POORLY GRADED SAND WITH GRAVEL (SP), fine to medium grained, brown, medium dense, varying amounts of gravel
		waterbearing at 14.5'
24.0	1675.7	**POORLY GRADED SAND (SP)**, trace gravel, hard drilling
26.0	1673.7	**CLAYEY SAND (SC)**, fine to medium grained, gray, medium dense to dense

Installation Details: PVC cap; Protecting casing; Concrete; Bentonite; Silica Sand; Pre-packed PVC screen; End cap; Silica sand backfill

Depth (Ft.)	Recovery (In.)	Field Test Results	Atterberg Limits LL-PL-PI	Percent Fines
5	174	10-24-32 N=56		
10	16	3-6-11 N=17		
15	10	3-4-11 N=15	NP	5
20	11	3-6-8 N=14		
25	17	8-34-50/4"	NP	5
30	18	6-9-13 N=22		
35	18	5-12-13 N=25		
40	18	9-15-20 N=35		

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-08-2023

Well Completed
02-08-2023

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-44½'

Abandonment Method
Boring converted to a monitoring well

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-220

Location: See Exploration Plan

Northing: 591282 Easting: 793719

Depth (Ft.) Elevation.: 1699.663 (Ft.)

Graphic Log	Installation Details	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
CLAYEY SAND (SC), fine to medium grained, gray, medium dense to dense *(continued)*		45		X	18	8-15-21 N=36			
46.0 1653.7									
Boring Terminated at 46 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-08-2023

Well Completed
02-08-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-44½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-221

Location: See Exploration Plan

Northing: 591129 Easting: 793539

Depth (Ft.) Elevation.: 1701.76 (Ft.)

Depth (Ft.)	Graphic Log	Material Description	Elevation	Installation Details	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.5		**TOPSOIL AND ROOTZONE**, dark brown, frozen	1701.3	PVC Cap Protecting Casing; Concrete							
		SILTY SAND (SM), fine to medium grained, brown, loose, frost to 3'		Bentonite							
5						X	18	5-5-4 N=9			
10						X	18	2-4-5 N=9		NP	31
14.5			1687.3		▽						
15		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, fine to coarse grained, brown, medium dense, varying amounts of gravel, waterbearing				X	14	5-7-8 N=15		NP	8
20						X	15	5-11-14 N=25			
				Silica Sand							
25						X	12	6-7-10 N=17			
				Pre-packed PVC screen							
30						X	18	5-8-15 N=23			
34.0			1667.8								
		Auger Refusal at 34 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-10-2023

Well Completed
02-10-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-34'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-222

Location: See Exploration Plan

Northing: 591059 Easting: 793481

Depth (Ft.) Elevation.: 1719.036 (Ft.)

Depth (Ft.)	Elevation	Description	Installation Details	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.5	1718.5	**TOPSOIL AND ROOTZONE**, dark brown, frozen	PVC cap; Protecting casing; Concrete							
		SANDY LEAN CLAY (CL), trace gravel, brown, stiff, frost to 3'	Bentonite							
5						13	4-5-8 N=13			
9.5	1709.5									
		CLAYEY SAND (SC), fine to medium grained, brown, loose, seams of silty sand								
10						15	2-3-4 N=7			
15.0	1704									
		SILTY SAND (SM), fine grained, brown, medium dense								
15						18	2-5-5 N=10			
19.5	1699.5									
		LEAN CLAY WITH SAND (CL), trace gravel, brown to dark brown, medium stiff to stiff								
20						18	7-9-10 N=19		30-20-10	81
25			Silica sand			18	1-3-6 N=9			
30.5	1688.5			▽						
30		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, fine to coarse grained, grayish brown, medium dense to dense, waterbearing	PVC screen			18	3-7-11 N=18			
35						16	4-11-17 N=28			
40			Silica sand backfill			18	7-17-33 N=50		NP	9
41.0	1678									
		Boring Terminated at 41 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-06-2023

Well Completed
02-06-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-39½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-300

Location: See Exploration Plan

Northing: 591648 Easting: 793853

Depth (Ft.) Elevation.: 1696.906 (Ft.)

Depth (Ft.)	Graphic Log	Material Description	Elevation	Installation Details	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.5		**TOPSOIL AND ROOTZONE**, dark brown, frozen	1696.4								
		SILTY SAND (SM), fine to medium grained, brown to dark gray, loose to medium dense, frost to 3'		Concrete; Bentonite							
5							18	2-2-2 N=4			
10		seams of clay at 10'			▽		18	3-6-11 N=17		18-15-3	42
11.0			1685.9								
		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse grained, brown, medium dense, waterbearing		PVC screen							
15							14	2-5-13 N=18		NP	8
20.0			1676.9	Silica Sand; End cap							
		CLAYEY SAND (SC), fine to medium grained, gray, medium dense to dense									
20							18	9-10-15 N=25			
25				Silica Sand backfill			18	5-10-13 N=23		33-13-20	28
30							18	9-13-18 N=31			
31.0			1665.9								
		Boring Terminated at 31 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-09-2023

Well Completed
02-09-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-29½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-301

Location: See Exploration Plan

Northing: 591552 Easting: 793570

Depth (Ft.) Elevation.: 1695.506 (Ft.)

Depth (Ft.)	Elevation	Description	Installation Details	Recovery (In.)	Field Test Results	Atterberg Limits LL-PL-PI	Percent Fines
0.5	1695	**TOPSOIL AND ROOTZONE**, dark brown, frozen	PVC Cap Protecting Casing; Concrete				
3.0	1692.5	**LEAN CLAY WITH SAND (CL)**, brown, frost to 3'					
		SILTY SAND (SM), trace gravel, fine to coarse grained, brown, medium dense to dense, varying amounts of gravel	Bentonite	13	6-7-8 N=15		
		waterbearing at 8'		9	7-15-16 N=31		
15.5	1680			18	10-10-15 N=25		
16.5	1679	**SILT (ML)**, gray					
		LEAN CLAY (CL), grayish brown, very stiff, laminations of silt		18	6-9-16 N=25	38-17-21	99
27.0	1668.5		Silica Sand	18	8-10-17 N=27		
		LEAN CLAY WITH SAND (CL), gray, very stiff	Pre-packed PVC screen	18	6-9-14 N=23	47-12-35	71
32.0	1663.5						
		CLAYEY SAND (SC), fine to medium grained, gray, dense	End cap	18	7-11-20 N=31	63-11-52	42
			Silica Sand backfill	18	10-13-18 N=31		

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-10-2023

Well Completed
02-10-2023

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-44½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-301

Location: See Exploration Plan

Northing: 591552 Easting: 793570

Depth (Ft.) Elevation.: 1695.506 (Ft.)

Graphic Log		Installation Details	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	CLAYEY SAND (SC), fine to medium grained, gray, dense *(continued)*									
	45.0 1650.5		45		X	18	8-10-19 N=29			
	46.0 **COAL**, black 1649.5									
	Boring Terminated at 46 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ While sampling

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-10-2023

Well Completed
02-10-2023

Notes

Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-44½'

Abandonment Method
Boring converted to a monitoring well

Drilling and Monitoring Well Installation - Stanton
Hwy 200 Alt | Stanton, ND
Terracon Project No. M2225111

Terracon
1502 Grumman Lane, Suite 4
I PO Box 2084
Bismarck, ND

Well Log No. MW-PB3

Location: See Exploration Plan

Northing: 592021 Easting: 794584

Depth (Ft.) Elevation.: 1698.506 (Ft.)

Depth (Ft.)	Elevation	Description
0.5	1698	**TOPSOIL AND ROOTZONE**, dark brown, frozen
		SANDY LEAN CLAY (CL), brown, frost to 3'
4.0	1694.5	**POORLY GRADED GRAVEL WITH SAND (GP)**, fine to coarse grained, brown, loose to medium dense
12.0	1686.5	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)**, fine to coarse grained, brown, loose to medium dense
		waterbearing at 20'
20.5	1678	**SANDY LEAN CLAY (CL)**, gray to dark gray, stiff
		seam of coal and gravel at 35'
40.0	1658.5	***Boring Terminated at 40 Feet***

Installation Details: PVC Cap Protecting Casing; Concrete; Bentonite; Silica Sand; Pre-packed PVC screen; End cap

Depth (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
5		9	5-6-6 N=12			
10		10	3-4-5 N=9		NP	3
15		12	3-4-3 N=7			
20		16	8-8-8 N=16		NP	11
25		18	4-6-9 N=15			
30		13	3-5-7 N=12		35-12-23	61
35		15	2-4-5 N=9			
40						

Water Level Observations: ▽ While sampling

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevations were provided by others.

Advancement Method
3¼" HSA, 0-39½'

Abandonment Method
Boring converted to a monitoring well

Drill Rig
Mobile B-57

Hammer Type
Automatic

Driller
M. Roberts

Logged by
J. Hoeven

Well Started
02-09-2023

Well Completed
02-09-2023

APPENDIX B

Monitoring Data

Table 1: Sample Results Summary Table - MW-6B (Sidegradient)

		MW-6B		
		Detection Monitoring / Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,693.8**	**1,694.2**	**1,693.6**
Field Parameters				
Temperature, field	deg C	6.7	11.71	8.65
Turbidity, field	ntu	81.95	1.17	0.75
Specific conductance, field	µmhos/cm	1,561	1,609	1,575
Detection Monitoring Parameters				
Boron	mg/L	0.31	0.35	0.32
Calcium	mg/L	20.4	34.1	24.6
Chloride	mg/L	16.5	17.1	16.8
Fluoride	mg/L	0.55	0.53	0.57
pH, field	s.u.	7.84	7.74	7.79
pH, laboratory	s.u.	8.0	8.1	8.0
Sulfate	mg/L	346	383	372
Total dissolved solids	mg/L	1,020	1,070	1,020
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0050	0.0029	0.0033
Barium	mg/L	0.0330	0.0298	0.0260
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0033	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.55	0.53	0.57
Lead	mg/L	0.0008	< 0.0005	< 0.0005
Lithium	mg/L	0.0521	0.0476	0.0449
Mercury	mg/L	< 0.0002	< 0.0002	0.0002
Molybdenum	mg/L	0.0128	0.0138	0.0133
Radium 226	pCi/L	0.2 U ± 0.2	0.01 U ± 0.1	-0.02 U ± 0.1
Radium 228	pCi/L	0.3 U ± 0.7	-0.1 U ± 0.8	-0.1 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.01 U ± 0.8	0 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 2: Sample Results Summary Table - MW-7A (Upgradient)

		MW-7A		
		Detection Monitoring / Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,701.8**	**1,703.2**	**1,703.2**
Field Parameters				
Temperature, field	deg C	4.48	8.68	9.71
Turbidity, field	ntu	2.01	< 0.1	0.7
Specific conductance, field	µmhos/cm	15,809	16,161	15,516
Detection Monitoring Parameters				
Boron	mg/L	0.58	0.71	0.71
Calcium	mg/L	412	442	370
Chloride	mg/L	33.3	35.6	36.1
Fluoride	mg/L	0.52	0.53	0.51
pH, field	s.u.	7.49	7.33	7.43
pH, laboratory	s.u.	7.7	7.7	7.6
Sulfate	mg/L	9,840	11,400	11,100
Total dissolved solids	mg/L	16,500	17,200	16,800
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.002	< 0.001
Arsenic	mg/L	< 0.002	< 0.004	< 0.002
Barium	mg/L	0.0075	0.0067	0.0085
Beryllium	mg/L	< 0.0005	< 0.001	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.001	< 0.0005
Chromium	mg/L	< 0.002	< 0.004	< 0.002
Cobalt	mg/L	< 0.002	< 0.004	< 0.002
Fluoride	mg/L	0.52	0.53	0.51
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.299	0.272	0.258
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0105	0.0095	0.0114
Radium 226	pCi/L	0.07 U ± 0.1	-0.05 U ± 0.2	0.2 ± 0.2
Radium 228	pCi/L	0.04 U ±0.5	0.03 U ± 0.7	-0.3 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.5 U ± 0.5	0.03 U ± 0.7	0.2 U ± 0.6
Selenium	mg/L	< 0.005	< 0.01	0.0062
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 3: Sample Results Summary Table - MW-7B (Upgradient)

		MW-7B		
		Detection Monitoring / Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,701.5**	**1,701.5**	**1,702.3**
Field Parameters				
Temperature, field	deg C	5.88	10.22	8.15
Turbidity, field	ntu	< 0.1	< 0.1	0.43
Specific conductance, field	µmhos/cm	1,565	1,546	1,508
Detection Monitoring Parameters				
Boron	mg/L	0.43	0.46	0.45
Calcium	mg/L	16.7	15.3	15.0
Chloride	mg/L	11.8	13.0	12.7
Fluoride	mg/L	0.61	0.63	0.64
pH, field	s.u.	7.86	7.74	7.91
pH, laboratory	s.u.	7.7	8.1	8.0
Sulfate	mg/L	273	289	232
Total dissolved solids	mg/L	1,050	1,000	1,020
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0162	0.0140	0.0158
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.61	0.63	0.64
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0577	0.0522	0.0501
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0056	0.0043	0.0054
Radium 226	pCi/L	2.7 ± 0.6	-0.07 U ± 0.2	0.01 U ± 0.1
Radium 228	pCi/L	0.4 U ± 0.6	-0.06 U ± 0.8	-0.05 U ± 0.6
Radium 226 and 228 combined	pCi/L	3.2 ± 0.9	0 U ± 0.8	0.01 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 4: Sample Results Summary Table - MW-8B (Upgradient)

		MW-8B		
		Detection Monitoring / Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,704.8**	**1,704.1**	**1,705.0**
Field Parameters				
Temperature, field	deg C	7.06	14.17	9.42
Turbidity, field	ntu	2.2	3.26	2.25
Specific conductance, field	µmhos/cm	1,074	1,109	1,392
Detection Monitoring Parameters				
Boron	mg/L	0.25	0.30	0.38
Calcium	mg/L	83.3	81.5	67.5
Chloride	mg/L	10.0	11.3	12.2
Fluoride	mg/L	0.17	0.21	0.28
pH, field	s.u.	7.4	7.45	7.52
pH, laboratory	s.u.	7.5	7.9	7.8
Sulfate	mg/L	196	199	266
Total dissolved solids	mg/L	702	711	909
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0274	0.0282	0.0296
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.17	0.21	0.28
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0685	0.0735	0.0778
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	< 0.002	< 0.002	< 0.002
Radium 226	pCi/L	0.07 U ± 0.1	0.1 U ± 0.2	0.2 U ± 0.2
Radium 228	pCi/L	0.5 U ± 0.6	0.3 U ± 0.9	1.5 ± 0.8
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.6	0.4 U ± 0.9	1.7 ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 5: Sample Results Summary Table - MW-105 (Upgradient)

		MW-105		
		Detection Monitoring / Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,701.9**	**1,702.0**	**1,702.7**
Field Parameters				
Temperature, field	deg C	6.9	10.41	9.82
Turbidity, field	ntu	453	18.25	6.42
Specific conductance, field	µmhos/cm	1,920	1,982	1,921
Detection Monitoring Parameters				
Boron	mg/L	0.33	0.35	0.38
Calcium	mg/L	42.1	42.7	40.6
Chloride	mg/L	9.5	10.6	11.0
Fluoride	mg/L	0.88	0.86	0.90
pH, field	s.u.	7.89	7.85	7.91
pH, laboratory	s.u.	7.9	8.1	8.0
Sulfate	mg/L	400	417	448
Total dissolved solids	mg/L	1,310	1,310	1,310
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0038	< 0.002	< 0.002
Barium	mg/L	0.1061	0.0498	0.0471
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0112	0.0028	< 0.002
Cobalt	mg/L	0.0031	< 0.002	< 0.002
Fluoride	mg/L	0.88	0.86	0.90
Lead	mg/L	0.0029	< 0.0005	< 0.0005
Lithium	mg/L	0.0554	0.0539	0.0491
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0280	0.0231	0.0294
Radium 226	pCi/L	0.3 ± 0.2	0.01 U ± 0.1	-0.2 U ± 0.1
Radium 228	pCi/L	0.6 U ± 0.6	-0.03 U ± 0.8	0.5 U ± 0.7
Radium 226 and 228 combined	pCi/L	0.8 U ± 0.7	0.01 U ± 0.8	0.5 U ± 0.7
Selenium	mg/L	0.0268	0.0247	0.0284
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/c = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 6: Sample Results Summary Table - MW-9N (Downgradient, Bottom Ash Landfill)

		MW-9N		
		Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,689.7**	**1,690.4**	**1,689.8**
Field Parameters				
Temperature, field	deg C	6.9	11.62	10.76
Turbidity, field	ntu	2.71	1	1.12
Specific conductance, field	µmhos/cm	3,725	3,821	4,157
Detection Monitoring Parameters				
Boron	mg/L	2.55	2.69	2.97
Calcium	mg/L	88.1	83.0	83.2
Chloride	mg/L	24.2	23.7	24.3
Fluoride	mg/L	0.65	0.67	0.70
pH, field	s.u.	7.35	7.18	7.19
pH, laboratory	s.u.	7.6	7.8	7.5
Sulfate	mg/L	1,310	1,280	1,480
Total dissolved solids	mg/L	3,200	2,830	3,060
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0699	0.0444	0.0683
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0077	0.0025	0.0039
Fluoride	mg/L	0.65	0.67	0.70
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0537	0.0451	0.0501
Mercury	mg/L	0.0003	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0574	0.0474	0.0538
Radium 226	pCi/L	0.2 U ± 0.2	-0.02 U ± 0.1	0.2 U ± 0.2
Radium 228	pCi/L	0.4 U ± 1.2	0.4 U ± 0.8	0.5 U ± 0.5
Radium 226 and 228 combined	pCi/L	1.1 U ± 1.2	0.4 U ± 0.8	0.7 U ± 0.5
Selenium	mg/L	0.0153	0.0096	0.0166
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 7: Sample Results Summary Table - MW-102 (Downgradient, Bottom Ash Landfill)

		MW-102		
		Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,694.2**	**1,694.6**	**1,694.7**
Field Parameters				
Temperature, field	deg C	8.41	12.15	9.75
Turbidity, field	ntu	21.83	10.89	4.64
Specific conductance, field	µmhos/cm	1,796	2,000	1,998
Detection Monitoring Parameters				
Boron	mg/L	0.42	0.46	0.48
Calcium	mg/L	62.4	60.5	61.8
Chloride	mg/L	15.1	16.3	16.0
Fluoride	mg/L	0.50	0.49	0.49
pH, field	s.u.	7.78	7.64	7.69
pH, laboratory	s.u.	8.0	8.0	7.9
Sulfate	mg/L	526	552	591
Total dissolved solids	mg/L	1,380	1,390	1,360
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0473	0.0332	0.0343
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	0.0043	0.0027	0.0020
Fluoride	mg/L	0.50	0.49	0.49
Lead	mg/L	0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0603	0.0574	0.0568
Mercury	mg/L	0.0003	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0239	0.0201	0.0231
Radium 226	pCi/L	0.3 ± 0.2	0.3 ± 0.2	-0.05 U ± 0.2
Radium 228	pCi/L	0.8 U ± 1.2	0.5 U ± 0.9	0.8 U ± 0.5
Radium 226 and 228 combined	pCi/L	1.3 U ± 1.2	0.8 U ± 0.9	0.8 U ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/c = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 8: Sample Results Summary Table - MW-103 (Downgradient, Bottom Ash Landfill)

		MW-103		
		Assessment Monitoring		
	Units	21-Mar-23	19-Jun-23	6-Nov-23
Water Elevation	**ft AMSL**	**1,689.9**	**1,690.6**	**1,692.1**
Field Parameters				
Temperature, field	deg C	7.86	10.17	9.29
Turbidity, field	ntu	5.99	0.68	0.98
Specific conductance, field	µmhos/cm	2,876	2,842	2,991
Detection Monitoring Parameters				
Boron	mg/L	1.32	1.40	1.55
Calcium	mg/L	30.8	33.4	33.4
Chloride	mg/L	17.0	18.4	17.8
Fluoride	mg/L	0.40	0.36	0.51
pH, field	s.u.	9.06	8.82	8.84
pH, laboratory	s.u.	8.7	8.8	8.6
Sulfate	mg/L	762	664	767
Total dissolved solids	mg/L	1,990	1,940	2,080
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0121	0.0106	0.0166
Barium	mg/L	0.0590	0.0691	0.0552
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.40	0.36	0.51
Lead	mg/L	0.0015	0.0011	0.0011
Lithium	mg/L	0.0337	0.0305	0.0206
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0447	0.0433	0.0599
Radium 226	pCi/L	0.05 U ± 0.2	0.1 U ± 0.1	0.04 U ± 0.2
Radium 228	pCi/L	-0.3 U ± 1.1	0.08 U ± 0.8	0.1 U ± 0.5
Radium 226 and 228 combined	pCi/L	1.1 U ± 1.1	0.2 U ± 0.8	0.1 U ± 0.5
Selenium	mg/L	0.0107	0.0082	0.0142
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 9: Sample Results Summary Table - MW-1R (Downgradient, Bottom Ash Impoundment)

		MW-1R			
		Additional Collected Data		Detection Monitoring	
	Units	22-Jun-23	22-Nov-23	22-Jun-23	22-Nov-23
Water Elevation	**ft AMSL**	**1,690.2**	**1,689.8**	**1,690.2**	**1,689.8**
Field Parameters					
Temperature, field	deg C	10.61	10.05	10.61	10.05
Turbidity, field	ntu	115.54	23.41	115.54	23.41
Specific conductance, field	µmhos/cm	1,586	1,497	1,586	1,497
Detection Monitoring Parameters					
Boron	mg/L	NA	NA	1.13	1.19
Calcium	mg/L	NA	NA	106	95.3
Chloride	mg/L	NA	NA	14.0	13.0
Fluoride	mg/L	NA	NA	0.71	0.67
pH, field	s.u.	NA	NA	7.74	7.65
pH, laboratory	s.u.	NA	NA	7.4	7.9
Sulfate	mg/L	NA	NA	415	376
Total dissolved solids	mg/L	NA	NA	1,100	1,070
Assessment Monitoring Parameters					
Antimony	mg/L	NA	NA	NA	NA
Arsenic	mg/L	0.0020	< 0.002	NA	NA
Barium	mg/L	NA	NA	NA	NA
Beryllium	mg/L	NA	NA	NA	NA
Cadmium	mg/L	NA	NA	NA	NA
Chromium	mg/L	NA	NA	NA	NA
Cobalt	mg/L	NA	NA	NA	NA
Fluoride	mg/L	0.71	0.67	NA	NA
Lead	mg/L	NA	NA	NA	NA
Lithium	mg/L	NA	NA	NA	NA
Mercury	mg/L	NA	NA	NA	NA
Molybdenum	mg/L	NA	NA	NA	NA
Radium 226	pCi/L	NA	NA	NA	NA
Radium 228	pCi/L	NA	NA	NA	NA
Radium 226 and 228 combined	pCi/L	NA	NA	NA	NA
Selenium	mg/L	NA	NA	NA	NA
Thallium	mg/L	NA	NA	NA	NA

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH; NA = not applicable

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 10: Sample Results Summary Table - MW-104 (Downgradient, Bottom Ash Impoundment)

		MW-104			
		Additional Collected Data		Detection Monitoring	
	Units	22-Jun-23	22-Nov-23	22-Jun-23	22-Nov-23
Water Elevation	**ft AMSL**	**1,690.5**	**1,690.1**	**1,690.5**	**1,690.1**
Field Parameters					
Temperature, field	deg C	10.26	10.05	10.26	10.05
Turbidity, field	ntu	202	0.22	202	0.22
Specific conductance, field	µmhos/cm	1,756	1,728	1,756	1,728
Detection Monitoring Parameters					
Boron	mg/L	NA	NA	0.68	0.73
Calcium	mg/L	NA	NA	76.9	79.5
Chloride	mg/L	NA	NA	14.5	13.8
Fluoride	mg/L	NA	NA	0.72	0.77
pH, field	s.u.	NA	NA	7.25	7.2
pH, laboratory	s.u.	NA	NA	7.3	7.6
Sulfate	mg/L	NA	NA	446	393
Total dissolved solids	mg/L	NA	NA	1,180	1,190
Assessment Monitoring Parameters					
Antimony	mg/L	NA	NA	NA	NA
Arsenic	mg/L	< 0.002	< 0.002	NA	NA
Barium	mg/L	NA	NA	NA	NA
Beryllium	mg/L	NA	NA	NA	NA
Cadmium	mg/L	NA	NA	NA	NA
Chromium	mg/L	NA	NA	NA	NA
Cobalt	mg/L	NA	NA	NA	NA
Fluoride	mg/L	0.72	0.77	NA	NA
Lead	mg/L	NA	NA	NA	NA
Lithium	mg/L	NA	NA	NA	NA
Mercury	mg/L	NA	NA	NA	NA
Molybdenum	mg/L	NA	NA	NA	NA
Radium 226	pCi/L	NA	NA	NA	NA
Radium 228	pCi/L	NA	NA	NA	NA
Radium 226 and 228 combined	pCi/L	NA	NA	NA	NA
Selenium	mg/L	NA	NA	NA	NA
Thallium	mg/L	NA	NA	NA	NA

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH; NA = not applicable

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 11: Sample Results Summary Table - MW-201 (Downgradient, Bottom Ash Impoundment)

		MW-201	
		Detection Monitoring	
	Units	26-Jun-23	22-Nov-23
Water Elevation	**ft AMSL**	**1,694.9**	**1,694.8**
Field Parameters			
Temperature, field	deg C	11.21	11.27
Turbidity, field	ntu	3.92	< 0.1
Specific conductance, field	µmhos/cm	2,883	2,968
Detection Monitoring Parameters			
Boron	mg/L	1.53	1.66
Calcium	mg/L	100	99.3
Chloride	mg/L	18.4	17.7
Fluoride	mg/L	0.77	0.85
pH, field	s.u.	7.48	7.42
pH, laboratory	s.u.	8.0	7.7
Sulfate	mg/L	1,030	1,260
Total dissolved solids	mg/L	2,120	2,200
Assessment Monitoring Parameters			
Antimony	mg/L	NA	NA
Arsenic	mg/L	NA	NA
Barium	mg/L	NA	NA
Beryllium	mg/L	NA	NA
Cadmium	mg/L	NA	NA
Chromium	mg/L	NA	NA
Cobalt	mg/L	NA	NA
Fluoride	mg/L	NA	NA
Lead	mg/L	NA	NA
Lithium	mg/L	NA	NA
Mercury	mg/L	NA	NA
Molybdenum	mg/L	NA	NA
Radium 226	pCi/L	NA	NA
Radium 228	pCi/L	NA	NA
Radium 226 and 228 combined	pCi/L	NA	NA
Selenium	mg/L	NA	NA
Thallium	mg/L	NA	NA

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH; NA = not applicable

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 12: Sample Results Summary Table - MW-202 (Downgradient, Bottom Ash Impoundment)

		MW-202	
		Detection Monitoring	
	Units	26-Jun-23	22-Nov-23
Water Elevation	**ft AMSL**	**1,693.5**	**1,693.5**
Field Parameters			
Temperature, field	deg C	10.43	10.42
Turbidity, field	ntu	16.56	42.57
Specific conductance, field	µmhos/cm	1,956	2,070
Detection Monitoring Parameters			
Boron	mg/L	1.70	2.02
Calcium	mg/L	187	193
Chloride	mg/L	13.1	12.6
Fluoride	mg/L	0.13	0.16
pH, field	s.u.	7.29	7.22
pH, laboratory	s.u.	7.7	7.6
Sulfate	mg/L	585	641
Total dissolved solids	mg/L	1,460	1,520
Assessment Monitoring Parameters			
Antimony	mg/L	NA	NA
Arsenic	mg/L	NA	NA
Barium	mg/L	NA	NA
Beryllium	mg/L	NA	NA
Cadmium	mg/L	NA	NA
Chromium	mg/L	NA	NA
Cobalt	mg/L	NA	NA
Fluoride	mg/L	NA	NA
Lead	mg/L	NA	NA
Lithium	mg/L	NA	NA
Mercury	mg/L	NA	NA
Molybdenum	mg/L	NA	NA
Radium 226	pCi/L	NA	NA
Radium 228	pCi/L	NA	NA
Radium 226 and 228 combined	pCi/L	NA	NA
Selenium	mg/L	NA	NA
Thallium	mg/L	NA	NA

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH; NA = not applicable

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 13: Sample Results Summary Table - MW-203 (Downgradient, Bottom Ash Impoundment)

		MW-203		
		Detection Monitoring		
	Units	26-Jun-23	13-Sep-23	22-Nov-23
			Q2 2023 Resample	
Water Elevation	**ft AMSL**	**1,698.2**	**1,697.7**	**1,698.2**
Field Parameters				
Temperature, field	deg C	11.62	16.15	10.04
Turbidity, field	ntu	105.2	1.42	0.1
Specific conductance, field	µmhos/cm	4,179	3,773	5,086
Detection Monitoring Parameters				
Boron	mg/L	2.66	2.69	3.56
Calcium	mg/L	44.1	NA	90.5
Chloride	mg/L	26.9	NA	29.5
Fluoride	mg/L	0.83	NA	0.64
pH, field	s.u.	8.93	9	8.02
pH, laboratory	s.u.	8.6	NA	8.2
Sulfate	mg/L	1,360	853	2,090
Total dissolved solids	mg/L	3,090	2,620	3,930
Assessment Monitoring Parameters				
Antimony	mg/L	NA	NA	NA
Arsenic	mg/L	NA	NA	NA
Barium	mg/L	NA	NA	NA
Beryllium	mg/L	NA	NA	NA
Cadmium	mg/L	NA	NA	NA
Chromium	mg/L	NA	NA	NA
Cobalt	mg/L	NA	NA	NA
Fluoride	mg/L	NA	NA	NA
Lead	mg/L	NA	NA	NA
Lithium	mg/L	NA	NA	NA
Mercury	mg/L	NA	NA	NA
Molybdenum	mg/L	NA	NA	NA
Radium 226	pCi/L	NA	NA	NA
Radium 228	pCi/L	NA	NA	NA
Radium 226 and 228 combined	pCi/L	NA	NA	NA
Selenium	mg/L	NA	NA	NA
Thallium	mg/L	NA	NA	NA

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH; NA = not applicable

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 14: Sample Results Summary Table - MW-210

		MW-210		
	Units	21-Mar-23	20-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,689.4**	**1,690.1**	**1,689.7**
Field Parameters				
Temperature, field	deg C	7.72	12.45	10.53
Turbidity, field	ntu	76.83	87.14	37.14
Specific conductance, field	µmhos/cm	1,483	1,636	1,658
Detection Monitoring Parameters				
Boron	mg/L	0.67	0.67	0.70
Calcium	mg/L	73.2	69.0	71.3
Chloride	mg/L	12.8	14.0	13.0
Fluoride	mg/L	0.52	0.55	0.54
pH, field	s.u.	7.94	7.76	7.75
pH, laboratory	s.u.	7.7	8.0	8.0
Sulfate	mg/L	398	400	390
Total dissolved solids	mg/L	1,160	1,110	1,150
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0043	0.0031	< 0.002
Barium	mg/L	0.0587	0.0562	0.0431
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0021	0.0023	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.52	0.55	0.54
Lead	mg/L	0.0022	0.0011	0.0007
Lithium	mg/L	0.0428	0.0393	0.0402
Mercury	mg/L	< 0.0002	0.0002	0.0007
Molybdenum	mg/L	0.0115	0.0115	0.0119
Radium 226	pCi/L	0.2 U ± 0.1	0.1 U ± 0.2	0.2 U ± 0.1
Radium 228	pCi/L	0.3 U ± 0.9	0.9 U ± 0.8	0.9 U ± 0.8
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.9	1.0 U ± 0.8	1.1 U ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 15: Sample Results Summary Table - MW-211

		MW-211		
	Units	21-Mar-23	20-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,689.6**	**1,690.4**	**1,689.9**
Field Parameters				
Temperature, field	deg C	7.38	11.85	7.51
Turbidity, field	ntu	246.02	61.74	120.67
Specific conductance, field	µmhos/cm	2,266	2,704	2,866
Detection Monitoring Parameters				
Boron	mg/L	1.55	1.70	1.71
Calcium	mg/L	55.4	64.5	76.2
Chloride	mg/L	16.4	18.1	16.9
Fluoride	mg/L	0.54	0.55	0.53
pH, field	s.u.	8.15	7.85	7.76
pH, laboratory	s.u.	8.1	8.0	8.0
Sulfate	mg/L	741	814	952
Total dissolved solids	mg/L	1,830	1,950	2,010
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0164	0.0112	0.0139
Barium	mg/L	0.2389	0.1540	0.1908
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0088	0.0027	0.0042
Cobalt	mg/L	0.0049	< 0.002	0.0029
Fluoride	mg/L	0.54	0.55	0.53
Lead	mg/L	0.0035	0.0009	0.0016
Lithium	mg/L	0.0300	0.0277	0.0278
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0234	0.0253	0.0253
Radium 226	pCi/L	0.4 ± 0.2	0.3 U ± 0.2	0.3 ± 0.1
Radium 228	pCi/L	-0.3 U ± 0.8	1.1 U ± 0.8	0.5 U ± 0.8
Radium 226 and 228 combined	pCi/L	1.1 U ± 0.8	1.4 ± 0.8	0.8 U ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 16: Sample Results Summary Table - MW-212

		MW-212		
	Units	21-Mar-23	20-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,689.6**	**1,690.3**	**1,689.9**
Field Parameters				
Temperature, field	deg C	7.62	12.48	8.35
Turbidity, field	ntu	20.95	84.56	125.62
Specific conductance, field	µmhos/cm	1,764	1,951	1,909
Detection Monitoring Parameters				
Boron	mg/L	0.72	0.76	0.74
Calcium	mg/L	36.5	36.8	54.0
Chloride	mg/L	15.4	16.7	15.0
Fluoride	mg/L	0.47	0.47	0.43
pH, field	s.u.	8.49	8.29	8.06
pH, laboratory	s.u.	8.2	8.4	8.2
Sulfate	mg/L	411	444	495
Total dissolved solids	mg/L	1,350	1,350	1,350
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0034	0.0041	0.0046
Barium	mg/L	0.0731	0.1062	0.1184
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	0.0034	0.0030
Cobalt	mg/L	0.0033	0.0039	0.0034
Fluoride	mg/L	0.47	0.47	0.43
Lead	mg/L	0.98	0.0029	0.0033
Lithium	mg/L	0.0025	0.0234	0.0299
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0535	0.0520	0.0393
Radium 226	pCi/L	0.1 U ± 0.1	0.2 U ± 0.2	0.2 U ± 0.2
Radium 228	pCi/L	0.04 U ± 0.7	0.1 U ± 0.9	2.9 ± 1.3
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.7	0.3 U ± 0.9	3.1 ± 1.3
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 17: Sample Results Summary Table - MW-213

		MW-213		
	Units	21-Mar-23	20-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,689.0**	**1,689.8**	**1,689.3**
Field Parameters				
Temperature, field	deg C	8.45	13.53	11.98
Turbidity, field	ntu	247.98	785.53	300.49
Specific conductance, field	µmhos/cm	1,419	1,547	1,588
Detection Monitoring Parameters				
Boron	mg/L	1.11	1.17	1.18
Calcium	mg/L	91.7	94.2	103
Chloride	mg/L	13.0	13.9	13.0
Fluoride	mg/L	0.81	0.74	0.77
pH, field	s.u.	7.91	7.73	7.74
pH, laboratory	s.u.	7.6	8.0	8.0
Sulfate	mg/L	373	360	368
Total dissolved solids	mg/L	1,150	1,110	1,070
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0035	0.0106	0.0042
Barium	mg/L	0.0806	0.1694	0.1122
Beryllium	mg/L	< 0.0005	0.0006	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0063	0.0180	0.0088
Cobalt	mg/L	0.0025	0.0074	0.0039
Fluoride	mg/L	0.81	0.74	0.77
Lead	mg/L	0.0023	0.0062	0.0037
Lithium	mg/L	0.0429	0.0480	0.0408
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0160	0.0145	0.0177
Radium 226	pCi/L	0.2 ± 0.1	0.5 ± 0.3	0.09 U ± 0.1
Radium 228	pCi/L	1.5 ± 0.9	0.2 U ± 0.9	0.4 U ± 0.8
Radium 226 and 228 combined	pCi/L	1.7 ± 0.9	0.7 U ± 0.9	0.5 U ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 18: Sample Results Summary Table - MW-214

		MW-214		
	Units	21-Mar-23	20-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,701.1**	**1,701.0**	**1,701.7**
Field Parameters				
Temperature, field	deg C	2.85	11.76	7.39
Turbidity, field	ntu	69.83	32.62	43.65
Specific conductance, field	µmhos/cm	1,629	1,838	2,117
Detection Monitoring Parameters				
Boron	mg/L	0.30	0.36	0.38
Calcium	mg/L	49.7	47.2	67.8
Chloride	mg/L	16.3	19.3	20.2
Fluoride	mg/L	0.43	0.48	0.49
pH, field	s.u.	7.89	7.71	7.7
pH, laboratory	s.u.	7.6	7.4	8.0
Sulfate	mg/L	441	485	618
Total dissolved solids	mg/L	1,270	1,290	1,510
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0452	0.0369	0.0522
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0038	0.0023	0.0023
Cobalt	mg/L	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.43	0.48	0.49
Lead	mg/L	0.0015	0.0006	0.0005
Lithium	mg/L	0.0513	0.0515	0.0532
Mercury	mg/L	0.0003	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0127	0.0152	0.0130
Radium 226	pCi/L	0.2 ± 0.1	-0.03 U ± 0.2	-0.01 U ± 0.1
Radium 228	pCi/L	0.6 U ± 0.8	-0.5 U ± 0.8	2.8 ± 1.2
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.8	0 U ± 0.8	2.8 ± 1.2
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 19: Sample Results Summary Table - MW-PB1 (Property Boundary Well)

		MW-PB1		
	Units	20-Mar-23	21-Jun-23	29-Nov-23
Water Elevation	**ft AMSL**	**1,674.7**	**1,675.0**	**1,674.8**
Field Parameters				
Temperature, field	deg C	7.42	13.06	9.84
Turbidity, field	ntu	1294	8.88	829.35
Specific conductance, field	µmhos/cm	1677	2077	2031
Detection Monitoring Parameters				
Boron	mg/L	1.31	1.24	1.30
Calcium	mg/L	117	139	133
Chloride	mg/L	21.8	22.8	20.0
Fluoride	mg/L	0.50	0.55	0.52
pH, field	s.u.	7.28	7.07	7.15
pH, laboratory	s.u.	7.7	7.2	7.6
Sulfate	mg/L	515	581	520
Total dissolved solids	mg/L	1180	1510	1360
Assessment Monitoring Parameters				
Antimony	mg/L	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0212	< 0.002	0.0104
Barium	mg/L	0.5689	0.0581	0.2083
Beryllium	mg/L	0.0020	< 0.0005	0.0007
Cadmium	mg/L	0.0007	139	< 0.0005
Chromium	mg/L	0.0440	0.0030	0.0160
Cobalt	mg/L	0.0304	0.0027	0.0082
Fluoride	mg/L	0.50	0.55	0.52
Lead	mg/L	0.0272	0.0015	0.0099
Lithium	mg/L	0.0617	0.0379	0.0457
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0194	0.0123	0.0095
Radium 226	pCi/L	1.5 ± 0.5	0.2 U ± 0.2	0.3 ± 0.2
Radium 228	pCi/L	1.5 ± 0.9	1.2 U ± 1.1	2.7 ± 1.4
Radium 226 and 228 combined	pCi/L	3.0 ± 1.0	0.9 U ± 1.1	3.0 ± 1.4
Selenium	mg/L	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 20: Sample Results Summary Table - MW-215

		MW-215			
	Units	20-Mar-23	21-Jun-23	13-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.2**	**1,689.9**	**1,689.5**	**1,689.4**
Field Parameters					
Temperature, field	deg C	7.35	10.82	11.42	9.89
Turbidity, field	ntu	2,287.6	2,771.5	340.02	360.24
Specific conductance, field	µmhos/cm	2,139	2,486	2,499	2,443
Detection Monitoring Parameters					
Boron	mg/L	0.91	0.82	0.87	0.92
Calcium	mg/L	95.2	99.2	95.4	99.0
Chloride	mg/L	19.4	19.1	18.9	17.4
Fluoride	mg/L	0.50	0.46	0.45	0.46
pH, field	s.u.	7.86	7.65	7.68	7.66
pH, laboratory	s.u.	7.9	7.9	8.0	7.9
Sulfate	mg/L	866	760	675	730
Total dissolved solids	mg/L	1,720	1,750	1,810	1,720
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0176	0.0158	0.0046	0.0054
Barium	mg/L	0.4762	0.4523	0.0948	0.1146
Beryllium	mg/L	0.0021	0.0018	< 0.0005	< 0.0005
Cadmium	mg/L	0.0005	0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0716	0.0655	0.0106	0.0128
Cobalt	mg/L	0.0304	0.0268	0.0039	0.0044
Fluoride	mg/L	0.50	0.46	0.45	0.46
Lead	mg/L	0.0243	0.0220	0.0037	0.0040
Lithium	mg/L	0.0854	0.0681	0.0485	0.0496
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0117	0.0098	0.0119	0.0135
Radium 226	pCi/L	0.5 ± 0.3	0.4 U ± 0.4	0.08 U ± 0.2	0.2 ± 0.2
Radium 228	pCi/L	0.3 U ± 0.8	0.4 U ± 0.7	0.5 U ± 0.8	1.6 ± 1.0
Radium 226 and 228 combined	pCi/L	1.2 U ± 0.9	0.8 U ± 0.7	0.6 U ± 0.8	1.8 ± 1.0
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 21: Sample Results Summary Table - MW-216

		MW-216			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.5**	**1,690.1**	**1,689.7**	**1,689.7**
Field Parameters					
Temperature, field	deg C	6.88	10.24	12.93	8.62
Turbidity, field	ntu	219.24	691.49	19.38	16.17
Specific conductance, field	µmhos/cm	1,949	2,203	2,108	2,164
Detection Monitoring Parameters					
Boron	mg/L	0.71	0.76	0.78	0.82
Calcium	mg/L	95.0	92.4	88.8	88.3
Chloride	mg/L	17.4	17.4	16.7	15.6
Fluoride	mg/L	0.54	0.47	0.52	0.51
pH, field	s.u.	7.9	7.72	7.71	7.74
pH, laboratory	s.u.	8.0	7.9	8.0	8.0
Sulfate	mg/L	695	626	594	622
Total dissolved solids	mg/L	1,600	1,650	1,530	1,500
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0034	0.0046	0.0020	0.0025
Barium	mg/L	0.1004	0.1100	0.0407	0.0419
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0084	0.0083	< 0.002	< 0.002
Cobalt	mg/L	0.0029	0.0034	< 0.002	< 0.002
Fluoride	mg/L	0.54	0.47	0.52	0.51
Lead	mg/L	0.0027	0.0032	< 0.0005	< 0.0005
Lithium	mg/L	0.0586	0.0527	0.0486	0.0504
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0099	0.0100	0.0103	0.0116
Radium 226	pCi/L	0.2 U ± 0.2	0.09 U ± 0.1	0.2 U ± 0.2	0.1 U ± 0.1
Radium 228	pCi/L	0.4 U ± 0.6	0.7 U ± 0.7	1.4 ± 0.9	1.1 U ± 0.9
Radium 226 and 228 combined	pCi/L	0.6 U ± 0.7	0.8 U ± 0.7	1.6 ± 0.9	1.2 U ± 0.9
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 22: Sample Results Summary Table - MW-217

		MW-217			
	Units	20-Mar-23	22-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,688.9**	**1,689.6**	**1,689.2**	**1,689.2**
Field Parameters					
Temperature, field	deg C	6.31	10.28	12.92	9.95
Turbidity, field	ntu	59.68	2,926	2.62	4
Specific conductance, field	µmhos/cm	2,275	2,439	2,354	2,413
Detection Monitoring Parameters					
Boron	mg/L	0.83	0.86	0.91	0.95
Calcium	mg/L	109	108	105	106
Chloride	mg/L	18.1	18.9	18.5	17.3
Fluoride	mg/L	0.65	0.64	0.64	0.62
pH, field	s.u.	7.66	7.69	7.68	7.69
pH, laboratory	s.u.	7.8	7.5	7.7	7.9
Sulfate	mg/L	790	738	680	721
Total dissolved solids	mg/L	1,760	1,710	1,940	1,710
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0031	0.0033	0.0026	0.0033
Barium	mg/L	0.0476	0.0505	0.0373	0.0418
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.65	0.64	0.64	0.62
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0546	0.0462	0.0458	0.0500
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0132	0.0133	0.0134	0.0148
Radium 226	pCi/L	0.1 U ± 0.2	0.1 U ± 0.1	0.2 U ± 0.2	0.09 U ± 0.1
Radium 228	pCi/L	1.6 ± 0.7	-0.2 U ± 0.8	0.8 U ± 0.9	0.9 U ± 0.7
Radium 226 and 228 combined	pCi/L	1.7 ± 0.7	0.1 U ± 0.8	1.0 U ± 0.9	1.0 U ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromh per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 23: Sample Results Summary Table - MW-218

		MW-218			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.2**	**1,689.9**	**1,689.5**	**1,689.4**
Field Parameters					
Temperature, field	deg C	7.28	10.67	12.68	10.23
Turbidity, field	ntu	91.38	25.22	4.61	9.93
Specific conductance, field	µmhos/cm	2,047	2,155	2,115	2,187
Detection Monitoring Parameters					
Boron	mg/L	0.78	0.78	0.90	0.92
Calcium	mg/L	102	98.6	97.4	100
Chloride	mg/L	16.9	17.3	16.9	15.8
Fluoride	mg/L	0.57	0.53	0.60	0.58
pH, field	s.u.	7.61	7.69	7.71	7.7
pH, laboratory	s.u.	7.7	7.5	7.7	7.9
Sulfate	mg/L	696	618	597	634
Total dissolved solids	mg/L	1,570	1,510	1,550	1,510
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Barium	mg/L	0.0455	0.0424	0.0387	0.0434
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Cobalt	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fluoride	mg/L	0.57	0.53	0.60	0.58
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Lithium	mg/L	0.0538	0.0444	0.0485	0.0513
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0106	0.0108	0.0114	0.0130
Radium 226	pCi/L	0.2 U ± 0.2	0.06 U ± 0.1	0.2 U ± 0.2	0.2 U ± 0.1
Radium 228	pCi/L	0.5 U ± 0.7	-0.9 U ± 0.8	0.9 U ± 0.9	1.2 U ± 0.8
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.06 U ± 0.8	1.1 U ± 0.9	1.4 ± 0.8
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 24: Sample Results Summary Table - MW-219

		MW-219			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,690.2**	**1,691.2**	**1,690.7**	**1,690.4**
Field Parameters					
Temperature, field	deg C	8.55	9.56	12.37	8.36
Turbidity, field	ntu	697.24	2,123.3	1,666.6	261.97
Specific conductance, field	µmhos/cm	3,412	3,954	4,113	3,988
Detection Monitoring Parameters					
Boron	mg/L	1.19	1.38	1.85	1.41
Calcium	mg/L	273	247	174	278
Chloride	mg/L	19.1	21.1	22.9	18.1
Fluoride	mg/L	0.23	0.27	0.43	0.23
pH, field	s.u.	7.48	7.48	7.68	7.35
pH, laboratory	s.u.	7.6	7.5	7.8	7.6
Sulfate	mg/L	1,440	1,370	1,020	1,470
Total dissolved solids	mg/L	3,040	3,110	3,140	3,180
Assessment Monitoring Parameters					
Antimony	mg/L	0.0347	0.0010	0.0014	< 0.001
Arsenic	mg/L	0.3504	0.0651	0.0607	0.0161
Barium	mg/L	0.0008	0.5980	0.4760	0.1090
Beryllium	mg/L	763	0.0016	0.0015	< 0.0005
Cadmium	mg/L	< 0.0005	0.0007	0.0008	< 0.0005
Chromium	mg/L	0.0252	0.0429	0.0365	0.0062
Cobalt	mg/L	0.0143	0.0256	0.0216	0.0049
Fluoride	mg/L	0.23	0.27	0.43	0.23
Lead	mg/L	0.0119	0.0240	0.0207	0.0035
Lithium	mg/L	0.0423	0.0428	0.0340	0.0324
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0234	0.0335	0.0434	0.0208
Radium 226	pCi/L	0.3 ± 0.2	0.7 ± 0.3	0.2 U ± 0.2	0.09 U ± 0.1
Radium 228	pCi/L	0.2 U ± 0.6	-0.4 U ± 1.3	1.7 ± 1.1	0.9 U ± 0.9
Radium 226 and 228 combined	pCi/L	0.9 U ± 0.7	0.7 U ± 1.3	1.9 ± 1.1	1.0 U ± 0.9
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 25: Sample Results Summary Table - MW-220

		MW-220			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.4**	**1,690.2**	**1,689.7**	**1,689.7**
Field Parameters					
Temperature, field	deg C	8.2	11.65	11.94	8.21
Turbidity, field	ntu	123.49	153.6	387.64	317.86
Specific conductance, field	µmhos/cm	1,885	2,162	2,069	2,118
Detection Monitoring Parameters					
Boron	mg/L	0.76	0.81	0.85	0.93
Calcium	mg/L	83.8	90.4	89.1	103
Chloride	mg/L	17.2	17.3	16.7	15.6
Fluoride	mg/L	0.56	0.54	0.54	0.55
pH, field	s.u.	7.88	7.66	7.7	7.71
pH, laboratory	s.u.	8.0	8.0	8.1	7.9
Sulfate	mg/L	650	624	580	602
Total dissolved solids	mg/L	1,530	1,520	1,710	1,490
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	< 0.002	0.0027	0.0032	0.0044
Barium	mg/L	0.0750	0.0759	0.0939	0.1316
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0043	< 0.002	0.0103	0.0178
Cobalt	mg/L	< 0.002	2162	0.0043	0.0050
Fluoride	mg/L	0.56	0.54	0.54	0.55
Lead	mg/L	0.0009	0.0012	0.0027	0.0030
Lithium	mg/L	0.0577	0.0496	0.0539	0.0581
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0130	0.0108	0.0103	0.0127
Radium 226	pCi/L	0.2 U ± 0.2	0.1 U ± 0.1	0.2 U ± 0.2	0.08 U ± 0.2
Radium 228	pCi/L	0.7 U ± 0.7	-0.003 U ± 0.9	1.9 ± 0.9	1.1 U ± 0.9
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.1 U ± 0.9	2.1 ± 0.9	1.2 U ± 0.9
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 26: Sample Results Summary Table - MW-221

		MW-221			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.6**	**1,690.2**	**1,689.8**	**1,689.8**
Field Parameters					
Temperature, field	deg C	7.28	10.2	11.12	8.25
Turbidity, field	ntu	462.25	661.13	202.33	315.72
Specific conductance, field	µmhos/cm	2,062	2,228	2,200	2,265
Detection Monitoring Parameters					
Boron	mg/L	0.81	0.81	0.82	0.83
Calcium	mg/L	71.5	69.8	71.1	83.0
Chloride	mg/L	18.1	18.8	18.6	17.5
Fluoride	mg/L	0.42	0.44	0.44	0.42
pH, field	s.u.	7.62	7.63	7.64	7.66
pH, laboratory	s.u.	8.0	7.9	8.0	7.9
Sulfate	mg/L	647	629	602	639
Total dissolved solids	mg/L	1,580	1,600	1,600	1,590
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0110	0.0237	0.0091	0.0107
Barium	mg/L	0.0630	0.1130	0.0499	0.0672
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0042	0.0079	0.0023	0.0034
Cobalt	mg/L	< 0.002	0.0043	< 0.002	0.0020
Fluoride	mg/L	0.42	0.44	0.44	0.42
Lead	mg/L	0.0027	0.0066	0.0020	0.0028
Lithium	mg/L	0.0436	0.0423	0.0383	0.0435
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0237	0.0227	0.0232	0.0244
Radium 226	pCi/L	0.04 U ± 0.2	0.1 U ± 0.1	0.3 ± 0.2	0.05 U ± 0.1
Radium 228	pCi/L	0.4 U ± 0.7	0.4 U ± 0.9	1.9 ± 1.0	0.7 U ± 0.7
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.5 U ± 0.9	2.2 ± 1.0	0.8 U ± 0.7
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 27: Sample Results Summary Table - MW-222

		MW-222			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	30-Nov-23
Water Elevation	**ft AMSL**	**1,689.8**	**1,690.8**	**1,690.4**	**1,691.0**
Field Parameters					
Temperature, field	deg C	6.88	10.62	10.13	5.62
Turbidity, field	ntu	4608	2064.2	500.22	376.74
Specific conductance, field	µmhos/cm	2,102	2,496	2,429	2,516
Detection Monitoring Parameters					
Boron	mg/L	1.43	2.51	2.33	2.26
Calcium	mg/L	80.0	61.9	44.3	59.3
Chloride	mg/L	44.8	46.1	47.2	35.9
Fluoride	mg/L	1.08	1.69	1.56	1.28
pH, field	s.u.	8.12	9.31	8.93	8.37
pH, laboratory	s.u.	7.7	9.1	8.3	8.2
Sulfate	mg/L	970	887	791	779
Total dissolved solids	mg/L	2,300	2,940	2,520	2,270
Assessment Monitoring Parameters					
Antimony	mg/L	0.0011	0.0016	0.0019	0.0018
Arsenic	mg/L	0.0360	0.0557	0.0301	0.0288
Barium	mg/L	0.4570	0.6637	0.2208	0.2233
Beryllium	mg/L	0.0028	0.0042	0.0028	0.0017
Cadmium	mg/L	0.0011	0.0022	0.0011	0.0008
Chromium	mg/L	0.0713	0.0961	0.0386	0.0299
Cobalt	mg/L	0.0342	0.0512	0.0217	0.0177
Fluoride	mg/L	1.08	1.69	1.56	1.28
Lead	mg/L	0.0365	0.0830	0.0411	0.0219
Lithium	mg/L	0.0600	0.0448	< 0.02	< 0.02
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.2651	0.5488	0.5704	0.4987
Radium 226	pCi/L	5.0 U ± 2.6	0.2 U ± 0.3	1.0 ± 0.3	0.2 U ± 0.2
Radium 228	pCi/L	23.5 U ± 35.2	2.0 ± 0.8	2.7 ± 1.1	1.2 U ± 0.9
Radium 226 and 228 combined	pCi/L	35.7 U ± 35.3	2.2 ± 0.8	3.7 ± 1.1	1.4 U ± 0.9
Selenium	mg/L	0.0077	0.0136	0.0096	0.0100
Thallium	mg/L	< 0.0005	0.0006	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 28: Sample Results Summary Table - MW-300

		MW-300			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	1-Dec-23
Water Elevation	**ft AMSL**	**1,688.2**	**1,688.8**	**1,688.5**	**1,688.4**
Field Parameters					
Temperature, field	deg C	6.58	10.37	13.25	10.52
Turbidity, field	ntu	125.57	499.01	56.34	118.57
Specific conductance, field	µmhos/cm	2,409	2,686	2,866	2,866
Detection Monitoring Parameters					
Boron	mg/L	0.90	0.94	1.02	1.01
Calcium	mg/L	133	129	144	151
Chloride	mg/L	43.3	42.8	51.7	57.8
Fluoride	mg/L	0.53	0.61	0.67	0.62
pH, field	s.u.	7.63	7.41	7.38	7.41
pH, laboratory	s.u.	7.7	7.3	7.5	7.8
Sulfate	mg/L	798	764	710	797
Total dissolved solids	mg/L	1,940	1,860	2,000	2,130
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0089	0.0287	0.0069	0.0081
Barium	mg/L	0.1229	0.1440	0.0847	0.1031
Beryllium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0043	0.0080	< 0.002	0.0042
Cobalt	mg/L	0.0038	0.0064	0.0041	0.0049
Fluoride	mg/L	0.53	0.61	0.67	0.62
Lead	mg/L	0.0009	0.0024	0.0008	0.0009
Lithium	mg/L	0.0451	0.0376	0.0416	0.0441
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0132	0.0148	0.0168	0.0149
Radium 226	pCi/L	0.1 U ± 0.2	0.3 ± 0.2	0.4 ± 0.2	0.2 ± 0.1
Radium 228	pCi/L	0.3 U ± 0.6	0.2 U ± 0.9	1.4 U ± 1.0	0.8 U ± 0.6
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	0.5 U ± 0.9	1.8 ± 1.0	1.0 U ± 0.6
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 29: Sample Results Summary Table - MW-301

		MW-301			
	Units	20-Mar-23	21-Jun-23	12-Sep-23	1-Dec-23
Water Elevation	**ft AMSL**	**1,680.4**	**1,682.6**	**1,684.1**	**1,681.3**
Field Parameters					
Temperature, field	deg C	7.65	11.25	16.27	8.61
Turbidity, field	ntu	58.38	809.97	669.56	1090.5
Specific conductance, field	µmhos/cm	1,164	1,304	1,286	1,249
Detection Monitoring Parameters					
Boron	mg/L	0.38	0.40	0.38	0.44
Calcium	mg/L	13.2	20.7	19.2	60.8
Chloride	mg/L	8.1	15.6	10.0	9.4
Fluoride	mg/L	0.42	0.41	0.36	0.36
pH, field	s.u.	8.31	8.19	7.98	7.98
pH, laboratory	s.u.	8.3	7.5	7.8	8.2
Sulfate	mg/L	196	275	234	245
Total dissolved solids	mg/L	909	1,060	1,160	900
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0063	0.0152	0.0092	0.0172
Barium	mg/L	0.0430	0.1682	0.1124	0.2203
Beryllium	mg/L	< 0.0005	0.0021	0.0013	0.0030
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0029	0.0254	0.0171	0.0329
Cobalt	mg/L	< 0.002	0.0106	0.0067	0.0139
Fluoride	mg/L	0.42	0.41	0.36	0.36
Lead	mg/L	0.0017	0.0193	0.0114	0.0251
Lithium	mg/L	0.0642	0.0741	0.0654	0.0841
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0194	0.0070	0.0044	0.0023
Radium 226	pCi/L	0.2 U ± 0.2	0.3 U ± 0.2	0.8 ± 0.4	1.1 ± 0.4
Radium 228	pCi/L	0.3 U ± 0.6	0.9 U ± 1.2	0.6 U ± 1.0	0.5 U ± 0.9
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	1.2 U ± 1.2	1.4 U ± 1.0	1.6 ± 0.9
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

Table 30: Sample Results Summary Table - MW-PB3 (Property Boundary Well)

		MW-PB3			
	Units	20-Mar-23	22-Jun-23	13-Sep-23	1-Dec-23
Water Elevation	**ft AMSL**	**1,667.3**	**1,671.3**	**1,670.9**	**1,672.9**
Field Parameters					
Temperature, field	deg C	8.24	10.96	13.11	8.69
Turbidity, field	ntu	346	135.25	18.3	1.54
Specific conductance, field	µmhos/cm	1,915	2,152	2,215	2,185
Detection Monitoring Parameters					
Boron	mg/L	0.93	0.88	0.96	1.11
Calcium	mg/L	118	118	113	119
Chloride	mg/L	18.0	19.4	19.3	18.6
Fluoride	mg/L	0.57	0.60	0.63	0.61
pH, field	s.u.	7.37	7.39	7.39	7.4
pH, laboratory	s.u.	7.7	7.8	7.6	7.9
Sulfate	mg/L	595	602	566	611
Total dissolved solids	mg/L	1,480	1,520	1,490	1,540
Assessment Monitoring Parameters					
Antimony	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.0057	0.0027	< 0.002	< 0.002
Barium	mg/L	0.1125	0.0517	0.0425	0.0436
Beryllium	mg/L	0.0009	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	mg/L	0.0077	0.0020	< 0.002	< 0.002
Cobalt	mg/L	0.0046	0.0023	0.0022	0.0020
Fluoride	mg/L	0.57	0.60	0.63	0.61
Lead	mg/L	0.0071	0.0022	0.0010	< 0.0005
Lithium	mg/L	0.0450	0.0322	0.0343	< 0.1
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	0.0298	0.0309	0.0298	0.0316
Radium 226	pCi/L	0.2 U ± 0.2	0.2 U ± 0.2	0.2 U ± 0.2	0.3 ± 0.1
Radium 228	pCi/L	-0.3 U ± 0.7	0.9 U ± 1.0	1.7 ± 1.1	0.4 U ± 0.5
Radium 226 and 228 combined	pCi/L	0.7 U ± 0.7	1.1 U ± 1.0	1.9 ± 1.1	0.7 U ± 0.5
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005

Notes:

Non-detects have been listed at the reported primary quantitation limit.

Metal concentrations represent the total fraction (i.e., samples have not been filtered).

ft AMSL: feet above mean sea level; deg C = degrees Celsius; ntu = nephelometric turbidity units; µmhos/cm = micromhos per centimeter; mg/L = milligrams per liter; pCi/L = picocuries per liter; s.u. = standard units for pH

Laboratory-Provided Qualifiers:

U (radiochem) = not detected above the minimum detectable concentration (varies by sample).

APPENDIX C

Detection Monitoring Comparative Statistics

Table 1: MW-6B (Background, Sidegradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	0.41	0.31	0.33	Yes	0.31	0.33	Yes	0.35	0.33	Yes
Calcium, tota	mg/L	CUSUM	41.7	21.5	29.3	Yes	20.4	29.3	Yes	34.1	31.4	Yes
Chloride	mg/L	CUSUM	19.8	17.3	36.8	No - ongoing verified SSI	16.5	38.5	No - ongoing verified SSI	17.1	40.7	No - ongoing verified SSI
Fluoride	mg/L	CUSUM	0.64	0.57	0.60	Yes	0.55	0.56	Yes	0.53	0.56	Yes
pH, field-measurec	s.u.	CUSUM	7.19, 8.03	7.81	7,61, 7.71	Yes	7.84	7.61, 7.83	Yes	7.74	7.61, 7.85	Yes
Sulfate	mg/L	CUSUM	442	317	344	Yes	346	344	Yes	383	359	Yes
Total dissolved solids	mg/L	CUSUM	1,147	1,060	1,051	Yes	1,020	1,051	Yes	1,070	1,051	Yes

Notes:

Statistical limit for fluoride was deseasonalized and may vary slightly between events.

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 2: MW-7A (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	1.36	< 0.50	0.70	Yes	0.58	0.70	Yes	0.71	0.70	Yes
Calcium, tota	mg/L	CUSUM	521	416	428	Yes	412	428	Yes	442	428	Yes
Chloride	mg/L	CUSUM	63.0	33.3	41.6	Yes	33.3	41.6	Yes	35.6	41.6	Yes
Fluoride	mg/L	CUSUM	0.63	0.53	0.54	Yes	0.52	0.54	Yes	0.53	0.54	Yes
pH, field-measurec	s.u.	CUSUM	6.83, 7.57	7.33	7.20, 7.24	Yes	7.49	7.20, 7.43	Yes	7.33	7.20, 7.47	Yes
Sulfate	mg/L	CUSUM	13,706	9,020	10,454	Yes	9,840	10,454	Yes	11,400	10,587	Yes
Total dissolved solids	mg/L	CUSUM	18,675	15,900	16,912	Yes	16,500	16,903	Yes	17,200	17,594	Yes

Notes:

Statistical limit for fluoride was deseasonalized and may vary slightly between events.

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 3: MW-7B (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	0.54	0.43	0.43	Yes	0.43	0.43	Yes	0.46	0.43	Yes
Calcium, tota	mg/L	CUSUM	21.2	17.1	18.9	Yes	16.7	18.9	Yes	15.3	18.9	Yes
Chloride	mg/L	CUSUM	14.1	12.5	31.4	No - ongoing verified SSI	11.8	32.9	No - ongoing verified SSI	13	35.6	No - ongoing verified SSI
Fluoride	mg/L	CUSUM	0.70	0.60	0.60	Yes	0.61	0.59	Yes	0.63	0.61	Yes
pH, field-measurec	s.u.	CUSUM	7.18, 8.06	7.74	7.62, 7.66	Yes	7.86	7.62, 7.79	Yes	7.74	7.62, 7.80	Yes
Sulfate	mg/L	CUSUM	446	236	309	Yes	273	309	Yes	289	309	Yes
Total dissolved solids	mg/L	CUSUM	1,324	1,020	1,040	Yes	1,050	1,040	Yes	1,000	1,040	Yes

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 4: MW-8B (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	0.54	0.26	0.31	Yes	0.25	0.31	Yes	0.30	0.31	Yes
Calcium, tota	mg/L	CUSUM	112.7	88.5	84.5	Yes	83.3	84.5	Yes	81.5	84.5	Yes
Chloride	mg/L	CUSUM	19.95	10.7	11.3	Yes	10	11.3	Yes	11.3	11.3	Yes
Fluoride	mg/L	CUSUM	0.46	0.19	0.25	Yes	0.17	0.25	Yes	0.21	0.25	Yes
pH, field-measurec	s.u.	CUSUM	7.10, 7.65	7.26	7.33, 7.38	Yes	7.45	7.37, 7.37	Yes	7.45	7.37, 7.38	Yes
Sulfate	mg/L	CUSUM	848	194	367	Yes	196	367	Yes	199	367	Yes
Total dissolved solids	mg/L	CUSUM	1,846	719	1,000	Yes	702	1,000	Yes	711	1,000	Yes

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 5: MW-105 (Background, Upgradient) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance ?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	0.47	0.37	0.36	Yes	0.33	0.36	Yes	0.35	0.36	Yes
Calcium, tota	mg/L	CUSUM	84.0	45.5	50.9	Yes	42.1	50.9	Yes	42.7	50.9	Yes
Chloride	mg/L	CUSUM	66.8	11.1	19.7	Yes	9.5	19.7	Yes	10.6	19.7	Yes
Fluoride	mg/L	CUSUM	1.21	0.92	0.95	Yes	0.88	0.95	Yes	0.86	0.95	Yes
pH, field-measurec	s.u.	CUSUM	7.47, 7.98	7.67	7.70, 7.73	Yes	7.89	7.73, 7.83	Yes	7.85	7.73, 7.89	Yes
Sulfate	mg/L	CUSUM	2,028	242	916	Yes	400	916	Yes	417	916	Yes
Total dissolved solids	mg/L	CUSUM	3,096	1,360	1,838	Yes	1,310	1,841	Yes	1,310	1,841	Yes

Notes:

Statistical limit for fluoride was deseasonalized when setting the baseline and may vary slightly between events.

Statistical limit for field-measured pH was deseasonalized when setting the baseline and may vary slightly between events.

Statistical limit for total dissolved solids was deseasonalized when setting the baseline and may vary slightly between events.

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 6: MW-9N (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	3.67	2.50	2.68	Yes	2.55	2.68	Yes	2.69	2.68	Yes
Calcium, total	mg/L	CUSUM	94.4	100	164	No - ongoing verified SSI	88.1	170.3	No - ongoing verified SSI	83.0	171.5	No - ongoing verified SSI
Chloride	mg/L	CUSUM	22.0	27.2	121.2	No - ongoing verified SSI	24.2	128.4	No - ongoing verified SSI	23.7	135.1	No - ongoing verified SSI
Fluoride	mg/L	CUSUM	0.69	0.70	1.36	No - ongoing verified SSI	0.65	1.42	No - ongoing verified SSI	0.67	1.50	No - ongoing verified SSI
pH, field-measured	s.u.	CUSUM	6.65, 7.32	7.15	6.99, 7.30	Yes	7.35	6.99, 7.57	No - potential exceedance	7.18	6.99, 7.68	No - verified SSI
Sulfate	mg/L	CUSUM	1,685	1,430	1,329	Yes	1,310	1,282	Yes	1,280	1,282	Yes
Total dissolved solids	mg/L	CUSUM	3,394	3,320	3,592	No - ongoing verified SSI	3,200	3,845	No - ongoing verified SSI	2,830	3,729	No - ongoing verified SSI

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 7: MW-102 (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, tota	mg/L	CUSUM	2.89	0.43	1.90	Yes	0.42	1.90	Yes	0.46	1.90	Yes
Calcium, tota	mg/L	CUSUM	106.3	63.2	63.0	Yes	62.4	63.0	Yes	60.5	63.0	Yes
Chloride	mg/L	CUSUM	23.1	16.0	16.4	Yes	15.1	16.4	Yes	16.3	16.4	Yes
Fluoride	mg/L	CUSUM	1.20	0.49	0.69	Yes	0.5	0.69	Yes	0.49	0.69	Yes
pH, field-measured	s.u.	CUSUM	6.95, 7.85	7.61	7.40, 7.76	Yes	7.78	7.40, 8.02	No - potential exceedance	7.64	7.40, 8.15	No - verified SSI
Sulfate	mg/L	CUSUM	1,592	491	1,008	Yes	526	1,008	Yes	552	1,008	Yes
Total dissolved solids	mg/L	NP-PL	2,410	1,380	NA	Yes	1,380	NA	Yes	1,390	NA	Yes

mg/L = milligrams per liter; s.u. = standard units for pH; NP-PL = non-parametric prediction limit; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart; NA = not applicable

Table 8: MW-103 (Downgradient, Bottom Ash Landfill) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q1 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**30-Nov-22**			**21-Mar-23**			**19-Jun-23**		
Boron, total	mg/L	CUSUM	1.33	1.47	2.91	No - ongoing verified SSI	1.32	3.04	No - ongoing verified SSI	1.4	3.26	No - ongoing verified SSI
Calcium, total	mg/L	CUSUM	34.5	31.2	37.6	No - potential exceedance	30.8	44.5	No - verified SSI	33.4	53.9	No - ongoing verified SSI
Chloride	mg/L	CUSUM	18.7	17.9	55.8	No - ongoing verified SSI	17	58.0	No - ongoing verified SSI	18.4	61.7	No - ongoing verified SSI
Fluoride	mg/L	CUSUM	0.33	0.43	1.70	No - ongoing verified SSI	0.4	1.83	No - ongoing verified SSI	0.36	1.92	No - ongoing verified SSI
pH, field-measured	s.u.	CUSUM	8.89, 9.47	9.10	9.11, 9.18	Yes	9.06	9.06, 9.18	Yes	8.82	8.19, 9.18	No - potential exceedance
Sulfate	mg/L	CUSUM	961	734	1,834	No - ongoing verified SSI	762	1,878	No - ongoing verified SSI	664	1,824	No - ongoing verified SSI
Total dissolved solids	mg/L	CUSUM	1,948	2,090	3,780	No - ongoing verified SSI	1,990	3,849	No - ongoing verified SSI	1,940	3,893	No - ongoing verified SSI

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 9: MW-201 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**1-Dec-22**			**26-Jun-23**		
Boron, total	mg/L	CUSUM	2.44	1.62	1.67	Yes	1.53	1.67	Yes
Calcium, total	mg/L	CUSUM	122.7	96.3	100.8	Yes	100	100.8	Yes
Chloride	mg/L	CUSUM	21.9	18.2	19.3	Yes	18.4	19.3	Yes
Fluoride	mg/L	CUSUM	1.11	0.84	0.81	Yes	0.77	0.81	Yes
pH, field-measured	s.u.	CUSUM	7.09, 7.75	7.48	7.42, 7.42	Yes	7.48	7.42, 7.42	Yes
Sulfate	mg/L	CUSUM	1,484	1,180	1,092	Yes	1,030	1,090	Yes
Total dissolved solids	mg/L	CUSUM	2,377	2,130	2,174	Yes	2,120	2,174	Yes

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 10: MW-202 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**1-Dec-22**			**26-Jun-23**		
Boron, total	mg/L	CUSUM	2.13	1.86	1.76	Yes	1.7	1.68	Yes
Calcium, total	mg/L	CUSUM	228	174	174	Yes	187	175	Yes
Chloride	mg/L	CUSUM	17.5	12.0	11.0	Yes	13.1	11.7	Yes
Fluoride	mg/L	CUSUM	0.24	0.16	0.16	Yes	0.13	0.16	Yes
pH, field-measured	s.u.	CUSUM	6.85, 7.62	7.29	7.23, 7.23	Yes	7.29	7.23, 7.23	Yes
Sulfate	mg/L	CUSUM	725	614	586	Yes	585	587	Yes
Total dissolved solids	mg/L	CUSUM	1,697	1,500	1,452	Yes	1,460	1,452	Yes

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 11: MW-203 (Downgradient, Bottom Ash Impoundment) Detection Monitoring Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?	Q2 2023 Result	CUSUM Value	Within Compliance?	Q2 2023 Resample	CUSUM Value	Within Compliance?
Detection Monitoring Analytes	**Units**			**1-Dec-22**			**26-Jun-23**			**13-Sep-23**		
Boron, total	mg/L	CUSUM	2.06	1.63	1.47	Yes - prior result was a false positive	2.66	2.64	No - potential exceedance	2.69	2.67	No - verified SSI
Calcium, tota	mg/L	CUSUM	124.8	16.1	50.2	Yes	44.1	50.2	Yes	NA	NA	NA
Chloride	mg/L	CUSUM	50.9	16.2	26.0	Yes	26.9	26.0	Yes	NA	NA	NA
Fluoride	mg/L	CUSUM	1.27	0.93	0.84	Yes	0.83	0.84	Yes	NA	NA	NA
pH, field-measured	s.u.	CUSUM	6.86, 10.66	9.63	8.76, 9.21	Yes	8.93	8.76, 8.96	Yes	9.00	NA	Collected for information only - not tested statistically
Sulfate	mg/L	CUSUM	706	507	437	Yes - prior result was a false positive	1,360	1,337	No - potential exceedance	853	830	No - verified SSI
Total dissolved solids	mg/L	CUSUM	1,793	1,530	1,455	Yes - prior result was a false positive	3,090	3,015	No - potential exceedance	2,620	2,545	No - verified SSI

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart; NA = not applicable

Table 12: MW-1R (Downgradient, Bottom Ash Impoundment) Appendix III Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?
Appendix III Analytes	**Units**			**30-Nov-22**		
Boron, total	mg/L	CUSUM	1.46	1.15	1.27	Yes
Calcium, total	mg/L	CUSUM	144	103	118	Yes
Chloride	mg/L	CUSUM	25.4	13.3	18.1	Yes
Fluoride	mg/L	CUSUM	0.87	0.74	0.69	Yes
pH, field-measured	s.u.	CUSUM	7.28, 7.95	7.63	7.61, 7.61	Yes
Sulfate	mg/L	CUSUM	470	374	377	Yes
Total dissolved solids	mg/L	CUSUM	1,194	1,100	1,065	Yes

Notes:

Statistical limit for calcium was deseasonalized and may vary slightly between events.

Following the Q4 2022 monitoring event, MW-1R was removed from the Bottom Ash Impoundment Monitoring Network.

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

Table 13: MW-104 (Downgradient, Bottom Ash Impoundment) Appendix III Parameters Comparative Statistical Analysis

		Statistical Method	Statistical Limit	Q4 2022 Result	CUSUM Value	Within Compliance?
Appendix III Analytes	**Units**			**1-Dec-22**		
Boron, total	mg/L	CUSUM	0.82	0.68	0.69	Yes
Calcium, total	mg/L	CUSUM	114.6	75.0	92.3	Yes
Chloride	mg/L	CUSUM	19.2	14.4	14.4	Yes
Fluoride	mg/L	CUSUM	0.96	0.76	0.74	Yes
pH, field-measured	s.u.	CUSUM	6.78, 7.53	7.32	7.16, 7.34	Yes
Sulfate	mg/L	CUSUM	529	390	445	Yes
Total dissolved solids	mg/L	CUSUM	1,254	1,190	1,622	No - verified SSI

Notes:

Following the Q4 2022 monitoring event, MW-104 was removed from the Bottom Ash Impoundment Monitoring Network.

mg/L = milligrams per liter; s.u. = standard units for pH; CUSUM = cumulative sum, parametric Shewhart-CUSUM control chart

APPENDIX D

Assessment Monitoring Comparative Statistics

Table D-1: Assessment Monitoring Q4 2022 Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	11/30/2022	7	6	86%	N/A	N/A	Non-Parametric	0.0010	0.0011	Yes
Arsenic, total	mg/L	0.01	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, total	mg/L	2	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0567	0.0775	Yes
Beryllium, total	mg/L	0.004	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	11/30/2022	7	6	86%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, total	mg/L	0.006	3/16/2021	11/30/2022	7	0	0%	None	Cube Root	Parametric	0.0024	0.0069	Yes
Fluoride	mg/L	4	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.67	0.71	Yes
Lead, total	mg/L	0.015	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, total	mg/L	0.325	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0512	0.0564	Yes
Mercury, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0473	0.0703	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.860	2.194	Yes
Selenium, total	mg/L	0.05	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0127	0.0202	Yes
Thallium, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-2: Assessment Monitoring Q4 2022 Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, total	mg/L	0.01	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, total	mg/L	2	3/16/2021	11/30/2022	7	0	0%	None	Non-Normal	Non-Parametric	0.0250	0.0390	Yes
Beryllium, total	mg/L	0.004	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, total	mg/L	0.006	3/16/2021	11/30/2022	7	5	71%	N/A	N/A	Non-Parametric	0.0020	0.0036	Yes
Fluoride	mg/L	4	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.48	0.50	Yes
Lead, total	mg/L	0.015	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, total	mg/L	0.325	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0576	0.0619	Yes
Mercury, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0200	0.0244	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.535	1.645	Yes
Selenium, total	mg/L	0.05	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0050	0.0050	Yes
Thallium, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-3: Assessment Monitoring Q4 2022 Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, total	mg/L	0.01	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0124	0.0165	No
Barium, total	mg/L	2	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0539	0.0666	Yes
Beryllium, total	mg/L	0.004	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	11/30/2022	7	6	86%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, total	mg/L	0.006	3/16/2021	11/30/2022	7	6	86%	N/A	N/A	Non-Parametric	0.0020	0.0022	Yes
Fluoride	mg/L	4	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.31	0.42	Yes
Lead, total	mg/L	0.015	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0018	0.0031	Yes
Lithium, total	mg/L	0.325	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0242	0.0318	Yes
Mercury, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.0425	0.0591	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	11/30/2022	7	0	0%	None	Normal	Parametric	0.817	2.153	Yes
Selenium, total	mg/L	0.05	3/16/2021	11/30/2022	7	1	14%	None	Normal	Parametric	0.0063	0.0019	Yes
Thallium, total	mg/L	0.002	3/16/2021	11/30/2022	7	7	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-4: Assessment Monitoring Q1 2023 Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0010	0.0011	Yes
Arsenic, total	mg/L	0.01	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, total	mg/L	2	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0586	0.0763	Yes
Beryllium, total	mg/L	0.004	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, total	mg/L	0.006	3/16/2021	3/21/2023	8	0	0%	None	Square Root	Parametric	0.0028	0.0073	Yes
Fluoride	mg/L	4	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.66	0.71	Yes
Lead, total	mg/L	0.015	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, total	mg/L	0.325	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0516	0.0560	Yes
Mercury, total	mg/L	0.002	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	3/21/2023	8	0	0%	None	Square Root	Parametric	0.0493	0.0674	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.901	2.045	Yes
Selenium, total	mg/L	0.05	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0131	0.0195	Yes
Thallium, total	mg/L	0.002	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-5: Assessment Monitoring Q1 2023 Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, total	mg/L	0.01	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, total	mg/L	2	3/16/2021	3/21/2023	8	0	0%	None	Non-Normal	Non-Parametric	0.0250	0.4730	Yes
Beryllium, total	mg/L	0.004	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, total	mg/L	0.006	3/16/2021	3/21/2023	8	5	63%	N/A	N/A	Non-Parametric	0.0020	0.0043	Yes
Fluoride	mg/L	4	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.48	0.50	Yes
Lead, total	mg/L	0.015	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, total	mg/L	0.325	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0580	0.0617	Yes
Mercury, total	mg/L	0.002	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0205	0.0243	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.645	1.587	Yes
Selenium, total	mg/L	0.05	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0050	0.0050	Yes
Thallium, total	mg/L	0.002	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-6: Assessment Monitoring Q1 2023 Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, total	mg/L	0.006	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, total	mg/L	0.01	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0124	0.0160	No
Barium, total	mg/L	2	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0547	0.0655	Yes
Beryllium, total	mg/L	0.004	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, total	mg/L	0.005	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, total	mg/L	0.1	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, total	mg/L	0.006	3/16/2021	3/21/2023	8	7	88%	N/A	N/A	Non-Parametric	0.0020	0.0022	Yes
Fluoride	mg/L	4	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.32	0.41	Yes
Lead, total	mg/L	0.015	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0017	0.0029	Yes
Lithium, total	mg/L	0.325	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0252	0.0322	Yes
Mercury, total	mg/L	0.002	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, total	mg/L	0.1	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.0429	0.0572	Yes
Radium-226 + radium-228	pCi/L	5	3/16/2021	3/21/2023	8	0	0%	None	Normal	Parametric	0.866	2.008	Yes
Selenium, total	mg/L	0.05	3/16/2021	3/21/2023	8	1	13%	None	Normal	Parametric	0.0069	0.0117	Yes
Thallium, total	mg/L	0.002	3/16/2021	3/21/2023	8	8	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-7: Assessment Monitoring Q2 2023 Comparative Statistics, MW-9N (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0010	0.0011	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0559	0.0739	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/19/2023	9	0	0%	None	Square Root	Parametric	0.0028	0.0066	Yes
Fluoride	mg/L	4	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.67	0.70	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0502	0.0555	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/19/2023	9	0	0%	None	Square Root	Parametric	0.0489	0.0651	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.811	1.897	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0124	0.0186	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-8: Assessment Monitoring Q2 2023 Comparative Statistics, MW-102 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Barium, Total	mg/L	2	3/16/2021	6/19/2023	9	0	0%	None	Square Root	Parametric	0.0268	0.0361	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0020	0.0020	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/19/2023	9	5	56%	N/A	N/A	Non-Parametric	0.0020	0.0043	Yes
Fluoride	mg/L	4	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.48	0.50	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0579	0.0612	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0002	0.0003	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0204	0.0239	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.668	1.494	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0050	0.0050	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

Table D-9: Assessment Monitoring Q2 2023 Comparative Statistics, MW-103 (Downgradient, Bottom Ash Landfill)

Parameter	Units	GWPS	First AM Sample	Most Recent AM Sample	Number of Samples	Number of Non-detects	Percent of Non-detects	Trends	Data Distribution	Type of Confidence Interval	Lower Confidence Limit	Upper Confidence Limit	Confidence Interval Within Compliance?
Appendix IV													
Antimony, Total	mg/L	0.006	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0010	0.0010	Yes
Arsenic, Total	mg/L	0.01	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0120	0.0155	No
Barium, Total	mg/L	2	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0561	0.0661	Yes
Beryllium, Total	mg/L	0.004	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Cadmium, Total	mg/L	0.005	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes
Chromium, Total	mg/L	0.1	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0020	0.0024	Yes
Cobalt, Total	mg/L	0.006	3/16/2021	6/19/2023	9	8	89%	N/A	N/A	Non-Parametric	0.0020	0.0022	Yes
Fluoride	mg/L	4	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.33	0.41	Yes
Lead, Total	mg/L	0.015	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0016	0.0028	Yes
Lithium, Total	mg/L	0.325	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0259	0.0319	Yes
Mercury, Total	mg/L	0.002	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0002	0.0002	Yes
Molybdenum, Total	mg/L	0.1	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.0430	0.0556	Yes
Radium-226 + Radium-228	pCi/L	5	3/16/2021	6/19/2023	9	0	0%	None	Normal	Parametric	0.738	1.856	Yes
Selenium, Total	mg/L	0.05	3/16/2021	6/19/2023	9	1	11%	None	Normal	Parametric	0.0071	0.0112	Yes
Thallium, Total	mg/L	0.002	3/16/2021	6/19/2023	9	9	100%	N/A	N/A	Non-Parametric	0.0005	0.0005	Yes

Notes:
Trends were tested at α = 99%. Statistically significant trends are reported at α = 99%.
A discussion of the calculation of lower and upper confidence intervals is provided in the text.
Only datasets where both the upper and lower confidence intervals exceed the GWPS are considered outside of compliance.
mg/L = milligrams per liter; pCi/L = picocuries per liter; GWPS = Groundwater Protection Standard; AM = assessment monitoring; N/A = not applicable (trends and normality were not tested for parameters greater than 50% non-detects); None = no statistically significant trends were identified

APPENDIX E

Detection Monitoring Alternative Source Demonstration – Q2 2023

REPORT

Alternative Source Demonstration Evaluation for Bottom Ash Impoundment Well MW-203

Great River Energy, Stanton Station

Submitted to:

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1.0 INTRODUCTION

WSP USA Inc. (WSP) is providing this technical memorandum to document an alternative source demonstration (ASD) evaluation for the coal combustion residuals (CCR) groundwater monitoring network at Great River Energy's (GRE) Stanton Station. There are two CCR regulated facilities at Stanton Station – the Bottom Ash CCR Landfill (Bottom Ash Landfill) and the Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment).

On behalf of GRE, WSP performed a statistical evaluation of groundwater monitoring results for the second quarter (Q2) 2023 groundwater detection monitoring event at Stanton Station's Bottom Ash Impoundment. The statistical evaluation was performed as described in the Coal Combustion Residuals Groundwater Statistical Method Certification for Stanton Station, Revision 2 (Golder 2021), in accordance with applicable provisions of 40 Code of Federal Regulations (CFR) Part 257, "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule" (Federal CCR rule), as amended, and North Dakota Administrative Code (NDAC) Chapter 33.1-20-08, Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (State CCR Rule).

Statistical analysis of the detection monitoring data (Federal Appendix III list and NDAC Appendix I list) indicated a verified exceedance of the statistical limit based on the parametric Shewhart-CUSUM (Cumulative Summation) control chart analysis for boron, sulfate, and total dissolved solids from samples collected from monitoring well MW-203. Potential exceedances for boron, sulfate, and total dissolved solids in monitoring well MW-203 were identified following statistical analysis of the Q2 2023 sampling event and subsequently verified as a statistically significant increases (SSIs) following collection of confirmatory re-samples for the potential exceedances, during the third quarter (Q3) of 2023.

Although determination of a verified SSI generally indicates that the groundwater monitoring program should transition from detection monitoring to assessment monitoring, 40 CFR Part 257.94(e)(2) and NDAC 33.1-20-08-06(4)(e)(2) allow the owner or operator of a CCR unit 90 days from the date of determining a verified SSI to demonstrate that a source other than the regulated CCR unit caused the SSI or that the SSI was a result of an error in sampling, analysis, or statistical evaluation, or was caused by natural variability in groundwater quality that was not fully captured during the baseline data collection period.

A desktop study of previously collected CCR-impacted water from the unit, nearby surface water, and groundwater samples was conducted to assess potential sources for boron, sulfate and total dissolved solids. As part of this work, potential errors in the statistical analysis and the natural variability of concentrations in groundwater were also evaluated. CCR-impacted water samples at the site consist primarily of sump water samples, collected from the sump constructed within the Bottom Ash Impoundment that overlies the composite liner system of the unit. Sump water has extended contact time with CCR materials.

Based upon the desktop review and in accordance with the provisions of the Federal CCR Rule and the State CCR Rule, WSP prepared this ASD evaluation for boron, sulfate, and total dissolved solids at monitoring well MW-203 at the Bottom Ash Impoundment. This ASD conforms to the requirements of 40 CFR Part 257.94(e)(2) and NDAC 33.1-20-08-06(4)(e)(2). The following sections provide a summary of the CCR units, analytical and geochemical assessment results, and lines of evidence that were reviewed within this demonstration.

2.0 BACKGROUND

2.1 Site Background

Stanton Station was a coal-fired electric generation facility located along the Missouri River in Mercer County, approximately three miles southeast of Stanton, North Dakota. Stanton Station began generating power in 1966, and CCR was managed in composite-lined surface impoundment cells and dry waste units regulated and permitted by the North Dakota Department of Environmental Quality (NDDEQ) in accordance with NDAC Title 33.1, Article 33.1-20, Solid Waste Management and Land Protection. Stanton Station ceased power production in February 2017 and demolition of the industrial site was finished in 2019, with site restoration completed in 2020.

Stanton Station has two CCR units that are within the purview of the Federal and State CCR rules, the Bottom Ash Landfill and the Bottom Ash Impoundment. This ASD applies the Bottom Ash Impoundment. The Bottom Ash Impoundment is located in the south center of the former plant site.

As noted above, Stanton Station ceased operation in February 2017 and site deconstruction and restoration activities occurred from 2017 into the summer of 2020. These activities have affected surface water recharge associated with precipitation and runoff, and may have affected groundwater conditions (flow regime and chemistry) at both the Bottom Ash Impoundment and Bottom Ash Landfill. In particular, the following demolition and site restoration activities were completed that have impacted the Bottom Ash Impoundment:

- Significant infrastructure was removed, including site buildings, pavement, near-surface utilities, and the coal unloading sump structure.
- The north and center cell of the Bottom Ash Impoundment were closed by removal of CCR and composite liner materials in the fall of 2019.
- The south cell of the Bottom Ash Impoundment and the Bottom Ash Landfill received final cover systems per the Closure and Post-Closure Plans (Golder 2019a and Golder 2019b).
- Major site regrading was completed in 2019 and 2020 to promote drainage and vegetative growth.

2.2 Groundwater Monitoring Network

The groundwater monitoring network for the Bottom Ash Impoundment currently includes five background wells (consisting of four upgradient wells and one side gradient well) and three downgradient wells.

The Bottom Ash Impoundment had three downgradient monitoring wells prior to the fourth quarter (Q4) 2019 sampling event (MW-1R, MW-104, and MW-103. Between Q4 2019 and Q3 2020, the Bottom Ash Impoundment monitoring network had two downgradient wells (MW-1R and MW-104) while closure and site restoration activities were ongoing, as new wells could not be installed until site restoration was completed. During site restoration, MW-103 was reassigned to the Bottom Ash Landfill monitoring network based on its proximity to the Bottom Ash Landfill boundary. Following the completion of site restoration in 2020, three new downgradient monitoring wells (MW-201, MW-202, and MW-203) were installed adjacent to the closed south cell of the Bottom Ash Impoundment. Once the three wells installed in September 2020 were incorporated into the detection monitoring program (see Section 2.3), wells MW-104 and MW-1R were removed from the detection monitoring network.

Figure 1 shows the current monitoring network for the Bottom Ash Impoundment, as well as the locations of MW-104 and MW-1R.

Table 1: Monitoring Wells Upgradient and Downgradient of the Bottom Ash Impoundment

Location	Monitoring Wells
Upgradient/Side-gradient Wells	MW-7A
	MW-7B
	MW-8B
	MW-105
	MW-6B
Prior Bottom Ash Impoundment Downgradient Wells	MW-1R
	MW-104
Current Bottom Ash Impoundment Downgradient Wells	MW-201
	MW-202
	MW-203

2.3 Groundwater Conditions

Between June 2016 and July 2017, baseline groundwater samples were collected from the original background (upgradient and side-gradient) and downgradient wells at Stanton Station, as required by 40 CFR Part 257.94 and NDAC 33.1-20-08-06(4)(b), for use within the CCR Rule monitoring program. The results of the CCR baseline monitoring were used to develop statistical limits for each constituent at each monitoring well, based on site conditions, and parameter-specific characteristics such as the data distribution and detection frequency (Golder 2021).

Between Q4 2020 and May 2022, baseline groundwater samples were collected from the three wells installed in September 2020 at the Bottom Ash Impoundment (MW-201, MW-202, MW-203) to allow the wells to be incorporated into the monitoring well network. Following the completion of the baseline monitoring period, baseline statistical analysis was conducted for the three wells installed in 2020.

Once baseline monitoring was completed at each well, groundwater samples were collected on a semi-annual basis to support the detection monitoring programs. The first semi-annual detection monitoring sample for the wells installed in 2020 was collected June (Q2) 2022. Groundwater samples for detection monitoring are collected at each upgradient and downgradient monitoring well and are analyzed for detection monitoring (40 CFR Part 257 Appendix III and NDAC 33.1-20-08 Appendix I) constituents. During the detection monitoring program, results from groundwater analysis are compared to the statistical limits to determine whether groundwater quality remains consistent, or if changes in groundwater quality are observed.

During each monitoring event, groundwater levels are measured at each monitoring well. Groundwater elevations across the monitoring network are shown in Figure 2.

2.3.1 Total Boron

During the baseline monitoring period, boron concentrations were variable in the upgradient/side-gradient groundwater. Concentrations in the background locations ranged from 0.17 to 0.92 milligrams per liter (mg/L), based on 49 samples collected from the five wells between June 2016 and July 2017. Boron concentrations between the start of detection monitoring and Q2 2023 have ranged from 0.20 to 0.71 mg/L, based on 80 samples collected from the background wells.

2.3.1.1 Boron at MW-203

Boron concentrations in groundwater at MW-203 during the initial baseline monitoring period following installation of the well ranged between 1.1 and 2.67 mg/L in the nine baseline samples collected between November 2020 and May 2022. The May 2022 value of 2.67 mg/L was identified as an outlier during baseline establishment and was not used in establishing the baseline statistical limit. The remaining eight baseline samples were normally distributed, and the Shewhart-CUSUM (cumulative summation) control chart was set with a statistical limit of 2.06 mg/L.

A summary of the recent concentrations of boron at MW-203 is as follows:

- The initial comparative result in June 2022 (corresponding to the Q2 2022 detection monitoring sampling event) was 3.65 mg/L, with a calculated CUSUM value of 3.49 mg/L. This value was identified as a potential exceedance.
- The Q4 2022 result was 1.63 mg/L with a calculated CUSUM value of 1.47 mg/L. This sample was the confirmatory re-sample for the Q2 2022 event indicating that the Q2 2022 result was a false-positive.
- The Q2 2023 result was 2.66 mg/L with a calculated CUSUM value of 2.64 mg/L. This value was identified as a potential exceedance. Figure 3 shows the statistical chart for the June 2023 boron potential exceedance.
- A confirmatory re-sample was collected in Q3 2023 (September). The re-sample result was 2.69 mg/L with a calculated CUSUM value of 2.67 mg/L, confirming the verified SSI. Figure 4 shows the statistical chart for the Q3 2023 boron confirmatory resample.

2.3.2 Sulfate

During the baseline monitoring period, sulfate concentrations were variable in the upgradient/side-gradient groundwater. Concentrations in the background locations ranged from 181 to 11,900 mg/L, based on 49 samples collected from the five wells between June 2016 and July 2017. Sulfate concentrations between the start of detection monitoring and Q2 2023 have ranged from 194 to 11,400 mg/L, based on 80 samples collected from the background wells.

2.3.2.1 Sulfate at MW-203

Sulfate concentrations in groundwater at MW-203 during the initial baseline monitoring period following installation of the well ranged between 277 and 1,330 mg/L in the nine baseline samples collected between November 2020 and May 2022. The May 2022 value of 1,330 mg/L was identified as an outlier during baseline establishment and was not used in establishing the baseline statistical limit. The remaining eight baseline samples were normally distributed, and the Shewhart-CUSUM control chart was set with a statistical limit of 706 mg/L.

A summary of the recent concentrations of sulfate at MW-203 is as follows:

- The initial comparative result in June 2022 (corresponding to the Q2 2022 detection monitoring sampling event) was 2,150 mg/L, with a calculated CUSUM value of 2,080 mg/L. This value was identified as a potential exceedance.
- The Q4 2022 result was 507 mg/L with a calculated CUSUM value of 437 mg/L. This sample was the confirmatory re-sample for the Q2 2022 event indicating that the Q2 2022 result was a false-positive.

- The Q2 2023 result was 1,360 mg/L with a calculated CUSUM value of 1337 mg/L. This value was identified as a potential exceedance. Figure 5 shows the statistical chart for the June 2023 sulfate potential exceedance.
- A confirmatory re-sample was collected in Q3 2023 (September). The re-sample result was 853 mg/L with a calculated CUSUM value of 830 mg/L, confirming the verified SSI. Figure 6 shows the statistical chart for the Q3 2023 sulfate confirmatory resample.

2.3.3 Total Dissolved Solids

During the baseline monitoring period, total dissolved solids concentrations were variable in the upgradient/side-gradient groundwater. Total dissolved solids concentrations in the background groundwater locations ranged from 706 to 16,300 mg/L between June 2016 and July 2017. Total dissolved solids concentrations between the start of detection monitoring and Q2 2023 have ranged from 693 to 17,600 mg/L, based on 80 samples collected from the background wells.

2.3.3.1 Total Dissolved Solids at MW-203

Total dissolved solids concentrations in groundwater at MW-203 during the initial baseline monitoring period following installation of the well ranged between 1,360 and 3,410 mg/L in the nine baseline samples collected between November 2020 and May 2022. The May 2022 value of 3,410 mg/L was identified as an outlier during baseline establishment and was not used in establishing the baseline statistical limit. The remaining eight baseline samples were normally distributed, and the Shewhart-CUSUM control chart was set with a statistical limit of 1,793 mg/L.

A summary of the recent concentrations of total dissolved solids at MW-203 is as follows:

- The initial comparative result in June 2022 (corresponding to the Q2 2022 detection monitoring sampling event) was 4,140 mg/L, with a calculated CUSUM value of 4,065 mg/L. This value was identified as a potential exceedance.
- The Q4 2022 result was 1,530 mg/L with a calculated CUSUM value of 1,455 mg/L. This sample was the confirmatory re-sample for the Q2 2022 event indicating that the Q2 2022 result was a false-positive.
- The Q2 2023 result was 3,090 mg/L with a calculated CUSUM value of 3,015 mg/L. This value was identified as a potential exceedance. Figure 7 shows the statistical chart for the June 2023 total dissolved solids potential exceedance.
- A confirmatory re-sample was collected in Q3 2023 (September). The re-sample result was 2,620 mg/L with a calculated CUSUM value of 2,545 mg/L, confirming the verified SSI. Figure 8 shows the statistical chart for the Q3 2023 total dissolved solids confirmatory resample.

3.0 POTENTIAL SITE SOURCES

To assess the potential sources for the changes in boron, sulfate, and total dissolved solids concentrations at MW-203, WSP reviewed recent site changes upgradient of and at the Bottom Ash Impoundment, as well as previously collected data from the CCR Rule program and other site monitoring data that are collected as a part of other programs. The following sections summarize the supplemental assessment activities.

3.1 Site Changes and Potential Impacts

As noted in previous ASDs and above in Section 2.1, Stanton Station ceased operation in February of 2017 and site deconstruction and restoration activities occurred from 2017 into the summer of 2020. These activities have likely affected surface water recharge associated with precipitation and runoff and may have affected groundwater conditions (flow regime and chemistry) near Stanton Station and the associated CCR facilities. In particular, the following demolition and site restoration activities were completed:

- Significant infrastructure was removed or abandoned in-place, including site buildings, pavement, and near-surface utilities such as the bottom ash conveyance lines and sump water lines that historically directed flow to the Bottom Ash Impoundment.
- The north and center cell of the Bottom Ash Impoundment were closed by removal of CCR and composite liner in the fall of 2019.
- The south cell of the Bottom Ash Impoundment and the Bottom Ash Landfill received final cover systems per the Closure and Post-Closure Plans (Golder 2019a and Golder 2019b).
- Major site regarding was completed in 2019 and 2020 to promote drainage and vegetative growth, including regrading of the area around the east and north toe of slope of the south cell of the Bottom Ash Impoundment.

Following the completion of the major site restoration, wells MW-201, MW-202, and MW-203 were installed at the toe of the exterior berm for the updated footprint of the south cell of the Bottom Ash Impoundment.

3.2 Groundwater Elevations

During the May 2022, June 2022, June 2023, and September 2023 monitoring events, groundwater elevations at MW-203 were higher than those measured throughout the remainder of the baseline period, as shown in Figure 2. Similar changes in groundwater elevation were observed at upgradient well MW-7A, side-gradient well MW-6B, and both other downgradient wells that currently monitor the Bottom Ash Impoundment (MW-201 and MW-202), Figure 9 displays a time series of monthly precipitation totals between January 2020 and December 2023 from the three closest weather stations to Stanton Station, located in Underwood, North Dakota (approximately 15 miles northeast of the site) and Hazen, North Dakota (approximately 14 miles west of the site). Based on the distances from the nearest weather stations to Stanton Station, some differences in the measured precipitation at Stanton are expected. The dates shown in Figure 9 cover the dates of installation of downgradient wells MW-201, MW-202, and MW-203. April 2022, June 2023, and August 2023 had higher monthly total precipitation values than the other baseline collection dates at the more recently installed downgradient wells. The high precipitation immediately preceding dates corresponding to increased groundwater elevations could indicate an increase in interaction from upgradient and side-gradient waters towards the downgradient locations.

Further, the increase in precipitation and consequent higher groundwater elevations may be saturating soils that are typically dry at MW-203. As shown in Appendix A, MW-203 was installed primarily through fill materials during post-closure construction. The saturation of typically dry materials may result in mobilization of constituents within the fill materials that could be from either the historical footprint or the current unit.

3.3 Data Sources Used in Alternative Source Review

To determine if recent site changes upgradient and around the Bottom Ash Impoundment have impacted water quality at MW-203, the sampling locations and dates for groundwater and CCR-impacted water results were reviewed for each potential source provided below (see Figure 1 for locations).

3.3.1 Background Groundwater Monitoring Data

Between June 2016 and July 2017, GRE collected baseline groundwater samples from each of the background wells. Following the completion of the baseline monitoring events, GRE started collecting groundwater samples on a semiannual basis in October 2017 to support the detection monitoring program. Data collected between June 2016 and June 2023 from the background wells were considered in this evaluation. Samples reviewed for this analysis have been analyzed for detection monitoring parameters, field parameters, major cations (calcium, magnesium, sodium, and potassium), and major anions (chloride, sulfate, bicarbonate alkalinity, and carbonate alkalinity).

The background wells consist of the following locations:

- Upgradient wells: MW-8B, MW-7A, MW-7B, and MW-105
- Side-gradient well: MW-6B

See Figure 1 for the locations of the background wells.

3.3.2 Additional Groundwater Monitoring Data

In addition to the background well monitoring data, sample results collected from monitoring wells downgradient of the Bottom Ash Impoundment were considered in this evaluation. The following locations were considered as part of the evaluation:

- Wells downgradient of the Bottom Ash Impoundment in the current network: MW-201, MW-202
- Wells downgradient of the Bottom Ash Impoundment previously included in the network: MW-1R, MW-104
- A well upgradient of the Bottom Ash Impoundment that is not part of the CCR monitoring network: MW-4

Samples from the additional groundwater monitoring locations reviewed for this analysis have been analyzed for detection monitoring parameters, field parameters, major cations, and major anions.

See Figure 1 for the locations of the additional groundwater monitoring locations.

3.3.3 CCR-Impacted Water

As part of the closure construction, a sump was constructed in the former south cell footprint to allow for dewatering of the closed facility. Samples have been collected from the sump (labeled as BAI-Sump) following post-closure. Samples collected from the sump and reviewed for this analysis have been analyzed for the detection monitoring parameters, field parameters, major cations, and major anions.

4.0 EVALUTATION OF POTENTIAL SOURCES

Potential sources other than the Bottom Ash Impoundment, including uncaptured variability and the upgradient groundwater, could contribute to the boron, sulfate, and total dissolved solids concentrations in groundwater at

monitoring well MW-203. This section evaluates the geochemical characteristics of the constituent increases at MW-203 and evaluates these potential sources for the parameters in question to groundwater.

4.1 Sampling Causes and Issues

As part of the ASD, a review was conducted of the sampling procedures used throughout baseline monitoring and detection monitoring to date. Sample collection has been conducted by staff from the Bismarck location of Minnesota Valley Testing Laboratories, Inc. (MVTL) since the beginning of the CCR monitoring program in 2016. No major changes have been noted in sampling methodology for the parameters in question.

Field sheets from the baseline and compliance sampling events were reviewed for potential sampling related causes that could result in changes in concentration and/or provide an indication of potential error in the conducted analyses. Potential causes could include sample mislabeling, sample turbidity issues, changes in sampling techniques, and other issues and/or anomalies noted by the field staff. The information reviewed did not provide any indication of mislabeling.

In review of the field notes, while in general the low-flow sampling technique has remained consistent across events, the total volume purged from well MW-203 between each event has been variable. During both the June 2023 sampling event and the September 2023 confirmatory re-sampling event, 5 liters were purged from MW-203 prior to stabilization of field parameters and sample collection. Earlier sampling events had purge volumes from a low of 2.5 liters (during the June 2022 sampling event) to a high of 14 liters (during the November 2020 sampling event). Low-flow sampling does not require a given volume of water to be purged during a sampling event, so while differences have been noted, the identified differences are not an indication of a change of the sampling technique.

Turbidity during the June 2023 sampling event was substantially higher than for other sampling events at MW-203, with a final turbidity measurement of 105.2 Nephelometric Turbidity Units (NTU). However, turbidity measured during the confirmatory re-sampling event in September 2023 was 1.42 NTU. This suggests that while the June 2023 sample was significantly more turbid than other events, the change in turbidity alone cannot account for the SSIs, based on the turbidity during the confirmatory re-sample being two orders of magnitude lower and within the generally accepted range of turbidity measurements for low-flow sampling.

4.2 Laboratory Causes

As part of the ASD, a review was also conducted of the laboratory testing procedures used throughout baseline monitoring and detection monitoring to date, along with the collected results. Sample analysis has been conducted by staff from the Bismarck location of Minnesota Valley Testing Laboratories, Inc. (MVTL) since the beginning of the CCR monitoring program in 2016. No major changes have been noted in testing methodologies for the parameters in question.

Following receipt of the laboratory data packages for each sampling event, the received data is reviewed for indications of any laboratory errors, anomalies, or cross-contamination that could influence reported concentrations. This review includes the laboratory analytical results, methods, calibration, dilutions, potential interferences, provided laboratory qualifiers, potential transcription errors, and quality control sample results. No laboratory causes that could explain the change in concentrations were identified.

4.3 Statistical Evaluation Causes

A review of the statistical methods and associated results found the procedures followed during baseline and detection monitoring to be consistent with the stated procedures listed in the published Groundwater Statistical Methods Certification (Golder 2021). The calculated statistical limit was found to be consistent with the chosen statistical procedures and recommended methodology found within the Unified Guidance (USEPA 2009).

The statistical approach and analyses were reviewed to confirm the verified SSIs were not due to an error in the analysis or a reflection of limitations associated with the selected statistical methods. Both the baseline and compliance statistical analysis were checked for errors. Additionally, the statistical independence of the baseline dataset, outliers, false-positives, and non-detect processing were reviewed and no issues were identified.

4.4 Uncaptured Natural Variability at MW-203

For each constituent with an SSI, the data was reviewed for indications that the identified SSIs are reflective of natural variability in groundwater quality. This could include variability that was not fully captured during baseline data collection, or variability related to site conditions such as geological influences, changes in upgradient water quality, changes in water levels, and changes in recharge and/or flow paths. The following sections discuss possible natural variation in groundwater quality at MW-203.

4.4.1 Upgradient Groundwater

Site deconstruction and restoration activities, as discussed in Section 2.1, have affected surface water recharge associated with precipitation and runoff and may have affected groundwater conditions (flow regime and chemistry) near the Bottom Ash Impoundment. Specifically, changes in the groundwater flow regime due to site deconstruction and reclamation activities could result in concentration changes such as those observed at MW-203 due to a change to the relative proportions of differing groundwater fractions being monitored in downgradient wells. Differences in the upgradient wells are monitored through comparisons between MW-7A and MW-7B, which are screened in different materials within the uppermost water-bearing unit.

As described in Section 2.2 the groundwater gradient in the area around the Bottom Ash Impoundment shows groundwater generally flows from southwest to northeast, towards the Missouri River. Boron, sulfate, and total dissolved solids concentrations at monitoring well MW-203 will reflect the concentrations of upgradient groundwater and any additions from potential seepage from the Bottom Ash Impoundment (if occurring).

The constituents of concern are observed across a range of concentrations in the background (upgradient and side-gradient) monitoring wells (see Table 2). Given the variability of concentrations in background groundwater, changes in the site hydrology due to closure activities (Section 2.1) could change the relative proportions of background groundwater flowing towards monitoring well MW-203.

Table 2: Constituent of Concern Concentration Ranges based on Network Location

Parameters	Background Monitoring Locations		Downgradient Location of Interest
	Upgradient Wells (June 2016 – June 2023)	Side-gradient Well (June 2016 – June 2023)	MW-203 (November 2020 to September 2023)
Boron (mg/L)	0.17 – 0.92	0.23 – 0.36	1.10 – 3.65
Sulfate (mg/L)	181 – 11,900	261 - 387	277 – 2,150
Total Dissolved Solids (mg/L)	693 – 17,600	1,000 – 1,110	1,360 – 4,140

Based on the range of upgradient concentrations, an increase in the sulfate or total dissolved solids concentrations at MW-203 could be driven by an increase in influence from the upgradient locations. However, the observed boron concentrations at MW-203 throughout the period of record exceed those displayed in the upgradient wells.

Figure 10 shows a Piper diagram of upgradient (orange) and side-gradient (green) groundwater, downgradient groundwater (blue), and sump water (black). Groundwater from monitoring well MW-203 is shown in Figure 10 as both open and filled-in red symbols, with open, lighter red symbols representing samples included in the baseline period, and filled-in symbols ranging from light pink to darker red representing samples collected between May 2022 and June 2023. Piper diagrams help to visualize the relative proportions of major cations and anions in water samples. They can be helpful in identifying unique water signatures and potential water mixing relationships.

Groundwater from monitoring well MW-203 shows a shift away from a chemical signature of the baseline samples which are similar to upgradient monitoring well MW-7B and side-gradient well MW-6B during the May 2022, June 2022, and June 2023 sampling events. Neither the background locations (particularly MW-7B and MW-6B) or other downgradient wells (MW-201 and MW-202) display any discernible change in behavior during the same monitoring events. The sample collected from MW-203 during the December 2022 monitoring event shows a distinct shift back towards the chemical signatures of the baseline samples and wells MW-7B and MW-6B as compared to the May 2022 and June 2022 monitoring events.

4.4.2 Uncaptured Natural Variability at MW-203

MW-203 was installed in late 2020. In an effort to incorporate the well into the CCR monitoring program as quickly as possible while maintaining independence of the collected samples, baseline samples were collected approximately every 6 to 8 weeks between November 2020 and May 2022. As noted above in Section 2.3.1.1, Section 2.3.2.1, and Section 2.3.3.1, apart from the identified outlier for the May 2022 monitoring event, boron, sulfate, and total dissolved solids were each found to have a normal distribution. As the collection period for the baseline sampling was shortened, the potential exists for the full range of variability within the collected samples to not have been captured during the baseline period. Particularly, the shortened collection period likely did not allow for natural variations in groundwater concentrations, such as those attributed to seasonal fluctuations or other sources of natural variability, to be fully observed.

4.5 Geochemistry of Total Dissolved Solids at MW-203

Total dissolved solids is the combined amount of all dissolved (filterable) ions, as determined by the use of the methods specified in 40 CFR Part 136. Therefore, the most abundant ions in groundwater samples are the dominant components of the total dissolved solids concentration in a sample. In natural waters, the most abundant cations in groundwater are generally calcium, magnesium, sodium, and potassium, and the most abundant anions are generally sulfate, bicarbonate, carbonate, and chloride.

As assessment of the major ion concentrations provides an indication of which major ions control the increases in total dissolved solids at monitoring well MW-203. Figure 11 displays a stacked bar chart, with a time series of the total dissolved solids concentrations and collective concentrations for each sample of the major cations and anions in groundwater from monitoring well MW-203 in samples collected between Q4 2020 and Q2 2023. Only samples where the full list of major cations and anions were analyzed are shown in Figure 11. The major cations and anions in groundwater at monitoring well MW-203 are primarily sodium, total alkalinity, and sulfate. Proportions between the major components were similar across the baseline period and during the December 2022 monitoring event but show a significant increase in the concentrations of sulfate and sodium during the May 2022, June 2022, and June 2023 monitoring events.

Figure 12 shows the correlation statistics (R^2) between each of the major cations and anions and the total dissolved solids concentrations to determine which major ions may have increased and contribute to higher TDS concentrations. Sulfate and sodium have the best correlations with total dissolved solids concentrations (R^2 values of 0.974 and 0.822, respectively). Bicarbonate and magnesium, concentrations are less correlated with total dissolved solids concentrations (R^2 values of 0.555 and 0.550, respectively). Potassium, chloride, and calcium do not correlate well with total dissolved solids concentrations (R^2 values of 0.385, 0.306, and 0.210, respectively).

Of the component parameters that comprise the predominant make-up of total dissolved solids, calcium, sulfate, and chloride are separately analyzed as part of the CCR detection monitoring program. Calcium and chloride were below their respective statistical limits during the Q2 2023 comparative statistical evaluation, while sulfate was also identified as a verified SSI. This suggests that the differences in the total dissolved solids concentrations are heavily influenced by the increase in sulfate, reflective of the separate SSI identified for the that parameter, but also influenced by an increase in sodium, a parameter not required as part of the monitoring program.

4.6 Bottom Ash Impoundment

Each sulfate and total dissolved solids concentration measured in samples collected from the Bottom Ash Impoundment Sump and the majority of boron concentrations measured in samples collected from the Bottom Ash Impoundment Sump are higher than the samples collected from monitoring well MW-203 (see Table 3). Consequently, the concentrations from the Bottom Ash Impoundment sump indicate that seepage (if occurring) from the Bottom Ash Impoundment could increase concentrations of boron, sulfate, and total dissolved solids.

Table 3: Range of Boron, Sulfate, and Total Dissolved Solids Concentrations for MW-203 and BAI-Sump

Sampling Location	Date Range	Boron (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
MW-203	11/2020 to 9/2023	1.10-3.65	277-2150	1360-4140
BAI-Sump	10/2019 to 6/2023	0.66-4.06	3490-9020	5710-14100

As discussed above in Section 4.4.1, Figure 10 shows a Piper diagram of upgradient (orange) and side-gradient (green) groundwater, downgradient groundwater (blue), and CCR impacted waters (black). Groundwater from monitoring well MW-203 is shown in Figure 10 as both open and filled-in red symbols, with open, lighter red symbols representing samples included in the baseline period, and filled-in symbols ranging from light pink to darker red representing samples collected between May 2022 and June 2023.

Groundwater from monitoring well MW-203 shows a shift towards the chemical signature of the Bottom Ash Impoundment sump for samples collected from MW-203 during the May 2022, June 2022, and June 2023 sampling events. Samples collected from the Bottom Ash Impoundment Sump do not display any discernible change in behavior during the same monitoring events where samples collected from MW-203 shift. The sample collected from MW-203 during the December 2022 monitoring event shows a distinct shift back towards the chemical signatures of the baseline period and monitoring wells MW-7B and MW-6B and away from the chemical signature of the Bottom Ash Impoundment sump, as compared to the May 2022 and June 2022 monitoring events.

Further, Figure 10 shows the Bottom Ash Impoundment sump samples to be sodium-sulfate dominant. As indicated in Figure 11, the changes displayed in the MW-203 concentrations during the May 2022, June 2022, and June 2023 sampling events were driven by increases in both sodium and sulfate concentrations. Similarly, Figure 12 showed that sulfate and sodium correspond to the strongest correlations for changes in the total dissolved solids concentrations at MW-203. Based on the available evidence, the changes at MW-203 appear to correspond to the Bottom Ash Impoundment Sump, as opposed to changes stemming from an upgradient location.

5.0 CONCLUSIONS

In accordance with 40 CFR 257.94(e)(2) and NDAC 33.1-20-08-06(4)(e)(2), this ASD has been prepared in response to the identification verified SSIs for boron, sulfate, and total dissolved solids at monitoring well MW-203 following the Q2 2023 sampling event for Stanton Station.

Based on review of site analytical results, recent changes in boron, sulfate, and TDS concentrations in groundwater downgradient of the Bottom Ash Impoundment are likely an indication of seepage from the CCR unit. However, changes in the concentrations of boron, sulfate, and total dissolved solids may also reflect changes in the mixture of upgradient waters or interactions with materials from the historical footprints as measured at MW-203, due to potential changes to the surface water and groundwater flow regimes as discussed in Section 4.4.1.

Since the information provided in this document cannot be used at this time to identify an alternative source of the verified SSI for boron at MW-203, the Bottom Ash Impoundment is required to initiate assessment monitoring per 40 CFR Part 257.95 and NDAC 33.1-20-08-06.5. Assessment monitoring will be initiated in the first quarter of 2024.

Signature Page

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https://golderassociates.sharepoint.com/sites/170737/project files/6 deliverables/gl21509219.000/reports/12-rpt-asd_eval_bai_wellmw203_gre_ss_09jan24/rev0/gl21509219.000-012-rpt-0-bai-asd-q223_gre_ss_08jan24.docx

6.0 REFERENCES

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USEPA. 2015. Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities. April 17, 2015.

Figures

MISSOURI RIVER
1660.7

HISTORIC STANTON STATION
GENERATING FACILITY

MW-6B
1694.2

1695
1690
1685
1680
1675
1670
1665
1700

MW-9N
1690.4

MW-102
1694.6

MW-103
1690.6

HIGHWAY 200A

BOTTOM ASH LANDFILL

NOTE 5

NOTE 3

HISTORIC
NORTH CELL

HISTORIC
CENTER CELL

MW-201
1694.9

BOTTOM ASH IMPOUNDMENT

MW-202
1693.5

BAI SUMP

NOTE 4

SOUTH CELL

MW-203
1698.2

MW-105
1702.0

MW-4
1702

MW-8B
1704.1

MW-7B
1701.5

MW-7A
1703.2

LEGEND

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- LANDFILL DOWNGRADIENT MONITORING WELL
- IMPOUNDMENT DOWNGRADIENT MONITORING WELL
- OTHER MONITORING WELL
- CLOSED BOTTOM ASH LANDFILL/IMPOUNDMENT FOOTPRINT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS AND ELEVATIONS

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURE IMAGERY PROGRAM, 2020.
2. GROUNDWATER CONTOURS ARE BASED ON JUNE 2023 ELEVATION INFORMATION FROM THE SHOWN MONITORING WELLS, AS WELL AS MONITORING WELLS AND PIEZOMETERS NOT SHOWN.
3. THE NORTH AND CENTER CELLS OF THE BOTTOM ASH IMPOUNDMENT WERE CLOSED BY REMOVAL OF WASTE AND LINER.
4. THE SOUTH CELL OF THE BOTTOM ASH IMPOUNDMENT WAS CLOSED WITH A FINAL COVER OVER PLACED WASTE.
5. THE BOTTOM ASH LANDFILL WAS CLOSED BY CONSOLIDATION OF PLACED WASTE INTO A SMALLER FOOTPRINT AND CONSTRUCTION OF A FINAL COVER.

N

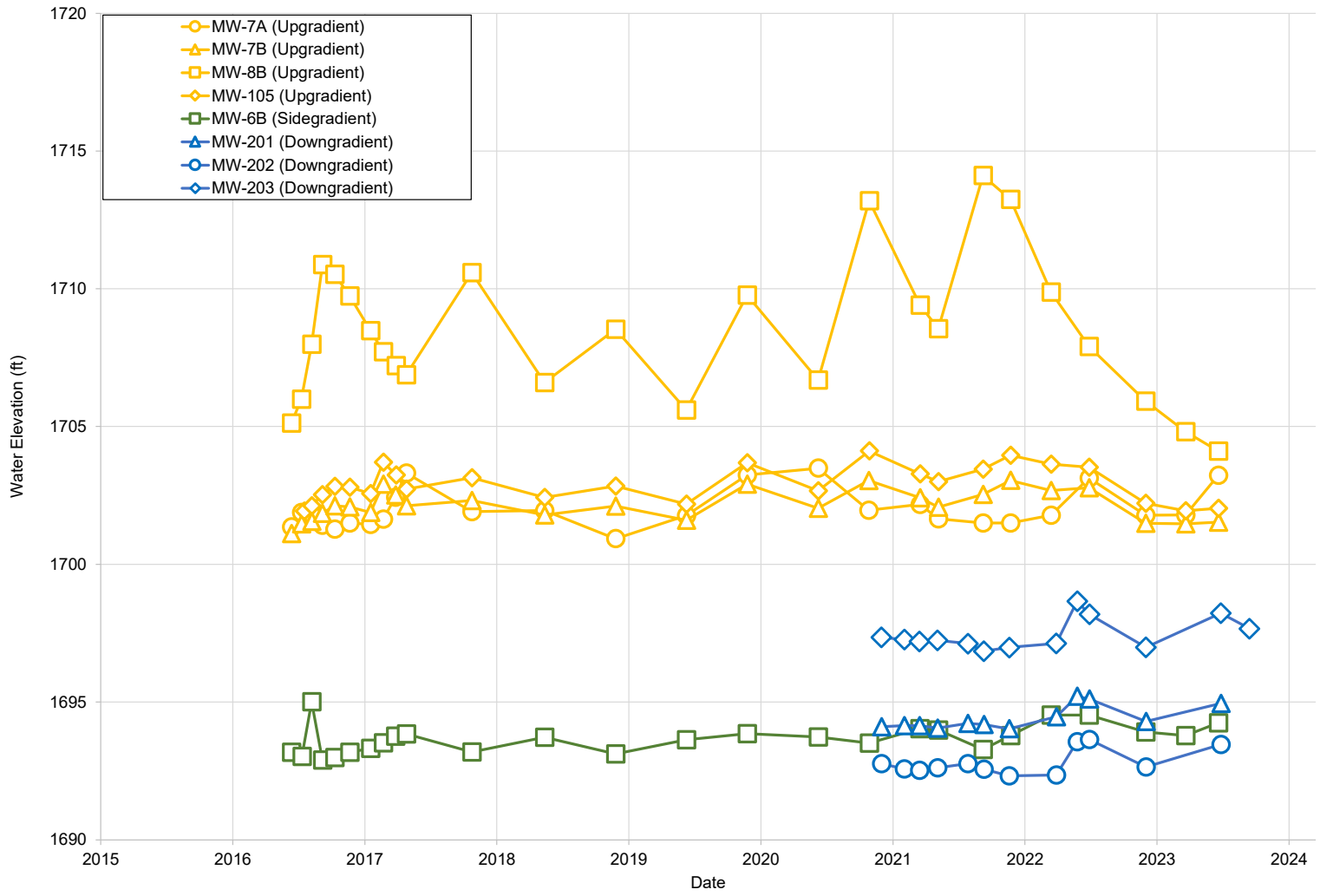
0 200 400
1" = 200' FEET

wsp

**MONITORING WELL LOCATIONS AND
Q2 2023 GROUNDWATER ELEVATIONS
GREAT RIVER ENERGY - STANTON STATION**

FIGURE 1

Path: \\golder.gds\complexdata\office\Denver\acad\GREAT RIVER ENERGY\STANTON\99_PROJECTS\21509219\Annual Monitoring Reports\ | File Name: 21509219_2023_WO-StantonNDDEQ_Q2_no-NatExt.dwg



CLIENT
Stanton Station

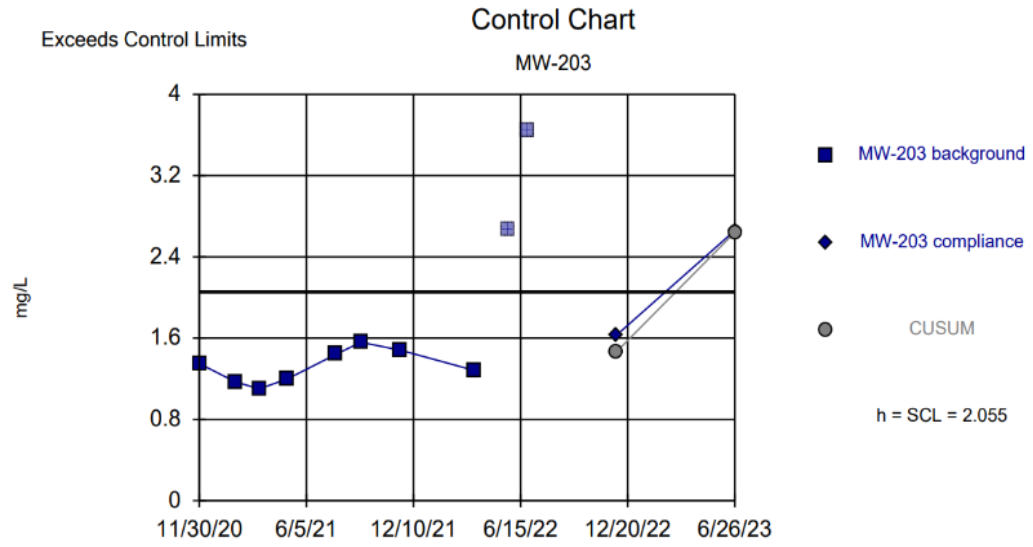
PROJECT
Alternative Source Demonstration

CONSULTANT

TITLE
Time Series of Groundwater Elevations in Network Wells

PROJECT NO.	PHASE	REV.	FIGURE
GL21509219.000	01	0	2

Sanitas™ v.9.6.37 Sanitas software licensed to Golder Associates. UG



Background Data Summary: Mean=1.323, Std. Dev.=0.1627, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9619, critical = 0.818. Report alpha = 0.003002. Dates ending 3/28/2022 used for control stats. Standardized h=4.5, SCL=4.5.

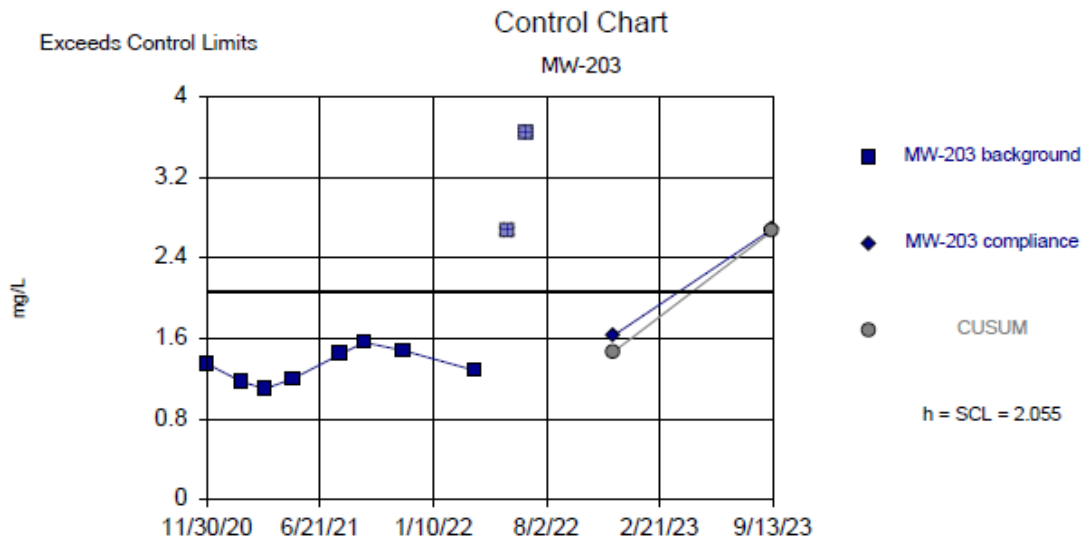
Constituent: Boron, Total Analysis Run 8/31/2023 8:34 PM

Stanton Station Client: Golder Associates Data: SS-CCR_Q22023

CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Boron Shewhart-CUSUM Control Chart - June 2023 Potential Exceedance

PROJECT NO.	TASK	REV.	FIGURE
GL21509219.000	01	0	3

Sanitas™ v.10.0.13 Sanitas software licensed to Golder Associates. UG



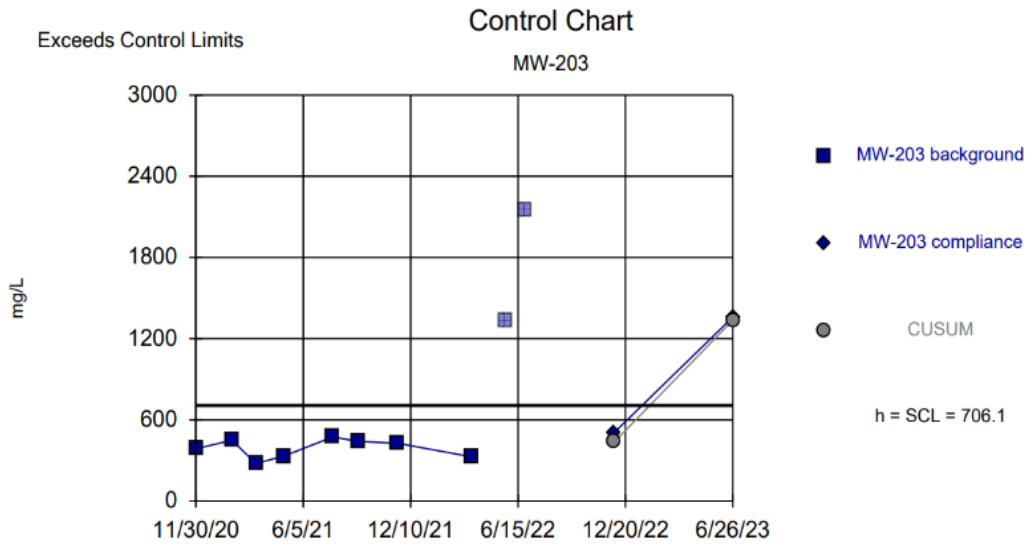
Background Data Summary: Mean=1.323, Std. Dev.=0.1627, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9619, critical = 0.818. Report alpha = 0.002982. Dates ending 3/28/2022 used for control stats. Standardized h=4.5, SCL=4.5.

Constituent: Boron, Total Analysis Run 10/19/2023 9:44 AM

Stanton Station Data: SS-CCR_Q22023

CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Boron Shewhart-CUSUM Control Chart - September 2023 Confirmatory Resample
PROJECT NO.: GL21509219.000	TASK: 01 REV.: 0 FIGURE: 4

Sanitas™ v.9.6.37 Sanitas software licensed to Golder Associates. UG



Background Data Summary: Mean=389.4, Std. Dev.=70.38, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9296, critical = 0.818. Report alpha = 0.003002. Dates ending 3/28/2022 used for control stats. Standardized h=4.5, SCL=4.5.

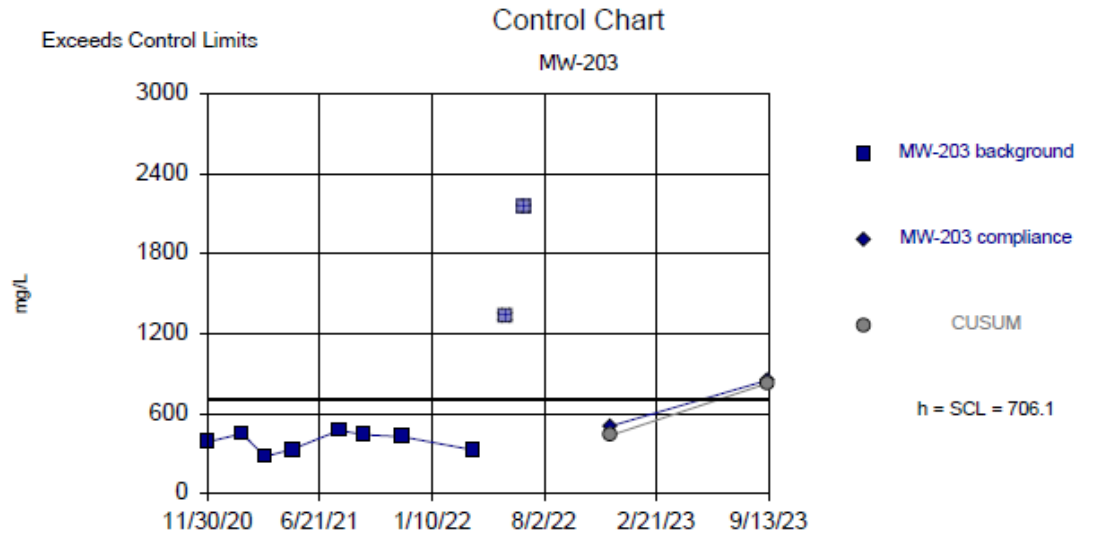
Constituent: Sulfate Analysis Run 8/31/2023 8:35 PM

Stanton Station Client: Golder Associates Data: SS-CCR_Q22023

CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Sulfate Shewhart-CUSUM Control Chart - June 2023 Potential Exceedance

PROJECT NO.	TASK	REV.	FIGURE
GL21509219.000	01	0	5

Sanitas™ v.10.0.13 Sanitas software licensed to Golder Associates. UG



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Constituent: Sulfate Analysis Run 10/19/2023 9:53 AM

Stanton Station Data: SS-CCR_Q22023

CLIENT: Stanton Station

PROJECT: Alternative Source Demonstration

CONSULTANT: wsp

TITLE: Sulfate Shewhart-CUSUM Control Chart - September 2023 Confirmatory Resample

PROJECT NO.	TASK	REV.	FIGURE
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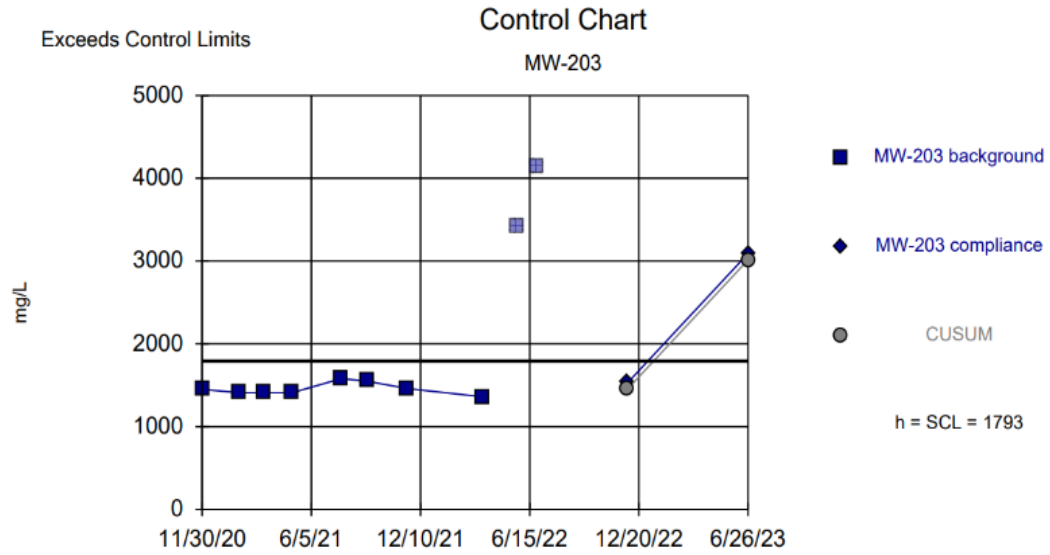
Sanitas™ v.9.6.37 Sanitas software licensed to Golder Associates. UG



Background Data Summary: Mean=1454, Std. Dev.=75.39, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.818. Report alpha = 0.003112. Dates ending 3/28/2022 used for control stats. Standardized h=4.5, SCL=4.5.

Constituent: Total Dissolved Solids Analysis Run 8/31/2023 8:37 PM

Stanton Station Client: Golder Associates Data: SS-CCR_Q22023

CLIENT: Stanton Station

PROJECT: Alternative Source Demonstration

CONSULTANT

TITLE: Total Dissolved Solids Shewhart-CUSUM Control Chart - June 2023 Potential Exceedance

PROJECT NO.	TASK	REV.	FIGURE
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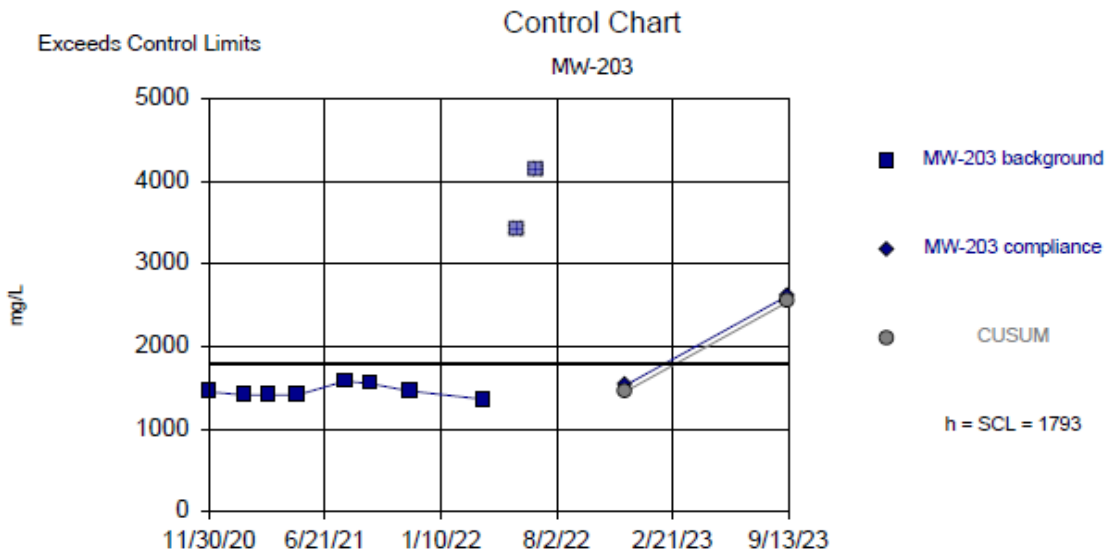
Sanitas™ v.10.0.13 Sanitas software licensed to Golder Associates. UG

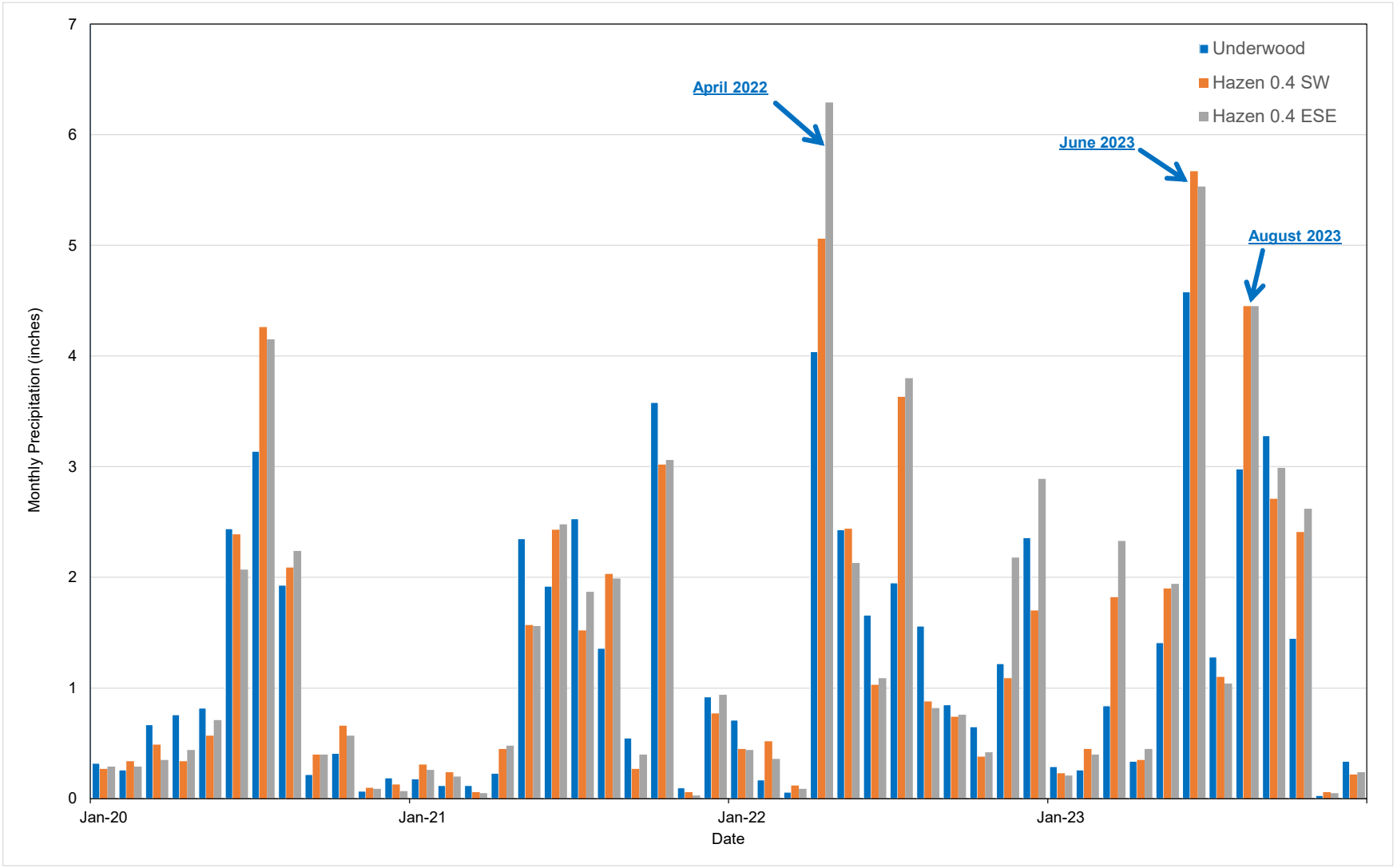


Background Data Summary: Mean=1454, Std. Dev.=75.39, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8921, critical = 0.818. Report alpha = 0.003072. Dates ending 3/28/2022 used for control stats. Standardized h=4.5, SCL=4.5.

Constituent: Total Dissolved Solids Analysis Run 10/19/2023 9:54 AM

Stanton Station Data: SS-CCR_Q22023

CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Total Dissolved Solids Shewhart-CUSUM Control Chart - September 2023 Confirmatory Resample
PROJECT NO.: GL21509219.000 TASK: 01 REV.: 0 FIGURE: 8	



Note: Underwood Weather Station is located approximately 15 miles northeast of Stanton Station, while both Hazen Weather Stations are located approximately 14 miles west of Stanton Station.

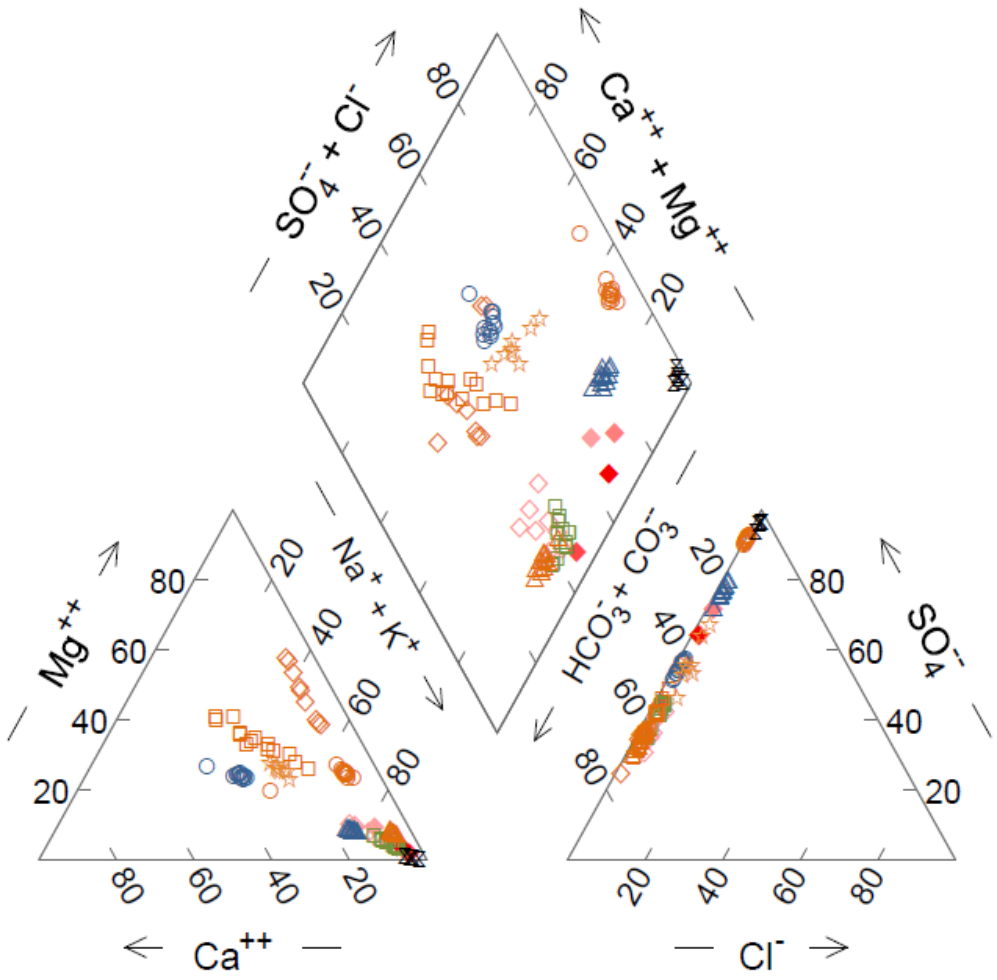
CLIENT
Stanton Station

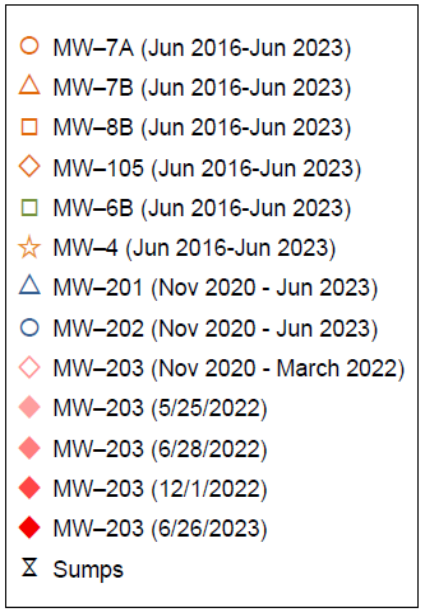
PROJECT
Alternative Source Demonstration

CONSULTANT
wsp

TITLE
Time Series of Monthly Precipitation at Underwood, ND and Hazen, ND Weather Stations

PROJECT NO.	PHASE	REV.	FIGURE
GL21509219.000	01	0	9





% meq/kg

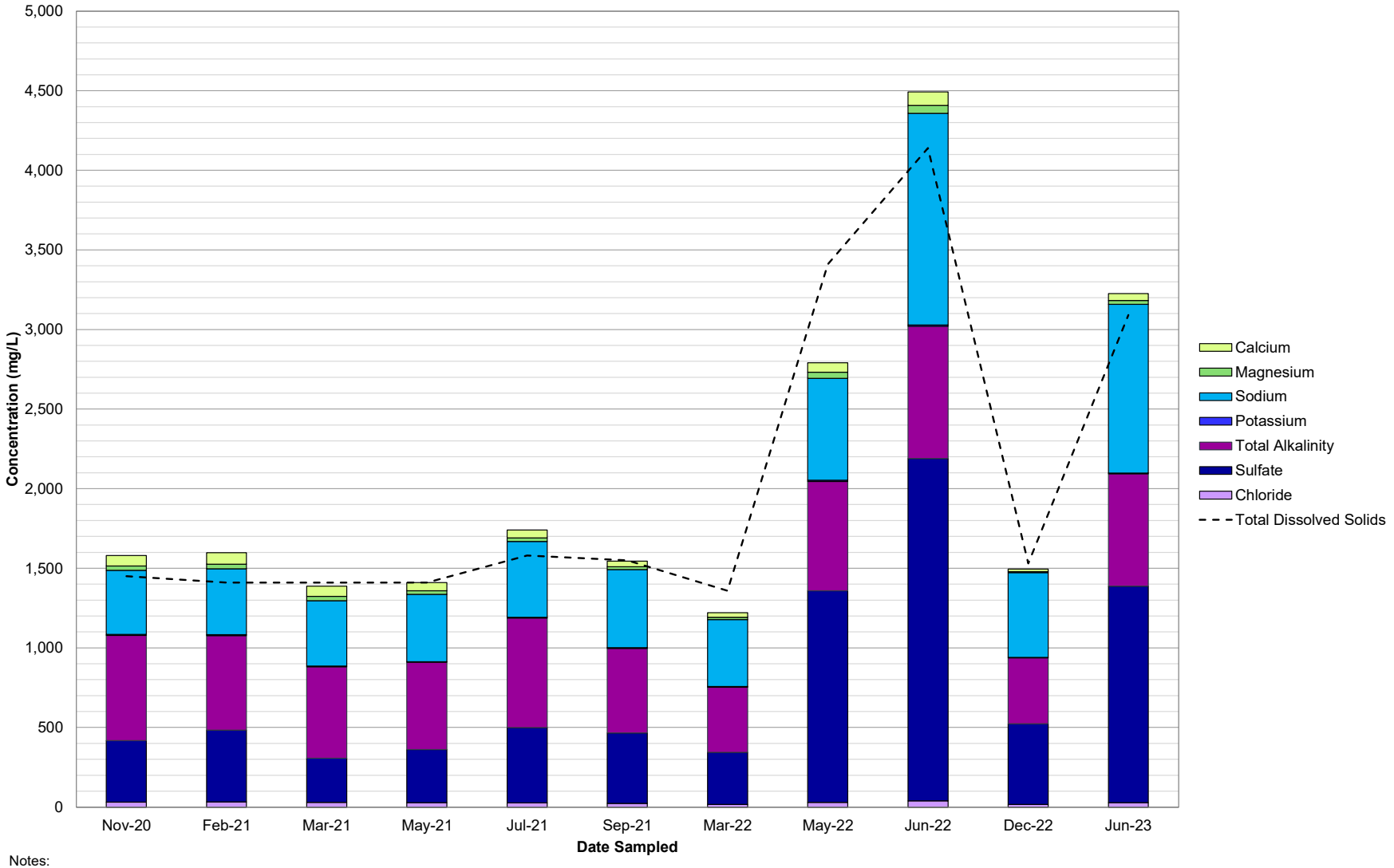
CLIENT
Stanton Station

PROJECT
Alternative Source Demonstration

CONSULTANT

TITLE
Piper Diagram

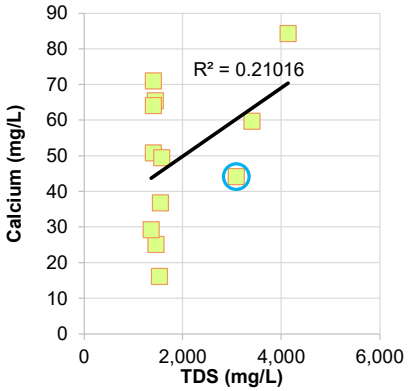
PROJECT NO.	TASK	REV.	FIGURE
GL21509219.0001		0	10

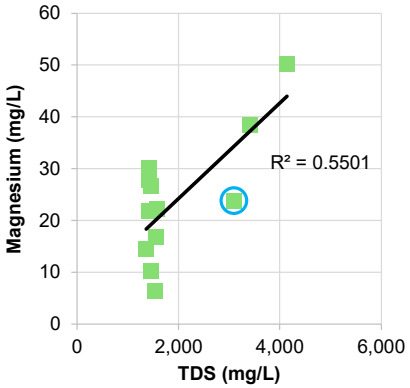


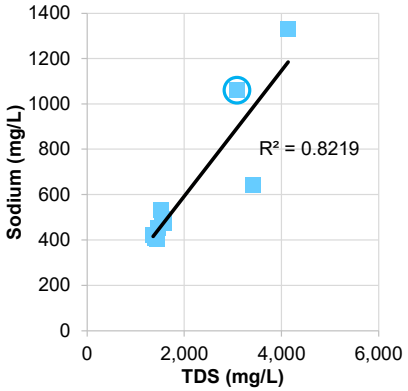
Notes:
Data is only shown for samples with complete list of major cations (calcium, magnesium, sodium, and potassium) and anions (sulfate, total alkalinity, and chloride).
Total elemental concentrations are used in the stacked bar chart.

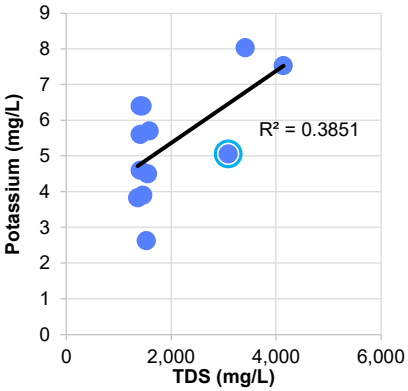
CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Distribution of Major TDS Components in Monitoring Well MW-203 Samples

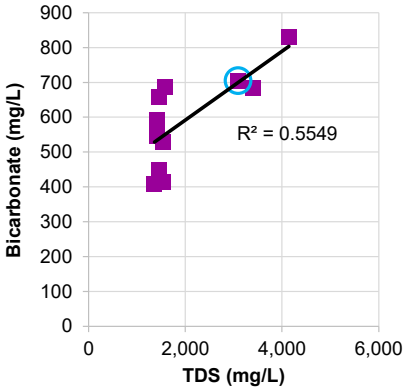
PROJECT NO.	TASK	REV.	FIGURE
13L21509219.000	01	0	11

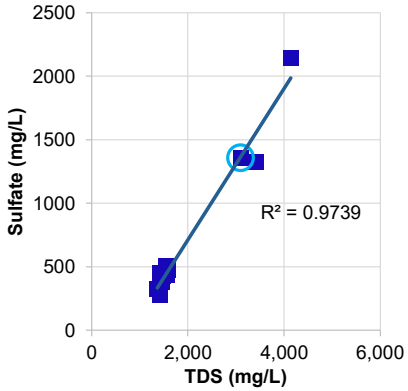


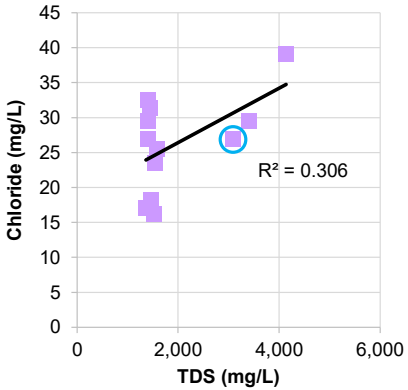












Note: Data from the most recent sample event (Q2 2023) are identified by the blue circle.

CLIENT: Stanton Station	PROJECT: Alternative Source Demonstration
CONSULTANT: wsp	TITLE: Major Cations and Anions Correlation Charts for Monitoring Well MW-203 Samples

PROJECT NO.	TASK	REV.	FIGURE
GL21509219.000	01	0	12

APPENDIX A

MW-203 Boring Log

BORING LOG NO. MW-203

PROJECT: GRE Stanton Monitoring Well Installation

CLIENT: Golder Associates Inc
Lakewood, CO

SITE: 4001 Highway 200A
Stanton, ND

LOCATION See Exploration Plan

Latitude: 47.2818° Longitude: -101.3301°

Surface Elev.: 1703 (Ft.)

DEPTH	ELEVATION (Ft.)	Description
0.4	1702.5	dark brown **FILL - SANDY LEAN CLAY**, brown
4.5	1698.5	**FILL - POORLY GRADED SAND WITH SILT**, light brown, fine to medium-grained
10.0	1693	waterbearing at 9½' **FAT CLAY (CH)**, grayish brown, medium stiff to stiff, sand seams
16.0	1687	***Boring Terminated at 16 Feet***

INSTALLATION DETAILS: PVC Cap; Protective Casing; Concrete; Bentonite; PVC Riser; Silica Sand; PVC Screen

DEPTH (Ft.)	SAMPLE TYPE	FIELD TEST RESULTS
		3-4-5 N=9
5		4-5-10 N=15
10		1-2-4 N=6
15		3-4-7 N=11

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3¼" Inside Diameter, Hollow Stem Auger 0-14½'

Abandonment Method:
Boring converted to monitoring well installation

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

Terracon
1805 Hancock Dr PO Box 2084
Bismarck, ND

Boring Started: 08-10-2020 | Boring Completed: 08-10-2020

Drill Rig: B-57 | Driller: Mike R.

Project No.: M2205068

wsp.com

APPENDIX F

Chemical and Mineralogical Testing Results

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Erin Hunter
WSP USA Inc
7245 W Alaska Drive
Suite 200
Lakewood, Colorado 80226

Generated 10/20/2023 3:30:14 PM

JOB DESCRIPTION

GRE Stanton Station MNA

JOB NUMBER

140-33465-1

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville TN 37921

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization

Generated
10/20/2023 3:30:14 PM

Authorized for release by
Ryan Henry, Project Manager I
WilliamR.Henry@et.eurofinsus.com
(865)291-3006

Table of Contents

Definitions/Glossary

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 140-33465-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-33465-1

Receipt
The samples were received on 9/12/2023 at 2:00pm and arrived in good condition. The temperature of the cooler at receipt was 21.9º C.

Receipt Exceptions
The following samples were received outside of holding time: MW-215 -16-18' (140-33465-1), MW-217 - 12-13' (140-33465-2), MW-218 - 11-12' (140-33465-3), MW-219 - 18-20' (140-33465-4), MW-222 - 34.5-36' (140-33465-5), MW-300 - 11-13' (140-33465-6) and MW-PB3 - 22-24' (140-33465-7). The lab was instructed to proceed.

Metals
7 Step Sequential Extraction Procedure

These soil samples were prepared and analyzed using Eurofins TestAmerica Knoxville standard operating procedure KNOX-MT-0008, "7 Step Sequential Extraction Procedure". SW-846 Method 6010B as incorporated in Eurofins TestAmerica Knoxville standard operating procedure KNOX-MT-0007 was used to perform the final instrument analyses.

An aliquot of each sample was sequentially extracted using the steps listed below:

· Step 1 - Exchangeable Fraction: A 5 gram aliquot of sample was extracted with 25 mL of 1M magnesium sulfate (MgSO4), centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 2 - Carbonate Fraction: The sample residue from step 1 was extracted with 25 mL of 1M sodium acetate/acetic acid (NaOAc/HOAc) at pH 5, centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 3 - Non-crystalline Materials Fraction: The sample residue from step 2 was extracted with 25 mL of 0.2M ammonium oxalate (pH 3), centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 4 - Metal Hydroxide Fraction: The sample residue from step 3 was extracted with 25 mL of 1M hydroxylamine hydrochloride solution in 25% v/v acetic acid, centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 5 - Organic-bound Fraction: The sample residue from step 4 was extracted three times with 25 mL of 5% sodium hypochlorite (NaClO) at pH 9.5, centrifuged and filtered. The resulting leachates were combined and 5 mL were digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 6 - Acid/Sulfide Fraction: The sample residue from step 5 was extracted with 25 mL of a 3:1:2 v/v solution of HCl-HNO3-H2O, centrifuged and filtered. 5 mL of the resulting leachate was diluted to 50 mL with reagent water and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 7 - Residual Fraction: A 1.0 g aliquot of the sample residue from step 6 was digested using HF, HNO3, HCl and H3BO3. The digestate was analyzed by ICP using method 6010B. Results are reported in mg/kg on a dry weight basis.

In addition, a 1.0 g aliquot of the original sample was digested using HF, HNO3, HCl and H3BO3. The digestate was analyzed by ICP using method 6010B. Total metal results are reported in mg/kg on a dry weight basis.

Results were calculated using the following equation:

Result, µg/g or mg/Kg, dry weight = (C × V × V1 × D) / (W × S × V2)

Where:
C = Concentration from instrument readout, µg/mL
V = Final volume of digestate, mL
D = Instrument dilution factor
V1 = Total volume of leachate, mL
V2 = Volume of leachate digested, mL
W = Wet weight of sample, g

Job ID: 140-33465-1 (Continued)

Laboratory: Eurofins Knoxville (Continued)

S = Percent solids/100

A method blank, laboratory control sample and laboratory control sample duplicate were prepared and analyzed with each SEP step in order to provide information about both the presence of elements of interest in the extraction solutions, and the recovery of elements of interest from the extraction solutions. Results outside of laboratory QC limits do not reflect out of control performance, but rather the effect of the extraction solution upon the analyte.

A laboratory sample duplicate was prepared and analyzed with each batch of samples in order to provide information regarding the reproducibility of the procedure.

Methods 6010B, 6010B SEP: The following samples were diluted due to the nature of the sample matrix: MW-215 -16-18' (140-33465-1), MW-217 - 12-13' (140-33465-2), MW-218 - 11-12' (140-33465-3), MW-219 - 18-20' (140-33465-4), MW-222 - 34.5-36' (140-33465-5), MW-300 - 11-13' (140-33465-6) and MW-PB3 - 22-24' (140-33465-7). Elevated reporting limits (RLs) are provided for Aluminum.

Methods 6010B, 6010B SEP: The following samples were diluted due to the presence of Silicon which interferes with Arsenic, Cobalt and Lead: MW-215 -16-18' (140-33465-1), MW-217 - 12-13' (140-33465-2), MW-218 - 11-12' (140-33465-3), MW-219 - 18-20' (140-33465-4), MW-222 - 34.5-36' (140-33465-5), MW-300 - 11-13' (140-33465-6) and MW-PB3 - 22-24' (140-33465-7). Elevated reporting limits (RLs) are provided.

Method 6010B: The serial dilution performed for the following sample associated with batch 140-79123 was outside control limits: MW-222 - 34.5-36' (140-33465-5), (140-33465-A-5-A SD ^10) and (140-33465-A-5-A SD ^5)

Method 6010B SEP: The following samples were prepared outside of preparation holding time due to being received at the laboratory outside of holding time. The client acknowledged the holding time issue and provided instructions to proceed with the SEP procedure: MW-215 -16-18' (140-33465-1), MW-217 - 12-13' (140-33465-2), MW-218 - 11-12' (140-33465-3), MW-219 - 18-20' (140-33465-4), MW-222 - 34.5-36' (140-33465-5), MW-300 - 11-13' (140-33465-6) and MW-PB3 - 22-24' (140-33465-7).

Method 6010B SEP: The serial dilution performed for the following sample associated with batch 140-78659 was outside control limits: MW-222 - 34.5-36' (140-33465-5) and (140-33465-A-5-U SD ^5)

Method 6010B SEP: The following sample was diluted due to the presence of Titanium which interferes with Cobalt: MW-217 - 12-13' (140-33465-2). Elevated reporting limits (RLs) are provided.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-78222 and analytical batch 140-79123 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-33465-1	MW-215 -16-18'	Solid	02/06/23 08:00	09/12/23 14:00
140-33465-2	MW-217 - 12-13'	Solid	02/08/23 09:00	09/12/23 14:00
140-33465-3	MW-218 - 11-12'	Solid	02/08/23 10:30	09/12/23 14:00
140-33465-4	MW-219 - 18-20'	Solid	02/08/23 13:00	09/12/23 14:00
140-33465-5	MW-222 - 34.5-36'	Solid	02/09/23 10:00	09/12/23 14:00
140-33465-6	MW-300 - 11-13'	Solid	02/09/23 12:30	09/12/23 14:00
140-33465-7	MW-PB3 - 22-24'	Solid	02/10/23 10:00	09/12/23 14:00

Client Sample ID: MW-215 -16-18'

Date Collected: 02/06/23 08:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-1

Matrix: Solid
Percent Solids: 80.3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	50	8.0	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Arsenic	ND	H H3	2.5	0.65	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Cobalt	ND	H H3	12	0.22	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Iron	ND	H H3	25	14	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Lead	ND	H H3	2.5	0.55	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Lithium	ND	H H3	12	0.75	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Manganese	**12**	**H H3**	3.7	0.15	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4
Molybdenum	ND	H H3	10	0.41	mg/Kg	☼	09/20/23 08:00	10/02/23 14:08	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**12**	**J H H3**	37	6.0	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Arsenic	ND	H H3	1.9	0.49	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Cobalt	**0.31**	**J H H3**	9.3	0.24	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Iron	**130**	**H H3**	19	11	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Lead	**0.42**	**J H H3**	1.9	0.41	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Lithium	ND	H H3	9.3	0.56	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Manganese	**37**	**H H3**	2.8	1.0	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3
Molybdenum	ND	H H3	7.5	0.31	mg/Kg	☼	09/21/23 08:00	10/02/23 15:17	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**92**	**H H3**	12	2.6	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Arsenic	**0.65**	**H H3**	0.62	0.16	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Cobalt	**0.32**	**J H H3**	3.1	0.056	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Iron	**620**	**H H3**	6.2	3.6	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Lead	ND	H H3	0.62	0.14	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Lithium	ND	H H3	3.1	0.19	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Manganese	**9.9**	**H H3 B**	0.93	0.034	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1
Molybdenum	ND	H H3	2.5	0.10	mg/Kg	☼	09/22/23 07:00	10/03/23 11:19	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**980**	**H H3**	12	2.0	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Arsenic	**1.6**	**H H3**	0.62	0.27	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Cobalt	**1.7**	**J H H3**	3.1	0.066	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Iron	**4100**	**H H3**	6.2	3.6	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Lead	**2.0**	**H H3**	0.62	0.14	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Lithium	**1.7**	**J H H3**	3.1	0.19	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Manganese	**42**	**H H3**	0.93	0.16	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1
Molybdenum	**0.20**	**J H H3**	2.5	0.10	mg/Kg	☼	09/25/23 07:00	10/03/23 12:14	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**48**	**J H H3 B**	190	29	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Arsenic	ND	H H3	9.3	2.4	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Cobalt	ND	H H3	47	0.75	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Iron	ND	H H3	93	55	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Lead	ND	H H3	9.3	2.1	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Lithium	ND	H H3	47	2.7	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5

Client Sample ID: MW-215 -16-18'

Date Collected: 02/06/23 08:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-1

Matrix: Solid
Percent Solids: 80.3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND	H H3	14	2.3	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5
Molybdenum	ND	H H3	37	1.6	mg/Kg	☼	09/27/23 07:00	10/05/23 11:59	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200	H H3	12	2.0	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Arsenic	2.2	H H3	0.62	0.19	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Cobalt	0.83	J H H3	3.1	0.057	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Iron	5100	H H3	6.2	3.6	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Lead	0.84	H H3	0.62	0.14	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Lithium	1.4	J H H3	3.1	0.19	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Manganese	47	H H3	0.93	0.31	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1
Molybdenum	0.17	J H H3	2.5	0.12	mg/Kg	☼	09/26/23 11:00	10/05/23 13:09	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000	H H3	120	20	mg/Kg	☼	09/27/23 08:00	10/17/23 13:39	10
Arsenic	2.5	H H3	1.2	0.75	mg/Kg	☼	09/27/23 08:00	10/17/23 17:33	2
Cobalt	0.57	J H H3	6.2	0.065	mg/Kg	☼	09/27/23 08:00	10/17/23 17:33	2
Iron	2500	H H3	6.2	5.1	mg/Kg	☼	09/27/23 08:00	10/17/23 15:25	1
Lead	3.5	H H3	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 17:33	2
Lithium	4.7	H H3	3.1	0.19	mg/Kg	☼	09/27/23 08:00	10/17/23 15:25	1
Manganese	35	H H3	0.93	0.39	mg/Kg	☼	09/27/23 08:00	10/17/23 15:25	1
Molybdenum	0.15	J H H3	2.5	0.10	mg/Kg	☼	09/27/23 08:00	10/17/23 15:25	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	32000		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	7.0		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	3.8		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	13000		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	6.7		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	7.8		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	180		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	0.53	J	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000	H H3	120	20	mg/Kg	☼	09/27/23 08:00	10/17/23 14:33	10
Arsenic	7.8	H H3	1.2	0.75	mg/Kg	☼	09/27/23 08:00	10/17/23 18:27	2
Cobalt	4.2	J H H3	6.2	0.065	mg/Kg	☼	09/27/23 08:00	10/17/23 18:27	2
Iron	12000	H H3	6.2	5.1	mg/Kg	☼	09/27/23 08:00	10/17/23 16:22	1
Lead	6.1	H H3	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 18:27	2
Lithium	7.6	H H3	3.1	0.19	mg/Kg	☼	09/27/23 08:00	10/17/23 16:22	1
Manganese	170	H H3	0.93	0.39	mg/Kg	☼	09/27/23 08:00	10/17/23 16:22	1
Molybdenum	0.66	J H H3	2.5	0.10	mg/Kg	☼	09/27/23 08:00	10/17/23 16:22	1

Client Sample ID: MW-217 - 12-13'

Date Collected: 02/08/23 09:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-2

Matrix: Solid
Percent Solids: 96.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	42	6.7	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Arsenic	ND	H H3	2.1	0.54	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Cobalt	ND	H H3	10	0.19	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Iron	ND	H H3	21	12	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Lead	ND	H H3	2.1	0.46	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Lithium	ND	H H3	10	0.62	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Manganese	**0.25**	**J H H3**	3.1	0.13	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4
Molybdenum	ND	H H3	8.3	0.34	mg/Kg	☼	09/20/23 08:00	10/02/23 14:13	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J H H3**	31	5.0	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Arsenic	ND	H H3	1.6	0.41	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Cobalt	ND	H H3	7.8	0.20	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Iron	**28**	**H H3**	16	9.1	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Lead	ND	H H3	1.6	0.34	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Lithium	ND	H H3	7.8	0.47	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Manganese	**35**	**H H3**	2.3	0.87	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3
Molybdenum	ND	H H3	6.2	0.26	mg/Kg	☼	09/21/23 08:00	10/02/23 15:22	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**54**	**H H3**	10	2.2	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Arsenic	**0.26**	**J H H3**	0.52	0.14	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Cobalt	**0.87**	**J H H3**	2.6	0.047	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Iron	**250**	**H H3**	5.2	3.0	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Lead	ND	H H3	0.52	0.11	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Lithium	ND	H H3	2.6	0.16	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Manganese	**62**	**H H3 B**	0.78	0.028	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1
Molybdenum	ND	H H3	2.1	0.085	mg/Kg	☼	09/22/23 07:00	10/03/23 11:25	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**680**	**H H3**	10	1.7	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Arsenic	**1.1**	**H H3**	0.52	0.23	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Cobalt	**1.1**	**J H H3**	2.6	0.055	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Iron	**3000**	**H H3**	5.2	3.0	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Lead	**1.4**	**H H3**	0.52	0.11	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Lithium	**1.1**	**J H H3**	2.6	0.16	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Manganese	**51**	**H H3**	0.78	0.14	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1
Molybdenum	**0.13**	**J H H3**	2.1	0.085	mg/Kg	☼	09/25/23 07:00	10/03/23 12:19	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**34**	**J H H3 B**	160	24	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Arsenic	ND	H H3	7.8	2.0	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Cobalt	ND	H H3	39	0.62	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Iron	ND	H H3	78	46	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Lead	ND	H H3	7.8	1.7	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Lithium	ND	H H3	39	2.3	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5

Client Sample ID: MW-217 - 12-13'

Date Collected: 02/08/23 09:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-2

Matrix: Solid
Percent Solids: 96.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.7	J H H3	12	1.9	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5
Molybdenum	ND	H H3	31	1.3	mg/Kg	☼	09/27/23 07:00	10/05/23 12:04	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1300	H H3	10	1.7	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Arsenic	3.2	H H3	0.52	0.16	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Cobalt	1.1	J H H3	2.6	0.048	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Iron	5200	H H3	5.2	3.0	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Lead	0.78	H H3	0.52	0.11	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Lithium	1.7	J H H3	2.6	0.16	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Manganese	53	H H3	0.78	0.26	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1
Molybdenum	0.16	J H H3	2.1	0.10	mg/Kg	☼	09/26/23 11:00	10/05/23 13:14	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000	H H3	100	17	mg/Kg	☼	09/27/23 08:00	10/17/23 13:44	10
Arsenic	2.5	H H3	1.0	0.62	mg/Kg	☼	09/27/23 08:00	10/17/23 17:38	2
Cobalt	2.9	J H H3	5.2	0.054	mg/Kg	☼	09/27/23 08:00	10/17/23 17:38	2
Iron	8200	H H3	5.2	4.3	mg/Kg	☼	09/27/23 08:00	10/17/23 15:31	1
Lead	2.5	H H3	1.0	0.23	mg/Kg	☼	09/27/23 08:00	10/17/23 17:38	2
Lithium	4.5	H H3	2.6	0.16	mg/Kg	☼	09/27/23 08:00	10/17/23 15:31	1
Manganese	140	H H3	0.78	0.32	mg/Kg	☼	09/27/23 08:00	10/17/23 15:31	1
Molybdenum	0.11	J H H3	2.1	0.085	mg/Kg	☼	09/27/23 08:00	10/17/23 15:31	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	32000		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	7.1		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	6.0		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	17000		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	4.7		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	7.4		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	340		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	0.41	J	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000	H H3	100	17	mg/Kg	☼	09/27/23 08:00	10/17/23 14:37	10
Arsenic	8.5	H H3	1.0	0.62	mg/Kg	☼	09/27/23 08:00	10/17/23 18:32	2
Cobalt	5.6	H H3	5.2	0.054	mg/Kg	☼	09/27/23 08:00	10/17/23 18:32	2
Iron	16000	H H3	5.2	4.3	mg/Kg	☼	09/27/23 08:00	10/17/23 16:28	1
Lead	6.4	H H3	1.0	0.23	mg/Kg	☼	09/27/23 08:00	10/17/23 18:32	2
Lithium	7.2	H H3	2.6	0.16	mg/Kg	☼	09/27/23 08:00	10/17/23 16:28	1
Manganese	330	H H3	0.78	0.32	mg/Kg	☼	09/27/23 08:00	10/17/23 16:28	1
Molybdenum	0.79	J H H3	2.1	0.085	mg/Kg	☼	09/27/23 08:00	10/17/23 16:28	1

Client Sample ID: MW-218 - 11-12'
Lab Sample ID: 140-33465-3

Date Collected: 02/08/23 10:30
Matrix: Solid

Date Received: 09/12/23 14:00
Percent Solids: 85.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	47	7.5	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Arsenic	ND	H H3	2.4	0.61	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Cobalt	ND	H H3	12	0.21	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Iron	ND	H H3	24	14	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Lead	ND	H H3	2.4	0.52	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Lithium	ND	H H3	12	0.71	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Manganese	**14**	**H H3**	3.5	0.15	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4
Molybdenum	ND	H H3	9.4	0.39	mg/Kg	☼	09/20/23 08:00	10/02/23 14:18	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J H H3**	35	5.6	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Arsenic	ND	H H3	1.8	0.46	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Cobalt	**0.50**	**J H H3**	8.8	0.22	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Iron	**160**	**H H3**	18	10	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Lead	ND	H H3	1.8	0.39	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Lithium	ND	H H3	8.8	0.53	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Manganese	**99**	**H H3**	2.6	0.99	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3
Molybdenum	ND	H H3	7.1	0.29	mg/Kg	☼	09/21/23 08:00	10/02/23 15:27	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**57**	**H H3**	12	2.5	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Arsenic	**0.57**	**J H H3**	0.59	0.15	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Cobalt	**0.53**	**J H H3**	2.9	0.053	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Iron	**630**	**H H3**	5.9	3.4	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Lead	ND	H H3	0.59	0.13	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Lithium	ND	H H3	2.9	0.18	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Manganese	**21**	**H H3 B**	0.88	0.032	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1
Molybdenum	**0.12**	**J H H3**	2.4	0.096	mg/Kg	☼	09/22/23 07:00	10/03/23 11:30	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**680**	**H H3**	12	1.9	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Arsenic	**1.7**	**H H3**	0.59	0.26	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Cobalt	**1.7**	**J H H3**	2.9	0.062	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Iron	**4300**	**H H3**	5.9	3.4	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Lead	**2.0**	**H H3**	0.59	0.13	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Lithium	**1.2**	**J H H3**	2.9	0.18	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Manganese	**51**	**H H3**	0.88	0.15	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1
Molybdenum	**0.28**	**J H H3**	2.4	0.096	mg/Kg	☼	09/25/23 07:00	10/03/23 12:24	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**28**	**J H H3 B**	180	28	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Arsenic	ND	H H3	8.8	2.2	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Cobalt	ND	H H3	44	0.71	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Iron	ND	H H3	88	52	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Lead	ND	H H3	8.8	1.9	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Lithium	ND	H H3	44	2.6	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5

Client Sample ID: MW-218 - 11-12'

Date Collected: 02/08/23 10:30
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-3

Matrix: Solid
Percent Solids: 85.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND	H H3	13	2.2	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5
Molybdenum	ND	H H3	35	1.5	mg/Kg	☼	09/27/23 07:00	10/05/23 12:09	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1100	H H3	12	1.9	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Arsenic	3.5	H H3	0.59	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Cobalt	1.1	J H H3	2.9	0.054	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Iron	6300	H H3	5.9	3.4	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Lead	0.96	H H3	0.59	0.13	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Lithium	1.4	J H H3	2.9	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Manganese	60	H H3	0.88	0.29	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1
Molybdenum	0.27	J H H3	2.4	0.12	mg/Kg	☼	09/26/23 11:00	10/05/23 13:19	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	26000	H H3	120	19	mg/Kg	☼	09/27/23 08:00	10/17/23 13:49	10
Arsenic	2.2	H H3	1.2	0.71	mg/Kg	☼	09/27/23 08:00	10/17/23 17:43	2
Cobalt	0.68	J H H3	5.9	0.061	mg/Kg	☼	09/27/23 08:00	10/17/23 17:43	2
Iron	3100	H H3	5.9	4.8	mg/Kg	☼	09/27/23 08:00	10/17/23 15:36	1
Lead	2.5	H H3	1.2	0.26	mg/Kg	☼	09/27/23 08:00	10/17/23 17:43	2
Lithium	3.7	H H3	2.9	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 15:36	1
Manganese	56	H H3	0.88	0.36	mg/Kg	☼	09/27/23 08:00	10/17/23 15:36	1
Molybdenum	0.13	J H H3	2.4	0.096	mg/Kg	☼	09/27/23 08:00	10/17/23 15:36	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	8.0		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	4.4		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	15000		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	5.5		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	6.3		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	300		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	0.81	J	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000	H H3	120	19	mg/Kg	☼	09/27/23 08:00	10/17/23 14:42	10
Arsenic	9.3	H H3	1.2	0.71	mg/Kg	☼	09/27/23 08:00	10/17/23 18:37	2
Cobalt	5.1	J H H3	5.9	0.061	mg/Kg	☼	09/27/23 08:00	10/17/23 18:37	2
Iron	15000	H H3	5.9	4.8	mg/Kg	☼	09/27/23 08:00	10/17/23 16:33	1
Lead	5.9	H H3	1.2	0.26	mg/Kg	☼	09/27/23 08:00	10/17/23 18:37	2
Lithium	6.8	H H3	2.9	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 16:33	1
Manganese	300	H H3	0.88	0.36	mg/Kg	☼	09/27/23 08:00	10/17/23 16:33	1
Molybdenum	0.91	J H H3	2.4	0.096	mg/Kg	☼	09/27/23 08:00	10/17/23 16:33	1

Client Sample ID: MW-219 - 18-20'
Lab Sample ID: 140-33465-4

Date Collected: 02/08/23 13:00
Matrix: Solid

Date Received: 09/12/23 14:00
Percent Solids: 82.8

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	48	7.7	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Arsenic	ND	H H3	2.4	0.63	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Cobalt	ND	H H3	12	0.22	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Iron	ND	H H3	24	14	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Lead	**0.61**	**J H H3**	2.4	0.53	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Lithium	ND	H H3	12	0.73	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Manganese	**1.3**	**J H H3**	3.6	0.15	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4
Molybdenum	ND	H H3	9.7	0.40	mg/Kg	☼	09/20/23 08:00	10/02/23 14:23	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**16**	**J H H3**	36	5.8	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Arsenic	ND	H H3	1.8	0.47	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Cobalt	ND	H H3	9.1	0.23	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Iron	**21**	**H H3**	18	11	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Lead	ND	H H3	1.8	0.40	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Lithium	ND	H H3	9.1	0.54	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Manganese	**49**	**H H3**	2.7	1.0	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3
Molybdenum	ND	H H3	7.3	0.30	mg/Kg	☼	09/21/23 08:00	10/02/23 15:32	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**110**	**H H3**	12	2.5	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Arsenic	**0.51**	**J H H3**	0.60	0.16	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Cobalt	**0.86**	**J H H3**	3.0	0.054	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Iron	**340**	**H H3**	6.0	3.5	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Lead	**0.14**	**J H H3**	0.60	0.13	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Lithium	ND	H H3	3.0	0.18	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Manganese	**55**	**H H3 B**	0.91	0.033	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1
Molybdenum	ND	H H3	2.4	0.099	mg/Kg	☼	09/22/23 07:00	10/03/23 11:35	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1900**	**H H3**	12	1.9	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Arsenic	**1.9**	**H H3**	0.60	0.27	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Cobalt	**2.3**	**J H H3**	3.0	0.064	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Iron	**6300**	**H H3**	6.0	3.5	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Lead	**3.2**	**H H3**	0.60	0.13	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Lithium	**3.7**	**H H3**	3.0	0.18	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Manganese	**67**	**H H3**	0.91	0.16	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1
Molybdenum	**0.15**	**J H H3**	2.4	0.099	mg/Kg	☼	09/25/23 07:00	10/03/23 12:29	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	180	28	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Arsenic	ND	H H3	9.1	2.3	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Cobalt	ND	H H3	45	0.73	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Iron	ND	H H3	91	53	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Lead	ND	H H3	9.1	2.0	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Lithium	ND	H H3	45	2.7	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5

Client Sample ID: MW-219 - 18-20'

Date Collected: 02/08/23 13:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-4

Matrix: Solid
Percent Solids: 82.8

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND	H H3	14	2.2	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5
Molybdenum	ND	H H3	36	1.5	mg/Kg	☼	09/27/23 07:00	10/05/23 12:14	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3100**	**H H3**	12	1.9	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Arsenic	**1.5**	**H H3**	0.60	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Cobalt	**1.0**	**J H H3**	3.0	0.056	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Iron	**5000**	**H H3**	6.0	3.5	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Lead	**1.0**	**H H3**	0.60	0.13	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Lithium	**2.7**	**J H H3**	3.0	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Manganese	**41**	**H H3**	0.91	0.30	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1
Molybdenum	ND	H H3	2.4	0.12	mg/Kg	☼	09/26/23 11:00	10/05/23 13:24	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**30000**	**H H3**	120	19	mg/Kg	☼	09/27/23 08:00	10/17/23 13:54	10
Arsenic	**2.1**	**H H3**	1.2	0.73	mg/Kg	☼	09/27/23 08:00	10/17/23 17:48	2
Cobalt	**0.29**	**J H H3**	6.0	0.063	mg/Kg	☼	09/27/23 08:00	10/17/23 17:48	2
Iron	**3000**	**H H3**	6.0	5.0	mg/Kg	☼	09/27/23 08:00	10/17/23 15:41	1
Lead	**1.2**	**H H3**	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 17:48	2
Lithium	**5.3**	**H H3**	3.0	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 15:41	1
Manganese	**32**	**H H3**	0.91	0.37	mg/Kg	☼	09/27/23 08:00	10/17/23 15:41	1
Molybdenum	**0.12**	**J H H3**	2.4	0.099	mg/Kg	☼	09/27/23 08:00	10/17/23 15:41	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**35000**		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	**6.0**		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	**4.5**		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	**15000**		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	**6.3**		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	**12**		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	**250**		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	**0.27**	**J**	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**36000**	**H H3**	120	19	mg/Kg	☼	09/27/23 08:00	10/17/23 14:47	10
Arsenic	**7.0**	**H H3**	1.2	0.73	mg/Kg	☼	09/27/23 08:00	10/17/23 18:42	2
Cobalt	**4.6**	**J H H3**	6.0	0.063	mg/Kg	☼	09/27/23 08:00	10/17/23 18:42	2
Iron	**14000**	**H H3**	6.0	5.0	mg/Kg	☼	09/27/23 08:00	10/17/23 16:39	1
Lead	**5.8**	**H H3**	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 18:42	2
Lithium	**12**	**H H3**	3.0	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 16:39	1
Manganese	**200**	**H H3**	0.91	0.37	mg/Kg	☼	09/27/23 08:00	10/17/23 16:39	1
Molybdenum	**0.47**	**J H H3**	2.4	0.099	mg/Kg	☼	09/27/23 08:00	10/17/23 16:39	1

Client Sample ID: MW-222 - 34.5-36'
Lab Sample ID: 140-33465-5

Date Collected: 02/09/23 10:00
Matrix: Solid

Date Received: 09/12/23 14:00
Percent Solids: 81.7

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	49	7.8	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Arsenic	ND	H H3	2.4	0.64	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Cobalt	ND	H H3	12	0.22	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Iron	ND	H H3	24	14	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Lead	**0.59**	**J H H3**	2.4	0.54	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Lithium	ND	H H3	12	0.73	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Manganese	**10**	**H H3**	3.7	0.15	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4
Molybdenum	ND	H H3	9.8	0.40	mg/Kg	☼	09/20/23 08:00	10/02/23 14:28	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**23**	**J H H3**	37	5.9	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Arsenic	ND	H H3	1.8	0.48	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Cobalt	ND	H H3	9.2	0.23	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Iron	**46**	**H H3**	18	11	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Lead	**0.64**	**J H H3**	1.8	0.40	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Lithium	ND	H H3	9.2	0.55	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Manganese	**46**	**H H3**	2.8	1.0	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3
Molybdenum	ND	H H3	7.3	0.30	mg/Kg	☼	09/21/23 08:00	10/02/23 15:37	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**	**H H3**	12	2.6	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Arsenic	**0.75**	**H H3**	0.61	0.16	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Cobalt	**0.65**	**J H H3**	3.1	0.055	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Iron	**870**	**H H3**	6.1	3.5	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Lead	**0.17**	**J H H3**	0.61	0.13	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Lithium	ND	H H3	3.1	0.18	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Manganese	**40**	**H H3 B**	0.92	0.033	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1
Molybdenum	ND	H H3	2.4	0.10	mg/Kg	☼	09/22/23 07:00	10/03/23 11:49	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1500**	**H H3**	12	2.0	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Arsenic	**1.5**	**H H3**	0.61	0.27	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Cobalt	**2.2**	**J H H3**	3.1	0.065	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Iron	**5100**	**H H3**	6.1	3.5	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Lead	**3.1**	**H H3**	0.61	0.13	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Lithium	**3.0**	**J H H3**	3.1	0.18	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Manganese	**72**	**H H3**	0.92	0.16	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1
Molybdenum	**0.18**	**J H H3**	2.4	0.10	mg/Kg	☼	09/25/23 07:00	10/03/23 12:33	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	180	29	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Arsenic	ND	H H3	9.2	2.3	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Cobalt	ND	H H3	46	0.73	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Iron	ND	H H3	92	54	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Lead	ND	H H3	9.2	2.0	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Lithium	ND	H H3	46	2.7	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5

Client Sample ID: MW-222 - 34.5-36'

Date Collected: 02/09/23 10:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-5

Matrix: Solid
Percent Solids: 81.7

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND	H H3	14	2.3	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5
Molybdenum	ND	H H3	37	1.5	mg/Kg	☼	09/27/23 07:00	10/05/23 12:19	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2900**	**H H3**	12	2.0	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Arsenic	**1.8**	**H H3**	0.61	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Cobalt	**1.1**	**J H H3**	3.1	0.056	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Iron	**5000**	**H H3**	6.1	3.5	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Lead	**0.97**	**H H3**	0.61	0.13	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Lithium	**2.8**	**J H H3**	3.1	0.18	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Manganese	**47**	**H H3**	0.92	0.31	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1
Molybdenum	ND	H H3	2.4	0.12	mg/Kg	☼	09/26/23 11:00	10/05/23 13:28	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**32000**	**H H3**	120	20	mg/Kg	☼	09/27/23 08:00	10/17/23 14:08	10
Arsenic	**2.4**	**H H3**	1.2	0.73	mg/Kg	☼	09/27/23 08:00	10/17/23 17:53	2
Cobalt	**0.32**	**J H H3**	6.1	0.064	mg/Kg	☼	09/27/23 08:00	10/17/23 17:53	2
Iron	**3200**	**H H3**	6.1	5.0	mg/Kg	☼	09/27/23 08:00	10/17/23 15:46	1
Lead	**1.2**	**H H3**	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 17:53	2
Lithium	**5.5**	**H H3**	3.1	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 15:46	1
Manganese	**37**	**H H3**	0.92	0.38	mg/Kg	☼	09/27/23 08:00	10/17/23 15:46	1
Molybdenum	**0.13**	**J H H3**	2.4	0.10	mg/Kg	☼	09/27/23 08:00	10/17/23 15:46	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**37000**		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	**6.4**		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	**4.3**		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	**14000**		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	**6.7**		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	**11**		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	**250**		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	**0.31**	**J**	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**45000**	**H H3**	120	20	mg/Kg	☼	09/27/23 08:00	10/17/23 14:52	10
Arsenic	**7.7**	**H H3**	1.2	0.73	mg/Kg	☼	09/27/23 08:00	10/17/23 18:47	2
Cobalt	**5.3**	**J H H3**	6.1	0.064	mg/Kg	☼	09/27/23 08:00	10/17/23 18:47	2
Iron	**15000**	**H H3**	6.1	5.0	mg/Kg	☼	09/27/23 08:00	10/17/23 16:45	1
Lead	**7.0**	**H H3**	1.2	0.27	mg/Kg	☼	09/27/23 08:00	10/17/23 18:47	2
Lithium	**13**	**H H3**	3.1	0.18	mg/Kg	☼	09/27/23 08:00	10/17/23 16:45	1
Manganese	**240**	**H H3**	0.92	0.38	mg/Kg	☼	09/27/23 08:00	10/17/23 16:45	1
Molybdenum	**0.60**	**J H H3**	2.4	0.10	mg/Kg	☼	09/27/23 08:00	10/17/23 16:45	1

Client Sample ID: MW-300 - 11-13'

Date Collected: 02/09/23 12:30
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-6

Matrix: Solid
Percent Solids: 89.4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	45	7.2	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Arsenic	ND	H H3	2.2	0.58	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Cobalt	ND	H H3	11	0.20	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Iron	ND	H H3	22	13	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Lead	ND	H H3	2.2	0.49	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Lithium	ND	H H3	11	0.67	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Manganese	**1.3**	**J H H3**	3.4	0.14	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4
Molybdenum	ND	H H3	9.0	0.37	mg/Kg	☼	09/20/23 08:00	10/02/23 14:52	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13**	**J H H3**	34	5.4	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Arsenic	ND	H H3	1.7	0.44	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Cobalt	ND	H H3	8.4	0.21	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Iron	**38**	**H H3**	17	9.7	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Lead	ND	H H3	1.7	0.37	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Lithium	ND	H H3	8.4	0.50	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Manganese	**49**	**H H3**	2.5	0.94	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3
Molybdenum	ND	H H3	6.7	0.28	mg/Kg	☼	09/21/23 08:00	10/02/23 15:57	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**150**	**H H3**	11	2.3	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Arsenic	**1.1**	**H H3**	0.56	0.15	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Cobalt	**0.99**	**J H H3**	2.8	0.050	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Iron	**1200**	**H H3**	5.6	3.2	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Lead	ND	H H3	0.56	0.12	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Lithium	ND	H H3	2.8	0.17	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Manganese	**58**	**H H3 B**	0.84	0.030	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1
Molybdenum	**0.10**	**J H H3**	2.2	0.092	mg/Kg	☼	09/22/23 07:00	10/03/23 11:59	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1200**	**H H3**	11	1.8	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Arsenic	**1.5**	**H H3**	0.56	0.25	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Cobalt	**1.9**	**J H H3**	2.8	0.059	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Iron	**4200**	**H H3**	5.6	3.2	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Lead	**3.4**	**H H3**	0.56	0.12	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Lithium	**2.5**	**J H H3**	2.8	0.17	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Manganese	**48**	**H H3**	0.84	0.15	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1
Molybdenum	**0.17**	**J H H3**	2.2	0.092	mg/Kg	☼	09/25/23 07:00	10/03/23 12:53	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**34**	**J H H3 B**	170	26	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Arsenic	ND	H H3	8.4	2.1	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Cobalt	ND	H H3	42	0.67	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Iron	ND	H H3	84	49	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Lead	ND	H H3	8.4	1.8	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Lithium	ND	H H3	42	2.5	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5

Client Sample ID: MW-300 - 11-13'

Date Collected: 02/09/23 12:30
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-6

Matrix: Solid
Percent Solids: 89.4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND	H H3	13	2.1	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5
Molybdenum	ND	H H3	34	1.4	mg/Kg	☼	09/27/23 07:00	10/05/23 12:44	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2500**	**H H3**	11	1.8	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Arsenic	**2.0**	**H H3**	0.56	0.17	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Cobalt	**1.1**	**J H H3**	2.8	0.051	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Iron	**4900**	**H H3**	5.6	3.2	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Lead	**0.94**	**H H3**	0.56	0.12	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Lithium	**2.6**	**J H H3**	2.8	0.17	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Manganese	**42**	**H H3**	0.84	0.28	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1
Molybdenum	ND	H H3	2.2	0.11	mg/Kg	☼	09/26/23 11:00	10/05/23 13:48	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**34000**	**H H3**	110	18	mg/Kg	☼	09/27/23 08:00	10/17/23 14:18	10
Arsenic	**2.5**	**H H3**	1.7	1.0	mg/Kg	☼	09/27/23 08:00	10/17/23 18:02	3
Cobalt	**0.57**	**J H H3**	8.4	0.087	mg/Kg	☼	09/27/23 08:00	10/17/23 18:02	3
Iron	**4300**	**H H3**	5.6	4.6	mg/Kg	☼	09/27/23 08:00	10/17/23 16:12	1
Lead	**0.98**	**J H H3**	1.7	0.37	mg/Kg	☼	09/27/23 08:00	10/17/23 18:02	3
Lithium	**6.4**	**H H3**	2.8	0.17	mg/Kg	☼	09/27/23 08:00	10/17/23 16:12	1
Manganese	**48**	**H H3**	0.84	0.35	mg/Kg	☼	09/27/23 08:00	10/17/23 16:12	1
Molybdenum	**0.13**	**J H H3**	2.2	0.092	mg/Kg	☼	09/27/23 08:00	10/17/23 16:12	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**38000**		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	**7.2**		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	**4.5**		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	**15000**		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	**5.3**		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	**11**		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	**250**		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	**0.40**	**J**	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**36000**	**H H3**	110	18	mg/Kg	☼	09/27/23 08:00	10/17/23 15:11	10
Arsenic	**7.9**	**H H3**	1.1	0.67	mg/Kg	☼	09/27/23 08:00	10/17/23 18:58	2
Cobalt	**4.9**	**J H H3**	5.6	0.058	mg/Kg	☼	09/27/23 08:00	10/17/23 18:58	2
Iron	**15000**	**H H3**	5.6	4.6	mg/Kg	☼	09/27/23 08:00	10/17/23 17:10	1
Lead	**6.7**	**H H3**	1.1	0.25	mg/Kg	☼	09/27/23 08:00	10/17/23 18:58	2
Lithium	**9.7**	**H H3**	2.8	0.17	mg/Kg	☼	09/27/23 08:00	10/17/23 17:10	1
Manganese	**260**	**H H3**	0.84	0.35	mg/Kg	☼	09/27/23 08:00	10/17/23 17:10	1
Molybdenum	**0.61**	**J H H3**	2.2	0.092	mg/Kg	☼	09/27/23 08:00	10/17/23 17:10	1

Client Sample ID: MW-PB3 - 22-24'
Date Collected: 02/10/23 10:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-7
Matrix: Solid
Percent Solids: 76.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	H H3	53	8.4	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Arsenic	ND	H H3	2.6	0.68	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Cobalt	ND	H H3	13	0.24	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Iron	ND	H H3	26	15	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Lead	ND	H H3	2.6	0.58	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Lithium	ND	H H3	13	0.79	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Manganese	**7.7**	**H H3**	3.9	0.16	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4
Molybdenum	ND	H H3	11	0.43	mg/Kg	☼	09/20/23 08:00	10/02/23 14:57	4

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J H H3**	39	6.3	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Arsenic	ND	H H3	2.0	0.51	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Cobalt	**0.71**	**J H H3**	9.9	0.25	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Iron	**65**	**H H3**	20	11	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Lead	**1.1**	**J H H3**	2.0	0.43	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Lithium	ND	H H3	9.9	0.59	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Manganese	**170**	**H H3**	3.0	1.1	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3
Molybdenum	ND	H H3	7.9	0.32	mg/Kg	☼	09/21/23 08:00	10/02/23 16:02	3

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**93**	**H H3**	13	2.8	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Arsenic	**0.93**	**H H3**	0.66	0.17	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Cobalt	**0.59**	**J H H3**	3.3	0.059	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Iron	**1200**	**H H3**	6.6	3.8	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Lead	ND	H H3	0.66	0.14	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Lithium	ND	H H3	3.3	0.20	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Manganese	**92**	**H H3 B**	0.99	0.036	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1
Molybdenum	**0.11**	**J H H3**	2.6	0.11	mg/Kg	☼	09/22/23 07:00	10/03/23 12:04	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1000**	**H H3**	13	2.1	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Arsenic	**1.4**	**H H3**	0.66	0.29	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Cobalt	**2.1**	**J H H3**	3.3	0.070	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Iron	**7000**	**H H3**	6.6	3.8	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Lead	**3.7**	**H H3**	0.66	0.14	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Lithium	**3.6**	**H H3**	3.3	0.20	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Manganese	**200**	**H H3**	0.99	0.17	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1
Molybdenum	**0.23**	**J H H3**	2.6	0.11	mg/Kg	☼	09/25/23 07:00	10/03/23 12:58	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**110**	**J H H3 B**	200	31	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Arsenic	ND	H H3	9.9	2.5	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Cobalt	**0.99**	**J H H3**	49	0.79	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Iron	**200**	**H H3**	99	58	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Lead	**2.2**	**J H H3**	9.9	2.2	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Lithium	ND	H H3	49	2.9	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5

Client Sample ID: MW-PB3 - 22-24'

Date Collected: 02/10/23 10:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-7

Matrix: Solid
Percent Solids: 76.0

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 5 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	35	H H3	15	2.4	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5
Molybdenum	ND	H H3	39	1.6	mg/Kg	☼	09/27/23 07:00	10/05/23 12:49	5

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3400	H H3	13	2.1	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Arsenic	4.8	H H3	0.66	0.20	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Cobalt	1.4	J H H3	3.3	0.061	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Iron	7000	H H3	6.6	3.8	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Lead	2.0	H H3	0.66	0.14	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Lithium	4.2	H H3	3.3	0.20	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Manganese	50	H H3	0.99	0.33	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1
Molybdenum	0.26	J H H3	2.6	0.13	mg/Kg	☼	09/26/23 11:00	10/05/23 13:53	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000	H H3	130	21	mg/Kg	☼	09/27/23 08:00	10/17/23 14:23	10
Arsenic	3.0	H H3	2.0	1.2	mg/Kg	☼	09/27/23 08:00	10/17/23 18:07	3
Cobalt	0.55	J H H3	9.9	0.10	mg/Kg	☼	09/27/23 08:00	10/17/23 18:07	3
Iron	5900	H H3	6.6	5.4	mg/Kg	☼	09/27/23 08:00	10/17/23 16:17	1
Lead	ND	H H3	2.0	0.43	mg/Kg	☼	09/27/23 08:00	10/17/23 18:07	3
Lithium	10	H H3	3.3	0.20	mg/Kg	☼	09/27/23 08:00	10/17/23 16:17	1
Manganese	31	H H3	0.99	0.41	mg/Kg	☼	09/27/23 08:00	10/17/23 16:17	1
Molybdenum	0.12	J H H3	2.6	0.11	mg/Kg	☼	09/27/23 08:00	10/17/23 16:17	1

Method: SW846 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	34000		10	1.6	mg/Kg			10/19/23 14:22	1
Arsenic	10		0.50	0.13	mg/Kg			10/19/23 14:22	1
Cobalt	6.4		2.5	0.023	mg/Kg			10/19/23 14:22	1
Iron	21000		5.0	4.1	mg/Kg			10/19/23 14:22	1
Lead	8.9		0.50	0.11	mg/Kg			10/19/23 14:22	1
Lithium	18		2.5	0.15	mg/Kg			10/19/23 14:22	1
Manganese	590		0.75	0.052	mg/Kg			10/19/23 14:22	1
Molybdenum	0.72	J	2.0	0.082	mg/Kg			10/19/23 14:22	1

Method: SW846 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	47000	H H3	130	21	mg/Kg	☼	09/27/23 08:00	10/17/23 15:16	10
Arsenic	9.2	H H3	1.3	0.79	mg/Kg	☼	09/27/23 08:00	10/17/23 19:03	2
Cobalt	6.7	H H3	6.6	0.068	mg/Kg	☼	09/27/23 08:00	10/17/23 19:03	2
Iron	18000	H H3	6.6	5.4	mg/Kg	☼	09/27/23 08:00	10/17/23 17:16	1
Lead	8.6	H H3	1.3	0.29	mg/Kg	☼	09/27/23 08:00	10/17/23 19:03	2
Lithium	20	H H3	3.3	0.20	mg/Kg	☼	09/27/23 08:00	10/17/23 17:16	1
Manganese	410	H H3	0.99	0.41	mg/Kg	☼	09/27/23 08:00	10/17/23 17:16	1
Molybdenum	1.1	J H H3	2.6	0.11	mg/Kg	☼	09/27/23 08:00	10/17/23 17:16	1

Default Detection Limits

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Method: 6010B SEP - SEP Metals (ICP) - Step 1
Prep: 3010A
SEP: Exchangeable

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Cobalt	2.5	0.045	mg/Kg
Iron	5.0	2.9	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.031	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 2
Prep: 3010A
SEP: Carbonate

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Cobalt	2.5	0.063	mg/Kg
Iron	5.0	2.9	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.28	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 3
Prep: 3010A
SEP: Non-Crystalline

Analyte	RL	MDL	Units
Aluminum	10	2.1	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Cobalt	2.5	0.045	mg/Kg
Iron	5.0	2.9	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.027	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 4
Prep: 3010A
SEP: Metal Hydroxide

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.22	mg/Kg
Cobalt	2.5	0.053	mg/Kg
Iron	5.0	2.9	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.13	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 5
Prep: 3010A

Default Detection Limits

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Method: 6010B SEP - SEP Metals (ICP) - Step 5

Prep: 3010A

SEP: Organic-Bound

Analyte	RL	MDL	Units
Aluminum	30	4.7	mg/Kg
Arsenic	1.5	0.38	mg/Kg
Cobalt	7.5	0.12	mg/Kg
Iron	15	8.8	mg/Kg
Lead	1.5	0.33	mg/Kg
Lithium	7.5	0.44	mg/Kg
Manganese	2.3	0.37	mg/Kg
Molybdenum	6.0	0.25	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 6

SEP: Acid/Sulfide

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.15	mg/Kg
Cobalt	2.5	0.046	mg/Kg
Iron	5.0	2.9	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.25	mg/Kg
Molybdenum	2.0	0.099	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 7

Prep: Residual

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.30	mg/Kg
Cobalt	2.5	0.026	mg/Kg
Iron	5.0	4.1	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.31	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Cobalt	2.5	0.023	mg/Kg
Iron	5.0	4.1	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.052	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B - SEP Metals (ICP) - Total

Prep: Total

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.30	mg/Kg
Cobalt	2.5	0.026	mg/Kg

Default Detection Limits

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Method: 6010B - SEP Metals (ICP) - Total (Continued)

Prep: Total

Analyte	RL	MDL	Units
Iron	5.0	4.1	mg/Kg
Lead	0.50	0.11	mg/Kg
Lithium	2.5	0.15	mg/Kg
Manganese	0.75	0.31	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B - SEP Metals (ICP) - Total

Lab Sample ID: MB 140-77869/9-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 77869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Arsenic	ND		0.50	0.30	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Cobalt	ND		2.5	0.026	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Iron	ND		5.0	4.1	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Lead	ND		0.50	0.11	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Lithium	ND		2.5	0.15	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Manganese	ND		0.75	0.31	mg/Kg		09/27/23 08:00	10/17/23 13:24	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/27/23 08:00	10/17/23 13:24	1

Lab Sample ID: LCS 140-77869/10-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 77869

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Aluminum			100	103		mg/Kg		103	80 - 120		
Arsenic			5.00	5.07		mg/Kg		101	80 - 120		
Cobalt			5.00	5.14		mg/Kg		103	80 - 125		
Iron			50.0	53.7		mg/Kg		107	80 - 120		
Lead			5.00	4.99		mg/Kg		100	80 - 120		
Lithium			5.00	5.08		mg/Kg		102	80 - 120		
Manganese			5.00	5.10		mg/Kg		102	80 - 120		
Molybdenum			25.0	25.5		mg/Kg		102	80 - 125		

Lab Sample ID: LCSD 140-77869/11-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 77869

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum			100	113		mg/Kg		113	80 - 120	9	30
Arsenic			5.00	5.00		mg/Kg		100	80 - 120	1	30
Cobalt			5.00	5.12		mg/Kg		102	80 - 125	0	30
Iron			50.0	53.3		mg/Kg		107	80 - 120	1	30
Lead			5.00	5.01		mg/Kg		100	80 - 120	0	30
Lithium			5.00	5.11		mg/Kg		102	80 - 120	1	30
Manganese			5.00	5.16		mg/Kg		103	80 - 120	1	30
Molybdenum			25.0	25.3		mg/Kg		101	80 - 125	1	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Total/NA
Prep Batch: 77869

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	45000	H H3		43400		mg/Kg	☼			4	30

Method: 6010B - SEP Metals (ICP) - Total (Continued)

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Total/NA
Prep Batch: 77869

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	15000	H H3	13600		mg/Kg	☼	11	30
Lithium	13	H H3	11.5		mg/Kg	☼	14	30
Manganese	240	H H3	228		mg/Kg	☼	6	30
Molybdenum	0.60	J H H3	0.556	J	mg/Kg	☼	8	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Total/NA
Prep Batch: 77869

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	7.7	H H3	7.01		mg/Kg	☼	9	30
Cobalt	5.3	J H H3	4.64	J	mg/Kg	☼	13	30
Lead	7.0	H H3	7.22		mg/Kg	☼	2	30

Method: 6010B SEP - SEP Metals (ICP)

Lab Sample ID: MB 140-77870/9-B ^4
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Method Blank
Prep Type: Step 1
Prep Batch: 77907

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		40	6.4	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Arsenic	ND		2.0	0.52	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Cobalt	ND		10	0.18	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Iron	ND		20	12	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Lead	ND		2.0	0.44	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Lithium	ND		10	0.60	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Manganese	ND		3.0	0.12	mg/Kg		09/20/23 08:00	10/02/23 13:53	4
Molybdenum	ND		8.0	0.33	mg/Kg		09/20/23 08:00	10/02/23 13:53	4

Lab Sample ID: LCS 140-77870/10-B ^5
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 77907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	100		mg/Kg		100	80 - 120
Arsenic	5.00	4.79		mg/Kg		96	80 - 120
Cobalt	5.00	5.01	J	mg/Kg		100	80 - 120
Iron	50.0	49.6		mg/Kg		99	80 - 120
Lead	5.00	5.06		mg/Kg		101	80 - 120
Lithium	5.00	4.77	J	mg/Kg		95	80 - 120
Manganese	5.00	5.19		mg/Kg		104	80 - 120
Molybdenum	25.0	25.0		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 140-77870/11-B ^5
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 1
Prep Batch: 77907

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	100	98.2		mg/Kg		98	80 - 120	2	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-77870/11-B ^5
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 1
Prep Batch: 77907

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	5.00	5.05		mg/Kg		101	80 - 120	5	30
Cobalt	5.00	4.88	J	mg/Kg		98	80 - 120	3	30
Iron	50.0	47.9		mg/Kg		96	80 - 120	3	30
Lead	5.00	4.95		mg/Kg		99	80 - 120	2	30
Lithium	5.00	4.89	J	mg/Kg		98	80 - 120	3	30
Manganese	5.00	5.00		mg/Kg		100	80 - 120	4	30
Molybdenum	25.0	24.3		mg/Kg		97	80 - 120	3	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 1
Prep Batch: 77907

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND	H H3	ND		mg/Kg	☼	NC	30
Arsenic	ND	H H3	ND		mg/Kg	☼	NC	30
Cobalt	ND	H H3	ND		mg/Kg	☼	NC	30
Iron	ND	H H3	ND		mg/Kg	☼	NC	30
Lead	0.59	J H H3	ND		mg/Kg	☼	NC	30
Lithium	ND	H H3	ND		mg/Kg	☼	NC	30
Manganese	10	H H3	8.37		mg/Kg	☼	18	30
Molybdenum	ND	H H3	ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-77916/9-B ^3
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Method Blank
Prep Type: Step 2
Prep Batch: 77970

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		30	4.8	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Arsenic	ND		1.5	0.39	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Cobalt	ND		7.5	0.19	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Iron	ND		15	8.7	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Lead	ND		1.5	0.33	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Lithium	ND		7.5	0.45	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Manganese	ND		2.3	0.84	mg/Kg		09/21/23 08:00	10/02/23 15:02	3
Molybdenum	ND		6.0	0.25	mg/Kg		09/21/23 08:00	10/02/23 15:02	3

Lab Sample ID: LCS 140-77916/10-B ^5
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Lab Control Sample
Prep Type: Step 2
Prep Batch: 77970

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	ND		mg/Kg		4	
Arsenic	5.00	3.61		mg/Kg		72	60 - 120
Cobalt	5.00	4.52	J	mg/Kg		90	80 - 120
Iron	50.0	ND		mg/Kg		3	
Lead	5.00	4.44		mg/Kg		89	70 - 120
Lithium	5.00	4.18	J	mg/Kg		84	80 - 120
Manganese	5.00	4.66		mg/Kg		93	80 - 120
Molybdenum	25.0	20.0		mg/Kg		80	70 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-77916/11-B ^5
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 2
Prep Batch: 77970

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum			100	ND		mg/Kg		-0.3		231	
Arsenic			5.00	3.71		mg/Kg		74	60 - 120	3	30
Cobalt			5.00	4.61	J	mg/Kg		92	80 - 120	2	30
Iron			50.0	ND		mg/Kg		2		30	
Lead			5.00	4.55		mg/Kg		91	70 - 120	2	30
Lithium			5.00	4.54	J	mg/Kg		91	80 - 120	8	30
Manganese			5.00	4.76		mg/Kg		95	80 - 120	2	30
Molybdenum			25.0	20.3		mg/Kg		81	70 - 120	2	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78508

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 2
Prep Batch: 77970

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	23	J H H3		26.4	J	mg/Kg	☼			13	
Arsenic	ND	H H3		ND		mg/Kg	☼			NC	30
Cobalt	ND	H H3		ND		mg/Kg	☼			NC	30
Iron	46	H H3		36.7		mg/Kg	☼			22	
Lead	0.64	J H H3		0.720	J	mg/Kg	☼			11	30
Lithium	ND	H H3		ND		mg/Kg	☼			NC	30
Manganese	46	H H3		47.7		mg/Kg	☼			4	30
Molybdenum	ND	H H3		ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-77990/9-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Method Blank
Prep Type: Step 3
Prep Batch: 78030

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	2.1	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Arsenic	ND		0.50	0.13	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Cobalt	ND		2.5	0.045	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Iron	ND		5.0	2.9	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Lead	ND		0.50	0.11	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Lithium	ND		2.5	0.15	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Manganese	0.0905	J	0.75	0.027	mg/Kg		09/22/23 07:00	10/03/23 10:51	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/22/23 07:00	10/03/23 10:51	1

Lab Sample ID: LCS 140-77990/10-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample
Prep Type: Step 3
Prep Batch: 78030

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Aluminum			100	97.9		mg/Kg		98	80 - 120		
Arsenic			5.00	4.75		mg/Kg		95	80 - 120		
Cobalt			5.00	4.81		mg/Kg		96	80 - 120		
Iron			50.0	50.1		mg/Kg		100	80 - 120		
Lead			5.00	ND		mg/Kg		0.9			
Lithium			5.00	4.84		mg/Kg		97	80 - 120		
Manganese			5.00	4.73		mg/Kg		95	80 - 120		

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-77990/10-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample
Prep Type: Step 3
Prep Batch: 78030

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Molybdenum	25.0	24.0		mg/Kg		96	80 - 120

Lab Sample ID: LCSD 140-77990/11-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 3
Prep Batch: 78030

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	100	98.6		mg/Kg		99	80 - 120	1	30
Arsenic	5.00	4.76		mg/Kg		95	80 - 120	0	30
Cobalt	5.00	4.81		mg/Kg		96	80 - 120	0	30
Iron	50.0	50.0		mg/Kg		100	80 - 120	0	30
Lead	5.00	ND		mg/Kg		1		43	
Lithium	5.00	4.83		mg/Kg		97	80 - 120	0	30
Manganese	5.00	4.74		mg/Kg		95	80 - 120	0	30
Molybdenum	25.0	24.0		mg/Kg		96	80 - 120	0	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 3
Prep Batch: 78030

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	210	H H3	215		mg/Kg	☼	0.1	30
Arsenic	0.75	H H3	0.774		mg/Kg	☼	3	30
Cobalt	0.65	J H H3	0.714	J	mg/Kg	☼	10	30
Iron	870	H H3	827		mg/Kg	☼	5	30
Lead	0.17	J H H3	0.169	J	mg/Kg	☼	1	
Lithium	ND	H H3	0.241	J	mg/Kg	☼	NC	30
Manganese	40	H H3 B	44.2		mg/Kg	☼	9	30
Molybdenum	ND	H H3	ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-78031/9-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Method Blank
Prep Type: Step 4
Prep Batch: 78077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Arsenic	ND		0.50	0.22	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Cobalt	ND		2.5	0.053	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Iron	ND		5.0	2.9	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Lead	ND		0.50	0.11	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Lithium	ND		2.5	0.15	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Manganese	ND		0.75	0.13	mg/Kg		09/25/23 07:00	10/03/23 11:05	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/25/23 07:00	10/03/23 11:05	1

Lab Sample ID: LCS 140-78031/10-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample
Prep Type: Step 4
Prep Batch: 78077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	101		mg/Kg		101	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-78031/10-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample
Prep Type: Step 4
Prep Batch: 78077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	5.00	5.00		mg/Kg		100	80 - 130
Cobalt	5.00	5.06		mg/Kg		101	80 - 120
Iron	50.0	51.2		mg/Kg		102	80 - 120
Lead	5.00	4.94		mg/Kg		99	80 - 120
Lithium	5.00	5.05		mg/Kg		101	80 - 120
Manganese	5.00	4.99		mg/Kg		100	80 - 120
Molybdenum	25.0	25.6		mg/Kg		102	80 - 120

Lab Sample ID: LCSD 140-78031/11-B
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 4
Prep Batch: 78077

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	100	101		mg/Kg		101	80 - 120	1	30
Arsenic	5.00	5.06		mg/Kg		101	80 - 130	1	30
Cobalt	5.00	5.11		mg/Kg		102	80 - 120	1	30
Iron	50.0	51.0		mg/Kg		102	80 - 120	0	30
Lead	5.00	5.05		mg/Kg		101	80 - 120	2	30
Lithium	5.00	5.12		mg/Kg		102	80 - 120	1	30
Manganese	5.00	5.06		mg/Kg		101	80 - 120	1	30
Molybdenum	25.0	26.0		mg/Kg		104	80 - 120	1	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78553

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 4
Prep Batch: 78077

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	1500	H H3	1570		mg/Kg	☼	2	30
Arsenic	1.5	H H3	1.61		mg/Kg	☼	8	30
Cobalt	2.2	J H H3	2.32	J	mg/Kg	☼	5	30
Iron	5100	H H3	5290		mg/Kg	☼	3	30
Lead	3.1	H H3	3.21		mg/Kg	☼	2	30
Lithium	3.0	J H H3	3.04	J	mg/Kg	☼	2	30
Manganese	72	H H3	75.6		mg/Kg	☼	4	30
Molybdenum	0.18	J H H3	0.193	J	mg/Kg	☼	8	30

Lab Sample ID: MB 140-78108/9-B ^5
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Method Blank
Prep Type: Step 5
Prep Batch: 78232

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	24.6	J	150	24	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Arsenic	ND		7.5	1.9	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Cobalt	ND		38	0.60	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Iron	ND		75	44	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Lead	ND		7.5	1.7	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Lithium	ND		38	2.2	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Manganese	ND		11	1.9	mg/Kg		09/27/23 07:00	10/05/23 11:44	5
Molybdenum	ND		30	1.3	mg/Kg		09/27/23 07:00	10/05/23 11:44	5

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-78108/10-B ^5
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Lab Control Sample
Prep Type: Step 5
Prep Batch: 78232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	300	ND		mg/Kg		7	
Arsenic	15.0	10.8		mg/Kg		72	60 - 100
Cobalt	15.0	3.43	J	mg/Kg		23	1 - 60
Iron	150	ND		mg/Kg		0.04	
Lead	15.0	8.66		mg/Kg		58	40 - 80
Lithium	15.0	14.3	J	mg/Kg		96	80 - 150
Manganese	15.0	2.93	J	mg/Kg		20	1 - 60
Molybdenum	75.0	55.3		mg/Kg		74	60 - 100

Lab Sample ID: LCSD 140-78108/11-B ^5
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 5
Prep Batch: 78232

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	300	ND		mg/Kg		6		18	
Arsenic	15.0	10.9		mg/Kg		72	60 - 100	1	30
Cobalt	15.0	3.65	J	mg/Kg		24	1 - 60	6	30
Iron	150	ND		mg/Kg		-0.5		229	
Lead	15.0	7.86		mg/Kg		52	40 - 80	10	30
Lithium	15.0	14.7	J	mg/Kg		98	80 - 150	3	30
Manganese	15.0	3.01	J	mg/Kg		20	1 - 60	3	30
Molybdenum	75.0	56.1		mg/Kg		75	60 - 100	1	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 5
Prep Batch: 78232

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND	H H3	31.1	J	mg/Kg	☼	NC	
Arsenic	ND	H H3	ND		mg/Kg	☼	NC	30
Cobalt	ND	H H3	ND		mg/Kg	☼	NC	30
Iron	ND	H H3	ND		mg/Kg	☼	NC	
Lead	ND	H H3	ND		mg/Kg	☼	NC	30
Lithium	ND	H H3	ND		mg/Kg	☼	NC	30
Manganese	ND	H H3	ND		mg/Kg	☼	NC	30
Molybdenum	ND	H H3	ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-78189/9-A
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Method Blank
Prep Type: Step 6
Prep Batch: 78189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Arsenic	ND		0.50	0.15	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Cobalt	ND		2.5	0.046	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Iron	ND		5.0	2.9	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Lead	ND		0.50	0.11	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Lithium	ND		2.5	0.15	mg/Kg		09/26/23 11:00	10/05/23 12:54	1
Manganese	ND		0.75	0.25	mg/Kg		09/26/23 11:00	10/05/23 12:54	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-78189/9-A
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Method Blank
Prep Type: Step 6
Prep Batch: 78189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.0	0.099	mg/Kg		09/26/23 11:00	10/05/23 12:54	1

Lab Sample ID: LCS 140-78189/10-A
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Lab Control Sample
Prep Type: Step 6
Prep Batch: 78189

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	87.5		mg/Kg		88	80 - 120
Arsenic	5.00	4.65		mg/Kg		93	80 - 120
Cobalt	5.00	4.48		mg/Kg		90	80 - 120
Iron	50.0	44.6		mg/Kg		89	80 - 120
Lead	5.00	4.65		mg/Kg		93	80 - 120
Lithium	5.00	4.53		mg/Kg		91	80 - 120
Manganese	5.00	4.57		mg/Kg		91	80 - 120
Molybdenum	25.0	22.5		mg/Kg		90	80 - 120

Lab Sample ID: LCSD 140-78189/11-A
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 6
Prep Batch: 78189

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	100	95.1		mg/Kg		95	80 - 120	8	30
Arsenic	5.00	4.82		mg/Kg		96	80 - 120	4	30
Cobalt	5.00	4.90		mg/Kg		98	80 - 120	9	30
Iron	50.0	49.4		mg/Kg		99	80 - 120	10	30
Lead	5.00	4.92		mg/Kg		98	80 - 120	6	30
Lithium	5.00	4.82		mg/Kg		96	80 - 120	6	30
Manganese	5.00	5.00		mg/Kg		100	80 - 120	9	30
Molybdenum	25.0	24.3		mg/Kg		97	80 - 120	8	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 78659

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 6
Prep Batch: 78189

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	2900	H H3	2810		mg/Kg	☼	4	30
Arsenic	1.8	H H3	1.78		mg/Kg	☼	3	30
Cobalt	1.1	J H H3	1.07	J	mg/Kg	☼	3	30
Iron	5000	H H3	4830		mg/Kg	☼	3	30
Lead	0.97	H H3	0.965		mg/Kg	☼	0.5	30
Lithium	2.8	J H H3	2.65	J	mg/Kg	☼	7	30
Manganese	47	H H3	46.1		mg/Kg	☼	1	30
Molybdenum	ND	H H3	ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-78222/9-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Method Blank
Prep Type: Step 7
Prep Batch: 78222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/27/23 08:00	10/17/23 13:09	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-78222/9-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Method Blank
Prep Type: Step 7
Prep Batch: 78222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.30	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Cobalt	ND		2.5	0.026	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Iron	ND		5.0	4.1	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Lead	ND		0.50	0.11	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Lithium	ND		2.5	0.15	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Manganese	ND		0.75	0.31	mg/Kg		09/27/23 08:00	10/17/23 13:09	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/27/23 08:00	10/17/23 13:09	1

Lab Sample ID: LCS 140-78222/10-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Lab Control Sample
Prep Type: Step 7
Prep Batch: 78222

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	101		mg/Kg		101	80 - 120
Arsenic	5.00	4.94		mg/Kg		99	80 - 120
Cobalt	5.00	5.08		mg/Kg		102	80 - 125
Iron	50.0	53.1		mg/Kg		106	80 - 120
Lead	5.00	5.00		mg/Kg		100	80 - 120
Lithium	5.00	4.94		mg/Kg		99	80 - 120
Manganese	5.00	5.10		mg/Kg		102	80 - 120
Molybdenum	25.0	25.2		mg/Kg		101	80 - 125

Lab Sample ID: LCSD 140-78222/11-A
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 7
Prep Batch: 78222

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	100	104		mg/Kg		104	80 - 120	3	30
Arsenic	5.00	5.05		mg/Kg		101	80 - 120	2	30
Cobalt	5.00	5.19		mg/Kg		104	80 - 125	2	30
Iron	50.0	54.0		mg/Kg		108	80 - 120	2	30
Lead	5.00	5.07		mg/Kg		101	80 - 120	1	30
Lithium	5.00	5.07		mg/Kg		101	80 - 120	3	30
Manganese	5.00	5.19		mg/Kg		104	80 - 120	2	30
Molybdenum	25.0	25.5		mg/Kg		102	80 - 125	1	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 7
Prep Batch: 78222

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	32000	H H3	31400		mg/Kg	☼	3	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 7
Prep Batch: 78222

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	3200	H H3	3540		mg/Kg	☼	10	30
Lithium	5.5	H H3	5.91		mg/Kg	☼	7	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 7
Prep Batch: 78222

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Manganese	37	H H3		36.9		mg/Kg	☼			1	30
Molybdenum	0.13	J H H3		0.149	J	mg/Kg	☼			10	30

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Analysis Batch: 79123

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Step 7
Prep Batch: 78222

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	2.4	H H3		2.36		mg/Kg	☼			0.2	30
Cobalt	0.32	J H H3		0.319	J	mg/Kg	☼			0.8	30
Lead	1.2	H H3		0.787	J F5	mg/Kg	☼			42	30

Metals

Prep Batch: 77869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Total/NA	Solid	Total	
140-33465-2	MW-217 - 12-13'	Total/NA	Solid	Total	
140-33465-3	MW-218 - 11-12'	Total/NA	Solid	Total	
140-33465-4	MW-219 - 18-20'	Total/NA	Solid	Total	
140-33465-5	MW-222 - 34.5-36'	Total/NA	Solid	Total	
140-33465-6	MW-300 - 11-13'	Total/NA	Solid	Total	
140-33465-7	MW-PB3 - 22-24'	Total/NA	Solid	Total	
MB 140-77869/9-A	Method Blank	Total/NA	Solid	Total	
LCS 140-77869/10-A	Lab Control Sample	Total/NA	Solid	Total	
LCSD 140-77869/11-A	Lab Control Sample Dup	Total/NA	Solid	Total	
140-33465-5 DU	MW-222 - 34.5-36'	Total/NA	Solid	Total	

SEP Batch: 77870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 1	Solid	Exchangeable	
140-33465-2	MW-217 - 12-13'	Step 1	Solid	Exchangeable	
140-33465-3	MW-218 - 11-12'	Step 1	Solid	Exchangeable	
140-33465-4	MW-219 - 18-20'	Step 1	Solid	Exchangeable	
140-33465-5	MW-222 - 34.5-36'	Step 1	Solid	Exchangeable	
140-33465-6	MW-300 - 11-13'	Step 1	Solid	Exchangeable	
140-33465-7	MW-PB3 - 22-24'	Step 1	Solid	Exchangeable	
MB 140-77870/9-B ^4	Method Blank	Step 1	Solid	Exchangeable	
LCS 140-77870/10-B ^5	Lab Control Sample	Step 1	Solid	Exchangeable	
LCSD 140-77870/11-B ^5	Lab Control Sample Dup	Step 1	Solid	Exchangeable	
140-33465-5 DU	MW-222 - 34.5-36'	Step 1	Solid	Exchangeable	

Prep Batch: 77907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 1	Solid	3010A	77870
140-33465-2	MW-217 - 12-13'	Step 1	Solid	3010A	77870
140-33465-3	MW-218 - 11-12'	Step 1	Solid	3010A	77870
140-33465-4	MW-219 - 18-20'	Step 1	Solid	3010A	77870
140-33465-5	MW-222 - 34.5-36'	Step 1	Solid	3010A	77870
140-33465-6	MW-300 - 11-13'	Step 1	Solid	3010A	77870
140-33465-7	MW-PB3 - 22-24'	Step 1	Solid	3010A	77870
MB 140-77870/9-B ^4	Method Blank	Step 1	Solid	3010A	77870
LCS 140-77870/10-B ^5	Lab Control Sample	Step 1	Solid	3010A	77870
LCSD 140-77870/11-B ^5	Lab Control Sample Dup	Step 1	Solid	3010A	77870
140-33465-5 DU	MW-222 - 34.5-36'	Step 1	Solid	3010A	77870

SEP Batch: 77916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 2	Solid	Carbonate	
140-33465-2	MW-217 - 12-13'	Step 2	Solid	Carbonate	
140-33465-3	MW-218 - 11-12'	Step 2	Solid	Carbonate	
140-33465-4	MW-219 - 18-20'	Step 2	Solid	Carbonate	
140-33465-5	MW-222 - 34.5-36'	Step 2	Solid	Carbonate	
140-33465-6	MW-300 - 11-13'	Step 2	Solid	Carbonate	
140-33465-7	MW-PB3 - 22-24'	Step 2	Solid	Carbonate	
MB 140-77916/9-B ^3	Method Blank	Step 2	Solid	Carbonate	
LCS 140-77916/10-B ^5	Lab Control Sample	Step 2	Solid	Carbonate	

Metals (Continued)

SEP Batch: 77916 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 140-77916/11-B ^5	Lab Control Sample Dup	Step 2	Solid	Carbonate	
140-33465-5 DU	MW-222 - 34.5-36'	Step 2	Solid	Carbonate	

Prep Batch: 77970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 2	Solid	3010A	77916
140-33465-2	MW-217 - 12-13'	Step 2	Solid	3010A	77916
140-33465-3	MW-218 - 11-12'	Step 2	Solid	3010A	77916
140-33465-4	MW-219 - 18-20'	Step 2	Solid	3010A	77916
140-33465-5	MW-222 - 34.5-36'	Step 2	Solid	3010A	77916
140-33465-6	MW-300 - 11-13'	Step 2	Solid	3010A	77916
140-33465-7	MW-PB3 - 22-24'	Step 2	Solid	3010A	77916
MB 140-77916/9-B ^3	Method Blank	Step 2	Solid	3010A	77916
LCS 140-77916/10-B ^5	Lab Control Sample	Step 2	Solid	3010A	77916
LCSD 140-77916/11-B ^5	Lab Control Sample Dup	Step 2	Solid	3010A	77916
140-33465-5 DU	MW-222 - 34.5-36'	Step 2	Solid	3010A	77916

SEP Batch: 77990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 3	Solid	Non-Crystalline	
140-33465-2	MW-217 - 12-13'	Step 3	Solid	Non-Crystalline	
140-33465-3	MW-218 - 11-12'	Step 3	Solid	Non-Crystalline	
140-33465-4	MW-219 - 18-20'	Step 3	Solid	Non-Crystalline	
140-33465-5	MW-222 - 34.5-36'	Step 3	Solid	Non-Crystalline	
140-33465-6	MW-300 - 11-13'	Step 3	Solid	Non-Crystalline	
140-33465-7	MW-PB3 - 22-24'	Step 3	Solid	Non-Crystalline	
MB 140-77990/9-B	Method Blank	Step 3	Solid	Non-Crystalline	
LCS 140-77990/10-B	Lab Control Sample	Step 3	Solid	Non-Crystalline	
LCSD 140-77990/11-B	Lab Control Sample Dup	Step 3	Solid	Non-Crystalline	
140-33465-5 DU	MW-222 - 34.5-36'	Step 3	Solid	Non-Crystalline	

Prep Batch: 78030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 3	Solid	3010A	77990
140-33465-2	MW-217 - 12-13'	Step 3	Solid	3010A	77990
140-33465-3	MW-218 - 11-12'	Step 3	Solid	3010A	77990
140-33465-4	MW-219 - 18-20'	Step 3	Solid	3010A	77990
140-33465-5	MW-222 - 34.5-36'	Step 3	Solid	3010A	77990
140-33465-6	MW-300 - 11-13'	Step 3	Solid	3010A	77990
140-33465-7	MW-PB3 - 22-24'	Step 3	Solid	3010A	77990
MB 140-77990/9-B	Method Blank	Step 3	Solid	3010A	77990
LCS 140-77990/10-B	Lab Control Sample	Step 3	Solid	3010A	77990
LCSD 140-77990/11-B	Lab Control Sample Dup	Step 3	Solid	3010A	77990
140-33465-5 DU	MW-222 - 34.5-36'	Step 3	Solid	3010A	77990

SEP Batch: 78031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 4	Solid	Metal Hydroxide	
140-33465-2	MW-217 - 12-13'	Step 4	Solid	Metal Hydroxide	
140-33465-3	MW-218 - 11-12'	Step 4	Solid	Metal Hydroxide	
140-33465-4	MW-219 - 18-20'	Step 4	Solid	Metal Hydroxide	

Metals (Continued)

SEP Batch: 78031 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-5	MW-222 - 34.5-36'	Step 4	Solid	Metal Hydroxide	
140-33465-6	MW-300 - 11-13'	Step 4	Solid	Metal Hydroxide	
140-33465-7	MW-PB3 - 22-24'	Step 4	Solid	Metal Hydroxide	
MB 140-78031/9-B	Method Blank	Step 4	Solid	Metal Hydroxide	
LCS 140-78031/10-B	Lab Control Sample	Step 4	Solid	Metal Hydroxide	
LCSD 140-78031/11-B	Lab Control Sample Dup	Step 4	Solid	Metal Hydroxide	
140-33465-5 DU	MW-222 - 34.5-36'	Step 4	Solid	Metal Hydroxide	

Prep Batch: 78077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 4	Solid	3010A	78031
140-33465-2	MW-217 - 12-13'	Step 4	Solid	3010A	78031
140-33465-3	MW-218 - 11-12'	Step 4	Solid	3010A	78031
140-33465-4	MW-219 - 18-20'	Step 4	Solid	3010A	78031
140-33465-5	MW-222 - 34.5-36'	Step 4	Solid	3010A	78031
140-33465-6	MW-300 - 11-13'	Step 4	Solid	3010A	78031
140-33465-7	MW-PB3 - 22-24'	Step 4	Solid	3010A	78031
MB 140-78031/9-B	Method Blank	Step 4	Solid	3010A	78031
LCS 140-78031/10-B	Lab Control Sample	Step 4	Solid	3010A	78031
LCSD 140-78031/11-B	Lab Control Sample Dup	Step 4	Solid	3010A	78031
140-33465-5 DU	MW-222 - 34.5-36'	Step 4	Solid	3010A	78031

SEP Batch: 78108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 5	Solid	Organic-Bound	
140-33465-2	MW-217 - 12-13'	Step 5	Solid	Organic-Bound	
140-33465-3	MW-218 - 11-12'	Step 5	Solid	Organic-Bound	
140-33465-4	MW-219 - 18-20'	Step 5	Solid	Organic-Bound	
140-33465-5	MW-222 - 34.5-36'	Step 5	Solid	Organic-Bound	
140-33465-6	MW-300 - 11-13'	Step 5	Solid	Organic-Bound	
140-33465-7	MW-PB3 - 22-24'	Step 5	Solid	Organic-Bound	
MB 140-78108/9-B ^5	Method Blank	Step 5	Solid	Organic-Bound	
LCS 140-78108/10-B ^5	Lab Control Sample	Step 5	Solid	Organic-Bound	
LCSD 140-78108/11-B ^5	Lab Control Sample Dup	Step 5	Solid	Organic-Bound	
140-33465-5 DU	MW-222 - 34.5-36'	Step 5	Solid	Organic-Bound	

SEP Batch: 78189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 6	Solid	Acid/Sulfide	
140-33465-2	MW-217 - 12-13'	Step 6	Solid	Acid/Sulfide	
140-33465-3	MW-218 - 11-12'	Step 6	Solid	Acid/Sulfide	
140-33465-4	MW-219 - 18-20'	Step 6	Solid	Acid/Sulfide	
140-33465-5	MW-222 - 34.5-36'	Step 6	Solid	Acid/Sulfide	
140-33465-6	MW-300 - 11-13'	Step 6	Solid	Acid/Sulfide	
140-33465-7	MW-PB3 - 22-24'	Step 6	Solid	Acid/Sulfide	
MB 140-78189/9-A	Method Blank	Step 6	Solid	Acid/Sulfide	
LCS 140-78189/10-A	Lab Control Sample	Step 6	Solid	Acid/Sulfide	
LCSD 140-78189/11-A	Lab Control Sample Dup	Step 6	Solid	Acid/Sulfide	
140-33465-5 DU	MW-222 - 34.5-36'	Step 6	Solid	Acid/Sulfide	

Metals

Prep Batch: 78222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 7	Solid	Residual	
140-33465-2	MW-217 - 12-13'	Step 7	Solid	Residual	
140-33465-3	MW-218 - 11-12'	Step 7	Solid	Residual	
140-33465-4	MW-219 - 18-20'	Step 7	Solid	Residual	
140-33465-5	MW-222 - 34.5-36'	Step 7	Solid	Residual	
140-33465-6	MW-300 - 11-13'	Step 7	Solid	Residual	
140-33465-7	MW-PB3 - 22-24'	Step 7	Solid	Residual	
MB 140-78222/9-A	Method Blank	Step 7	Solid	Residual	
LCS 140-78222/10-A	Lab Control Sample	Step 7	Solid	Residual	
LCSD 140-78222/11-A	Lab Control Sample Dup	Step 7	Solid	Residual	
140-33465-5 DU	MW-222 - 34.5-36'	Step 7	Solid	Residual	

Prep Batch: 78232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 5	Solid	3010A	78108
140-33465-2	MW-217 - 12-13'	Step 5	Solid	3010A	78108
140-33465-3	MW-218 - 11-12'	Step 5	Solid	3010A	78108
140-33465-4	MW-219 - 18-20'	Step 5	Solid	3010A	78108
140-33465-5	MW-222 - 34.5-36'	Step 5	Solid	3010A	78108
140-33465-6	MW-300 - 11-13'	Step 5	Solid	3010A	78108
140-33465-7	MW-PB3 - 22-24'	Step 5	Solid	3010A	78108
MB 140-78108/9-B ^5	Method Blank	Step 5	Solid	3010A	78108
LCS 140-78108/10-B ^5	Lab Control Sample	Step 5	Solid	3010A	78108
LCSD 140-78108/11-B ^5	Lab Control Sample Dup	Step 5	Solid	3010A	78108
140-33465-5 DU	MW-222 - 34.5-36'	Step 5	Solid	3010A	78108

Analysis Batch: 78508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 1	Solid	6010B SEP	77907
140-33465-1	MW-215 -16-18'	Step 2	Solid	6010B SEP	77970
140-33465-2	MW-217 - 12-13'	Step 1	Solid	6010B SEP	77907
140-33465-2	MW-217 - 12-13'	Step 2	Solid	6010B SEP	77970
140-33465-3	MW-218 - 11-12'	Step 1	Solid	6010B SEP	77907
140-33465-3	MW-218 - 11-12'	Step 2	Solid	6010B SEP	77970
140-33465-4	MW-219 - 18-20'	Step 1	Solid	6010B SEP	77907
140-33465-4	MW-219 - 18-20'	Step 2	Solid	6010B SEP	77970
140-33465-5	MW-222 - 34.5-36'	Step 1	Solid	6010B SEP	77907
140-33465-5	MW-222 - 34.5-36'	Step 2	Solid	6010B SEP	77970
140-33465-6	MW-300 - 11-13'	Step 1	Solid	6010B SEP	77907
140-33465-6	MW-300 - 11-13'	Step 2	Solid	6010B SEP	77970
140-33465-7	MW-PB3 - 22-24'	Step 1	Solid	6010B SEP	77907
140-33465-7	MW-PB3 - 22-24'	Step 2	Solid	6010B SEP	77970
MB 140-77870/9-B ^4	Method Blank	Step 1	Solid	6010B SEP	77907
MB 140-77916/9-B ^3	Method Blank	Step 2	Solid	6010B SEP	77970
LCS 140-77870/10-B ^5	Lab Control Sample	Step 1	Solid	6010B SEP	77907
LCS 140-77916/10-B ^5	Lab Control Sample	Step 2	Solid	6010B SEP	77970
LCSD 140-77870/11-B ^5	Lab Control Sample Dup	Step 1	Solid	6010B SEP	77907
LCSD 140-77916/11-B ^5	Lab Control Sample Dup	Step 2	Solid	6010B SEP	77970
140-33465-5 DU	MW-222 - 34.5-36'	Step 1	Solid	6010B SEP	77907
140-33465-5 DU	MW-222 - 34.5-36'	Step 2	Solid	6010B SEP	77970

Metals

Analysis Batch: 78553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 3	Solid	6010B SEP	78030
140-33465-1	MW-215 -16-18'	Step 4	Solid	6010B SEP	78077
140-33465-2	MW-217 - 12-13'	Step 3	Solid	6010B SEP	78030
140-33465-2	MW-217 - 12-13'	Step 4	Solid	6010B SEP	78077
140-33465-3	MW-218 - 11-12'	Step 3	Solid	6010B SEP	78030
140-33465-3	MW-218 - 11-12'	Step 4	Solid	6010B SEP	78077
140-33465-4	MW-219 - 18-20'	Step 3	Solid	6010B SEP	78030
140-33465-4	MW-219 - 18-20'	Step 4	Solid	6010B SEP	78077
140-33465-5	MW-222 - 34.5-36'	Step 3	Solid	6010B SEP	78030
140-33465-5	MW-222 - 34.5-36'	Step 4	Solid	6010B SEP	78077
140-33465-6	MW-300 - 11-13'	Step 3	Solid	6010B SEP	78030
140-33465-6	MW-300 - 11-13'	Step 4	Solid	6010B SEP	78077
140-33465-7	MW-PB3 - 22-24'	Step 3	Solid	6010B SEP	78030
140-33465-7	MW-PB3 - 22-24'	Step 4	Solid	6010B SEP	78077
MB 140-77990/9-B	Method Blank	Step 3	Solid	6010B SEP	78030
MB 140-78031/9-B	Method Blank	Step 4	Solid	6010B SEP	78077
LCS 140-77990/10-B	Lab Control Sample	Step 3	Solid	6010B SEP	78030
LCS 140-78031/10-B	Lab Control Sample	Step 4	Solid	6010B SEP	78077
LCSD 140-77990/11-B	Lab Control Sample Dup	Step 3	Solid	6010B SEP	78030
LCSD 140-78031/11-B	Lab Control Sample Dup	Step 4	Solid	6010B SEP	78077
140-33465-5 DU	MW-222 - 34.5-36'	Step 3	Solid	6010B SEP	78030
140-33465-5 DU	MW-222 - 34.5-36'	Step 4	Solid	6010B SEP	78077

Analysis Batch: 78659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 5	Solid	6010B SEP	78232
140-33465-1	MW-215 -16-18'	Step 6	Solid	6010B SEP	78189
140-33465-2	MW-217 - 12-13'	Step 5	Solid	6010B SEP	78232
140-33465-2	MW-217 - 12-13'	Step 6	Solid	6010B SEP	78189
140-33465-3	MW-218 - 11-12'	Step 5	Solid	6010B SEP	78232
140-33465-3	MW-218 - 11-12'	Step 6	Solid	6010B SEP	78189
140-33465-4	MW-219 - 18-20'	Step 5	Solid	6010B SEP	78232
140-33465-4	MW-219 - 18-20'	Step 6	Solid	6010B SEP	78189
140-33465-5	MW-222 - 34.5-36'	Step 5	Solid	6010B SEP	78232
140-33465-5	MW-222 - 34.5-36'	Step 6	Solid	6010B SEP	78189
140-33465-6	MW-300 - 11-13'	Step 5	Solid	6010B SEP	78232
140-33465-6	MW-300 - 11-13'	Step 6	Solid	6010B SEP	78189
140-33465-7	MW-PB3 - 22-24'	Step 5	Solid	6010B SEP	78232
140-33465-7	MW-PB3 - 22-24'	Step 6	Solid	6010B SEP	78189
MB 140-78108/9-B ^5	Method Blank	Step 5	Solid	6010B SEP	78232
MB 140-78189/9-A	Method Blank	Step 6	Solid	6010B SEP	78189
LCS 140-78108/10-B ^5	Lab Control Sample	Step 5	Solid	6010B SEP	78232
LCS 140-78189/10-A	Lab Control Sample	Step 6	Solid	6010B SEP	78189
LCSD 140-78108/11-B ^5	Lab Control Sample Dup	Step 5	Solid	6010B SEP	78232
LCSD 140-78189/11-A	Lab Control Sample Dup	Step 6	Solid	6010B SEP	78189
140-33465-5 DU	MW-222 - 34.5-36'	Step 5	Solid	6010B SEP	78232
140-33465-5 DU	MW-222 - 34.5-36'	Step 6	Solid	6010B SEP	78189

Analysis Batch: 79123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 7	Solid	6010B SEP	78222

Metals (Continued)

Analysis Batch: 79123 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Step 7	Solid	6010B SEP	78222
140-33465-1	MW-215 -16-18'	Step 7	Solid	6010B SEP	78222
140-33465-1	MW-215 -16-18'	Total/NA	Solid	6010B	77869
140-33465-1	MW-215 -16-18'	Total/NA	Solid	6010B	77869
140-33465-1	MW-215 -16-18'	Total/NA	Solid	6010B	77869
140-33465-2	MW-217 - 12-13'	Step 7	Solid	6010B SEP	78222
140-33465-2	MW-217 - 12-13'	Step 7	Solid	6010B SEP	78222
140-33465-2	MW-217 - 12-13'	Step 7	Solid	6010B SEP	78222
140-33465-2	MW-217 - 12-13'	Total/NA	Solid	6010B	77869
140-33465-2	MW-217 - 12-13'	Total/NA	Solid	6010B	77869
140-33465-2	MW-217 - 12-13'	Total/NA	Solid	6010B	77869
140-33465-3	MW-218 - 11-12'	Step 7	Solid	6010B SEP	78222
140-33465-3	MW-218 - 11-12'	Step 7	Solid	6010B SEP	78222
140-33465-3	MW-218 - 11-12'	Step 7	Solid	6010B SEP	78222
140-33465-3	MW-218 - 11-12'	Total/NA	Solid	6010B	77869
140-33465-3	MW-218 - 11-12'	Total/NA	Solid	6010B	77869
140-33465-3	MW-218 - 11-12'	Total/NA	Solid	6010B	77869
140-33465-4	MW-219 - 18-20'	Step 7	Solid	6010B SEP	78222
140-33465-4	MW-219 - 18-20'	Step 7	Solid	6010B SEP	78222
140-33465-4	MW-219 - 18-20'	Step 7	Solid	6010B SEP	78222
140-33465-4	MW-219 - 18-20'	Total/NA	Solid	6010B	77869
140-33465-4	MW-219 - 18-20'	Total/NA	Solid	6010B	77869
140-33465-4	MW-219 - 18-20'	Total/NA	Solid	6010B	77869
140-33465-5	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869
140-33465-5	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869
140-33465-5	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869
140-33465-6	MW-300 - 11-13'	Step 7	Solid	6010B SEP	78222
140-33465-6	MW-300 - 11-13'	Step 7	Solid	6010B SEP	78222
140-33465-6	MW-300 - 11-13'	Step 7	Solid	6010B SEP	78222
140-33465-6	MW-300 - 11-13'	Total/NA	Solid	6010B	77869
140-33465-6	MW-300 - 11-13'	Total/NA	Solid	6010B	77869
140-33465-6	MW-300 - 11-13'	Total/NA	Solid	6010B	77869
140-33465-7	MW-PB3 - 22-24'	Step 7	Solid	6010B SEP	78222
140-33465-7	MW-PB3 - 22-24'	Step 7	Solid	6010B SEP	78222
140-33465-7	MW-PB3 - 22-24'	Step 7	Solid	6010B SEP	78222
140-33465-7	MW-PB3 - 22-24'	Total/NA	Solid	6010B	77869
140-33465-7	MW-PB3 - 22-24'	Total/NA	Solid	6010B	77869
140-33465-7	MW-PB3 - 22-24'	Total/NA	Solid	6010B	77869
MB 140-77869/9-A	Method Blank	Total/NA	Solid	6010B	77869
MB 140-78222/9-A	Method Blank	Step 7	Solid	6010B SEP	78222
LCS 140-77869/10-A	Lab Control Sample	Total/NA	Solid	6010B	77869
LCS 140-78222/10-A	Lab Control Sample	Step 7	Solid	6010B SEP	78222
LCSD 140-77869/11-A	Lab Control Sample Dup	Total/NA	Solid	6010B	77869
LCSD 140-78222/11-A	Lab Control Sample Dup	Step 7	Solid	6010B SEP	78222
140-33465-5 DU	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5 DU	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5 DU	MW-222 - 34.5-36'	Step 7	Solid	6010B SEP	78222
140-33465-5 DU	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869

Metals (Continued)

Analysis Batch: 79123 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-5 DU	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869
140-33465-5 DU	MW-222 - 34.5-36'	Total/NA	Solid	6010B	77869

Analysis Batch: 79252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-2	MW-217 - 12-13'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-3	MW-218 - 11-12'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-4	MW-219 - 18-20'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-5	MW-222 - 34.5-36'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-6	MW-300 - 11-13'	Sum of Steps 1-7	Solid	6010B SEP	
140-33465-7	MW-PB3 - 22-24'	Sum of Steps 1-7	Solid	6010B SEP	

General Chemistry

Analysis Batch: 78525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-33465-1	MW-215 -16-18'	Total/NA	Solid	Moisture	
140-33465-2	MW-217 - 12-13'	Total/NA	Solid	Moisture	
140-33465-3	MW-218 - 11-12'	Total/NA	Solid	Moisture	
140-33465-4	MW-219 - 18-20'	Total/NA	Solid	Moisture	
140-33465-5	MW-222 - 34.5-36'	Total/NA	Solid	Moisture	
140-33465-6	MW-300 - 11-13'	Total/NA	Solid	Moisture	
140-33465-7	MW-PB3 - 22-24'	Total/NA	Solid	Moisture	

Client Sample ID: MW-215 -16-18'
Lab Sample ID: 140-33465-1
Date Collected: 02/06/23 08:00
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-215 -16-18'
Lab Sample ID: 140-33465-1
Date Collected: 02/06/23 08:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 14:33	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:22	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:27	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:08	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:17	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:19	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:14	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 11:59	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:09	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 13:39	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-215 -16-18'

Lab Sample ID: 140-33465-1
Date Collected: 02/06/23 08:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 15:25	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:33	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-217 - 12-13'

Lab Sample ID: 140-33465-2
Date Collected: 02/08/23 09:00
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-217 - 12-13'

Lab Sample ID: 140-33465-2
Date Collected: 02/08/23 09:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 14:37	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:28	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:32	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:13	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:22	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:25	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-217 - 12-13'
Lab Sample ID: 140-33465-2
Date Collected: 02/08/23 09:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:19	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:04	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:14	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 13:44	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 15:31	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:38	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-218 - 11-12'
Lab Sample ID: 140-33465-3
Date Collected: 02/08/23 10:30
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-218 - 11-12'
Lab Sample ID: 140-33465-3
Date Collected: 02/08/23 10:30
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 14:42	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:33	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:37	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: MW-218 - 11-12'

Lab Sample ID: 140-33465-3
Date Collected: 02/08/23 10:30
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:18	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:27	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:30	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:24	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:09	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:19	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 13:49	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 15:36	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:43	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-219 - 18-20'

Lab Sample ID: 140-33465-4
Date Collected: 02/08/23 13:00
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: MW-219 - 18-20'

Date Collected: 02/08/23 13:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-4

Matrix: Solid
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 14:47	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:39	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:42	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:23	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:32	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:35	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:29	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:14	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:24	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 13:54	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 15:41	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:48	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-222 - 34.5-36'

Lab Sample ID: 140-33465-5
Date Collected: 02/09/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-222 - 34.5-36'

Lab Sample ID: 140-33465-5
Date Collected: 02/09/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 14:52	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:45	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:47	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:28	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:37	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:49	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:33	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:19	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:28	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 14:08	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-222 - 34.5-36'
Lab Sample ID: 140-33465-5
Date Collected: 02/09/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 15:46	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:53	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-300 - 11-13'
Lab Sample ID: 140-33465-6
Date Collected: 02/09/23 12:30
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-300 - 11-13'
Lab Sample ID: 140-33465-6
Date Collected: 02/09/23 12:30
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 15:11	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 17:10	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:58	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:52	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:57	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:59	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Client Sample ID: MW-300 - 11-13'
Lab Sample ID: 140-33465-6
Date Collected: 02/09/23 12:30
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:53	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:44	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:48	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 14:18	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 16:12	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		3			79123	10/17/23 18:02	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-PB3 - 22-24'
Lab Sample ID: 140-33465-7
Date Collected: 02/10/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			79252	10/19/23 14:22	KNC	EET KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			78525	10/03/23 09:14	ACW	EET KNX
	Instrument ID: NOEQUIP									

Client Sample ID: MW-PB3 - 22-24'
Lab Sample ID: 140-33465-7
Date Collected: 02/10/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 15:16	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 17:16	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 19:03	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: MW-PB3 - 22-24'

Lab Sample ID: 140-33465-7

Date Collected: 02/10/23 10:00
Matrix: Solid
Date Received: 09/12/23 14:00
Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:57	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 16:02	KNC	EET KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 12:04	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:58	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:49	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:53	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 14:23	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 16:17	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		3			79123	10/17/23 18:07	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-77869/9-A

Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 13:24	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-77870/9-B ^4
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 13:53	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-77916/9-B ^3
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:02	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-77990/9-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 10:51	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-78031/9-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 11:05	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-78108/9-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 11:44	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-78189/9-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 12:54	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-78222/9-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 13:09	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-77869/10-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 13:29	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-77870/10-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		5			78508	10/02/23 13:58	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-77916/10-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		5			78508	10/02/23 15:07	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-77990/10-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 10:56	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-78031/10-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 11:10	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-78108/10-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 11:49	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-78189/10-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 12:59	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-78222/10-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 13:15	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-77869/11-A
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 13:34	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-77870/11-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		5			78508	10/02/23 14:03	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-77916/11-B ^5
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		5			78508	10/02/23 15:12	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-77990/11-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:00	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-78031/11-B
Date Collected: N/A
Matrix: Solid
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 11:15	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-78108/11-B ^5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 11:54	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-78189/11-A
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:04	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-78222/11-A
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 13:19	KNC	EET KNX
	Instrument ID: DUO									

Client Sample ID: MW-222 - 34.5-36'
Date Collected: 02/09/23 10:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-5 DU
Matrix: Solid
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		10			79123	10/17/23 15:06	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		1			79123	10/17/23 16:50	KNC	EET KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	77869	09/27/23 08:00	JDM	EET KNX
Total/NA	Analysis	6010B		2			79123	10/17/23 18:53	KNC	EET KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	77870	09/19/23 08:00	JDM	EET KNX
Step 1	Prep	3010A			5 mL	50 mL	77907	09/20/23 08:00	JDM	EET KNX
Step 1	Analysis	6010B SEP		4			78508	10/02/23 14:32	KNC	EET KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	77916	09/20/23 07:00	JDM	EET KNX
Step 2	Prep	3010A			5 mL	50 mL	77970	09/21/23 08:00	JDM	EET KNX
Step 2	Analysis	6010B SEP		3			78508	10/02/23 15:52	KNC	EET KNX
	Instrument ID: DUO									

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stanton Station MNA

Job ID: 140-33465-1

Client Sample ID: MW-222 - 34.5-36'

Date Collected: 02/09/23 10:00
Date Received: 09/12/23 14:00

Lab Sample ID: 140-33465-5 DU

Matrix: Solid
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	77990	09/21/23 07:00	JDM	EET KNX
Step 3	Prep	3010A			5 mL	50 mL	78030	09/22/23 07:00	JDM	EET KNX
Step 3	Analysis	6010B SEP		1			78553	10/03/23 11:54	KNC	EET KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	78031	09/22/23 07:00	JDM	EET KNX
Step 4	Prep	3010A			5 mL	50 mL	78077	09/25/23 07:00	JDM	EET KNX
Step 4	Analysis	6010B SEP		1			78553	10/03/23 12:48	KNC	EET KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	78108	09/25/23 07:30	JDM	EET KNX
Step 5	Prep	3010A			5 mL	50 mL	78232	09/27/23 07:00	JDM	EET KNX
Step 5	Analysis	6010B SEP		5			78659	10/05/23 12:24	KNC	EET KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	78189	09/26/23 11:00	JDM	EET KNX
Step 6	Analysis	6010B SEP		1			78659	10/05/23 13:43	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		10			79123	10/17/23 14:13	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		1			79123	10/17/23 16:06	KNC	EET KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	78222	09/27/23 08:00	JDM	EET KNX
Step 7	Analysis	6010B SEP		2			79123	10/17/23 17:58	KNC	EET KNX
	Instrument ID: DUO									

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Laboratory: Eurofins Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-24
Colorado	State	TN00009	02-29-24
Connecticut	State	PH-0223	09-30-25
Florida	NELAP	E87177	06-30-24
Georgia (DW)	State	906	07-27-25
Hawaii	State	NA	07-27-24
Kansas	NELAP	E-10349	10-31-23
Kentucky (DW)	State	90101	12-31-23
Louisiana (All)	NELAP	83979	06-30-24
Louisiana (DW)	State	LA019	12-31-23
Maryland	State	277	03-31-24
Michigan	State	9933	07-27-25
Nevada	State	TN00009	07-31-24
New Hampshire	NELAP	2999	01-17-24
New Jersey	NELAP	TN001	07-01-24
New York	NELAP	10781	03-31-24
North Carolina (DW)	State	21705	07-31-24
North Carolina (WW/SW)	State	64	12-31-23
Oklahoma	State	9415	12-31-23
Oregon	NELAP	TNI0189	01-01-24
Pennsylvania	NELAP	68-00576	12-01-23
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-23-18	08-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	525-22-279-18762	10-06-25
Utah	NELAP	TN00009	07-31-24
Virginia	NELAP	460176	09-14-24
Washington	State	C593	01-19-24
West Virginia (DW)	State	9955C	12-31-23
West Virginia DEP	State	345	04-30-24
Wisconsin	State	998044300	08-31-24

Method Summary

Client: WSP USA Inc
Job ID: 140-33465-1
Project/Site: GRE Stanton Station MNA

Method	Method Description	Protocol	Laboratory
6010B	SEP Metals (ICP) - Total	SW846	EET KNX
6010B SEP	SEP Metals (ICP)	SW846	EET KNX
Moisture	Percent Moisture	EPA	EET KNX
3010A	Preparation, Total Metals	SW846	EET KNX
Acid/Sulfide	Sequential Extraction Procedure, Acid/Sulfide Fraction	TAL-KNOX	EET KNX
Carbonate	Sequential Extraction Procedure, Carbonate Fraction	TAL-KNOX	EET KNX
Exchangeable	Sequential Extraction Procedure, Exchangeable Fraction	TAL-KNOX	EET KNX
Metal Hydroxide	Sequential Extraction Procedure, Metal Hydroxide Fraction	TAL-KNOX	EET KNX
Non-Crystalline	Sequential Extraction Procedure, Non-crystalline Materials	TAL-KNOX	EET KNX
Organic-Bound	Sequential Extraction Procedure, Organic Bound Fraction	TAL-KNOX	EET KNX
Residual	Sequential Extraction Procedure, Residual Fraction	TAL-KNOX	EET KNX
Total	Preparation, Total Material	TAL-KNOX	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-KNOX = TestAmerica Laboratories, Knoxville, Facility Standard Operating Procedure.

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

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Client Information	Sampler: Kevin Cernik	Lab PM: Henry, Ryan	Carrier Tracking No(s):	COC No: 140-12512-3394.1
Client Contact: Ms. Erin Hunter	Phone: 303-980-0540	E-Mail: WilliamR.Henry@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: WSP USA Inc	PWSID:			Job #:
Address: 7245 W Alaska Drive Suite 200	Due Date Requested:			
City: Lakewood	TAT Requested (days):			
State, Zip: CO, 80226	Compliance Project: Δ Yes X No			
Phone: 720-962-3424(Tel)	PO #: Purchase Order not required			
Email: erin.hunter@wsp.com	WO #: GL21509219.000, task 01.EXP			
Project Name: GRE Stanton Station MNA	Project #: 14006675			
Site: Stanton Station, Stanton, ND	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010B_SEP - 7-Step SEP	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW-215 - 16-18'	2/6/2023	8:00	C	S	N	N	X		
MW-217 - 12-13'	2/8/2023	9:00	C	S	N	N	X		
MW-218 - 11-12'	2/8/2023	10:30	C	S	N	N	X		Custody Seal Intact
MW-219 - 18-20'	2/8/2023	13:00	C	S	N	N	X		Received Ambient
MW-222 - 31.5-36'	2/9/2023	10:00	C	S	N	N	X		RT: 22.0 / CT: 21.9°C
MW-300 - 11-13'	2/9/2023	12:30	C	S	N	N	X		OH 9/12/23
MW-PB3 - 22-24'	2/10/2023	10:00	C	S	N	N	X		1 Cooler FedEx G
									7733 5145 1587

140-33465 Chain of Custody

Possible Hazard Identification
X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client X Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Please proceed w/ out of hold time analysis & out of temperature.

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: FedEX

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Erin Hunter	9/8/2023 11:00am	WSP USA Inc	Dean Heckin	9/12/23 14:00	ETA KNX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 1287687 | Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Loc: 140
33465

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ **Containers, Broken**
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	✓			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC76 Correction factor: -0.1°C			✓	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	✓			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	✓			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	✓			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	✓			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?	✓			☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	✓			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	✓			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	✓			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?		✓		☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			✓	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

15

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: 14006675 PM Instructions:

Sample Receiving Associate: Chris Rickman Date: 9-12-23

QA026R32.doc, 062719

10/20/2023

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ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Erin Hunter
WSP USA Inc
7245 W Alaska Drive
Suite 200
Lakewood, Colorado 80226

Generated 10/6/2023 4:04:45 PM

JOB DESCRIPTION

GRE Stantion Station MNA

JOB NUMBER

280-181324-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization

Generated
10/6/2023 4:04:45 PM

Authorized for release by
Megan McElheny, Project Manager I
Megan.Mcelheny@et.eurofinsus.com
(303)736-0100

Table of Contents

Job ID: 280-181324-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: WSP USA Inc

Project: GRE Stantion Station MNA

Report Number: 280-181324-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/11/2023 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 18.6º C.

Receipt Exceptions

Denver methods and Houston methods requested, only one container provided for each sample. Sample splitting required. MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15).

The following samples were received at the laboratory outside the required temperature criteria: 18.6°C corrected. MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15). This does not meet regulatory requirements. Special instructions say to proceed whether out of hold or out of temperature.

Waybill damaged during unpacking, unable to scan in as a document. The tracking number is: 7733 5138 7210. MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15).

METALS (ICP)

Samples MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15) were analyzed for Metals (ICP) in accordance with 6010D. The samples were prepared on 09/20/2023 and analyzed on 09/20/2023 and 09/21/2023.

The following samples were received outside of holding time: MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218

Job ID: 280-181324-1 (Continued)

Laboratory: Eurofins Denver (Continued)

- 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15).

The following sample was diluted due to the nature of the sample matrix: MW-212(B) - 0-5' (280-181324-11). Elevated reporting limits (RLs) are provided.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 09/16/2023, 09/18/2023 and 09/19/2023.

Samples MW-300 - 11-13' (280-181324-6)[2X], MW-PB3 - 22-24' (280-181324-7)[2X], MW-212(A) - 14-25' (280-181324-10)[2X], MW-212(B) - 0-5' (280-181324-11)[10X], MW-213 - 20-30' (280-181324-12)[2X], BH-1 - 2-5' (280-181324-14)[2X] and TW-2R2 - 50-94' (280-181324-15) [5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The matrix spike (MS) recoveries for Total Organic Carbon were outside control limits in analytical batch 626583. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The following samples in batch 626706 were analyzed outside of the holding time due client requesting this method after holding time had expired. MW-215 - 16-18' (280-181324-1), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5) and MW-211(B) - 14-25' (280-181324-9).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CATION EXCHANGE CAPACITY

Samples MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15) were analyzed for Cation Exchange Capacity in accordance with a calculated method. The samples were prepared on 09/25/2023 and analyzed on 09/27/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples MW-215 - 16-18' (280-181324-1), MW-217 - 12-13' (280-181324-2), MW-218 - 11-12' (280-181324-3), MW-219 - 18-20' (280-181324-4), MW-222 - 34.5-36' (280-181324-5), MW-300 - 11-13' (280-181324-6), MW-PB3 - 22-24' (280-181324-7), MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 09/14/2023.

The following samples were received outside of holding time: MW-210 - 15-25' (280-181324-8), MW-211(B) - 14-25' (280-181324-9), MW-212(A) - 14-25' (280-181324-10), MW-212(B) - 0-5' (280-181324-11), MW-213 - 20-30' (280-181324-12), MW-214 - 2-15' (280-181324-13), BH-1 - 2-5' (280-181324-14) and TW-2R2 - 50-94' (280-181324-15).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: MW-215 - 16-18' — Lab Sample ID: 280-181324-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	190	H H3	54	13	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	2500	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	8.4		0.61	0.61	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-217 - 12-13' — Lab Sample ID: 280-181324-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	100	H H3	47	12	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	7900	H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	4.4		0.52	0.52	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-218 - 11-12' — Lab Sample ID: 280-181324-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	150	H H3	54	13	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	2700	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	5.7		0.60	0.60	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-219 - 18-20' — Lab Sample ID: 280-181324-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	350	H H3	51	13	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	1700	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	26		0.61	0.61	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-222 - 34.5-36' — Lab Sample ID: 280-181324-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	1300	H H3	59	14	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	1900	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	18		0.59	0.59	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-300 - 11-13' — Lab Sample ID: 280-181324-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	130	H H3	48	12	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	9200	H H3	8000	1800	mg/Kg	2	☼	9060A	Total/NA
Cation Exchange Capacity	12		0.58	0.58	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-PB3 - 22-24' — Lab Sample ID: 280-181324-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	260	H H3	64	16	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	28000	H H3	8000	1800	mg/Kg	2	☼	9060A	Total/NA
Cation Exchange Capacity	50		0.68	0.68	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-210 - 15-25' — Lab Sample ID: 280-181324-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	74	H H3	50	12	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	990	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	4.4		0.59	0.59	meq/100gm	1	☼	9081	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: MW-211(B) - 14-25' — Lab Sample ID: 280-181324-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	390	H H3	56	14	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	1900	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	13		0.59	0.59	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-212(A) - 14-25' — Lab Sample ID: 280-181324-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	150	H H3	48	12	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	9000	H H3	8000	1800	mg/Kg	2	☼	9060A	Total/NA
Cation Exchange Capacity	24		0.58	0.58	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-212(B) - 0-5' — Lab Sample ID: 280-181324-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	1100	H H3	290	71	mg/Kg	5	☼	6010D	Total/NA
Total Organic Carbon	1500000	H H3	40000	9000	mg/Kg	10	☼	9060A	Total/NA
Cation Exchange Capacity	150		0.60	0.60	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-213 - 20-30' — Lab Sample ID: 280-181324-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	180	H H3	49	12	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	8000	H H3	8000	1800	mg/Kg	2	☼	9060A	Total/NA
Cation Exchange Capacity	3.6		0.59	0.59	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: MW-214 - 2-15' — Lab Sample ID: 280-181324-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	200	H H3	53	13	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	2400	J H H3	4000	900	mg/Kg	1	☼	9060A	Total/NA
Cation Exchange Capacity	12		0.64	0.64	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: BH-1 - 2-5' — Lab Sample ID: 280-181324-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	47000	H H3	5300	1300	mg/Kg	100	☼	6010D	Total/NA
Total Organic Carbon	28000	H H3	8000	1800	mg/Kg	2	☼	9060A	Total/NA
Cation Exchange Capacity	21		0.55	0.55	meq/100gm	1	☼	9081	Total/NA

Client Sample ID: TW-2R2 - 50-94' — Lab Sample ID: 280-181324-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	3200	H H3	60	15	mg/Kg	1	☼	6010D	Total/NA
Total Organic Carbon	360000	H H3 F1	20000	4500	mg/Kg	5	☼	9060A	Total/NA
Cation Exchange Capacity	73		0.60	0.60	meq/100gm	1	☼	9081	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET HOU
9060A	Organic Carbon, Total (TOC)	SW846	EET DEN
9081	Cation Exchange Capacity (CEC)	SW846	EET HOU
D 2216	Percent Moisture	ASTM	EET DEN
3051A	Preparation, Metals, Microwave Assisted	SW846	EET HOU
9081	Cation Exchange Capacity (CEC)	SW846	EET HOU

Protocol References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-181324-1	MW-215 - 16-18'	Solid	02/06/23 08:00	09/11/23 13:30
280-181324-2	MW-217 - 12-13'	Solid	02/08/23 09:00	09/11/23 13:30
280-181324-3	MW-218 - 11-12'	Solid	02/08/23 10:30	09/11/23 13:30
280-181324-4	MW-219 - 18-20'	Solid	02/08/23 13:00	09/11/23 13:30
280-181324-5	MW-222 - 34.5-36'	Solid	02/09/23 10:00	09/11/23 13:30
280-181324-6	MW-300 - 11-13'	Solid	02/09/23 12:30	09/11/23 13:30
280-181324-7	MW-PB3 - 22-24'	Solid	02/10/23 10:00	09/11/23 13:30
280-181324-8	MW-210 - 15-25'	Solid	05/15/22 13:00	09/11/23 13:30
280-181324-9	MW-211(B) - 14-25'	Solid	05/15/22 11:35	09/11/23 13:30
280-181324-10	MW-212(A) - 14-25'	Solid	05/16/22 08:00	09/11/23 13:30
280-181324-11	MW-212(B) - 0-5'	Solid	05/16/22 07:35	09/11/23 13:30
280-181324-12	MW-213 - 20-30'	Solid	05/16/22 11:00	09/11/23 13:30
280-181324-13	MW-214 - 2-15'	Solid	05/16/22 13:00	09/11/23 13:30
280-181324-14	BH-1 - 2-5'	Solid	05/16/22 15:00	09/11/23 13:30
280-181324-15	TW-2R2 - 50-94'	Solid	05/17/22 12:00	09/11/23 13:30

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-215 - 16-18'
Date Collected: 02/06/23 08:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-1
Matrix: Solid
Percent Solids: 82.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	190	H H3	54	13	mg/Kg	☼	09/20/23 08:39	09/20/23 22:45	1

Client Sample ID: MW-217 - 12-13'
Date Collected: 02/08/23 09:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-2
Matrix: Solid
Percent Solids: 95.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	100	H H3	47	12	mg/Kg	☼	09/20/23 08:39	09/20/23 23:09	1

Client Sample ID: MW-218 - 11-12'
Date Collected: 02/08/23 10:30
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-3
Matrix: Solid
Percent Solids: 83.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	150	H H3	54	13	mg/Kg	☼	09/20/23 08:39	09/20/23 23:11	1

Client Sample ID: MW-219 - 18-20'
Date Collected: 02/08/23 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-4
Matrix: Solid
Percent Solids: 82.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	350	H H3	51	13	mg/Kg	☼	09/20/23 08:39	09/20/23 23:14	1

Client Sample ID: MW-222 - 34.5-36'
Date Collected: 02/09/23 10:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-5
Matrix: Solid
Percent Solids: 85.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	1300	H H3	59	14	mg/Kg	☼	09/20/23 08:39	09/20/23 23:17	1

Client Sample ID: MW-300 - 11-13'
Date Collected: 02/09/23 12:30
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-6
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	130	H H3	48	12	mg/Kg	☼	09/20/23 08:39	09/20/23 23:19	1

Client Sample ID: MW-PB3 - 22-24'
Date Collected: 02/10/23 10:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-7
Matrix: Solid
Percent Solids: 74.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	260	H H3	64	16	mg/Kg	☼	09/20/23 08:39	09/20/23 23:22	1

Client Sample ID: MW-210 - 15-25'
Date Collected: 05/15/22 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-8
Matrix: Solid
Percent Solids: 84.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	74	H H3	50	12	mg/Kg	☼	09/20/23 08:39	09/20/23 23:25	1

Client Sample ID: MW-211(B) - 14-25'
Date Collected: 05/15/22 11:35
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-9
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	390	H H3	56	14	mg/Kg	☼	09/20/23 08:39	09/20/23 23:27	1

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-212(A) - 14-25'
Date Collected: 05/16/22 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-10
Matrix: Solid
Percent Solids: 86.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	150	H H3	48	12	mg/Kg	☼	09/20/23 08:39	09/20/23 23:40	1

Client Sample ID: MW-212(B) - 0-5'
Date Collected: 05/16/22 07:35
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-11
Matrix: Solid
Percent Solids: 83.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	1100	H H3	290	71	mg/Kg	☼	09/20/23 08:39	09/20/23 23:43	5

Client Sample ID: MW-213 - 20-30'
Date Collected: 05/16/22 11:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-12
Matrix: Solid
Percent Solids: 84.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	180	H H3	49	12	mg/Kg	☼	09/20/23 08:39	09/20/23 23:48	1

Client Sample ID: MW-214 - 2-15'
Date Collected: 05/16/22 13:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-13
Matrix: Solid
Percent Solids: 78.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	200	H H3	53	13	mg/Kg	☼	09/20/23 08:39	09/20/23 23:51	1

Client Sample ID: BH-1 - 2-5'
Date Collected: 05/16/22 15:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-14
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	47000	H H3	5300	1300	mg/Kg	☼	09/20/23 08:39	09/21/23 00:02	100

Client Sample ID: TW-2R2 - 50-94'
Date Collected: 05/17/22 12:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-15
Matrix: Solid
Percent Solids: 82.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	3200	H H3	60	15	mg/Kg	☼	09/20/23 08:39	09/20/23 23:56	1

General Chemistry

Client Sample ID: MW-215 - 16-18'
Date Collected: 02/06/23 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	2500	J H H3	4000	900	mg/Kg	☼		09/19/23 13:08	1
Percent Moisture (ASTM D 2216)	17.5		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-215 - 16-18'
Date Collected: 02/06/23 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-1
Matrix: Solid
Percent Solids: 82.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	8.4		0.61	0.61	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

General Chemistry

Client Sample ID: MW-217 - 12-13'
Date Collected: 02/08/23 09:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	7900	H H3	4000	900	mg/Kg	☼		09/18/23 11:41	1
Percent Moisture (ASTM D 2216)	4.4		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-217 - 12-13'
Date Collected: 02/08/23 09:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-2
Matrix: Solid
Percent Solids: 95.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	4.4		0.52	0.52	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-218 - 11-12'
Date Collected: 02/08/23 10:30
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	2700	J H H3	4000	900	mg/Kg	☼		09/18/23 11:30	1
Percent Moisture (ASTM D 2216)	16.6		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-218 - 11-12'
Date Collected: 02/08/23 10:30
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-3
Matrix: Solid
Percent Solids: 83.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	5.7		0.60	0.60	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-219 - 18-20'
Date Collected: 02/08/23 13:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-4
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	1700	J H H3	4000	900	mg/Kg	☼		09/19/23 13:17	1
Percent Moisture (ASTM D 2216)	17.5		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-219 - 18-20'
Date Collected: 02/08/23 13:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-4
Matrix: Solid
Percent Solids: 82.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	26		0.61	0.61	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-222 - 34.5-36'
Date Collected: 02/09/23 10:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-5
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	1900	J H H3	4000	900	mg/Kg	☼		09/19/23 12:29	1
Percent Moisture (ASTM D 2216)	14.9		0.1	0.1	%			09/14/23 10:03	1

General Chemistry

Client Sample ID: MW-222 - 34.5-36'
Date Collected: 02/09/23 10:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-5
Matrix: Solid
Percent Solids: 85.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	18		0.59	0.59	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-300 - 11-13'
Date Collected: 02/09/23 12:30
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-6
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	9200	H H3	8000	1800	mg/Kg	☼		09/16/23 17:22	2
Percent Moisture (ASTM D 2216)	13.1		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-300 - 11-13'
Date Collected: 02/09/23 12:30
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-6
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	12		0.58	0.58	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-PB3 - 22-24'
Date Collected: 02/10/23 10:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-7
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	28000	H H3	8000	1800	mg/Kg	☼		09/16/23 17:10	2
Percent Moisture (ASTM D 2216)	26.0		0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-PB3 - 22-24'
Date Collected: 02/10/23 10:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-7
Matrix: Solid
Percent Solids: 74.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	50		0.68	0.68	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-210 - 15-25'
Date Collected: 05/15/22 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-8
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	990	J H H3	4000	900	mg/Kg	☼		09/16/23 16:59	1
Percent Moisture (ASTM D 2216)	15.5	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-210 - 15-25'
Date Collected: 05/15/22 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-8
Matrix: Solid
Percent Solids: 84.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	4.4		0.59	0.59	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

General Chemistry

Client Sample ID: MW-211(B) - 14-25'
Date Collected: 05/15/22 11:35
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-9
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	1900	J H H3	4000	900	mg/Kg	☼		09/19/23 12:58	1
Percent Moisture (ASTM D 2216)	14.6	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-211(B) - 14-25'
Date Collected: 05/15/22 11:35
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-9
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	13		0.59	0.59	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-212(A) - 14-25'
Date Collected: 05/16/22 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	9000	H H3	8000	1800	mg/Kg	☼		09/16/23 16:37	2
Percent Moisture (ASTM D 2216)	13.7	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-212(A) - 14-25'
Date Collected: 05/16/22 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-10
Matrix: Solid
Percent Solids: 86.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	24		0.58	0.58	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-212(B) - 0-5'
Date Collected: 05/16/22 07:35
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-11
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	1500000	H H3	40000	9000	mg/Kg	☼		09/16/23 16:27	10
Percent Moisture (ASTM D 2216)	16.6	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-212(B) - 0-5'
Date Collected: 05/16/22 07:35
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-11
Matrix: Solid
Percent Solids: 83.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	150		0.60	0.60	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-213 - 20-30'
Date Collected: 05/16/22 11:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-12
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	8000	H H3	8000	1800	mg/Kg	☼		09/16/23 16:17	2
Percent Moisture (ASTM D 2216)	15.6	H H3	0.1	0.1	%			09/14/23 10:03	1

General Chemistry

Client Sample ID: MW-213 - 20-30'
Date Collected: 05/16/22 11:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-12
Matrix: Solid
Percent Solids: 84.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	3.6		0.59	0.59	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: MW-214 - 2-15'
Date Collected: 05/16/22 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-13
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	2400	J H H3	4000	900	mg/Kg	☼		09/16/23 16:06	1
Percent Moisture (ASTM D 2216)	21.8	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: MW-214 - 2-15'
Date Collected: 05/16/22 13:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-13
Matrix: Solid
Percent Solids: 78.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	12		0.64	0.64	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: BH-1 - 2-5'
Date Collected: 05/16/22 15:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	28000	H H3	8000	1800	mg/Kg	☼		09/16/23 15:37	2
Percent Moisture (ASTM D 2216)	9.2	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: BH-1 - 2-5'
Date Collected: 05/16/22 15:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-14
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	21		0.55	0.55	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Client Sample ID: TW-2R2 - 50-94'
Date Collected: 05/17/22 12:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-15
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	360000	H H3 F1	20000	4500	mg/Kg	☼		09/16/23 12:09	5
Percent Moisture (ASTM D 2216)	17.1	H H3	0.1	0.1	%			09/14/23 10:03	1

Client Sample ID: TW-2R2 - 50-94'
Date Collected: 05/17/22 12:00
Date Received: 09/11/23 13:30
Lab Sample ID: 280-181324-15
Matrix: Solid
Percent Solids: 82.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity (SW846 9081)	73		0.60	0.60	meq/100gm	☼	09/25/23 16:39	09/27/23 15:15	1

Definitions/Glossary

Client: WSP USA Inc
Job ID: 280-181324-1
Project/Site: GRE Stantion Station MNA

Qualifiers

Metals

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Metals

Prep Batch: 122500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	3051A	
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	3051A	
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	3051A	
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	3051A	
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	3051A	
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	3051A	
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	3051A	
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	3051A	
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	3051A	
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	3051A	
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	3051A	
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	3051A	
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	3051A	
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	3051A	
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	3051A	
MB 860-122500/1-A	Method Blank	Total/NA	Solid	3051A	
LCS 860-122500/2-A	Lab Control Sample	Total/NA	Solid	3051A	
LCSD 860-122500/3-A	Lab Control Sample Dup	Total/NA	Solid	3051A	
280-181324-1 MS	MW-215 - 16-18'	Total/NA	Solid	3051A	
280-181324-1 MSD	MW-215 - 16-18'	Total/NA	Solid	3051A	

Analysis Batch: 122713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	6010D	122500
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	6010D	122500
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	6010D	122500
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	6010D	122500
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	6010D	122500
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	6010D	122500
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	6010D	122500
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	6010D	122500
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	6010D	122500
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	6010D	122500
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	6010D	122500
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	6010D	122500
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	6010D	122500
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	6010D	122500
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	6010D	122500
MB 860-122500/1-A	Method Blank	Total/NA	Solid	6010D	122500
LCS 860-122500/2-A	Lab Control Sample	Total/NA	Solid	6010D	122500
LCSD 860-122500/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	122500
280-181324-1 MS	MW-215 - 16-18'	Total/NA	Solid	6010D	122500
280-181324-1 MSD	MW-215 - 16-18'	Total/NA	Solid	6010D	122500

General Chemistry

Prep Batch: 123303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	9081	
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	9081	
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	9081	

General Chemistry (Continued)

Prep Batch: 123303 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	9081	
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	9081	
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	9081	
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	9081	
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	9081	
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	9081	
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	9081	
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	9081	
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	9081	
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	9081	
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	9081	
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	9081	

Analysis Batch: 123738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	9081	123303
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	9081	123303
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	9081	123303
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	9081	123303
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	9081	123303
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	9081	123303
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	9081	123303
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	9081	123303
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	9081	123303
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	9081	123303
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	9081	123303
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	9081	123303
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	9081	123303
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	9081	123303
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	9081	123303

Analysis Batch: 626177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	D 2216	
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	D 2216	
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	D 2216	
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	D 2216	
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	D 2216	
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	D 2216	
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	D 2216	
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	D 2216	
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	D 2216	
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	D 2216	
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	D 2216	
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	D 2216	
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	D 2216	
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	D 2216	
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	D 2216	
280-181324-15 DU	TW-2R2 - 50-94'	Total/NA	Solid	D 2216	

General Chemistry

Analysis Batch: 626583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-2	MW-217 - 12-13'	Total/NA	Solid	9060A	
280-181324-3	MW-218 - 11-12'	Total/NA	Solid	9060A	
280-181324-6	MW-300 - 11-13'	Total/NA	Solid	9060A	
280-181324-7	MW-PB3 - 22-24'	Total/NA	Solid	9060A	
280-181324-8	MW-210 - 15-25'	Total/NA	Solid	9060A	
280-181324-10	MW-212(A) - 14-25'	Total/NA	Solid	9060A	
280-181324-11	MW-212(B) - 0-5'	Total/NA	Solid	9060A	
280-181324-12	MW-213 - 20-30'	Total/NA	Solid	9060A	
280-181324-13	MW-214 - 2-15'	Total/NA	Solid	9060A	
280-181324-14	BH-1 - 2-5'	Total/NA	Solid	9060A	
280-181324-15	TW-2R2 - 50-94'	Total/NA	Solid	9060A	
MB 280-626583/34	Method Blank	Total/NA	Solid	9060A	
MB 280-626583/4	Method Blank	Total/NA	Solid	9060A	
LCS 280-626583/3	Lab Control Sample	Total/NA	Solid	9060A	
LCS 280-626583/33	Lab Control Sample	Total/NA	Solid	9060A	
280-181324-15 MS	TW-2R2 - 50-94'	Total/NA	Solid	9060A	
280-181324-15 MSD	TW-2R2 - 50-94'	Total/NA	Solid	9060A	

Analysis Batch: 626706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-181324-1	MW-215 - 16-18'	Total/NA	Solid	9060A	
280-181324-4	MW-219 - 18-20'	Total/NA	Solid	9060A	
280-181324-5	MW-222 - 34.5-36'	Total/NA	Solid	9060A	
280-181324-9	MW-211(B) - 14-25'	Total/NA	Solid	9060A	
MB 280-626706/4	Method Blank	Total/NA	Solid	9060A	
LCS 280-626706/3	Lab Control Sample	Total/NA	Solid	9060A	
280-181324-5 MS	MW-222 - 34.5-36'	Total/NA	Solid	9060A	
280-181324-5 MSD	MW-222 - 34.5-36'	Total/NA	Solid	9060A	

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 860-122500/1-A
Matrix: Solid
Analysis Batch: 122713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		50	12	mg/Kg		09/20/23 08:39	09/20/23 22:37	1

Lab Sample ID: LCS 860-122500/2-A
Matrix: Solid
Analysis Batch: 122713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	2500	2540		mg/Kg		102	80 - 120

Lab Sample ID: LCSD 860-122500/3-A
Matrix: Solid
Analysis Batch: 122713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122500

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	2500	2540		mg/Kg		102	80 - 120	0	20

Lab Sample ID: 280-181324-1 MS
Matrix: Solid
Analysis Batch: 122713

Client Sample ID: MW-215 - 16-18'
Prep Type: Total/NA
Prep Batch: 122500

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	190	H H3	2570	2410		mg/Kg	☼	87	75 - 125

Lab Sample ID: 280-181324-1 MSD
Matrix: Solid
Analysis Batch: 122713

Client Sample ID: MW-215 - 16-18'
Prep Type: Total/NA
Prep Batch: 122500

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	190	H H3	2710	2530		mg/Kg	☼	87	75 - 125	5	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-626583/34
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		4000	900	mg/Kg			09/16/23 14:22	1

Lab Sample ID: MB 280-626583/4
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		4000	900	mg/Kg			09/15/23 15:45	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 280-626583/3
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	5790	5300		mg/Kg		92	46 - 130

Lab Sample ID: LCS 280-626583/33
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	5790	5070		mg/Kg		88	46 - 130

Lab Sample ID: 280-181324-15 MS
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: TW-2R2 - 50-94'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	360000	H H3 F1	306000	886000	F1	mg/Kg	☼	172	46 - 130

Lab Sample ID: 280-181324-15 MSD
Matrix: Solid
Analysis Batch: 626583

Client Sample ID: TW-2R2 - 50-94'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon	360000	H H3 F1	303000	733000		mg/Kg	☼	124	46 - 130	19	20

Lab Sample ID: MB 280-626706/4
Matrix: Solid
Analysis Batch: 626706

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		4000	900	mg/Kg			09/19/23 12:19	1

Lab Sample ID: LCS 280-626706/3
Matrix: Solid
Analysis Batch: 626706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	5790	5040		mg/Kg		87	46 - 130

Lab Sample ID: 280-181324-5 MS
Matrix: Solid
Analysis Batch: 626706

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	1900	J H H3	12000	13900		mg/Kg	☼	100	46 - 130

Lab Sample ID: 280-181324-5 MSD
Matrix: Solid
Analysis Batch: 626706

Client Sample ID: MW-222 - 34.5-36'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon	1900	J H H3	12000	13800		mg/Kg	☼	99	46 - 130	1	20

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 280-181324-15 DU
Matrix: Solid
Analysis Batch: 626177

Client Sample ID: TW-2R2 - 50-94'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	17.1	H H3		15.3		%				11	20

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: MW-215 - 16-18'
Date Collected: 02/06/23 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	100.9 mg	100.9 mg	626706	09/19/23 13:08	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-215 - 16-18'
Date Collected: 02/06/23 08:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-1
Matrix: Solid
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.56 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 22:45	JDM	EET HOU
Total/NA	Prep	9081			5.02 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-217 - 12-13'
Date Collected: 02/08/23 09:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.7 mg	99.7 mg	626583	09/18/23 11:41	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-217 - 12-13'
Date Collected: 02/08/23 09:00
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-2
Matrix: Solid
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.56 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:09	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-218 - 11-12'
Date Collected: 02/08/23 10:30
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.6 mg	99.6 mg	626583	09/18/23 11:30	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-218 - 11-12'
Date Collected: 02/08/23 10:30
Date Received: 09/11/23 13:30

Lab Sample ID: 280-181324-3
Matrix: Solid
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.56 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:11	JDM	EET HOU

Client Sample ID: MW-218 - 11-12'
Lab Sample ID: 280-181324-3
Date Collected: 02/08/23 10:30
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-219 - 18-20'
Lab Sample ID: 280-181324-4
Date Collected: 02/08/23 13:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.0 mg	99.0 mg	626706	09/19/23 13:17	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-219 - 18-20'
Lab Sample ID: 280-181324-4
Date Collected: 02/08/23 13:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.59 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:14	JDM	EET HOU
Total/NA	Prep	9081			5.02 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-222 - 34.5-36'
Lab Sample ID: 280-181324-5
Date Collected: 02/09/23 10:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	100.7 mg	100.7 mg	626706	09/19/23 12:29	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-222 - 34.5-36'
Lab Sample ID: 280-181324-5
Date Collected: 02/09/23 10:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.5 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:17	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-300 - 11-13'
Lab Sample ID: 280-181324-6
Date Collected: 02/09/23 12:30
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		2	51.2 mg	51.2 mg	626583	09/16/23 17:22	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: MW-300 - 11-13'

Lab Sample ID: 280-181324-6
Date Collected: 02/09/23 12:30
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.6 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:19	JDM	EET HOU
Total/NA	Prep	9081			5.02 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-PB3 - 22-24'

Lab Sample ID: 280-181324-7
Date Collected: 02/10/23 10:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		2	49.9 mg	49.9 mg	626583	09/16/23 17:10	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-PB3 - 22-24'

Lab Sample ID: 280-181324-7
Date Collected: 02/10/23 10:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 74.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.53 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:22	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-210 - 15-25'

Lab Sample ID: 280-181324-8
Date Collected: 05/15/22 13:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.7 mg	99.7 mg	626583	09/16/23 16:59	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-210 - 15-25'

Lab Sample ID: 280-181324-8
Date Collected: 05/15/22 13:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.59 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:25	JDM	EET HOU
Total/NA	Prep	9081			5.00 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-211(B) - 14-25'
Lab Sample ID: 280-181324-9
Date Collected: 05/15/22 11:35
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.6 mg	99.6 mg	626706	09/19/23 12:58	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-211(B) - 14-25'
Lab Sample ID: 280-181324-9
Date Collected: 05/15/22 11:35
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 85.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.52 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:27	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-212(A) - 14-25'
Lab Sample ID: 280-181324-10
Date Collected: 05/16/22 08:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		2	50.4 mg	50.4 mg	626583	09/16/23 16:37	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-212(A) - 14-25'
Lab Sample ID: 280-181324-10
Date Collected: 05/16/22 08:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.6 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:40	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-212(B) - 0-5'
Lab Sample ID: 280-181324-11
Date Collected: 05/16/22 07:35
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		10	11.0 mg	11.0 mg	626583	09/16/23 16:27	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-212(B) - 0-5'
Lab Sample ID: 280-181324-11
Date Collected: 05/16/22 07:35
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.52 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		5			122713	09/20/23 23:43	JDM	EET HOU

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: MW-212(B) - 0-5'
Lab Sample ID: 280-181324-11
Date Collected: 05/16/22 07:35
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-213 - 20-30'
Lab Sample ID: 280-181324-12
Date Collected: 05/16/22 11:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		2	50.9 mg	50.9 mg	626583	09/16/23 16:17	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-213 - 20-30'
Lab Sample ID: 280-181324-12
Date Collected: 05/16/22 11:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.6 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:48	JDM	EET HOU
Total/NA	Prep	9081			5.02 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: MW-214 - 2-15'
Lab Sample ID: 280-181324-13
Date Collected: 05/16/22 13:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	99.8 mg	99.8 mg	626583	09/16/23 16:06	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: MW-214 - 2-15'
Lab Sample ID: 280-181324-13
Date Collected: 05/16/22 13:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 78.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.6 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:51	JDM	EET HOU
Total/NA	Prep	9081			5.02 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: BH-1 - 2-5'
Lab Sample ID: 280-181324-14
Date Collected: 05/16/22 15:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		2	51.8 mg	51.8 mg	626583	09/16/23 15:37	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Lab Chronicle

Client: WSP USA Inc
Project/Site: GRE Stantion Station MNA

Job ID: 280-181324-1

Client Sample ID: BH-1 - 2-5'

Lab Sample ID: 280-181324-14
Date Collected: 05/16/22 15:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.52 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		100			122713	09/21/23 00:02	JDM	EET HOU
Total/NA	Prep	9081			5.01 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Client Sample ID: TW-2R2 - 50-94'

Lab Sample ID: 280-181324-15
Date Collected: 05/17/22 12:00
Matrix: Solid
Date Received: 09/11/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		5	21.0 mg	21.0 mg	626583	09/16/23 12:09	ABW	EET DEN
Total/NA	Analysis	D 2216		1			626177	09/14/23 10:03	SL	EET DEN

Client Sample ID: TW-2R2 - 50-94'

Lab Sample ID: 280-181324-15
Date Collected: 05/17/22 12:00
Matrix: Solid
Date Received: 09/11/23 13:30
Percent Solids: 82.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			.5 g	50 mL	122500	09/20/23 08:39	PB	EET HOU
Total/NA	Analysis	6010D		1			122713	09/20/23 23:56	JDM	EET HOU
Total/NA	Prep	9081			5.00 g	100 mL	123303	09/25/23 16:39	PB	EET HOU
Total/NA	Analysis	9081		1			123738	09/27/23 15:15	JDM	EET HOU

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Eurofins Denver
4955 Yarrow Street

Arvada, CO 80002-4517
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other: CCR

Eurofins Environment Testing America

Client Contact	**Project Manager: Erin Hunter**		COC No: GL21509219.000-1
WSP USA Inc.	Email: erin.hunter@wsp.com	**Site Contact: Erin Hunter**	**Date:** ___1___ of ___2___ COCs
7245 W Alaska Drive, Suite 200	Tel/Fax: 720-962-3424 (tel)	**Lab Contact: Megan McElheny**	**Carrier: FedEx** TALS Project #:
Lakewood, CO 80226	**Analysis Turnaround Time** ☐ CALENDAR DAYS ☑ WORKING DAYS		Sampler:
(303) 980-0540 Phone	TAT if different from Below ____ ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client: Lab Sampling:
(xxx) xxx-xxxx FAX			
Project Name: GRE Stanton Station MNA			Job / SDG No.:
Site: Stanton Station, Stanton, ND			
P O # Project GL21509219.000, task 01.EXP			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	9060A - TOC (Single Run)	D2216 Percent Moisture for Dry Weight Reporting	9081 - Cation Exchange Capacity (CEC)	9081 - Prep - Cation Exchange Capacity (CEC)	6010D - Sodium Only (Required for CEC)	3051A - Prep - Metals Digestion	Sample Specific Notes:
MW-215 - 16-18'	2/6/23	8:00	C	S	1	N	N	x	x	x	x	x	x	
MW-217 - 12-13'	2/8/23	9:00	C	S	1	N	N	x	x	x	x	x	x	
MW-218 - 11-12'	2/8/23	10:30	C	S	1	N	N	x	x	x	x	x	x	
MW-219 - 18-20'	2/8/23	13:00	C	S	1	N	N	x	x	x	x	x	x	
MW-222 - 34.5-36'	2/9/23	10:00	C	S	1	N	N	x	x	x	x	x	x	
MW-300 - 11-13'	2/9/23	12:30	C	S	1	N	N	x	x	x	x	x	x	
MW-PB3 - 22-24'	2/10/23	10:00	C	S	1	N	N	x	x	x	x	x	x	

280-181324 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☑ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:
See Quote 28024975-0 for additional instructions. Please proceed with analysis that is out of hold time and/or out of temperature, with inclusion of applicable qualifiers.

18.3°C Momo CF0.3

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:____ Corr'd:____		Therm ID No.:____	
Relinquished by: Erin Hunter	Company: WSP USA Inc	Date/Time: 9/6/23 11:00	Received by:	Company: EEDEN	Date/Time: 09-11-23 1330	
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	

Eurofins Denver
4955 Yarrow Street

Arvada, CO 80002-4517
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other: **CCR**

Eurofins Environment Testing America

Client Contact	Project Manager: Erin Hunter	Site Contact: Erin Hunter	Date:	COC No: GL21509219.000-2
WSP USA Inc.	Email: erin.hunter@wsp.com	Lab Contact: Megan McElheny	Carrier: FedEx	___2___ of ___2___ COCs
7245 W Alaska Drive, Suite 200	Tel/Fax: 720-962-3424 (tel)			TALS Project #:
Lakewood, CO 80226	**Analysis Turnaround Time**			Sampler:
(303) 980-0540 Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client:
Project Name: GRE Stanton Station MNA	☑ 2 weeks			Lab Sampling:
Site: Stanton Station, Stanton, ND	☐ 1 week			
P O # Project GL21509219.000, task 01.EXP	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	9060A - TOC (Single Run)	D2216 Percent Moisture for Dry Weight Reporting	9081 - Cation Exchange Capacity (CEC)	9081 - Prep - Cation Exchange Capacity (CEC)	6010D - Sodium Only (Required for CEC)	3051A - Prep - Metals Digestion	Sample Specific Notes:
MW-210 - 15-25'	5/15/22	13:00	C	S	1	N	N	x	x	x	x	x	x	
MW-211(B) - 14-25'	5/15/22	11:35	C	S	1	N	N	x	x	x	x	x	x	
MW-212(A) - 14-25'	5/16/22	8:00	C	S	1	N	N	x	x	x	x	x	x	
MW-212(B) - 0-5'	5/16/22	7:35	C	S	1	N	N	x	x	x	x	x	x	
MW-213 - 20-30'	5/16/22	11:00	C	S	1	N	N	x	x	x	x	x	x	
MW-214 - 2-15'	5/16/22	13:00	C	S	1	N	N	x	x	x	x	x	x	
BH-1 - 2-5'	5/16/22	15:00	C	S	1	N	N	x	x	x	x	x	x	
TW-2R2 - 50-94'	5/17/22	12:00	C	S	1	N	N	x	x	x	x	x	x	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
See Quote 28024975-0 for additional instructions. Please proceed with analysis that is out of hold time and/or out of temperature, with inclusion of applicable qualifiers.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by: Erin Hunter	Company: WSP USA Env.	Date/Time: 9/9/23 11:00	Received by:	Company: FEDEX	Date/Time: 9-11-23 1330
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

10/6/2023

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

10/6/2023

Client Information (Sub Contract Lab)	Sampler	Lab PM: McElheny Megan E	Carrier Tracking No(s):	COC No: 280-671689.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Megan.Mcelheny@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 2
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note):		Job #: 280-181324-1
Address: 4145 Greenbriar Dr	Due Date Requested: 9/25/2023			
City: Stafford	TAT Requested (days):			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #:			
Email:	WO #:			
Project Name: GRE Stantion Station MNA	Project #: 28025062			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9081/9081_Calc_Prep	6010D/3051A (MOD) Custom List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-215 16-18' (280-181324-1)	2/6/23	08:00 Mountain		Solid			X	X		
MW-217 12-13' (280-181324-2)	2/8/23	09:00 Mountain		Solid			X	X		
MW-218 11-12' (280-181324-3)	2/8/23	10:30 Mountain		Solid			X	X		
MW-219 18-20' (280-181324-4)	2/8/23	13:00 Mountain		Solid			X	X		
MW-222 34 5-36' (280-181324-5)	2/9/23	10:00 Mountain		Solid			X	X		
MW-300 11 13' (280-181324-6)	2/9/23	12:30 Mountain		Solid			X	X		
MW-PB3 22-24' (280-181324-7)	2/10/23	10:00 Mountain		Solid			X	X		
MW-210 15-25' (280-181324-8)	5/15/22	13:00 Mountain		Solid			X	X		
MW-211(B) 14-25' (280-181324-9)	5/15/22	11:35 Mountain		Solid			X	X		

Temp: 2.9 IR ID:HOU-369
C/F -0.0
Corrected Temp: 2.9

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	9-12-23 16:25	EEDEN			
Relinquished by:	Date/Time:	Company	Received by: Jeremiah Baker	Date/Time: 9/13/2023 9:25	Company EX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: WSP USA Inc

Job Number: 280-181324-1

Login Number: 181324
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: WSP USA Inc

Job Number: 280-181324-1

Login Number: 181324
List Number: 2
Creator: Baker, Jeremiah

List Source: Eurofins Houston
List Creation: 09/13/23 12:18 PM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*WSP USA Inc (Great River Energy)*
Project Number/ LIMS No.	*19912-01/MI7015-SEP23*
Sample Receipt:	*September 13, 2023*
Sample Analysis:	*October 5, 2023*
Reporting Date:	*October 31, 2023*

Instrument:	Panalytical X'pert Pro Diffractometer
Test Conditions:	Co radiation, 40 kV, 45 mA Regular Scanning: Step: 0.033°, Step time:0.15s, 2θ range: 5-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

Landon Kapusianyk, B.Sc.
Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

Method Summary

Mineral Identification and Interpretation:

Mineral identification and interpretation involves matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD) database and released on software as Powder Diffraction Files (PDF).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

Quantitative Rietveld Analysis:

Quantitative Rietveld Analysis is performed by using Topas 4.2 (Bruker AXS), a graphics based profile analysis program built around a non-linear least squares fitting system, to determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile until it matches the obtained experimental patterns.

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.05wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

SGS Natural Resources
a division of SGS Canada Inc.
3260 Production Way, Burnaby, British Columbia, Canada V5A 4W4
Tel: (604) 638-2349 Fax: (604) 444-5486 www.sgs.com www.sgs.com/met
Member of the SGS Group (SGS SA)

Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

Mineral/Compound	MW-210 - 15-25' SEP7015-01 (wt %)	MW-211(B) - 14-25' SEP7015-02 (wt %)	MW-212(A) - 14-25' SEP7015-03 (wt %)	MW-212(B) - 0-5' SEP7015-04 (wt %)	MW-213 - 20-30' SEP7015-05 (wt %)	MW-214 - 2-15' SEP7015-06 (wt %)	BH-1 - 2-5' SEP7015-07 (wt %)	TW-2R2 - 50-94' SEP7015-08 (wt %)	MW-215 - 16-18' SEP7015-09 (wt %)	MW-217 - 12-13' SEP7015-10 (wt %)	MW-218 - 11-12' SEP7015-11 (wt %)	MW-219 - 18-20' SEP7015-12 (wt %)	MW-222 - 34.5-36' SEP7015-13 (wt %)	MW-300 - 11-13' SEP7015-14 (wt %)	MW-PB3 - 22-24' SEP7015-15 (wt %)
Quartz	73.4	66.2	60.4	60.8	55.1	62.9	15.3	31.8	74.8	67.3	71.8	59.2	60.0	66.9	39.1
Albite	12.0	14.7	16.2	15.5	13.8	14.1	23.2	12.4	12.9	11.9	11.4	14.5	14.9	11.7	15.2
Microcline	5.4	4.2	9.0	6.4	4.0	6.7	8.0	6.6	5.5	5.1	6.4	8.6	5.9	6.7	8.3
Biotite	0.5	-	0.8	-	0.2	0.4	-	0.1	0.6	1.7	1.4	1.1	0.8	0.9	0.7
Muscovite	1.7	10.4	6.9	11.4	8.4	10.3	8.4	15.9	4.2	6.3	5.3	11.6	11.0	5.7	15.6
Chlorite	1.9	3.6	2.8	5.8	0.4	4.8	-	8.2	-	1.9	-	2.8	4.6	4.0	7.6
Actinolite	0.8	-	1.4	-	1.1	-	-	-	-	1.4	1.2	0.1	-	-	-
Calcite	2.4	0.7	1.0	-	7.2	0.8	11.6	3.1	0.8	1.6	1.7	1.6	1.9	0.7	4.9
Dolomite	2.0	0.3	1.5	-	8.8	-	1.2	3.0	1.2	2.8	0.9	0.5	0.8	3.4	8.5
Fluorapatite	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-
Diopside	-	-	-	-	-	-	8.8	-	-	-	-	-	-	-	-
Magnetite	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-
Hematite	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-
Goethite	-	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-
Fayalite	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-
Akermanite	-	-	-	-	-	-	16.3	-	-	-	-	-	-	-	-
Montmorillonite	-	-	-	-	-	-	-	18.9	-	-	-	-	-	-	-
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

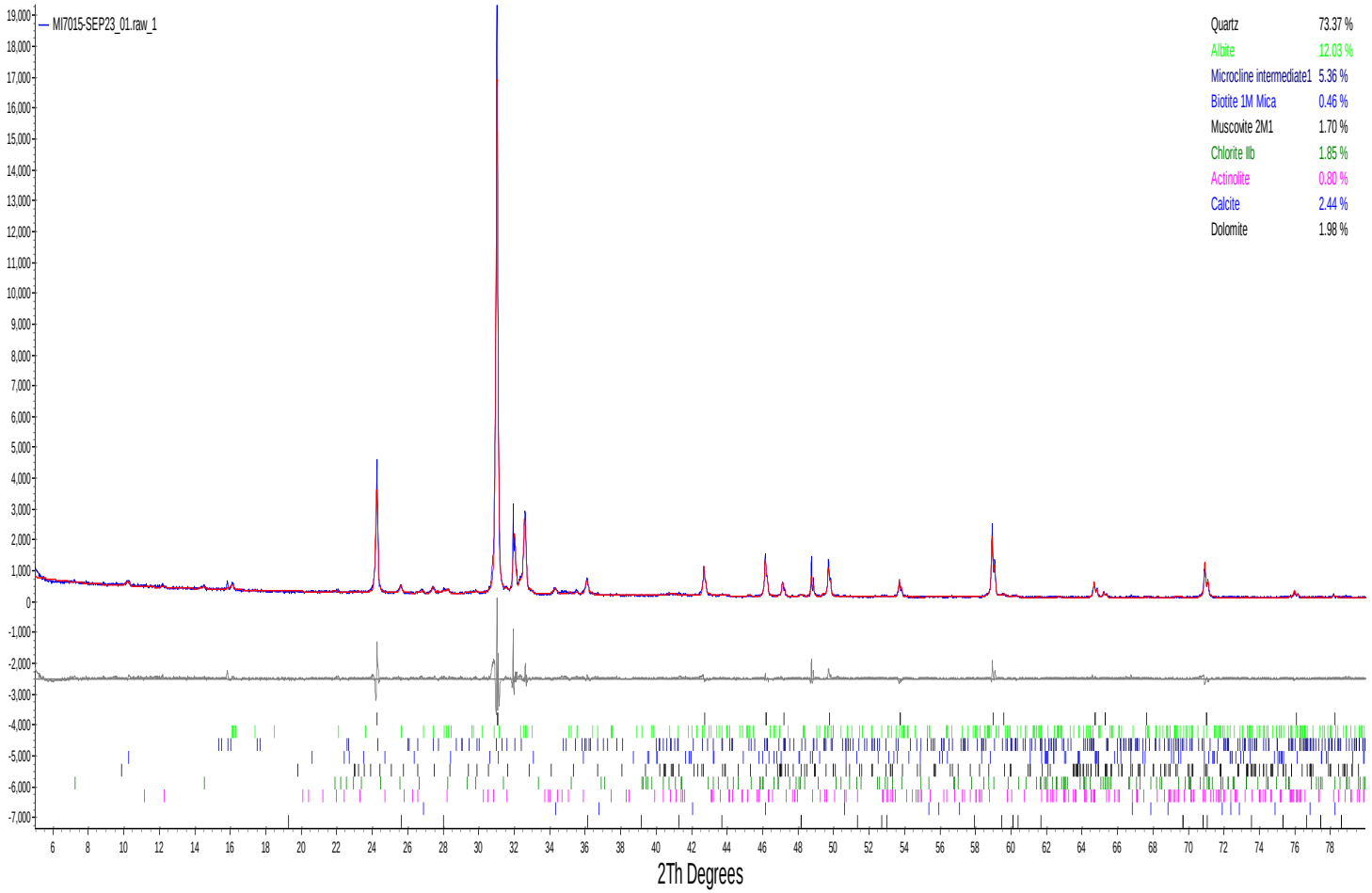
Zero values indicate that the mineral was included in the refinement, but the calculated concentration is below a measurable value.

Dashes indicate that the mineral was not identified by the analyst and not included in the refinement calculation for the sample.

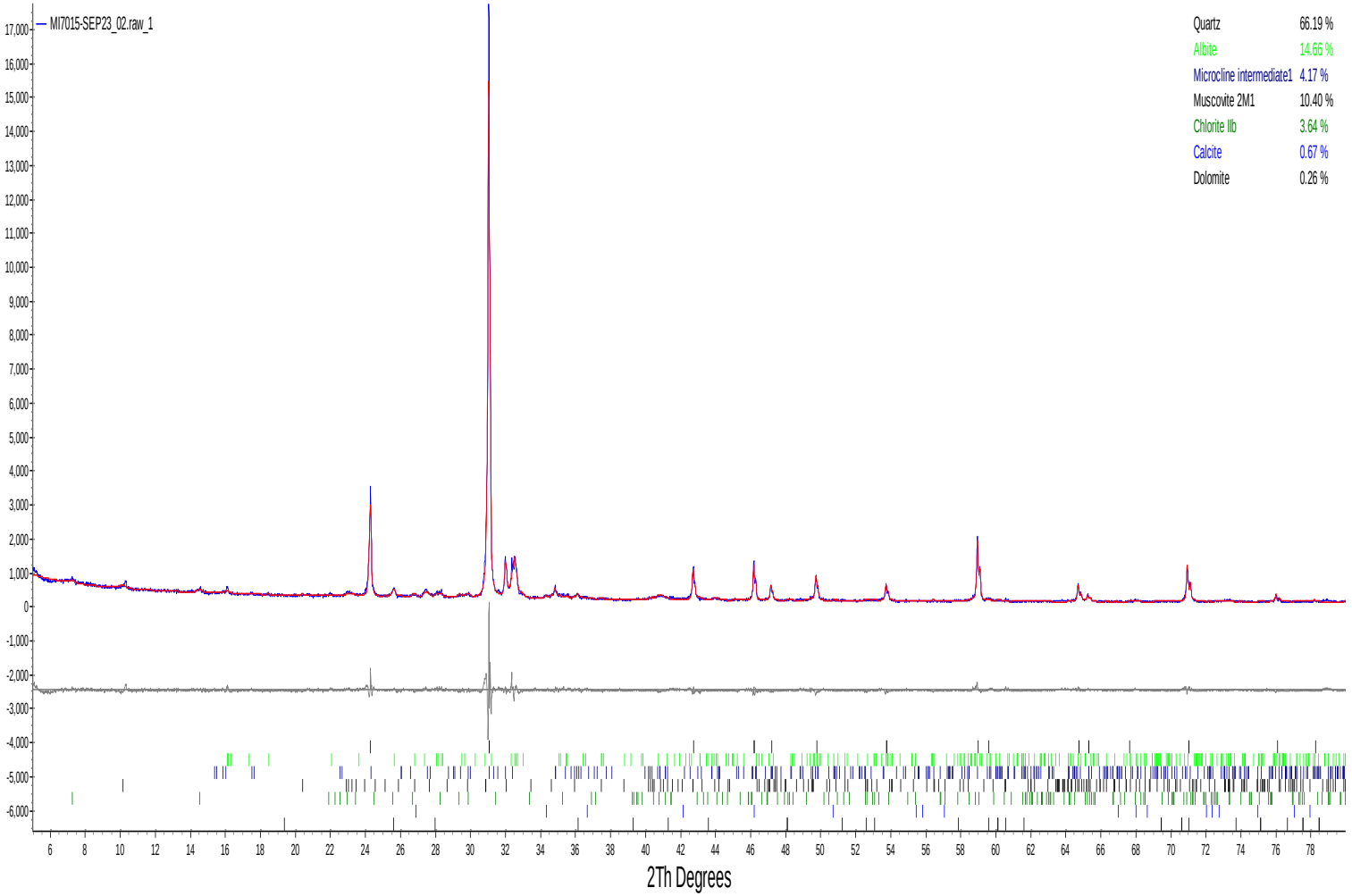
The weight percent quantities indicated have been normalized to a sum of 100%. The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Microcline	$KAlSi_3O_8$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Calcite	$CaCO_3$
Dolomite	$CaMg(CO_3)_2$
Fluorapatite	$Ca_5(PO_4)_3F$
Diopside	$CaMgSi_2O_6$
Magnetite	Fe_3O_4
Hematite	Fe_2O_3
Goethite	$\alpha FeO{\cdot}OH$
Fayalite	Fe_2SiO_4
Akermanite	$Ca_2MgSi_2O_7$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2{\cdot}10H_2O$

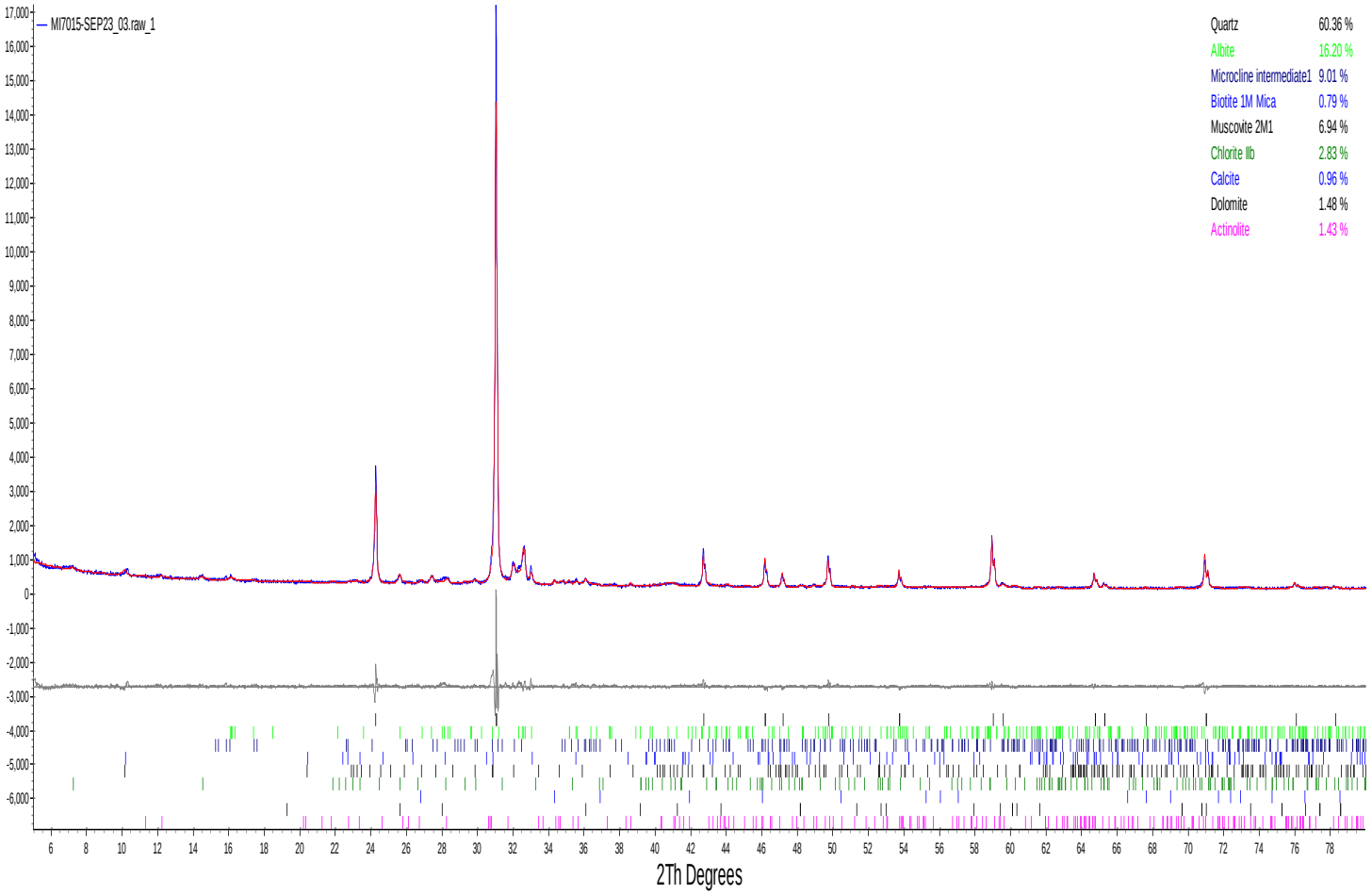
MW-210 - 15-25


MI7015-SEP23_01.raw_1
Quartz 73.37 %
Albite 12.03 %
Microcline intermediate1 5.36 %
Biotite 1M Mica 0.46 %
Muscovite 2M1 1.70 %
Chlorite IIb 1.85 %
Actinolite 0.80 %
Calcite 2.44 %
Dolomite 1.98 %
2Th Degrees

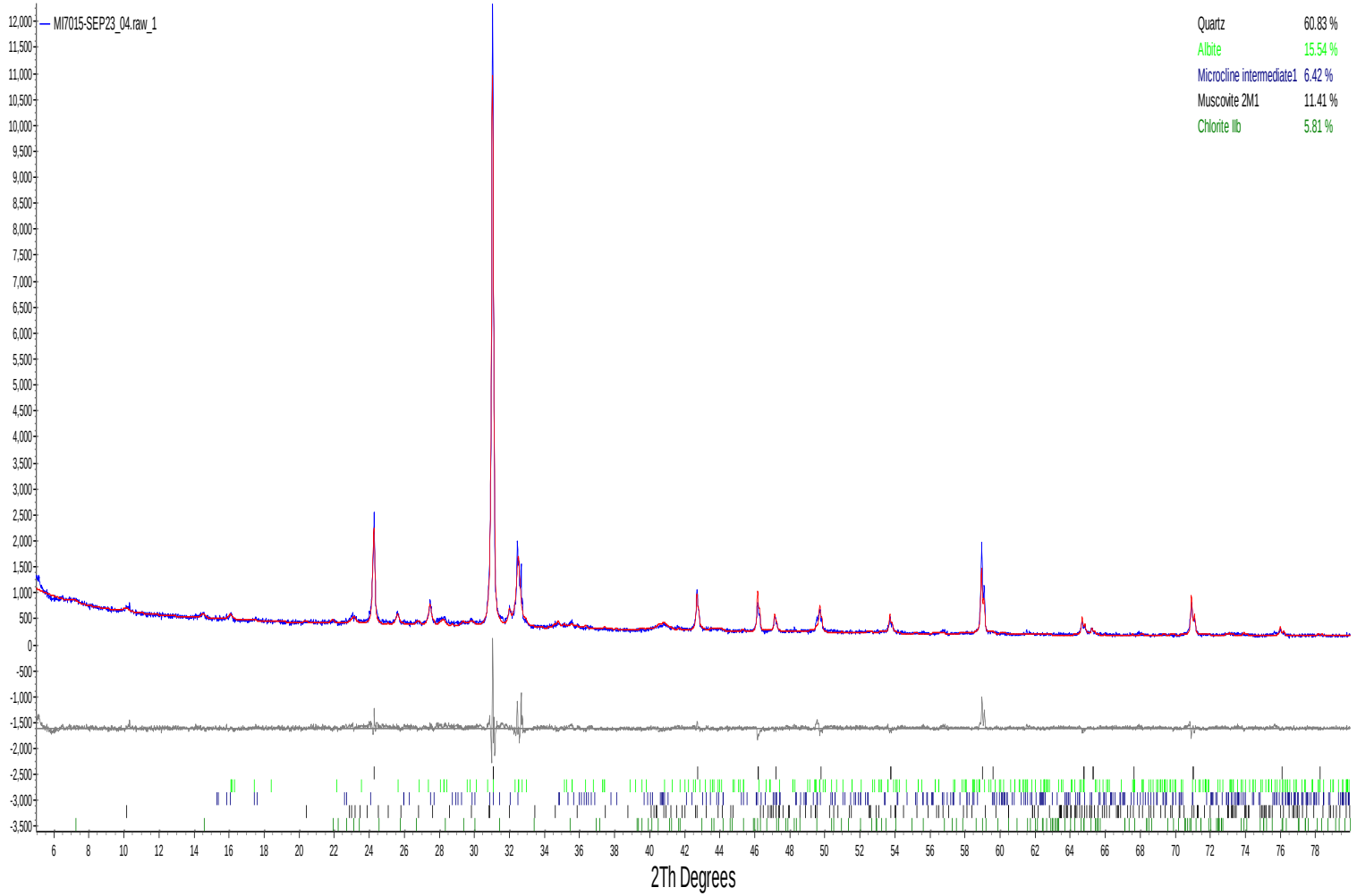
MW-211(B) - 14-25'


MI7015-SEP23_02.raw_1
Quartz 66.19 %
Albite 14.66 %
Microcline intermediate1 4.17 %
Muscovite 2M1 10.40 %
Chlorite IIb 3.64 %
Calcite 0.67 %
Dolomite 0.26 %
2Th Degrees

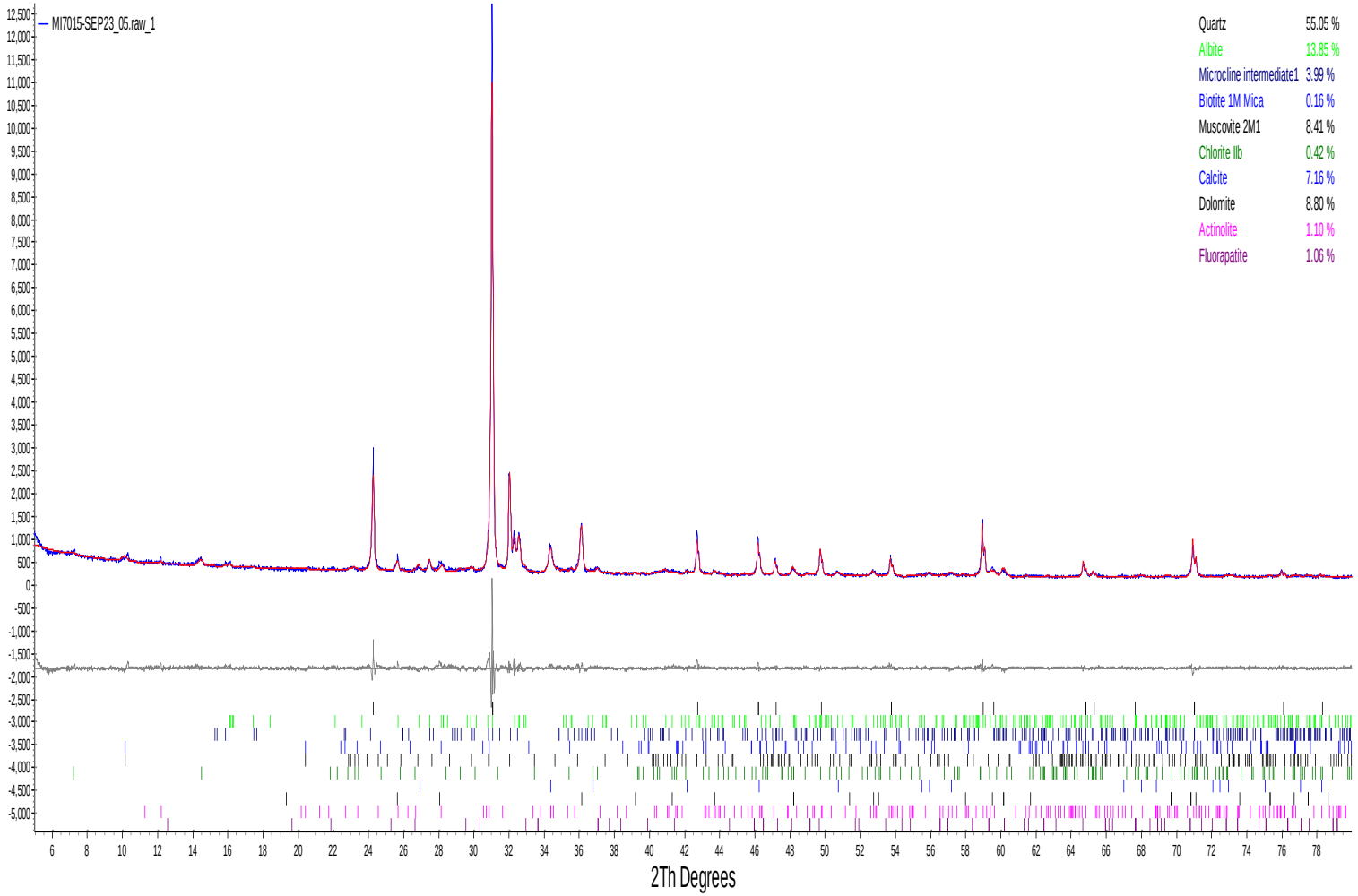
MW-212(A) - 14-25'


MI7015-SEP23_03.raw_1
Quartz 60.36 %
Albite 16.20 %
Microcline intermediate1 9.01 %
Biotite 1M Mica 0.79 %
Muscovite 2M1 6.94 %
Chlorite IIb 2.83 %
Calcite 0.96 %
Dolomite 1.48 %
Actinolite 1.43 %
2Th Degrees

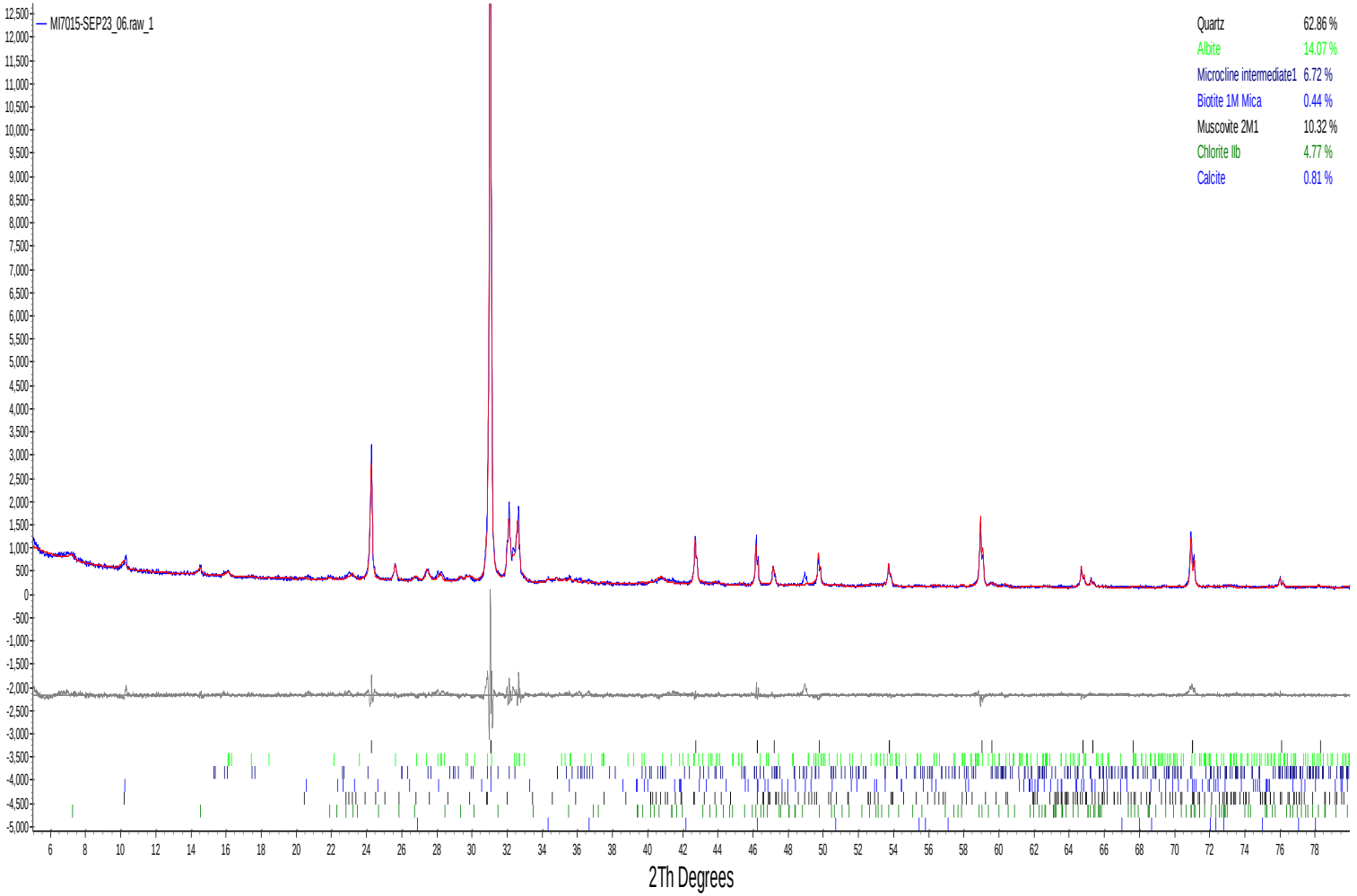
MW-212(B) - 0-5'


MI7015-SEP23_04.raw_1
Quartz 60.83 %
Albite 15.54 %
Microcline intermediate1 6.42 %
Muscovite 2M1 11.41 %
Chlorite IIb 5.81 %
2Th Degrees

MW-213 - 20-30'

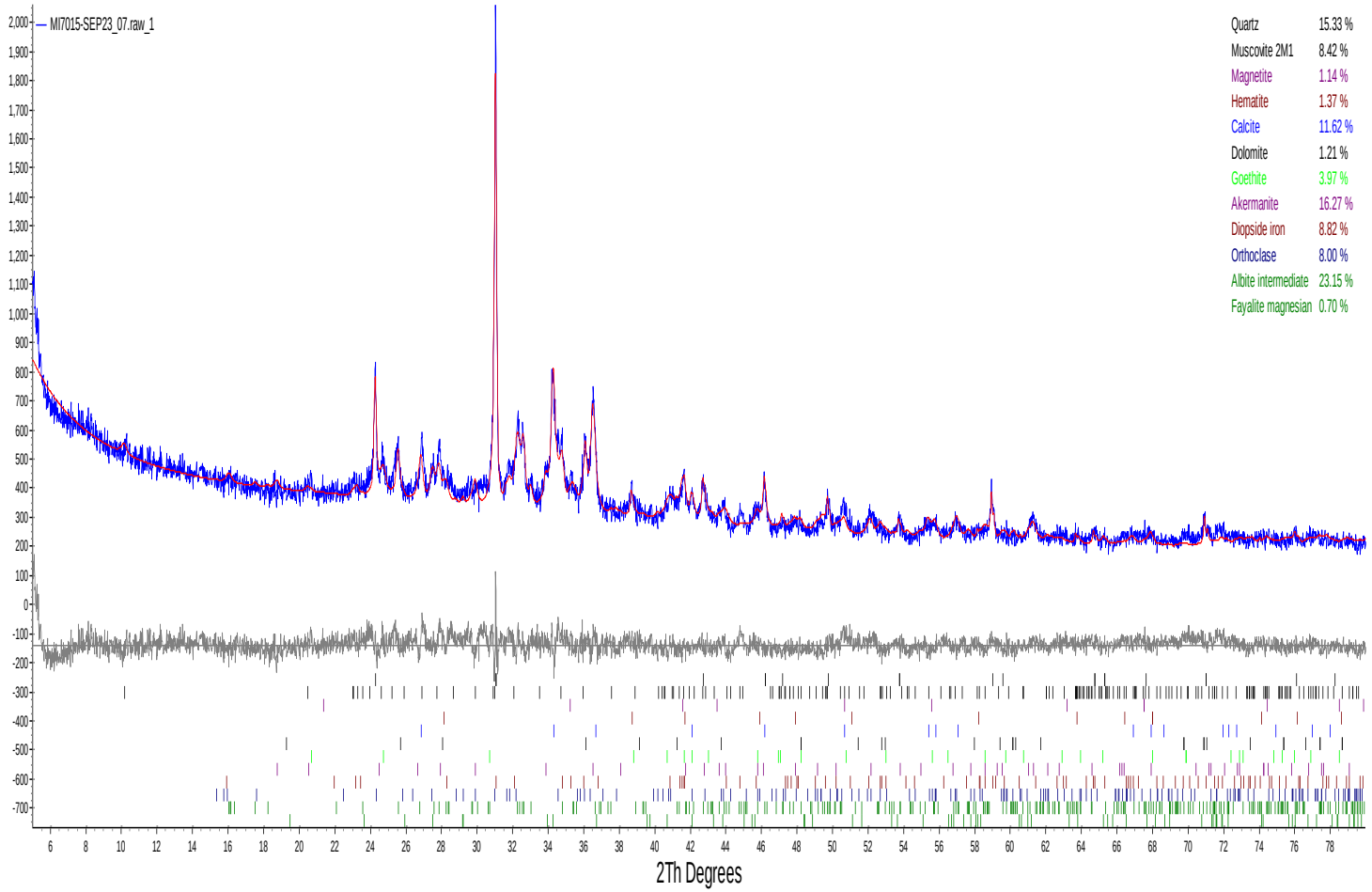

MI7015-SEP23_05.raw_1
Quartz 55.05 %
Albite 13.85 %
Microcline intermediate1 3.99 %
Biotite 1M Mica 0.16 %
Muscovite 2M1 8.41 %
Chlorite IIb 0.42 %
Calcite 7.16 %
Dolomite 8.80 %
Actinolite 1.10 %
Fluorapatite 1.06 %
2Th Degrees

MW-214 - 2-15'

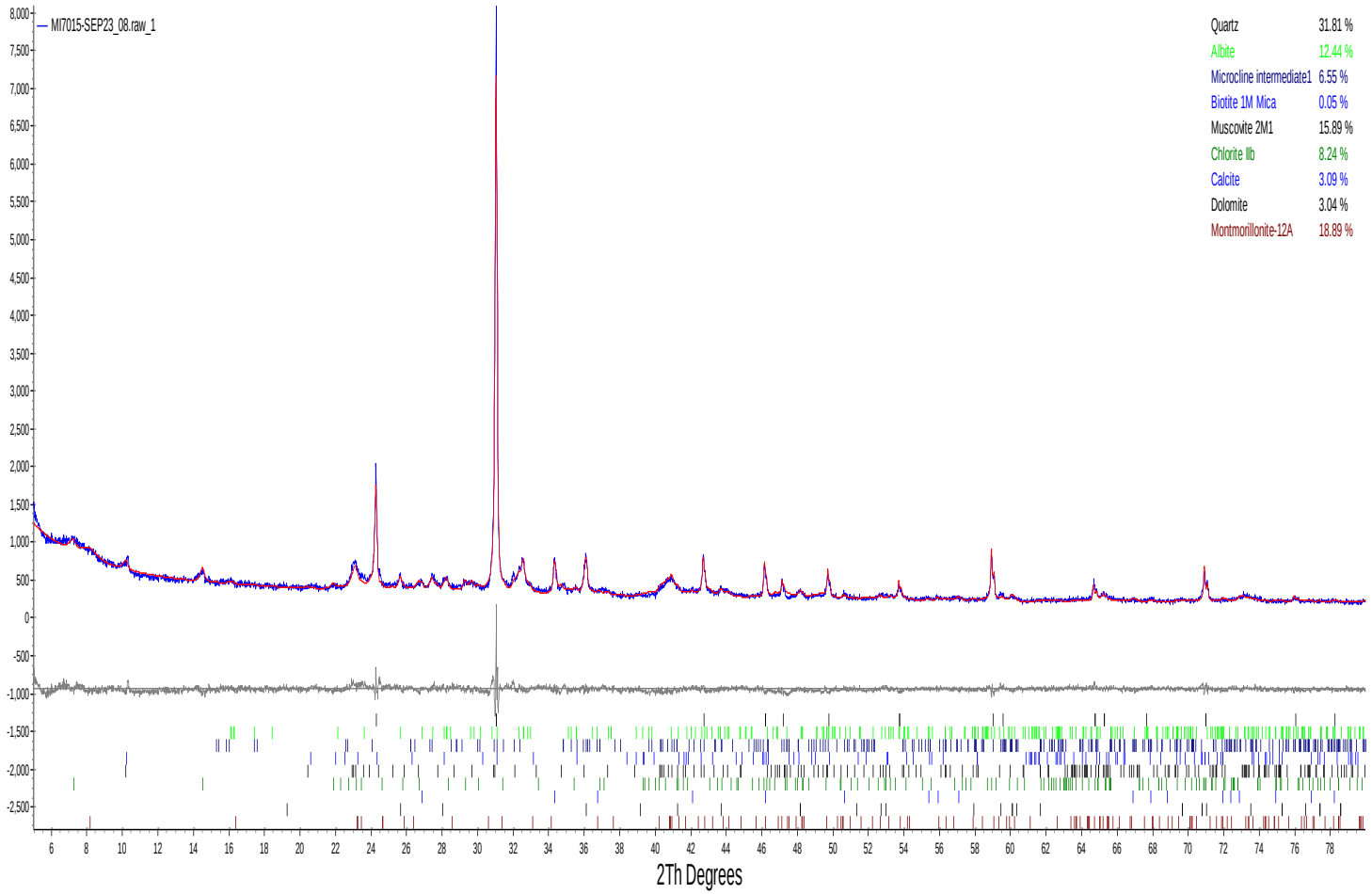

MI7015-SEP23_06.raw_1
Quartz 62.86 %
Albite 14.07 %
Microcline intermediate1 6.72 %
Biotite 1M Mica 0.44 %
Muscovite 2M1 10.32 %
Chlorite IIb 4.77 %
Calcite 0.81 %
2Th Degrees

WSP USA Inc (Great River Energy)
19912-01/MI7015-SEP23
10/31/2023

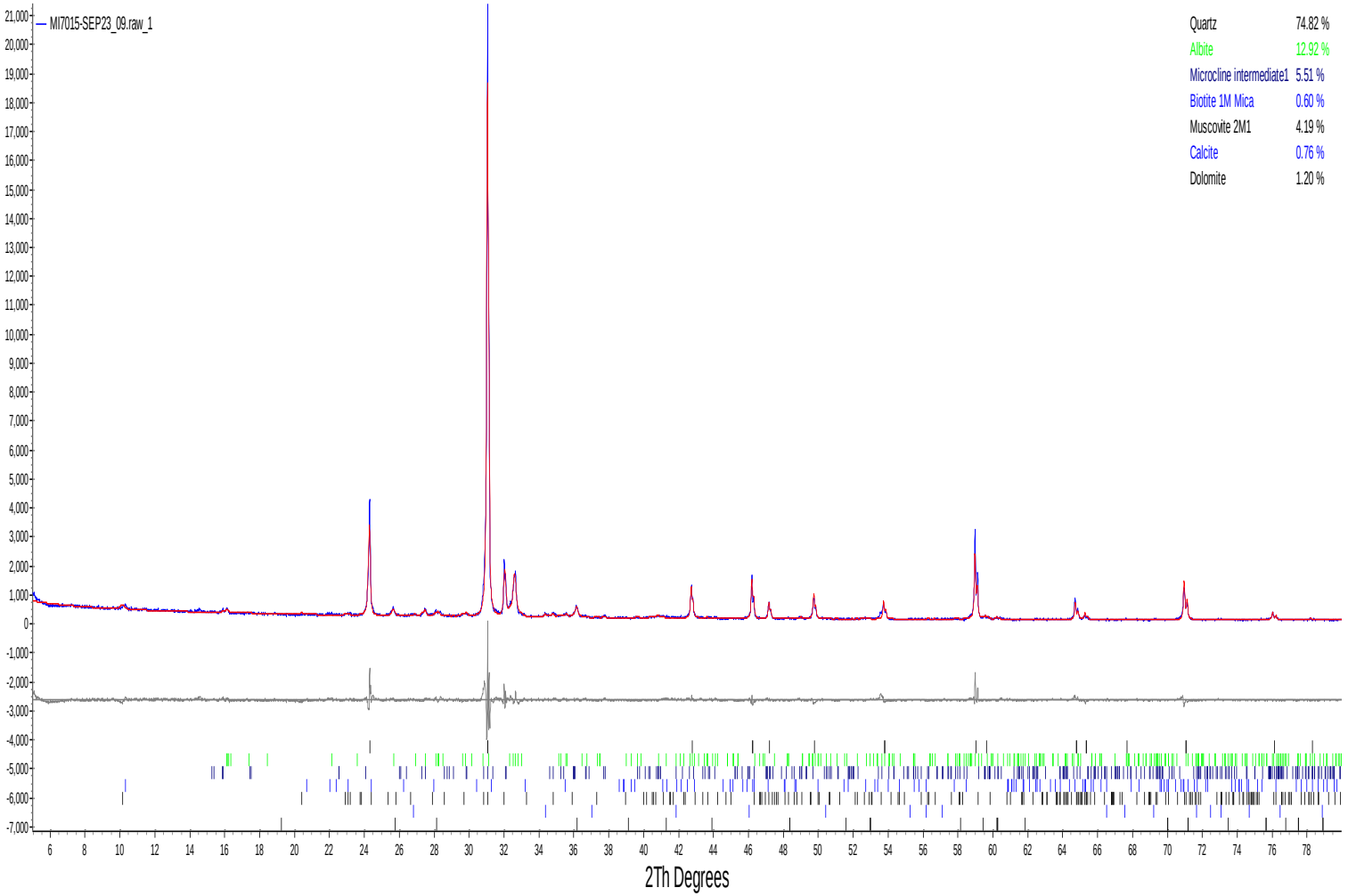
BH-1 - 2-5'



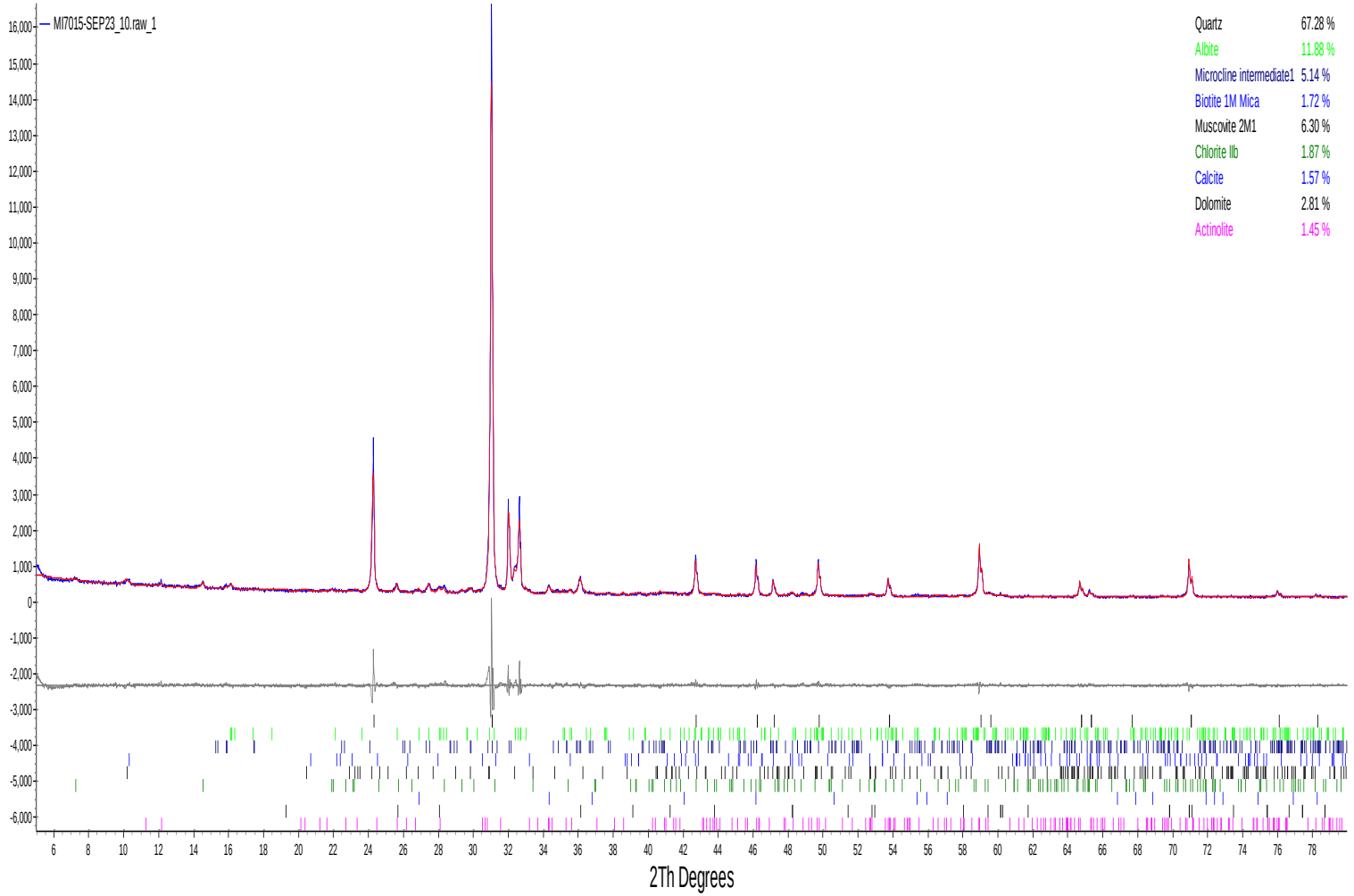
TW-2R2 - 50-94'


MI7015-SEP23_08.raw_1
Quartz 31.81 %
Albite 12.44 %
Microcline intermediate1 6.55 %
Biotite 1M Mica 0.05 %
Muscovite 2M1 15.89 %
Chlorite IIb 8.24 %
Calcite 3.09 %
Dolomite 3.04 %
Montmorillonite-12A 18.89 %
2Th Degrees

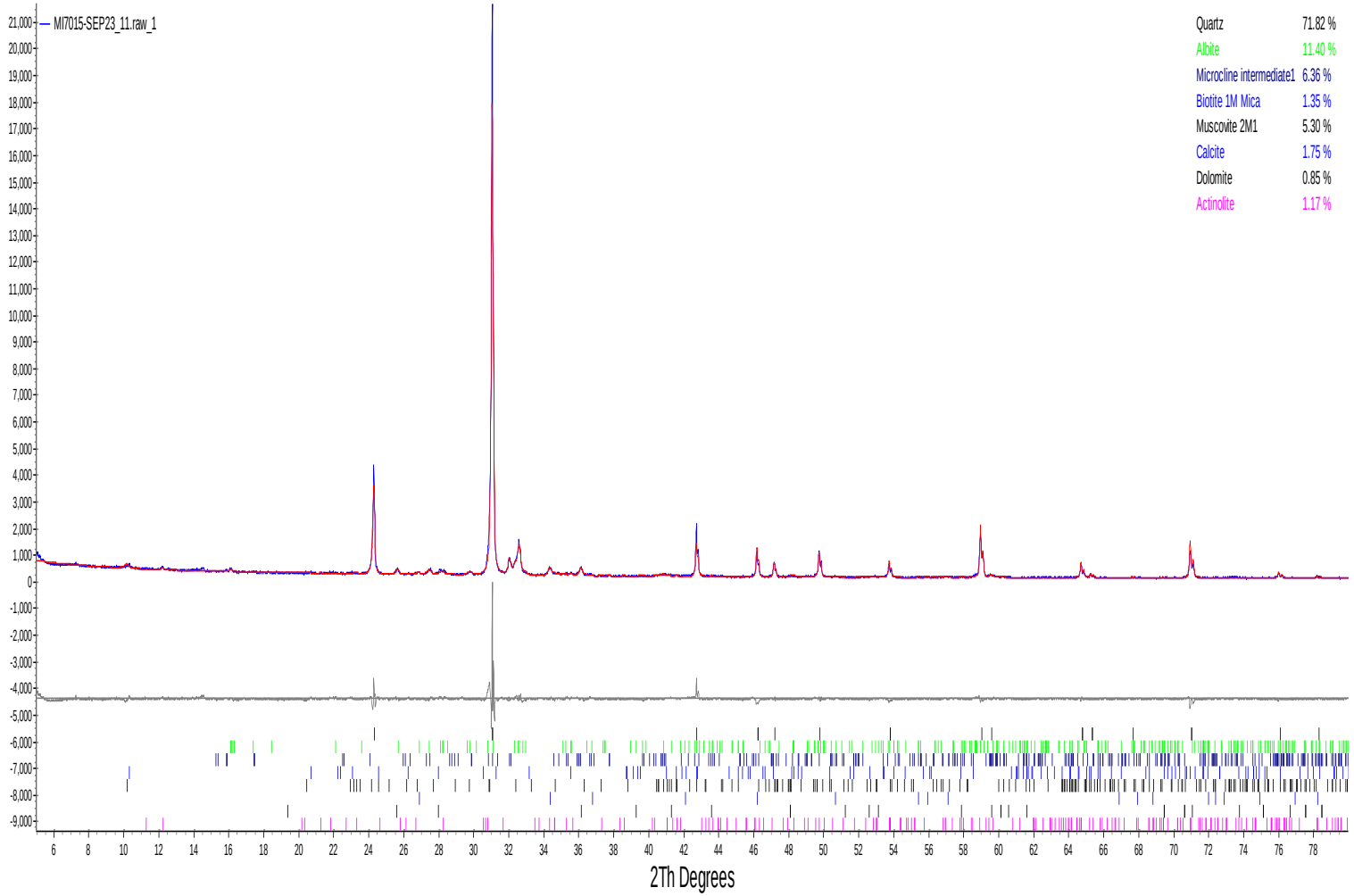
MW-215 - 16-18'


MI7015-SEP23_09.raw_1
Quartz 74.82 %
Albite 12.92 %
Microcline intermediate1 5.51 %
Biotite 1M Mica 0.60 %
Muscovite 2M1 4.19 %
Calcite 0.76 %
Dolomite 1.20 %
2Th Degrees

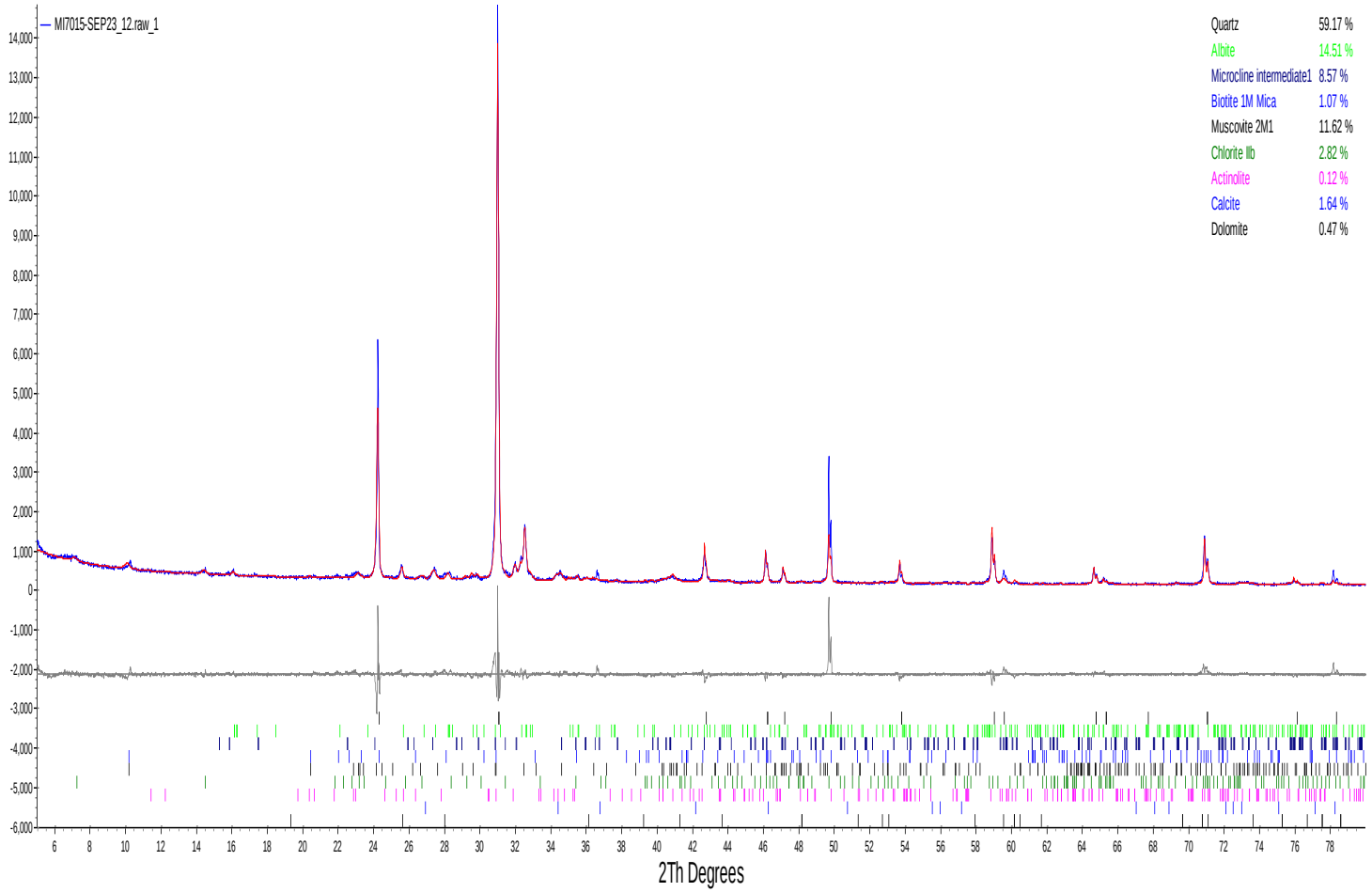
MW-217 - 12-13'


MI7015-SEP23_10.raw_1
Quartz 67.28 %
Albite 11.88 %
Microcline intermediate1 5.14 %
Biotite 1M Mica 1.72 %
Muscovite 2M1 6.30 %
Chlorite IIb 1.87 %
Calcite 1.57 %
Dolomite 2.81 %
Actinolite 1.45 %
2Th Degrees

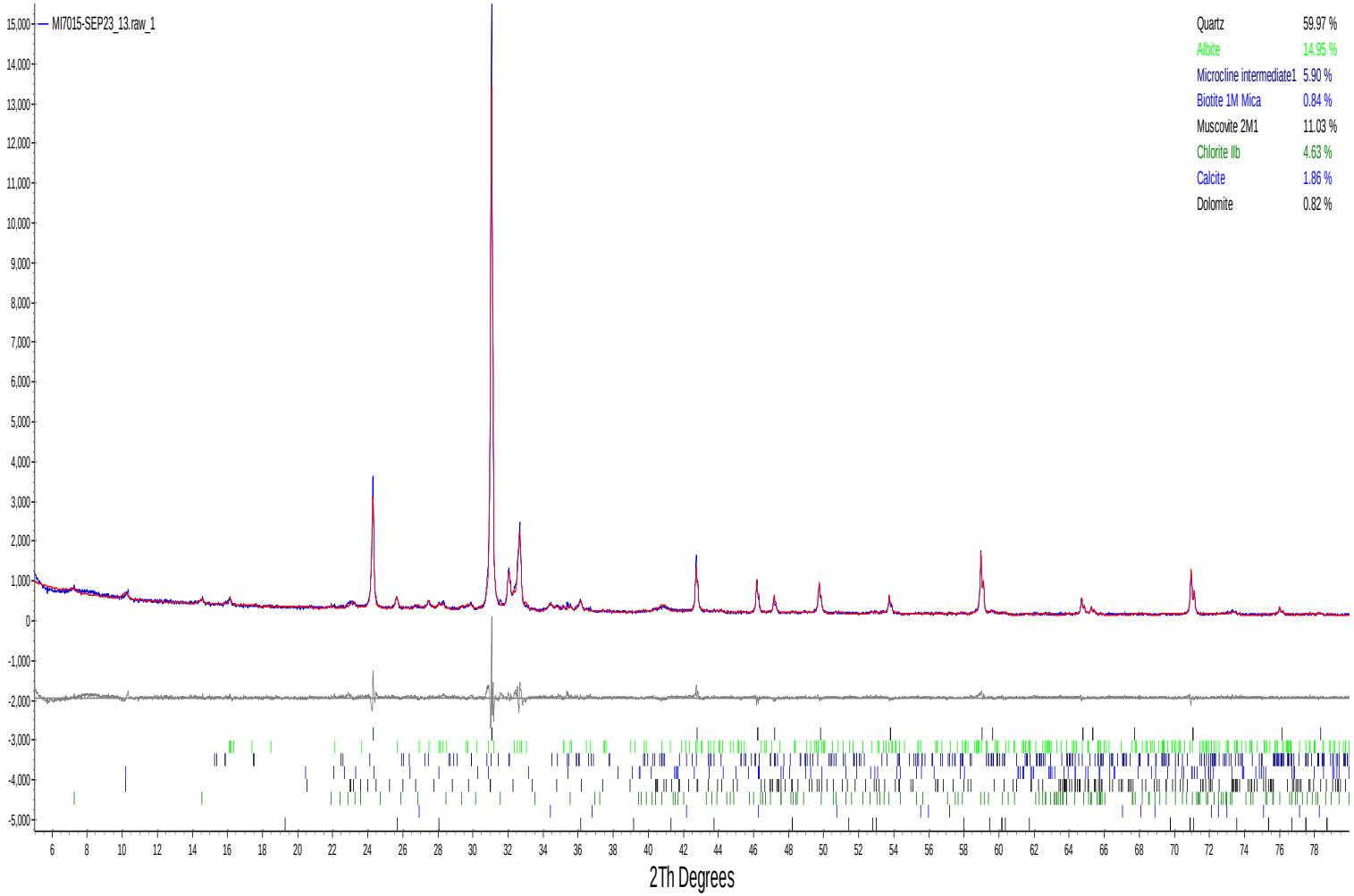
MW-218 - 11-12'


MI7015-SEP23_11.raw_1
Quartz 71.82 %
Albite 11.40 %
Microcline intermediate1 6.36 %
Biotite 1M Mica 1.35 %
Muscovite 2M1 5.30 %
Calcite 1.75 %
Dolomite 0.85 %
Actinolite 1.17 %
2Th Degrees

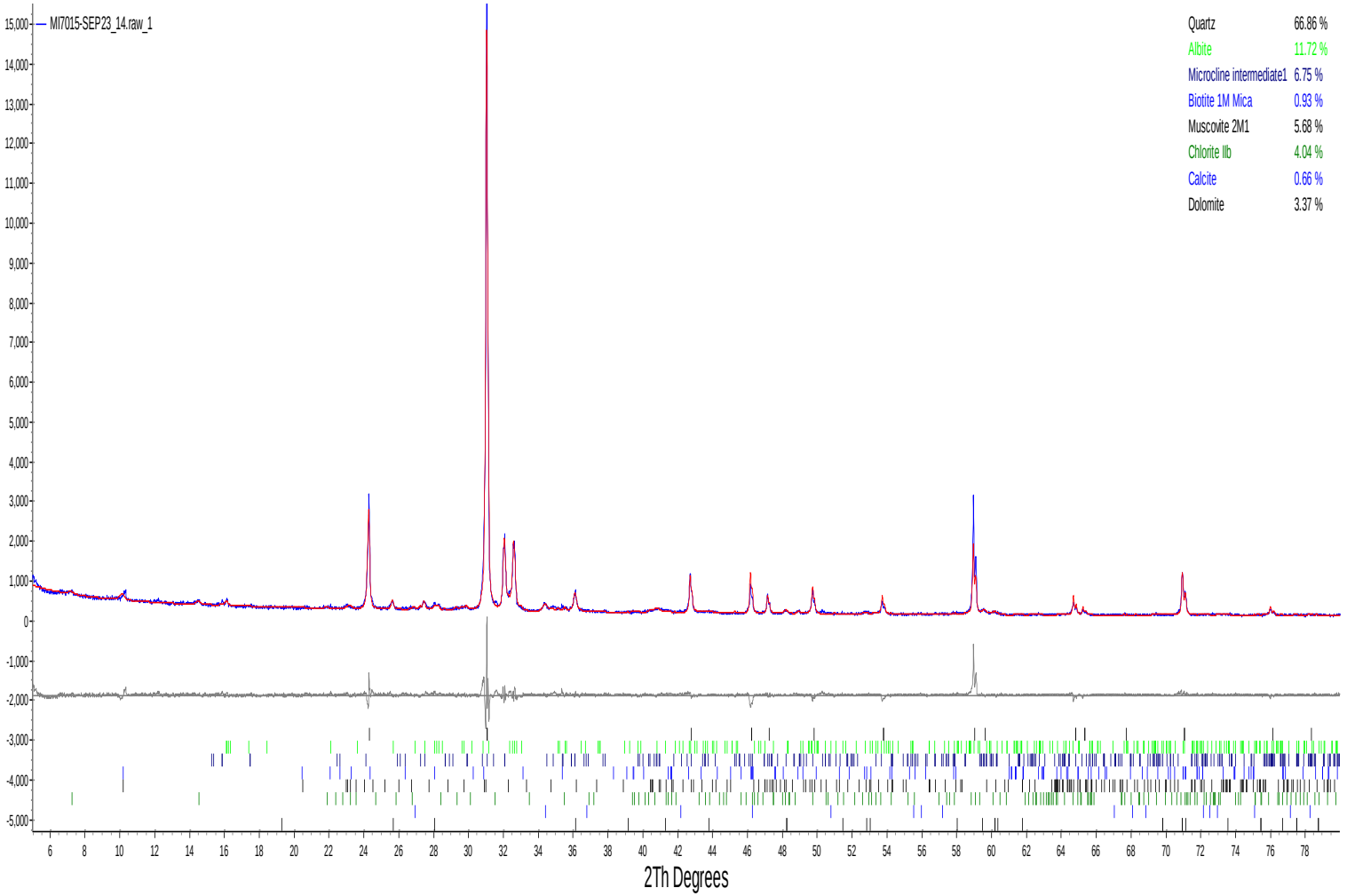
MW-219 - 18-20'


MI7015-SEP23_12.raw_1
Quartz 59.17 %
Albite 14.51 %
Microcline intermediate1 8.57 %
Biotite 1M Mica 1.07 %
Muscovite 2M1 11.62 %
Chlorite IIb 2.82 %
Actinolite 0.12 %
Calcite 1.64 %
Dolomite 0.47 %
2Th Degrees

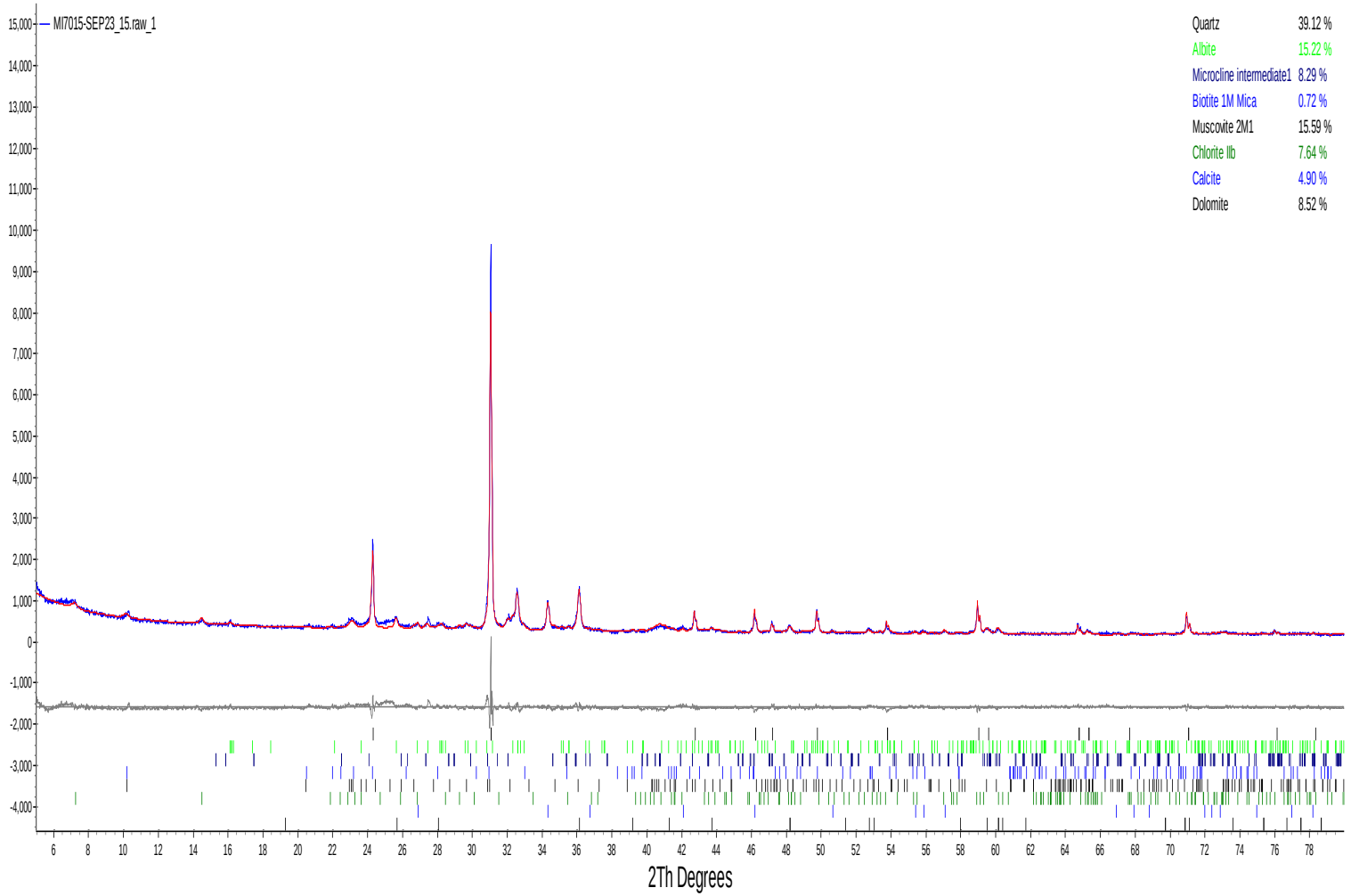
MW-222 - 34.5-36'


MI7015-SEP23_13.raw_1
Quartz 59.97 %
Albite 14.95 %
Microcline intermediate1 5.90 %
Biotite 1M Mica 0.84 %
Muscovite 2M1 11.03 %
Chlorite IIb 4.63 %
Calcite 1.86 %
Dolomite 0.82 %
2Th Degrees

MW-300 - 11-13'


MI7015-SEP23_14.raw_1
Quartz 66.86 %
Albite 11.72 %
Microcline intermediate1 6.75 %
Biotite 1M Mica 0.93 %
Muscovite 2M1 5.68 %
Chlorite IIb 4.04 %
Calcite 0.66 %
Dolomite 3.37 %
2Th Degrees

MW-PB3 - 22-24'


MI7015-SEP23_15.raw_1
Quartz 39.12 %
Albite 15.22 %
Microcline intermediate1 8.29 %
Biotite 1M Mica 0.72 %
Muscovite 2M1 15.59 %
Chlorite IIb 7.64 %
Calcite 4.90 %
Dolomite 8.52 %
2Th Degrees

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