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ENVIRONMENT
& HEALTH

Mr. Phil Morris
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Illinois Power Generating Company
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RE: Corrective Measures Assessment Required by 40 C.F.R. § 257.96
Newton Power Plant Primary Ash Pond – CCR Unit ID 501

April 3, 2024

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Dear Mr. Morris,

Ramboll Americas Engineering Solutions, Inc. (Ramboll) is providing Illinois Power Generating Company (IPGC) with this letter communicating that the groundwater corrective measures assessment (CMA) prepared on behalf of IPGC to assist in the compliance with the requirements of Title 35 of the Illinois Administrative Code (35 I.A.C.) § 845, Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments, also meets applicable and equivalent requirements of 40 C.F.R. § 257.96.

This CMA applies specifically to the coal combustion residuals unit referred to as the Primary Ash Pond at the Newton Power Plant, also referred to as Vistra identification number 501. IPGC initiated this CMA on November 5, 2023, following identification of groundwater protection standard (GWPS) exceedances of both 35 I.A.C. § 845.600 and 40 C.F.R. § 257.95[1].

The enclosed CMA specifically addresses exceedances of 35 I.A.C. § 845.600 GWPSs, however, since the referenced GWPS exceedance for lithium at APW02 is similar to the Statistically Significant Level (SSL) of lithium determined in accordance with 40 C.F.R. § 257.95 for this same well, it meets the 40 C.F.R. § 257.96 requirements for assessing potential corrective measures to address the lithium SSL.

Semiannual reports per 40 C.F.R. § 257.97 will be prepared to describe the progress in selecting and designing the remedy that addresses the SSL for lithium in the Uppermost Aquifer. A final report describing the selected remedy and how it meets the standards of 35 I.A.C. § 845.660 and 40 C.F.R. § 257.96 will also be prepared, per 40 C.F.R. § 257.97.

Sincerely,

Brian Hennings, PG
Project Officer, Hydrogeology

Frances Ackerman, RG, PE
Senior Managing Engineer

Enclosures *35 I.A.C.* § 845 *Corrective Measures Assessment, Primary Ash Pond, Newton Power Plant, Newton, Illinois, IEPA ID: W0798070001-01.*

[1] Ramboll Americas Engineering Solutions, Inc., "40 C.F.R. § 257.95(g)(5) Notification for Initiation of Corrective Measures Assessment, Newton Power Plant, Primary Ash Pond," December 5, 2023.

Intended for
Illinois Power Generating Company

Date
April 3, 2024

Project No.
1940103584-008

35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT

NEWTON POWER PLANT, PRIMARY ASH POND,

IEPA ID: W0798070001-1

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35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT NEWTON POWER PLANT, PRIMARY ASH POND, IEPA ID: W0798070001-1

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Project no.	**1940103584-008**
Recipient	**Illinois Power Generating Company**
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ATTACHMENTS

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ACRONYMS AND ABBREVIATIONS

35 I.A.C.	Title 35 of the Illinois Administrative Code
ASD	alternative source demonstration
bgs	below ground surface
CAAA	Corrective Action Alternatives Analysis
CAP	Corrective Action Plan
CCR	coal combustion residuals
CIP	closure-in-place
CMA	Corrective Measures Assessment
cm/s	centimeters per second
CSM	conceptual site model
EPRI	Electric Power Research Institute
E001	Event 1
GMP	Groundwater Monitoring Plan
GWPS	groundwater protection standard(s)
ID	identification
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
IPCB	Illinois Pollution Control Board
IPGC	Illinois Power Generating Company
ITRC	National Research Council, Interstate Technology & Regulatory Council
IX	ion exchange
LCU	lower confining unit
No.	number
NAVD88	North American Vertical Datum of 1988
NID	National Inventory of Dams
NPDES	National Pollutant Discharge Elimination System
NPP	Newton Power Plant, also referred to as site
NRT/OBG	Natural Resource Technology, an OBG Company
PRB	Permeable Reactive Barrier
PAP	Primary Ash Pond
PMP	Potential Migration Pathway
Ramboll	Ramboll Americas Engineering Solutions, Inc.
Rapps	Rapps Engineering and Applied Science
SI	surface impoundment
TDS	total dissolved solids
UA	uppermost aquifer
UCU	upper confining unit
UD	upper drift
USEPA	United States Environmental Protection Agency
ZVI	zero-valent iron

1. INTRODUCTION

Ramboll Americas Engineering Solutions, Inc. (Ramboll) has developed this assessment of groundwater corrective measures on behalf of Illinois Power Generating Company (IPGC) to assist in the compliance with the requirements of Title 35 of the Illinois Administrative Code (35 I.A.C.) § 845 Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments. This assessment applies specifically the coal combustion residuals (CCR) unit referred to as the Primary Ash Pond (PAP) at the Newton Power Plant (NPP), also referred to as Vistra identification (ID) number (No.) 501, Illinois Environmental Protection Agency (IEPA) ID No. W0798070001-01, and National Inventory of Dams (NID) No. IL50719. This report addresses content requirements specific to 35 I.A.C. § 845.660 (Assessment of Corrective Measures) for exceedances of lithium, sulfate, and total dissolved solids (TDS) at the PAP.

1.1 Source Control and Residual Plume Management

IPGC intends to initiate significant source control and residual plume management efforts as part of the PAP closure, as documented in the Final Closure Plan and Construction Permit Application that were submitted to IEPA in July of 2022 (IPGC, 2022). The proposed closure exceeds the minimum Closure Performance Standards listed in 35 I.A.C § 845.750. The closure will include removing free liquids in accordance with the performance standard in 35 I.A.C § 845 and maintaining that condition during the closure construction period. The closure will reduce the hydraulic head that can force leachate into subsurface soils and is the mechanism that can drive risk (United States Environmental Protection Agency [USEPA], 2015a, p. 21342):

> *EPA's risk assessment shows that the highest risks are associated with CCR surface impoundments due to the hydraulic head imposed by impounded water. Dewatered CCR surface impoundments will no longer be subjected to hydraulic head so the risk of releases, including the risk that the unit will leach into the groundwater, would be no greater than those from CCR landfills.*

The PAP will be closed using a consolidate-and-cap approach consisting of excavating nearly 2 million cubic yards of CCR and placing it in a consolidated CCR footprint at an elevation greater than 5 feet above the uppermost aquifer (UA). The consolidated CCR will be covered with an alternate geomembrane final cover system having performance that exceeds the 35 I.A.C §845.750(c)(2) minimum final cover requirements. The proposed source control is predicted to reduce water flux into and out of the PAP by 94% and allow the groundwater protection standards (GWPS) to be achieved within approximately 20 years (Ramboll, 2022). These source control activities will serve as the primary groundwater corrective measure at the PAP. The potentially feasible corrective measures presented herein are intended to be supplementary to the primary source control and are intended to serve as management measures to address any residual plumes that remain after completion of source control.

Attachment A includes summary figures from the Construction Permit Application that show the proposed final source control and primary corrective action.

1.2 Adaptive Site Management

Adaptive site management strategies will be employed as an integral part of ongoing corrective action at the PAP. The adaptive site management approach will allow timely incorporation of new

site information over the closure and post-closure life cycle of the PAP to ensure the achievement of the GWPS. The adaptive site management approach is proposed to expedite progress toward meeting the GWPS while acknowledging uncertainties, such as the persistence of current groundwater flow directions and flux quantities and potential related changes in geochemical conditions. A structured decision-making process and explicitly planned iterations between the implemented corrective measures and monitoring results will ensure that remediation is occurring. System performance and the condition of the residual plume will be monitored as the corrective measure(s) selected through the 35 I.A.C. § 845.710 Corrective Action Plan (CAP) process are implemented to supplement the source control measures described above. If the groundwater concentrations do not decrease consistent with the modeling prediction, the adaptive site management approach will facilitate timely modifications or enhancements to the corrective measure(s), as needed in accordance with 35 I.A.C. § 845.680(b). This approach will be employed to provide continuous improvement to the PAP groundwater remediation in response to new site information and/or the performance of the selected corrective measure(s).

The planned adaptive site management strategies are generally consistent with National Research Council, Interstate Technology & Regulatory Council (ITRC) and USEPA methodologies developed to address sites with long remediation times and high levels of uncertainty regarding the remedial actions necessary to achieve final and protective remediation goals (USEPA, 2022). The elements of the proposed adaptive site management strategy at the PAP will be responsive to the changing conditions associated with pond closure and performance of the selected corrective measure(s) and will include the following:

1. Implementing the groundwater corrective measure(s) selected as part of the CAP for the current conditions at the PAP. The selected corrective measures may include a combination of the technologies presented in this Corrective Measures Assessment (CMA).

2. Establishing both the absolute remedial objective and functional (interim) goals to monitor progress toward the remedial objective. Achieving the GWPS for 35 I.A.C. § 845.600 constituents at the downgradient waste boundary is the remedial objective for the PAP. Specific functional goals will be developed as part of the CAP process. The functional goals will be measurable thresholds for future action and may include short-term or technology-specific objectives and triggers. Functional goals may vary for different locations, CCR constituents or other site-specific considerations (ITRC, 2017) and will serve as benchmarks for comparison to ongoing groundwater monitoring at the PAP.

3. Ongoing groundwater monitoring at the PAP will continue throughout the implementation of source control and residual plume management activities. Post-closure monitoring will continue for a period of at least 30 years, in accordance with 35 I.A.C. § 845.780(c). A comprehensive groundwater monitoring plan (GMP) will be developed as part of the CAP process in accordance with 35 I.A.C. § 845.670 and 35 I.A.C. § 845.220(c)(4). The GMP will include the functional goals and proposed action levels.

4. Groundwater monitoring information will be used to guide decisions regarding whether progress toward the remedial goal is advancing as expected and/or whether additional actions may be needed to achieve the remedial objective, in conjunction with IEPA, as required by 35 I.A.C. § 845.680(b).

2. SITE INFORMATION

The NPP is located in Jasper County in the southeastern part of central Illinois, approximately 7 miles southwest of the town of Newton. The PAP is located in Section 26 and the western half of Section 25, Township 6 North, Range 8 East. The PAP is located south of the power plant and situated in a predominantly agricultural area (**Figure 2-1**). The PAP is surrounded by Newton Lake on the west, south, and east (**Figure 2-2**). Beyond the lake is additional agricultural land.

The NPP's sole CCR surface impoundment (SI), the PAP, was constructed in 1977 and has a design capacity of approximately 9,715 acre-feet. The PAP is an unlined CCR SI with a surface area of 404 acres which currently receives bottom ash, fly ash, and low-volume wastewater from the plant's two coal-fired boilers. The PAP is operated per National Pollutant Discharge Elimination System (NPDES) Permit IL0049191, Outfall 001. A construction permit application for the closure of the PAP (*e.g.,* source control) was submitted to IEPA on July 28, 2022 (IPGC, 2022); permit approval is pending at this time.

2.1 Conceptual Site Model

Significant site investigation has been completed at the NPP to characterize the geology, hydrogeology, and groundwater quality. Based on extensive investigation and monitoring, the PAP has been well characterized and detailed in the Hydrogeologic Site Characterization Report (Ramboll, 2021), which was prepared to comply with the requirements specified in 35 I.A.C. § 845.620 and expands upon the Hydrogeologic Monitoring Plan (Natural Resource Technology, an OBG Company [NRT/OBG], 2017). The conceptual site model (CSM) is presented below.

Quaternary deposits in the Newton area consist mainly of diamictons and outwash deposits that were deposited during Illinoian and Pre-Illinoian glaciations (Lineback, 1979; Willman et al., 1975). The unconsolidated deposits include the following units (beginning at the ground surface):

- **Upper Drift (UD)/ Potential Migration Pathway (PMP):** The upper drift (UD) is composed of the low permeability silts and clays of the Peoria Silt and Sangamon Soil and the sandier soils of the Hagarstown Member. The Peoria Silt and Sangamon Soil units are present within the PAP at thicknesses up to approximately 46 feet, as measured in APW15, and range from 3 to 46 feet thick as observed in APW05 and APW10 (Ramboll, 2021). The hydraulic conductivity of this unit, calculated from field hydraulic test data from monitoring wells screened between 8 and 36 feet below ground surface (bgs), was observed to range from 2.4×10^{-6} to 6.1×10^{-5} centimeters per second (cm/s) with a geometric mean of 1.3×10^{-5} cm/s (Rapps Engineering and Applied Science [Rapps], 1997).
  - **Hagarstown Member/PMP**: The Hagarstown Member consists of the discontinuous, sandier deposits of the UD where present and overlies the Vandalia Till. Where present, the sandy deposits of the Hagarstown are generally less than 2 feet thick, with a maximum encountered thickness of approximately 6.9 feet at APW18 (Ramboll, 2021). Results of field hydraulic conductivity tests in wells screened within the Hagarstown PMP (APW05S and APW12) ranged from 6.1×10^{-4} to 1.5×10^{-2} cm/s, with a geometric mean hydraulic conductivity of 3.1×10^{-3} cm/s (Ramboll, 2021).
- **Upper Confining Unit (UCU)**: The UCU consists of a thick, 26 feet thick on average with a maximum observed thickness of 59 feet at APW07, package of the low permeability clay and silt of the Vandalia Till Member. This unit is a laterally continuous layer between the base of

the upper drift and the top of the UA. The hydraulic conductivity of this unit was observed to range from 6.3 x 10^{-9} to 2.1 x 10^{-8} cm/s with a geometric mean of 1.1 x 10^{-8} cm/s (Rapps, 1997).

- **Uppermost Aquifer (UA):** The UA is composed of the Mulberry Grove Member, which has been classified as poorly graded sand, silty sand, clayey sand, and gravel. The top of the UA is highest in elevation in the north and east portions of the unit and slopes downward toward APW15. The top of unit elevations range from approximately 482 feet[1] (APW05 and APW10) to 425 feet (APW15). The average thickness of the Mulberry Grove sands and gravels is approximately 10 feet, with a maximum thickness of 30 feet observed at APW17. Field hydraulic conductivity tests conducted in 2021 at monitoring wells screened in the UA ranged from 2.0 x 10^{-4} to 1.5 x 10^{-1} cm/s with a geometric mean hydraulic conductivity of 6.8 x 10^{-3} cm/s. The highest conductivities are measured in APW15, APW16, and APW17 (Ramboll, 2021).
- **Lower Confining Unit (LCU):** The LCU is comprised of low permeability silt and clay of the Smithboro Till Member and the Banner Formation. The unit was encountered at thicknesses up to 36 feet in APW14), while the average thickness is 32 feet (Ramboll, 2021). The hydraulic conductivity of this unit was observed to be 1.4 x 10^{-7} cm/s (Rapps, 1997).
- **Bedrock Unit:** Shale bedrock of the Pennsylvanian-age Mattoon Formation (Willman et al., 1967) was encountered at the NPP during recent and historical investigations. Based on boring logs, the bedrock surface elevation at the NPP ranges from 408 feet (B141) to 445 feet (APW13) (Ramboll, 2021). Bedrock was not encountered at APW15, which was advanced to approximately 412 feet (Ramboll, 2021). This indicates that APW15, which is screened within the UA from 424 to 419 feet, is located in close proximity to the bedrock surface.

Groundwater flow in the UA is generally from north to south. However, UA wells also display flow converging towards a former surface drainage feature located west of the PAP and an area where the UA is lowest in elevation. Groundwater elevations in the UA vary seasonally, generally less than one foot per year, while across the PAP they range from approximately 490 to 530 feet, although flow directions are generally consistent. Groundwater elevations and contours for the April 24, 2023 monitoring event (Event 1 [E001]) are presented in **Figure 2-3**.

2.2 Groundwater Quality

Groundwater monitoring in accordance with the proposed GMP and sampling methodologies provided in the operating permit application for the PAP began in the second quarter of 2023. The 35 I.A.C § 845 groundwater monitoring system is displayed on **Figure 2-4** and consists of two background monitoring wells screened in the UA, 11 compliance wells screened in the UA, five compliance wells screened in the UD, and two temporary water level only surface water staff gages. The groundwater samples collected from the 18 wells are used to monitor and evaluate groundwater quality and demonstrate compliance with the groundwater quality standards listed in 35 I.A.C. § 845.600(a). The proposed monitoring wells yield groundwater samples that represent the quality of downgradient groundwater at the CCR boundary (as required in 35 I.A.C. § 845.630(a)(2)).

The E001 sampling event was completed on April 28, 2023. In accordance with 35 I.A.C. § 845.610(b)(3)(C), statistically derived values were compared with the GWPSs summarized in

[1] All elevations in this report are referenced to North American Vertical Datum of 1988 (NAVD88) unless otherwise noted.

35 I.A.C. § 845.600 to determine exceedances of the GWPS (Ramboll, 2023a). The statistical determinations initiated during E001 identified the following GWPS exceedances at compliance groundwater monitoring wells:

- Lithium in UD/PMP well APW02;
- Sulfate in UD/PMP wells APW02, APW04, APW05S, and in UA well APW10;
- TDS in UD/PMP wells APW02, APW04, APW05S and APW12;
- Chloride in UA well APW15.

Pursuant to 35 I.A.C. § 845.650(e), an alternative source demonstration (ASD) was prepared and submitted to IEPA that presented evidence demonstrating that sources other than the PAP were the cause of the chloride GWPS exceedance listed above (Ramboll, 2023b).

The IEPA did not concur with the ASD due to the following alleged data gaps:

1. Source characterization of the CCR at the PAP must include total solids sampling in accordance with SW846.
2. Hydraulic conductivities from laboratory or in-situ testing must be collected, analyzed, and presented with hydrogeologic characterization of bedrock unit.
3. Characterization to include sample and analysis in accordance with 35 IAC § 845.640 of alternative source must be provided with the ASD.

IPGC submitted written comments and additional information in response to IEPA's request for information and filed a petition asking the Illinois Pollution Control Board (IPCB) to review IEPA's ASD denial. Implementing corrective actions to address naturally occurring compounds in groundwater will not be effective and IPGC believes that it is likely that it will succeed on the merits of the petition for review of the ASD denial. The petition included a motion for a partial stay of the 35 I.A.C. § 845 requirements as they apply to the exceedance of the chloride GWPS at the PAP. The IEPA had no objection to the requested stay, which was granted by IPCB on January 18, 2024. Therefore, the CMA will address identified GWPS exceedances, exclusive of chloride exceedances at APW15, in accordance with 35 I.A.C. § 845.660 and the partial stay. The 35 I.A.C. § 845.650 groundwater monitoring requirements will continue to ensure that there will be timely detection of any additional changes in groundwater quality during the stay. The inclusion of the chloride GWPS exceedance in the CAP process will remain under review pending IPCB's final action on IPGC's appeal of the IEPA ASD denial or until IPCB orders otherwise.

3. CORRECTIVE MEASURES ASSESSMENT METHODOLOGY

This section describes the CMA methodology initiated in response to the identification of exceedances of the GWPSs for 35 I.A.C. § 845.600 constituents at the downgradient waste boundary of the PAP during the E001 groundwater monitoring event (Ramboll, 2023a). The CMA was initiated on November 5, 2023, within 90 days after the detection of exceedance(s) of GWPS. Under 35 I.A.C. § 845, owners and operators of existing CCR SI must initiate the assessment of corrective measures in accordance with 35 I.A.C. § 845.660 if one or more constituents are detected, and confirmed by an immediate resample, to be in exceedance of a GWPS in 35 I.A.C. § 845.600, and the owner or operator has not demonstrated that: a source other than the CCR SI caused the exceedance, or; that the exceedance of the GWPS resulted from error in sampling, analysis, statistical evaluation, natural variation in groundwater quality or a change in the potentiometric surface and groundwater flow direction (an ASD).

The CMA is the first step in developing a long-term CAP to address the GWPS exceedances at CCR SIs. The process provides a systematic, rational method for evaluating potential corrective measures by first identifying potentially viable technologies and assessing them using qualitative information to eliminate from consideration infeasible or otherwise unacceptable remedial technologies (*i.e.,* the 35 I.A.C. § 845.660 CMA). The remaining technologies will be evaluated individually, or assembled into combined alternatives, and further evaluated under the 35 I.A.C. § 845.670 CAP process.

This CMA identified applicable corrective measure technologies and evaluated them for viability, given the site-specific conditions and considerations at the PAP, by addressing the following 35 I.A.C § 845.660 evaluation criteria:

- Performance, reliability, ease of implementation and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;
- Time required to begin and complete the corrective action plan; and
- Institutional requirements, such as State or local permit requirements or other environmental or public health requirements, that may substantially affect implementation of the corrective action plan.

The evaluation included qualitative and/or semi-quantitative screening of the potential corrective measures (technologies) relative to their general performance, reliability, and ease of implementation characteristics and their potential impacts, timeframes, and institutional requirements to assess the viability of each technology to address the GWPS exceedances at the PAP. This approach provided a reasoned set of corrective measures that could be used, either individually or in combination, to supplement the primary source control measures described in **Section 1.1**. This set of corrective measures will be further evaluated in the Corrective Action Alternatives Analysis (CAAA).

4. DESCRIPTION OF POTENTIAL CORRECTIVE MEASURE TECHNOLOGIES

The potential groundwater corrective measures summarized below are applicable to the PAP and were included in the CMA development and analysis. Site-specific considerations provided in **Section 2** were used to evaluate potential groundwater corrective measures. Each of the corrective measures evaluated may be capable of satisfying the requirements and objectives, listed in **Section 3**, to varying degrees of effectiveness. The corrective measure review process was intended to yield a set of applicable corrective measures that could be used to supplement the primary corrective action, which will be the source control activities described in **Section 1.1** (hybrid consolidate-and-cap approach with a geomembrane final cover system). The source control is expected to reduce downgradient concentrations in the UA to less than the GWPS via naturally occurring physical and chemical processes over an approximately 20-year timeframe. Ongoing monitoring will be an integral part of all corrective measures to verify and document the remedial process. The corrective measures ultimately advanced to the CAAA and selected in the CAP will be used to enhance the effectiveness of the source control and may be used independently or combined into specific remedial alternatives to leverage the advantages of multiple corrective measures to attain GWPSs.

Source control measures will be initiated for the PAP, as described in **Section 1.1**; all of the evaluated additional corrective measure technologies are proposed to be supplemental and complementary to source control activities. The following potential corrective measures, commonly used to mitigate groundwater impacts, were considered as a part of the CMA process:

- Source Control with Groundwater Polishing;
- Source Control with Groundwater Extraction (groundwater pumping wells or collection trenches);
- Source Control with a Cutoff Wall; and
- Source Control with In-Situ Treatment (Permeable Reactive Barrier [PRB] or In-Situ Chemical Treatment).

4.1 Source Control with Groundwater Polishing

Both federal and state regulators have long recognized that natural geochemical processes can be an acceptable component of a remedial action when it can achieve remedial action objectives in a reasonable timeframe. In 1999, the USEPA published a final policy directive (USEPA, 1999) for groundwater remediation and described the process as follows:

- *"The reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants."*

The USEPA has stated that source control is the most effective means of ensuring the timely attainment of remediation objectives (USEPA, 1999). Natural geochemical processes may be appropriate as a "finishing step" after effective source control implementation (*i.e.*, groundwater polishing), to reduce the residual mass remaining in the groundwater after closure, if there are no risks to receptors and/or the contaminant plume is not expanding. Thus, groundwater polishing would be used in conjunction with the significant planned source control effort at the site, which will consist of a hybrid consolidate-and-cap approach with a final cover system described in **Section 1.1**.

In 2015, USEPA addressed remediation of inorganic compounds in groundwater and noted that the use of natural geochemical processes to address inorganic contaminants: (1) is not intended to constitute a treatment process for inorganic contaminants; (2) when appropriately implemented, can help to restore an aquifer to beneficial uses by immobilizing contaminants onto aquifer solids and providing the primary means for attenuation of contaminants in groundwater; and (3) is not intended to be a "do nothing" response (USEPA, 2015b). Rather, documenting the applicability of natural geochemical processes for groundwater remediation should be thoroughly and adequately supported with site-specific characterization data and analysis (USEPA, 1999; USEPA, 2007; USEPA, 2015b):

Both physical and chemical processes can contribute to the reduction of the small amount of residual mass remaining after closure of the PAP, and the toxicity, mobility, volume, or concentration of contaminants in groundwater. Physical processes applicable to CCR constituents in groundwater include dilution, dispersion, and flushing. Chemical processes applicable to CCR constituents in groundwater include precipitation and coprecipitation (*e.g.,* incorporation into sulfide minerals), sorption (*e.g.,* to iron, manganese, aluminum; to other metal oxides or oxyhydroxides; or to sulfide minerals or organic matter), and ion exchange.

All inorganic compounds are subject to physical processes and under typical environmental conditions, the physical mechanisms most often exert the dominant control on the CCR constituents of interest. Chemical mechanisms are also likely to be active, though not often dominant, such as adsorption, ion exchange, and organic complexation. In combination with source control, these natural controls can provide an effective means to polish residual loading and achieve the GWPS in a reasonable timeframe. Additional data collection and analysis may be required to support the USEPA's evaluation framework (USEPA, 2015b) and obtain regulatory approval.

4.2 Source Control with Groundwater Extraction

Groundwater extraction is one of the most widely used groundwater corrective technologies and has a long history of performance. This corrective measure includes installation of one or more groundwater pumping wells or an extraction trench to control and extract impacted groundwater. Groundwater extraction captures and contains impacted groundwater and can limit plume expansion and/or off-site migration. Construction of a groundwater extraction system typically includes, but is not limited to, the following primary components:

- Designing and constructing a groundwater extraction system consisting of one or more extraction wells or trenches and operating at a rate to allow capture of CCR impacted groundwater within the UA and or the UD/PMP.

- Management of extracted groundwater, which may include modification to the existing NPDES permit.
- Ongoing inspection and maintenance of the groundwater extraction system.

Remediation of inorganics by groundwater extraction can be effective, but systems do not always perform as expected. A combination of factors, including geologic heterogeneities, difficulty in flushing low-permeability zones, and rates of contaminant desorption from aquifer solids can limit effectiveness. Groundwater extraction systems require ongoing operation and maintenance to address issues such as iron bacteria and well fouling and to ensure optimal performance. The extracted groundwater must be managed, either by ex-situ treatment or disposal.

Groundwater extraction may reduce the timeframe to achieve GWPS and limit the off-site migration of constituents that exceed the GWPS. Extraction could be accomplished using a groundwater pumping well system or an extraction trench.

4.3 Source Control with Groundwater Cutoff Wall

Since the late 1970s and early 1980s, vertical cutoff walls have been used to control and/or isolate impacted groundwater. Low-permeability cutoff walls can be used to prevent horizontal off-site migration of potentially impacted groundwater. Cutoff walls act as barriers to lateral transport of impacted groundwater and can isolate soils that have been impacted by CCR to prevent mixing with unimpacted groundwater. Cutoff walls are often used in conjunction with an interior pumping system to establish an inward gradient within the cutoff wall. The gradient imparted by the pumping system maintains an inward flow through the wall, keeping it from acting as a groundwater dam and controlling potential end-around or breakout flow of contaminated groundwater. Constructing the cutoff wall such that it intersects a low-permeability material at its base, referred to as "keying", greatly increases its effectiveness.

A commonly used cutoff wall construction technology is the slurry trench method, which consists of excavating a trench and backfilling it with a soil-bentonite mixture, often created with the excavated soils, or, for deeper walls, a cement-bentonite mixture that is produced at an onsite batch plant. The trench is temporarily supported with bentonite slurry pumped into the trench during excavation (D'Appolonia & Ryan, 1979). Cutoff wall excavation uses conventional hydraulic excavators, hydraulic excavators equipped with specialized booms to extend their reach (*i.e.,* long-stick excavators), clamshells, or more specialized equipment such as hydromills, secant-pile drill rigs, or one-pass machines, depending upon trench depth, material excavated, and type of material that the wall is keyed into.

Cutoff walls are a widely accepted technology for containing impacted groundwater. Combining groundwater polishing with a limited cutoff wall and groundwater extraction in specific areas may provide advantages over independent use of these potential corrective technologies. Cutoff walls can be used in combination with groundwater extraction or as part of a PRB system (as the "funnel" in a funnel-and-gate system; **Section 4.4**).

4.4 Source Control with In-Situ Chemical Treatment

The use of in-situ treatment, either by injection or PRBs is a widely used technology for treating impacted groundwater. However, in-situ treatment techniques for lithium and sulfate are not well established, therefore performance is unknown.

Chemical treatment could consist of injection of reactive materials into the subsurface to treat contaminants at specific, targeted locations. Alternatively, treatment could be accomplished via PRB, where subsurface barriers (*i.e.,* cutoff walls) are placed at locations designed to direct the contaminant plume along a flow path through the reactive media. In either system, the contaminants are transformed or otherwise rendered into environmentally acceptable forms to attain remediation concentration goals downgradient of the barrier (Electric Power Research Institute [EPRI], 2006).

As groundwater passes through the PRB under natural gradients, dissolved constituents in the groundwater react with the reactive media and are transformed or immobilized. A variety of media have been used or proposed for use in PRBs. Zero-valent iron (ZVI) has been shown to effectively immobilize some CCR constituents, including arsenic, chromium, cobalt, molybdenum, selenium, and sulfate. Use of a combination media consisting of ZVI and a boron-selective ion exchange resin to treat boron has been documented in a pilot-scale test (EPRI, 2006).

System configurations include continuous PRBs, in which the reactive media extends across the entire path of the contaminant plume; and funnel-and-gate systems, where low-permeability barriers are installed to control groundwater flow through a permeable gate containing the reactive media. Continuous PRBs intersect the entire contaminant plume and do not materially impact the groundwater flow system. Design may or may not include keying the PRB into a low-permeability unit at depth. Funnel-and-gate systems utilize a system of barriers to groundwater flow (funnels) to direct the contaminant plume through the reactive gate. The barriers, typically some form of cutoff wall, are keyed into a low-permeability unit at depth to prevent short circuiting of the plume. Funnel-and-gate design must consider the residence time to allow chemical reactions to occur. Directing the contaminant plume through the reactive gate can significantly increase the flow velocity, thus reducing residence time.

Design of in-situ treatment systems requires rigorous site investigation to characterize the site hydrogeology and to delineate the contaminant plume. A thorough understanding of the geochemical and redox characteristics of the plume is critical to assess the feasibility of the process and select appropriate reactive media. Laboratory studies, including batch studies and column studies using samples of site groundwater, are needed to determine the effectiveness of the selected reactive media at the site (EPRI, 2006). The main considerations in selecting reactive media are as follows (Gavaskar et al., 1998; cited by EPRI, 2006):

- Reactivity - The media should be of adequate reactivity to immobilize a contaminant within the residence time of the design.
- Hydraulic performance - The media should provide adequate flow through the PRB, meaning a greater particle size than the surrounding aquifer materials. Alternatively, gravel beds have been emplaced in front of barriers to direct flow through the barrier.
- Stability - The media should remain reactive for an amount of time that makes its use economically advantageous over other technologies.
- Environmentally compatible by-products - Any by-products of media reaction should be environmentally acceptable. For example, iron released by zero-valent iron corrosion should not occur at levels exceeding regulatory acceptance levels.
- Availability and price: The media should be easy to obtain in large quantities at a price that does not negate the economic feasibility of using a PRB.

5. ASSESSMENT OF CORRECTIVE MEASURE TECHNOLOGIES

This CMA was initiated to address exceedances of the 35 I.A.C. § 845.600 GWPS for lithium, sulfate, and TDS at the downgradient waste boundary of the PAP identified during the E001 groundwater monitoring event (**Section 2.2**).

5.1 Requirements

The potential groundwater corrective technologies described in the previous section were evaluated relative to the requirements presented in **Section 3** and reiterated below:

- Performance, reliability, ease of implementation and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;
- Time required to begin and complete the corrective action plan; and
- Institutional requirements, such as State or local permit requirement or other environmental or public health requirements that may substantially affect implementation of the corrective action plan.

Table 5-1 presents the qualitative CMA evaluation for each corrective technology relative to these requirements, as well as their ability to address lithium, sulfate, and TDS GWPS exceedances. The following sections provide a summary of these evaluations and a discussion of the potential groundwater corrective measure technologies that may be viable, either independently or in combination, to address GWPS exceedances. This section also provides a summary of corrective measure technologies that have been retained and advanced for evaluation as part of the CAAA process for selecting the final remedy for the PAP per 35 I.A.C. § 845.670.

5.2 Groundwater Corrective Technology Assessment

Source control, consisting of CCR consolidation and closure-in-place (CIP) with a final cover system, will be the primary groundwater corrective measure for the PAP. Closure is expected to be completed in 2028 and each of the potential groundwater corrective measure technologies would supplement the positive impact of the closure activities. The following sections evaluate groundwater corrective measure technologies that, when combined with site closure, may be viable to address the lithium, sulfate, and TDS GWPS exceedances. Technologies that are not viable for addressing exceedances of GWPS at the PAP will be eliminated from further evaluation and viable technologies will be advanced for further evaluation as part of the CAAA process per 35 I.A.C. § 845.600.

5.2.1 Source Control with Groundwater Polishing

Source control corrective measures (**Section 1.1**) will reduce the mass loading to the groundwater system and the groundwater polishing process could decrease the timeframe for attainment of GWPS in the UA. Groundwater flow and fate and transport modeling incorporating only physical processes indicate that source control would meet GWPS in approximately 20 years. Physical processes are expected to perform well in the UA, as discussed below.

Groundwater polishing by natural geochemical processes is a widely accepted component of groundwater remediation and is routinely approved by the IEPA when paired with source control. The performance of groundwater polishing as a groundwater corrective measure varies based on site-specific conditions and additional data collection may be needed to support the design and achieve regulatory approval. The sandy nature of the UA suggests good performance by physical processes in addressing the sulfate in the UA. The chemical processes in the fine-grained UD require further evaluation.

Naturally occurring geochemical processes are ongoing at the PAP and will continue to affect groundwater constituent concentrations during and after PAP closure. Ongoing monitoring of groundwater conditions is needed to better understand the mechanisms and efficacy of the groundwater polishing process and to confirm the effectiveness over time. Thus, additional groundwater sample collection and analyses would be required to characterize potential mechanisms, as discussed above, and to provide long term monitoring of the remedial progress. Enhancements to the groundwater monitoring system may be required to ensure that groundwater polishing is occurring as predicted by the groundwater and consistent with the adaptive site management approach. The reliability of groundwater polishing as a groundwater corrective measure is high because operation and maintenance requirements are limited. However, the reliability can also vary based on site-specific hydrogeologic and geochemical conditions.

Following characterization and approval of the CAP, monitoring of the groundwater polishing processes and comparison to functional goals established to monitor progress toward the remedial objective could begin prior to, or concurrently with, site closure activities. Installing additional monitoring wells could begin as quickly as within a few months of CAP approval. The time required could be reduced if existing groundwater monitoring well systems could be utilized for monitoring.

No potential safety impacts or exposure to human health or environmental receptors are expected to result from the groundwater polishing processes. Timeframes to achieve GWPS are dependent on site-specific conditions, which require detailed technical analysis which are ongoing and will be evaluated in connection with the CAAA. Selecting groundwater polishing as a corrective measure for the PAP will require approval of the closure and CAP permits by the IEPA.

Monitoring the groundwater polishing to track progress toward achievement of the GWPS, in conjunction with source control at the PAP, would require long-term maintenance and monitoring of the groundwater monitoring system to confirm source control and verify the effectiveness in reducing groundwater concentrations to levels below the GWPS. System design could begin immediately after approval of the CAP permit. Additional investigations to characterize site conditions and installation of the final monitoring system could be performed concurrently with the source control (unit closure) activities, which are currently expected to be completed in 2028.

Groundwater polishing processes will continue before and after source control implementation and may be a viable corrective measure for the sulfate and lithium exceedances at the PAP. Therefore, these processes are being advanced to the CAAA for further evaluation.

5.2.2 Source Control with Groundwater Extraction

Source control will reduce the mass loading to the groundwater system and implementing a groundwater extraction system may reduce the time required to attain the GWPS in the UA.

However, the groundwater impacts already present in the low permeability PMP may limit the reduction in time to attain the GWPS that can be achieved by a groundwater extraction system.

Groundwater extraction is a widely accepted corrective measure with a long track record of performance and reliability. It is routinely approved by the IEPA. For a corrective measure using groundwater extraction to effectively control off-site flow and/or to remove potentially contaminated groundwater, horizontal and vertical capture zone(s) must be created. However, the low permeability PMP would restrict the ability to pump at rates high enough to establish the required capture zone(s) or would require a high density of wells or a trench drainage system. The performance of a groundwater extraction system would be expected to be effective in the high permeability UA (mean hydraulic conductivity of 6.8×10^{-3} cm/s). However, the proximity and influence of Newton Lake to the impacted area of the UA would potentially result in large volumes of extracted groundwater and lake water. Cutoff walls (**Section 4.3**) could also be used in conjunction with a pumping system to control potential groundwater movement from the lake. A groundwater extraction system in the PMP would be limited by its low permeability (mean hydraulic conductivity of 1.3×10^{-5} cm/s); however, a low volume extraction trench in the PMP could be used to enhance groundwater capture from the PMP.

Implementation of a groundwater extraction system presents design challenges due to the proximity to Newton Lake. An extraction system in the UA would have to consider the potential for extracting unimpacted lake water. Construction of an extraction system between the PAP and Newton Lake may be challenging due to the physical site constraints (limited construction area). Extracted groundwater (and potentially lake water) would need to be managed, which may include modification to the existing NPDES permit and treatment prior to discharge, if necessary. Specialized treatment equipment may be required, and ongoing operations and maintenance activities would be necessary.

There could be some impacts associated with constructing and operating a groundwater extraction system, including some limited exposure to extracted groundwater. Additional data collection and analyses would be required to design an extraction system. Construction could be completed within 1 year following completion of a final design. Time of implementation is approximately 3 to 4 years after approval of the CAP permit, including characterization, design, permitting, and construction. Timeframes to achieve GWPS are dependent on site-specific conditions. An extraction system may reduce the time to attain GWPS in the UA relative to the post-closure timeframe predicted by the groundwater modeling. However, accelerated attainment of the GWPS is expected to be limited by the low permeability of the PMP.

Implementing a groundwater extraction system at the PAP would require IEPA approval of the CAP permit, and discharge of extracted groundwater may require a modification to the NPDES permit, as well as possibly permitting and construction of a new outfall. Depending upon the location of the extraction system an Illinois Department of Natural Resources (IDNR) dam safety modification permit may also be required to construct an extraction system.

Groundwater extraction could be viable corrective measure for the sulfate and lithium exceedances at the PAP. Implementation of groundwater extraction may require combining an extraction system with a cutoff wall to prevent potential inflow of water from Newton Lake. Therefore, groundwater extraction is being advanced to the CAAA for further evaluation.

5.2.3 Source Control with Groundwater Cutoff Wall

Source control will reduce the mass loading to the groundwater system and implementing additional groundwater corrective measures may reduce the time required to attain the GWPS in the UA. A low permeability cutoff wall could be used in combination with a groundwater extraction system in the UA to reduce the potentially high volumes of extracted groundwater that would be captured by and extraction system between the PAP and Newton Lake. A cutoff wall could reduce the water management and treatment requirements for an extraction system.

Groundwater cutoff walls are a widely accepted corrective measure used to control and/or isolate impacted groundwater and are routinely approved by the IEPA. Cutoff walls have a long history of reliable performance as hydraulic barriers, provided they are properly designed and constructed. However, if not coupled with a groundwater extraction system, a cutoff wall will provide directional groundwater control only and may result in redistribution of contaminants and potentially GWPS exceedances at new locations.

Cutoff walls are designed to act as hydraulic barriers; as a result, cutoff walls inherently alter the existing groundwater flow system. Changes to the existing groundwater flow system may need to be controlled to maximize the effectiveness of the remedy by, for example, combining a cutoff wall with groundwater extraction to control build-up of hydraulic head upgradient and around the cutoff walls. The effectiveness of a cutoff wall as a hydraulic barrier also relies on the contrast between the hydraulic conductivity of the native geologic materials and the cutoff wall. The most effective barriers have hydraulic conductivity values that are several orders of magnitude lower than the geologic materials they are in contact with. A cutoff wall designed with hydraulic conductivity of 1×10^{-7} cm/sec would be two orders of magnitude lower than the UD with a mean conductivity of 1.3×10^{-5} cm/sec, limiting its performance. Performance and reliability of a cutoff wall in the UD/PMP would also be limited due to the difficulty in delineating the intermittent sandy zones within the unit. Construction of a cutoff wall extending into the UA would be four orders of magnitude lower than the UA, with a mean hydraulic conductivity of 6.8×10^{-3} cm/s and would be an effective containment method in the UA and could improve the performance of a UA extraction system.

Constructing a cutoff wall may be challenging due to the physical site constraints (limited construction area due to the proximity to Newton Lake), particularly if used in combination with an extraction system. In that case, both the extraction system and the cutoff wall would need to be located between the PAP and Newton Lake, which would increase the construction complexity and could result in structural impacts to the embankment dikes, depending on the location of the wall. Specialized construction contractor(s) may be required, which could delay implementation.

Additional data collection and analyses would be required to design a cutoff wall. Construction of only the cutoff wall could be completed within 2 to 3 years. Time of implementation is approximately 5 to 8 years, including characterization, design, permitting and construction. Construction could possibly be accelerated by combining with site closure activities. To attain GWPS, cutoff walls require a separate groundwater corrective measure to operate in concert with the cutoff wall(s). Cutoff walls are commonly coupled with groundwater polishing and/or groundwater extraction as groundwater corrective measures. The time to attain GWPS is dependent on the selected groundwater corrective measure or measures that are coupled with the cutoff walls.

Constructing a cutoff wall at the PAP would require IEPA approval of the CAP permit and, depending on the location, an IDNR dam safety modification permit may be required.

A cutoff wall at the PAP alone would not be a viable corrective measure for the sulfate, lithium, and TDS exceedances at the PAP. However, a cutoff wall may serve to increase the efficiency of a groundwater extraction system by preventing inflow of water from Newton Lake. Therefore, the cutoff wall is being advanced to the CAAA for further evaluation.

5.2.4 Source Control with In-Situ Chemical Treatment

Source control will reduce the mass loading to the groundwater system and implementing additional groundwater corrective measures may reduce the time required to attain the GWPS in the UA. Use of in-situ treatment, either through targeted injection of reactive media or in PRB systems, to transform contaminants into environmentally acceptable forms to attain the GWPS was considered.

In-situ treatment using ion exchange to address sulfate and lithium exceedances in groundwater is not an established or widely accepted groundwater corrective measure; therefore, its performance and reliability are unknown. Regulatory acceptance of this innovative approach to achieving the GWPS is uncertain.

In-situ treatment presents design and construction challenges, including targeted reactive media delivery via injection to the sandier zones in the UD/PMP and the complicated construction that would be required for a PRB system in close proximity to Newton Lake (if possible). Depending upon the location of the PRB system, construction may affect the PAP embankment and/or final cover system and periodic change-outs of ion exchange (IX) resin media may be required.

Additional data collection and analyses would be required to design an in-situ treatment system and bench scale and/or pilot scale testing may be required to demonstrate performance and reliability. Time of implementation is approximately 4 to 6 years after approval of the CAP permit, including characterization, design, permitting, and construction. Timeframes to achieve GWPS are dependent on demonstrations of performance and reliability along with regulatory acceptance. It is not known whether in-situ treatment would reduce the time to attain GWPS in the UA relative to the post-closure timeframe predicted by the groundwater modeling.

Due to the uncertain performance, reliability and potential for not obtaining regulatory acceptance, in-situ chemical treatment is not a viable corrective measure for the sulfate and lithium exceedances at the PAP and is not being advanced to the CAAA for further evaluation.

5.3 Technologies Advanced to CAAA

Based on the evaluations presented above, the following potential corrective technologies are being advanced to the CAAA, individually or in combination, for more detailed evaluations:

- Source control with groundwater polishing;
- Source control and with groundwater extraction; and
- Source control with a groundwater cutoff wall.

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Tables

Table 5-1
35 I.A.C. PART 845 CORRECTIVE MEASURES ASSESSMENT MATRIX
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS
March 29, 2024

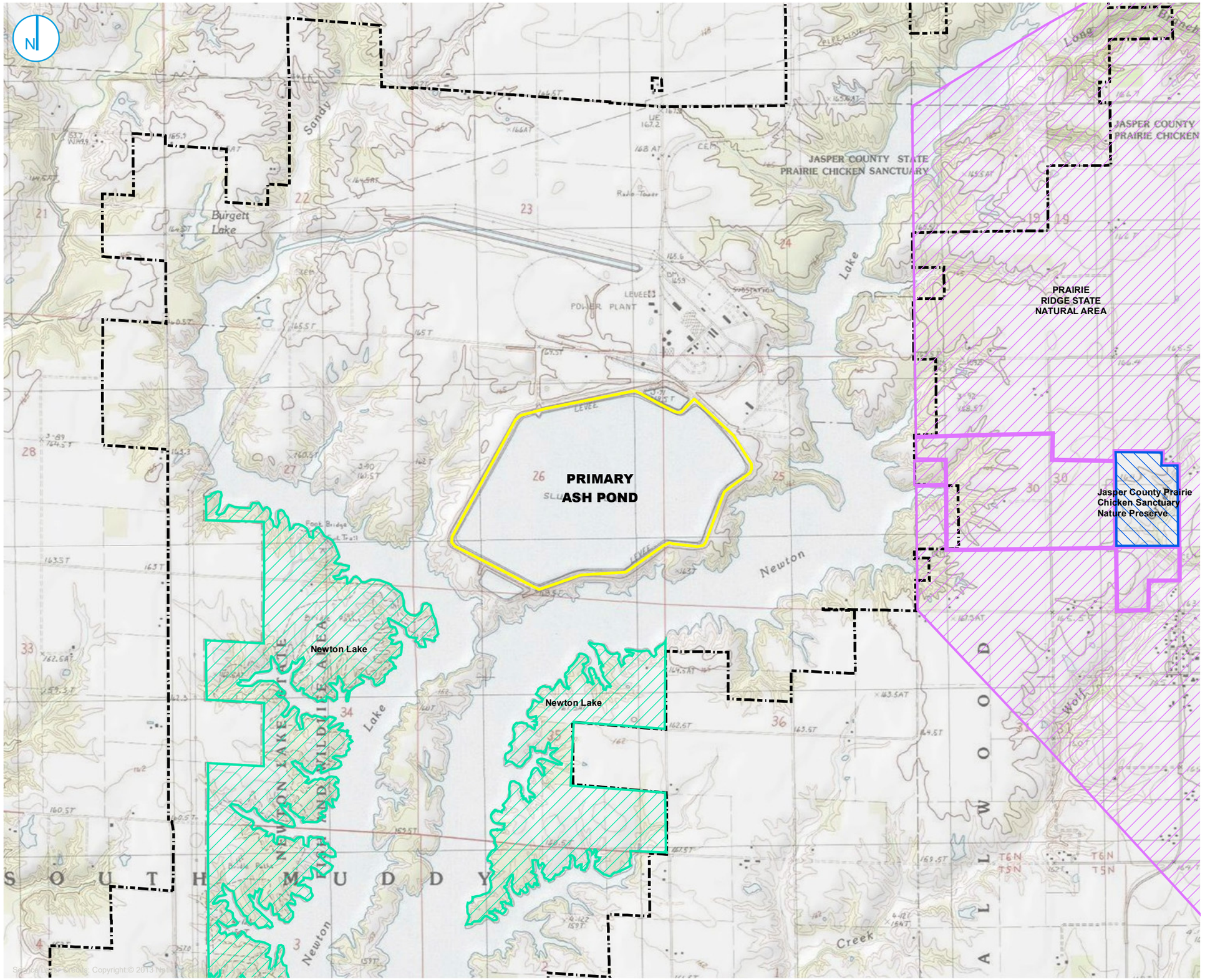
Potential Corrective Measure Technology	Evaluation Factors						
	Performance	**Reliability**	**Ease of Implementation**	**Potential Impacts of Remedy** (safety impacts, cross-media impacts, control of exposure to any residual contamination)	**Time Required to Begin and Implement Remedy[1]**	**Time to Attain Groundwater Protection Standards**	**Institutional Requirements** (state/local permit requirements, environmental/public health requirements that affect implementation of remedy)
Source Control with Aquifer Polishing	Performs best paired with source control, which is expected to be completed at the site in 2028. Site conditions are favorable for physical processes of sulfate and lithium. Good performance is expected for physical processes due to the sandy nature of the Uppermost Aquifer. Geochemical process performance may be limited.	Ongoing analysis will evaluate whether the geochemical mechanism has low reversibility, the Uppermost Aquifer and/or the Upper Drift have sufficient capacity, and the hydrogeology is favorable for physical processes. Possibly low reliability for lithium due to reversibility.	Evaluation is underway and is expected to be completed in 2024. Long-term monitoring would be required. Implementing would not require extensive specialized equipment or contractors.	None identified.	Approximately 90 days after CAP permit approval.	Dependent on site specific conditions. Accelerated attainment of GWPS will be limited by the low permeability of the Upper Drift and may not significantly improve attainment of the GWPS in the Uppermost Aquifer to less than the 20 years post-closure predicted by the groundwater model.	IEPA approval of the closure and CAP permits is required.
Source Control with Groundwater Extraction	A widely accepted, routinely approved technology. Performance expected to be effective in the relatively high permeability, sandy, Uppermost Aquifer but would be limited in the low permeability silts and clays of the Upper Drift.	Reliable if properly designed, constructed, and maintained. Reliability is expected to be high in the Uppermost Aquifer but may be affected by the potential need for dense well spacing to ensure overlapping cones of depression and complete groundwater capture in the low permeability silts and clays of the Upper Drift. Groundwater treatment prior to discharge can be considered if indicated by performance monitoring.	Groundwater flow direction in Uppermost Aquifer and physical site constraints (proximity and influence of Newton Lake) may make locating capture wells challenging and would result in a high volume of extracted water. In the Upper Drift, there would likely be a limited zone of influence for capture wells, which would likely require dense well spacing or installation of an extraction trench. Site constraints could make well installation challenging. Specialized contractors are not expected to be needed. Extracted groundwater would require management, possibly including treatment. Groundwater treatment, if needed, may required specialized equipment/contractors.	Alters groundwater flow system and there is some potential for some limited exposure to extracted groundwater.	Design, permitting and construction is expected to take 3 to 4 years after CAP permit approval.	Dependent on site specific conditions. Accelerated attainment of GWPS will be limited by the low permeability of the Upper Drift and may not significantly improve attainment of the GWPS to less than the 20 years post-closure predicted by the groundwater model for source control and aquifer polishing.	IEPA approval of the closure and CAP permits is required. Extracted groundwater discharge may require an NPDES permit modification or permitting and constructing a new outfall, depending on the groundwater flow rates. A IDNR dam safety modification permit might also be required, depending on location of wells and settlement potential.
Source Control with Groundwater Cutoff Wall	Widely accepted and routinely approved technology with good performance if properly designed and constructed, however containment using cutoff walls in the low permeability Upper Drift materials would likely not be effective. If not combined with extraction wells, a cutoff wall will provide directional control only, thus redirecting flow to other areas where GWPS may be exceeded.	Reliable for groundwater directional control in the Uppermost Aquifer if properly designed and constructed. Reliability in the discontinuous sandy deposits of the Upper Drift would be limited by the ability to delineate the sandy deposits.	Widely used, established technology. Groundwater flow direction in Uppermost Aquifer and physical site constraints (proximity and influence of Newton Lake) make locating a cutoff wall challenging. Potential need to locate cutoff wall either upon the existing embankment or upon the (post-closure) final cover would increase the construction complexity. May require specialized construction equipment and delay implementation.	Alters groundwater flow system but does not provide any treatment. Can result in unintended consequences resulting from redirecting contaminants to areas where they are not currently present. May cause structural impacts to the embankment dikes, depending on the location of the wall.	Design, permitting and construction is expected to take 5 to 8 years after CAP permit approval. Implementation could be accelerated by combining with closure construction activities.	Provides groundwater directional control only. Combination with another groundwater corrective measure, such as groundwater extraction or a permeable reactive barrier, may not significantly improve attainment of the GWPS to less than the 20 years post-closure predicted by the groundwater model for source control and aquifer polishing.	IEPA approval of the closure and CAP permits is required. An IDNR dam safety permit may also be required depending on the location of the cutoff wall.
Source Control with In-Situ Chemical Treatment	In-Situ treatment using ion exchange (IX) is not well established for sulfate and lithium, therefore performance is unknown.	Unknown reliability for sulfate and lithium.	Design challenges for a funnel and gate PRB system due to depth, stratigraphy and proximity to the Newton Lake. Challenge to target reactive media delivery in the low permeability Upper Drift for in-situ treatment (injection). Could require periodic change-outs of IX resin media.	Depending on the location of a PRB, it's construction may affect the embankment/final cover system (structural impacts to the dike, inducting settlement, impacts to final cover system, etc.).	May require bench scale and/or pilot scale testing as part of design. Design, permitting and construction is expected to take 4 to 6 years after CAP permit approval.	There is uncertainty regarding whether a permeable reactive barrier would reduce sulfate concentrations to achieve the GWPS. Dependent on conditions specific to the reactive media used and the site. Treatment technology not well understood.	IEPA approval of the CAP permit is required. IEPA approval of this innovative and relatively unproven solution may be challenging. An IDNR dam safety permit may also be required depending on the location of the PRB.

Notes: [1] Time required to begin and implement remedy includes design, permitting and construction.

GWPS - Groundwater Protection Standard
CAP - Corrective Action Plan
IEPA - Illinois Environmental Protection Agency
IDNR - Illinois Department of Natural Resources
IX - Ion Exchange
PRB - Permeable Reactive Barrier

Figures

Y:\Mapping\Projects\222285\MXD\845_Operating_Permit\Newton\Figure 1-1_Site Location Map.mxd



REGULATED UNIT (SUBJECT UNIT)

JASPER COUNTY PRAIRIE CHICKEN SANCTUARY NATURE PRESERVE

NEWTON LAKE STATE FISH AND WILDLIFE AREA

PRAIRIE RIDGE STATE NATURAL AREA

PROPERTY BOUNDARY

0 1,000 2,000 Feet

SITE LOCATION MAP

35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: 169000XXXX | DATED: 10/19/2021 | DESIGNER: STOLZSD

Source Layer Credits: Copyright© 2013 Na



REGULATED UNIT (SUBJECT UNIT)
SITE FEATURE
PROPERTY BOUNDARY

0 500 1,000
Feet

SITE MAP

35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22285\MXD\845_Operating_Permit\Newton\Figure 1-2_Site Map.mxd

PROJECT: 169000XXXX | DATED: 10/19/2021 | DESIGNER: STOLZSD



COMPLIANCE MONITORING WELL
BACKGROUND MONITORING WELL
MONITORING WELL
PORE WATER WELL
LEACHATE WELL
STAFF GAGE, CCR UNIT
STAFF GAGE, LAKE
GROUNDWATER ELEVATION CONTOUR (5-FT CONTOUR INTERVAL, NAVD88)
INFERRED GROUNDWATER ELEVATION
GROUNDWATER FLOW DIRECTION
REGULATED UNIT (SUBJECT UNIT)
SITE FEATURE

NOTES:
1.ELEVATIONS IN PARENTHESES WERE NOT USED FOR CONTOURING.
2. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 400 800
Feet

UPPERMOST AQUIFER POTENTIOMETRIC SURFACE MAP APRIL 24, 2023

35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\2285\MXD\GW_Contours\Round_2023\Newton\PAP_501\NEW 501 PAP Pot Surface 20230424.mxd
PROJECT: 169000XXXX | DATED: 9/20/2023 | DESIGNER: GALARNMC



COMPLIANCE WELL
BACKGROUND WELL
STAFF GAUGE
PART 845 REGULATED UNIT (SUBJECT UNIT)
SITE FEATURE
PROPERTY BOUNDARY

0 500 1,000
Feet

MONITORING WELL LOCATION MAP

35 I.A.C. § 845 CORRECTIVE MEASURES ASSESSMENT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-4

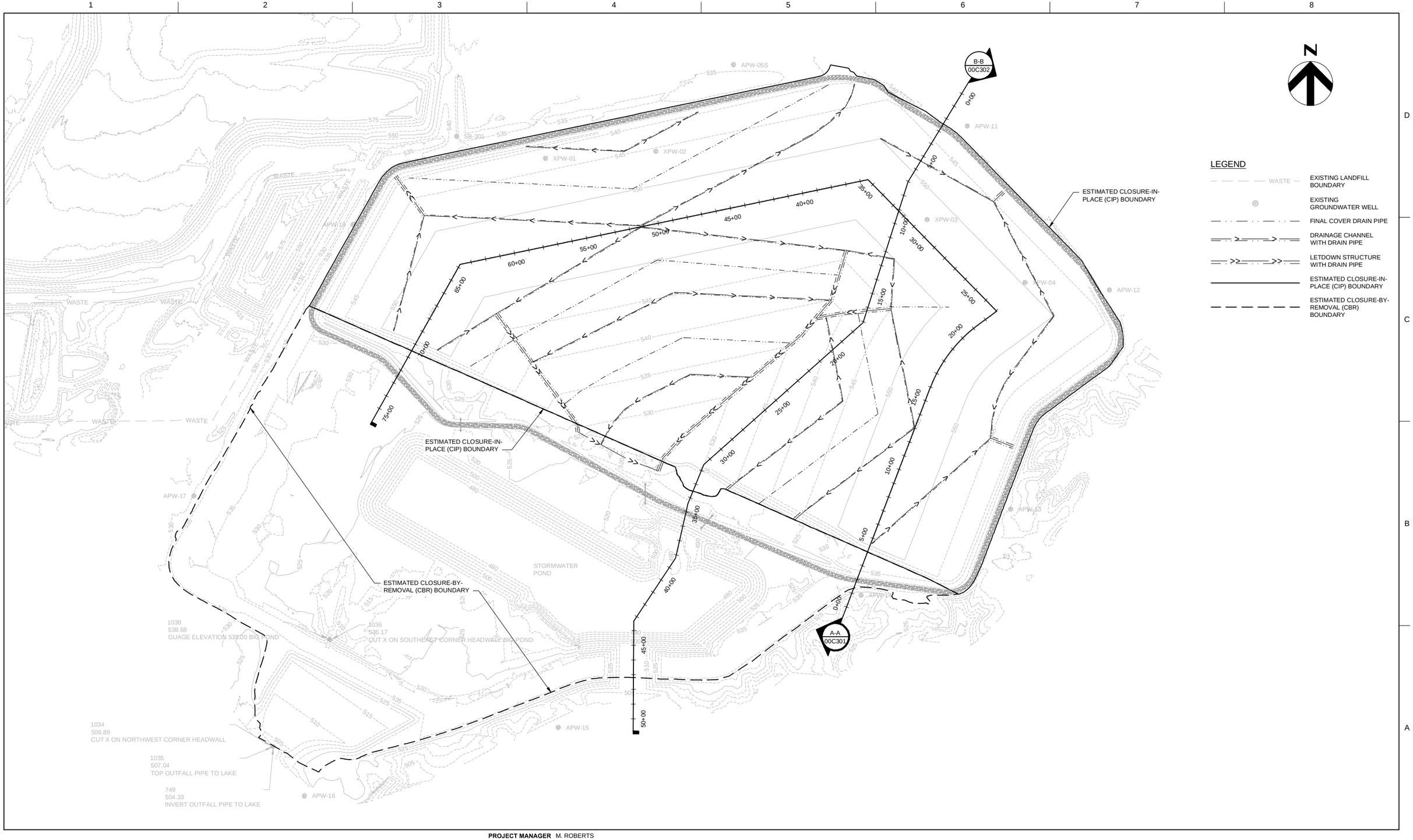
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Y:\Mapping\Projects\222285\MXD\845_Operating_Permit\Newton\GMP\Figure 2-1_Proposed Monitoring Well Network.mxd

PROJECT: 169000XXXX | DATED: 10/20/2021 | DESIGNER: STOLZSD

Attachment A – Selected Construction Permit Application Plans



ISSUE	DATE	DESCRIPTION
0	07/28/2022	ISSUED TO IEPA

PROJECT MANAGER	M. ROBERTS
CIVIL	G. WILLIAMS
CIVIL	K. KINLEY
DRAWN BY	M. BICKFORD
PROJECT NUMBER	10296144

ILLINOIS POWER GENERATING COMPANY
NEWTON POWER PLANT
PRIMARY ASH POND CLOSURE

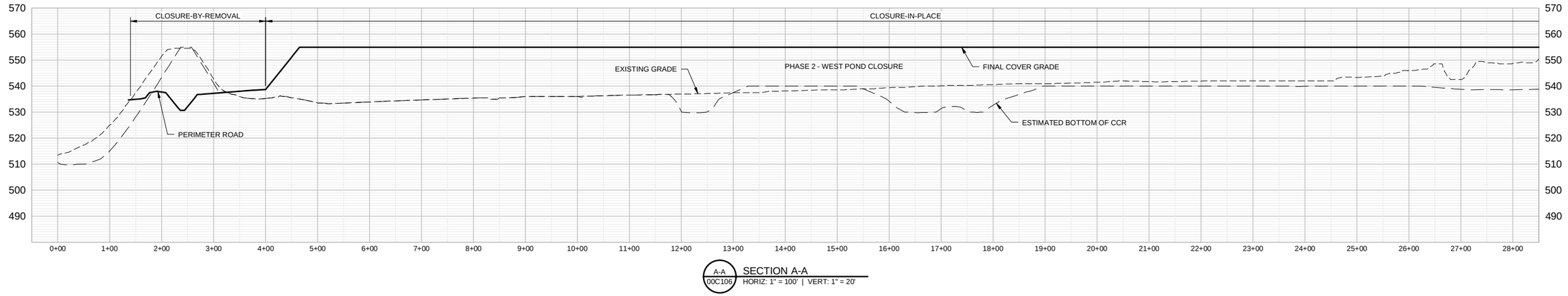
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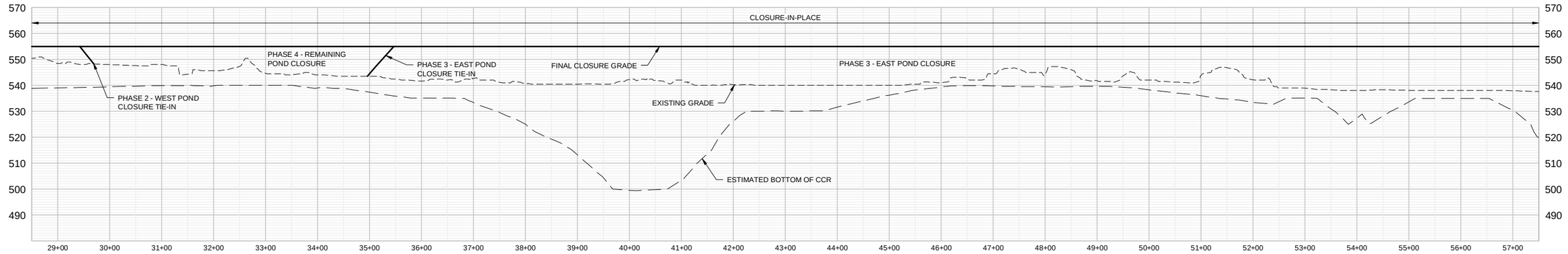
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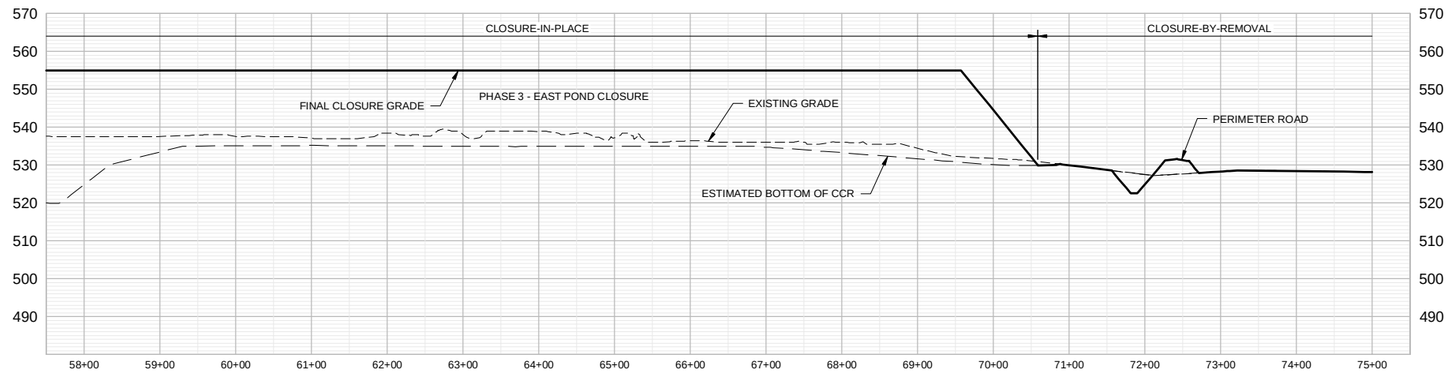
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A-A / 00C106 SECTION A-A
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A-A / 00C106 SECTION A-A (cont.)
HORIZ: 1" = 100' | VERT: 1" = 20'



A-A / 00C106 SECTION A-A (cont.)
HORIZ: 1" = 100' | VERT: 1" = 20'

ISSUE	DATE	DESCRIPTION
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ILLINOIS POWER GENERATING COMPANY
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PRIMARY ASH POND CLOSURE

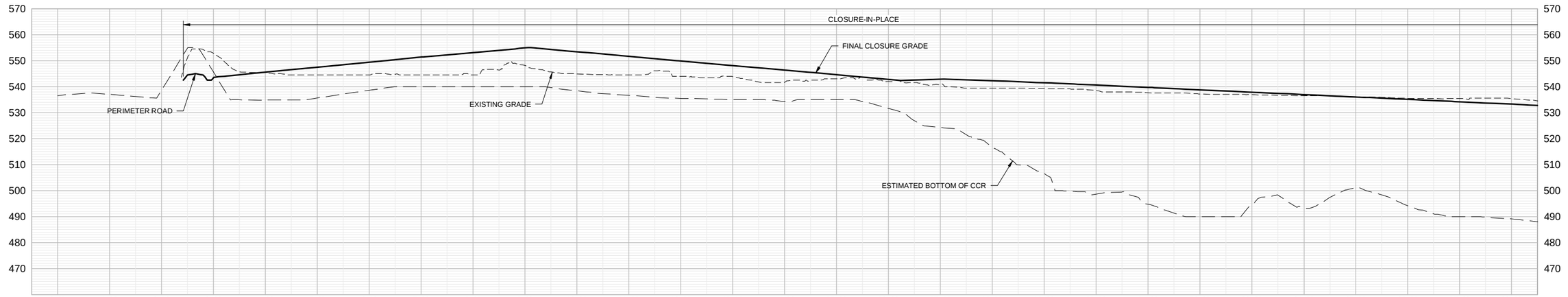
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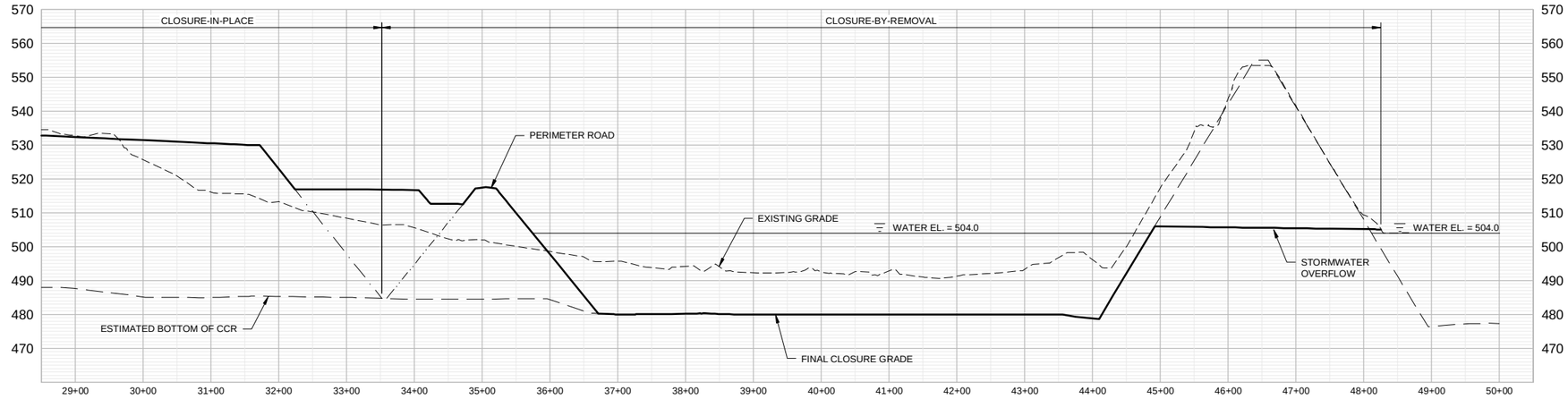
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B-B
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SECTION B-B

HORIZ: 1" = 100' | VERT: 1" = 20'



B-B
00C106

SECTION B-B (cont.)

HORIZ: 1" = 100' | VERT: 1" = 20'

ISSUE	DATE	DESCRIPTION
0	07/28/2022	ISSUED TO IEPA

PROJECT MANAGER	M. ROBERTS
CIVIL	G. WILLIAMS
CIVIL	K. KINLEY
DRAWN BY	M. BICKFORD
PROJECT NUMBER	10296144

ILLINOIS POWER GENERATING COMPANY
NEWTON POWER PLANT
PRIMARY ASH POND CLOSURE

CROSS SECTIONS

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Intended for
Illinois Power Generating Company
6725 North 500th Street
Newton, Illinois, 62448

Date
April 3, 2024

Project No.
1940103584-008

NATURE AND EXTENT REPORT

NEWTON POWER PLANT, PRIMARY ASH POND, IEPA ID NO. W0798070001-01

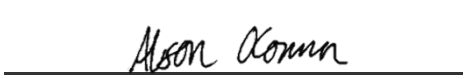
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NATURE AND EXTENT REPORT
NEWTON POWER PLANT, PRIMARY ASH POND, IEPA ID NO. W0798070001-01

Project name	**Newton Power Plant Primary Ash Pond**
Project no.	**1940103584-008**
Recipient	**Illinois Power Generating Company**
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Date	**April 3, 2024**
Prepared by	**Alison O'Connor and Nathaniel Keller**
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APPENDICES

Appendix A Technical Memorandum – Monitored Natural Attenuation Field Investigation Status Update
Appendix B Technical Memorandum – Surface Water Sampling
Appendix C Geochemical Conceptual Site Model

ACRONYMS AND ABBREVIATIONS

35 I.A.C.	Title 35 of the Illinois Administrative Code
40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternative Source Demonstration
bgs	below ground surface
BOD	biological oxygen demand
CCR	coal combustion residuals
CEC	Cation Exchange Capacity
cm/s	centimeters per second
COC	chain-of-custody
COD	chemical oxygen demand
CORRACTS	RCRA Corrective Action Sites
CSM	conceptual site model
CWA	Clean Water Act
DO	dissolved oxygen
EDR	Environmental Data Resources, Inc.
E001	Event 1
GCSM	geochemical conceptual site model
GPS	Global Positioning System
GWPS	groundwater protection standard
IEPA	Illinois Environmental Protection Agency
IPCB	Illinois Pollution Control Board
kHz	kilohertz
LCL	lower confidence limit
LCU	lower confining unit
LF 1	Phase 1 Landfill
LF 2	Phase 2 Landfill
LOI	loss-on-ignition
LUST	Leaking Underground Storage Tanks
LVW	low-volume wastewater
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NAVD88	North American Vertical Datum 1988
NPDES	National Pollutant Discharge Elimination System
NPP	Newton Power Plant
NRT/OBG	Natural Resource Technology, an OBG Company
PAP	Primary Ash Pond
PMP	potential migration pathway
QA/QC	quality assurance/quality control
Ramboll	Ramboll Americas Engineering Solutions, Inc.
RCRA	Resource Conservation and Recovery Act
RISC	Risk Integrated System of Closure

RTK	real-time kinematic
SAP	Sampling and Analysis Plan
SI	surface impoundment
SMA	sediment management area
SOP	standard operating procedures
SPLP	synthetic precipitation leaching procedure
SVOC	semi-volatile organic compounds
TBD	To Be Determined
TDS	total dissolved solids
TOC	total organic solids
TSD	Treatment, Storage, and Disposal
TSS	total suspended solids
UA	uppermost aquifer
UCU	upper confining unit
UD	upper drift
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VOC	volatile organic compounds
XRD	x-ray diffraction
XRF	x-ray fluorescence

EXECUTIVE SUMMARY

Groundwater samples collected at the Newton Power Plant (NPP) Primary Ash Pond (PAP) during April 2023 for the Quarter 2, 2023 compliance sampling event (Event 1 [E001]) were evaluated for exceedances of the groundwater protection standards (GWPS) described in Title 35 of the Illinois Administrative Code (35 I.A.C.) § 845.600. Exceedances were identified in the following hydrostratigraphic units and wells:

- Detected uppermost aquifer (UA) Exceedances:
  - Chloride at APW15
  - Sulfate at APW10
- Detected Upper Drift (UD) (potential migration pathway [PMP]) Exceedances:
  - Lithium at APW02
  - Sulfate at APW02, APW04, and APW05S
  - Total dissolved solids (TDS) at APW02, APW04, and APW05S

An alternative source demonstration (ASD) was completed for the chloride exceedance at UA monitoring well APW15. The Illinois Environmental Protection Agency (IEPA) did not concur with the ASD. The non-concurrence was appealed, and the Illinois Pollution Control Board (IPCB) granted a stay on January 18, 2024.

As required by 35 I.A.C. § 845.650(d)(1) this Report characterizes the nature and extent of sulfate, lithium, and TDS, and relevant site conditions to determine how they may affect the corrective measures ultimately selected for the PAP and documents the additional measures taken in accordance with 35 I.A.C. § 845.650(d).

Sulfate (and TDS) above the GWPS was encountered within the two hydrostratigraphic units: the shallow UD and associated PMP, and in the UA where it occurs at it's highest elevation. In both units, the extent of sulfate above the GWPS is defined laterally by existing wells and Newton Lake, and vertically by the presence of low permeability tills or deeper wells that do not have GWPS exceedances. The sulfate concentrations are attenuated physically through dilution and dispersion; and may be geochemically attenuated by sorption to iron oxides. The sulfate and TDS concentrations in Newton Lake were evaluated and they do not present unacceptable risk [1].

Lithium above the GWPS was encountered only within the shallow UD at APW02. The extent of lithium above the GWPS is currently being further defined laterally with additional wells but is ultimately defined by Newton Lake. Vertically, the extent of lithium above the GWPS is limited by presence of low permeability tills and defined by deeper wells that do not have GWPS exceedances. The lithium concentrations are attenuated physically through dilution and dispersion and may be geochemically attenuated by sorption to and incorporation into clay minerals. The lithium concentrations in Newton Lake were evaluated and they do not present unacceptable risk [1].

1. INTRODUCTION

35 I.A.C. § 845.650(d)(1) requires the owner or operator of a coal combustion residuals (CCR) surface impoundment (SI) to characterize the nature and extent of a release and relevant site conditions that may affect the remedy ultimately selected for a CCR SI if any constituent regulated under 35 I.A.C. § 845 is found to exceed the GWPS. This report documents the nature and extent of constituents detected above the GWPS that are attributable to the NPP PAP.

The groundwater data and analysis in this report includes results from historical sampling (initiated in 2015) through E001, which was completed on April 28, 2023. Results of the E001 event were submitted and placed in the facility's operating record by August 7, 2023 as required by 35 I.A.C. § 845.800(d)(15), within 60 days of receiving final laboratory analytical data [2]. The statistical determination presented in the report identified the following exceedances of the GWPS at compliance groundwater wells in the following hydrostratigraphic units:

- Detected UA Exceedances:
  - Chloride at APW15
  - Sulfate at APW10
- Detected UD/PMP Exceedances:
  - Lithium at APW02
  - Sulfate at APW02, APW04, and APW05S
  - Total dissolved solids (TDS) at APW02, APW04, and APW05S

An Alternative Source Demonstration (ASD), as allowed by 35 I.A.C. § 845.650(e) was completed for the chloride exceedance at UA monitoring well APW15 [3]. The Illinois Environmental Protection Agency (IEPA) did not concur with the ASD in a letter dated November 7, 2023 due to the following data gaps:

1. Source characterization of the CCR at the PAP must include total solids sampling in accordance with SW846.
2. Hydraulic conductivities from laboratory or in-situ testing must be collected, analyzed and presented with the hydrogeologic characterization of bedrock unit.
3. Characterization to include sample and analysis in accordance with 35 I.A.C. § 845.640 of alternative source must be provided with the ASD.

On December 15, 2023, Illinois Power Generating Company (IPGC) submitted a Petition for Review [4] of the non-concurrence with the chloride ASD and Motion for Stay to the IPCB. The IPCB granted a stay on January 18, 2024. Therefore, the nature and extent of chloride is not discussed in this document. This Nature and Extent Report discusses in detail the extent of the sulfate, lithium, and TDS exceedances as well as a geochemical conceptual site model (GCSM) describing the nature of these exceedances.

2. UNIT BACKGROUND

2.1 Site Location and Description

The NPP is located in Jasper County in the southeastern part of central Illinois, approximately seven miles southwest of the town of Newton (**Figure 2-1**). The NPP operates as a coal-fired power plant with three CCR units present, including the PAP and two landfills: the Phase 1 Landfill (LF 1) located northwest and west of the PAP, and the Phase 2 Landfill (LF 2) located to the west of the PAP. The PAP is located within Section 26 and the west half of Section 25, Township 6 North, Range 8 East. The PAP is located south of the NPP and surrounded by Newton Lake to the south, east, and west (**Figure 2-2**). Beyond the lake is additional agricultural land.

2.2 Description of CCR Unit

The PAP is an unlined CCR SI used to manage CCR and non-CCR waste streams at the NPP. The PAP was constructed in 1977 and has a design capacity of approximately 9,715 acre-feet. There is also a non-CCR 83.6 acre-feet Secondary Pond located immediately south of the PAP. The PAP has a surface area of 404 acres and the Secondary Pond has an area of 9.3 acres. The PAP currently receives stormwater runoff, bottom ash, fly ash, and low-volume wastewater (LVW) from the plant's two coal-fired boilers. The SI is operated per National Pollutant Discharge Elimination System (NPDES) Permit No. IL0049191, Outfall 001 (located at the Secondary Pond).

Prior to PAP construction, an incised stream gully existed at the site of the PAP. Areas within the impoundment were excavated during construction for native materials used to build the containment berms in 1977.

Initial operation of the NPP, beginning with Unit 1 being put into service in 1977, included combustion of Illinois coal until 1997-1998, at which point the plant switched to low sulfur coal from the Powder River Basin. Both fly and bottom ash were sluiced wet to the PAP until 1979 when the wet scrubber (including sodium carbonate injection) came online. The fly ash was then mixed with the scrubber cake and placed in the Phase I landfill while bottom ash continued to be sluiced to the PAP. The scrubber was shut down in the Fall of 1996 and fly ash was sluiced wet to the PAP again. Fly ash and bottom ash have both been sluiced to the PAP since the plant began operation in 1977. Emission controls consisting of injection of halogenated activated carbon to reduce mercury emissions were implemented prior to 2009 under an agreement with IEPA. The Newton Landfill Phase 1 (closed) and Phase 2 (operational) receive the wastes generated from the emissions controls. Review of historic aerial imagery of the PAP (observations summarized in **Figure 2-3**) illustrate the extent of CCR deposition through time as well as potential CCR variability (based on observed differences in color). Characterization of the CCR material including total metals analysis of eight samples of materials within the PAP and completion of monitoring wells screened within the CCR was completed in areas of the PAP that were safely accessible in 2021 to meet the requirements of 35 I.A.C. § 845 (**Figure 2-4**) (Hydrogeologic Site Characterization Report [5]).

2.3 Geology and Hydrogeology

Significant site investigation has been completed at the NPP to characterize the geology, hydrogeology, and groundwater quality. Based on extensive investigation and monitoring, the PAP has been well characterized and detailed in the Hydrogeologic Site Characterization Report [5].

2.3.1 Hydrostratigraphic Units

Materials at the site have been categorized into six hydrostratigraphic units at the PAP based on stratigraphic relationships, geologic composition, and common hydrogeologic properties. The units, listed from surface downward, are summarized as follows:

- **CCR:** CCR consists of fly and bottom ash within the PAP and may be present from the surface (approximately 545 to 555 feet[1]) to a minimum elevation of approximately 485 feet NAVD88 (**Figure 2-5**). CCR material is lowest in elevation along a historic drainage feature that runs approximately through the center of the PAP. Groundwater elevations measured in piezometers screened within the PAP indicate that the phreatic surface ranges from approximately 535 to 547 feet, which is above groundwater measured outside the CCR unit in the surrounding monitoring wells.
- **Upper Drift (UD)/Potential Migration Pathway (PMP):** The UD is composed of the low permeability silts and clays of the Peoria Silt and Sangamon Soil and the sandier soils of the Hagarstown Member (*i.e.,* PMP).
  - **Hagarstown Member/PMP:** The Hagarstown Member consists of discontinuous sandier deposits of the UD, where present, and overlies the Vandalia Till.
- **Upper Confining Unit (UCU):** This unit consists of the low permeability clay and silt of the Vandalia Till Member (Vandalia Till).
- **Uppermost Aquifer (UA):** This unit is composed of the Mulberry Grove Formation, which has been classified onsite as poorly graded sand, silty sand, clayey sand, and gravel.
- **Lower Confining Unit (LCU):** This unit is comprised of low permeability silt and clay of the Smithboro Till Member (Smithboro Till) and the Banner Formation.
- **Bedrock Unit:** Shale bedrock of the Pennsylvanian-age Mattoon Formation [6] was encountered at the NPP during recent and historical investigations. Based on boring logs, the bedrock surface elevation at the NPP ranges from 408 feet (B141) to 445 feet (APW13) (Ramboll, 2023). The locations of these wells and measured bedrock elevations indicate the bedrock surface is highest in the southeast portion of the site and slopes downward to the west and north beneath the PAP.

2.3.2 Uppermost Aquifer

The UA includes the Mulberry Grove Member in the vicinity of the PAP. Groundwater monitoring for the UA is focused on this zone because it is continuous, exhibits moderate permeability, and is likely to indicate potential impacts from the PAP. The top of UA was evaluated with respect to the location restrictions in 2018 [7] and provided in **Figure 2-6**. Based on the geologic information, the top of the aquifer is highest in elevation nearest the base of the CCR in the eastern portion of the pond (along a NW-SE trending line between APW05 to APW10), with an elevation of approximately 482 feet. The top of the UA is separated from overlying CCR material by the low permeability Vandalia Till which was encountered at thicknesses up to 59 feet and an average thickness of 26 feet (**Figures 2-7** to **2-9**). The base of the UA is the top of the LCU, which contains the low permeability Smithboro Till and the Banner Formation.

[1] All elevations in this report are referenced to North American Vertical Datum of 1988 (NAVD88) unless otherwise noted.

2.3.3 Potential Migration Pathways

The UD consists mostly of low permeability clays and silts of the Peoria Silt, Sangamon Soil, and sandy clay of the Hagarstown Member which also includes discontinuous sand lenses. Monitoring wells APW02, APW03, and APW04 are screened in sandy clay at the interface with the Vandalia Till, while APW05S and APW12 are screened within the sandier deposits of the UD. These wells are generally screened at similar elevations and provide representative groundwater samples to monitor shallow PMPs adjacent to the PAP.

2.3.4 Regional Bedrock Geology

Bedrock investigation at the site has been limited given the depth to bedrock, presence of low permeability confining units underlying the UA and above the bedrock, the low permeability of the bedrock unit, and generally non-potable groundwater. There are no known monitoring wells or production wells screened within the bedrock at NPP. Bedrock has been encountered at three borings on-site (APW13, APW14, and historic boring B141), with elevations ranging from 408 feet (B141) to 445 feet (APW13). A literature review was completed to supplement the site geology. Groundwater available from bedrock units is mostly mineralized and rarely used as a source for potable water [8]. Lithium is naturally occurring in shale bedrock and overlying regolith and is released to groundwater during weathering processes [9]. Regional investigations of the Illinois Basin have also identified bedrock (specifically brines within the bedrock formations) as a source of chloride in groundwater [10, 11]. Studies by Cartwright [12] and Siegel [13] indicate that groundwater migrates toward the center of the Illinois Basin and discharges upward through overlying confining units. The "Saline groundwater and brines can be brought near or to the land surface by natural conditions, such as migrating up prominent fractures and/or faults in bedrock, or by anthropogenic activities, such as exploration for and exploitation of petroleum. The mixing of upward-migrating saline groundwater with fresh groundwater from shallow aquifers can make groundwater from private wells undrinkable and can present a very expensive problem for municipalities" [14]. A saline spring was identified in Clay County [10] approximately 10 miles south of the NPP and is adjacent to the Clay City Anticline which runs north into Jasper County and east of the NPP. Concentrations of chloride in groundwater collected from the Pennsylvanian shale in Jasper County range from 100 to 5,000 milligrams per liter (mg/L) [11].

2.3.5 Water Table Elevation and Groundwater Flow Direction

The elevations of water within the PAP (as observed in XPW01 through XPW04, and XSG01) are greater than the surrounding areas. The phreatic surface within the PAP in 2023 averaged 539 feet, ranging from approximately 547 feet in XPW02 (located along the northern portion of the PAP) to 530 feet in XSG01 (staff gage located along the southern portion of the PAP) (**Figure 2-10)**.

As indicated in Section 2.3.2 the groundwater in the UA is separated from overlying CCR material by an average thickness of 26 feet of the low permeability Vandalia Till. Groundwater flow in the UA is generally from the north near background wells APW05 and APW06 to the southwest toward a historic drainage feature and southeast toward Newton Lake. Specifically, groundwater flow is north to south beneath the center of the PAP (from APW05/APW06 toward APW09/APW15). Beneath the western portion of the PAP, flow is west to southwest converging towards a former surface drainage feature located west of the PAP (**Figure 2-10**) and an area where the UA is lowest in elevation and has the highest hydraulic conductivity. Beneath the eastern portion of the PAP, groundwater flows east to southeast (from APW05 toward APW11-

APW14). Groundwater elevations exhibit limited variability, generally less than one to two feet per year. Spatially across the PAP they range from approximately 490 feet in the southern portion of the site to 530 feet in the northern portion of the site. Flow directions are generally consistent between seasons [5].

Groundwater elevations in PMP wells are above those in the UA, exhibit more variability, (1-4 feet per year), and range from approximately 518 feet (APW05S) to 535 feet (APW05S). Groundwater elevations within the UCU, LCU, and bedrock unit are unknown because no wells are screened within these low hydraulic conductivity units. Groundwater flow within the aquitards of the UCU and LCU will be primarily vertical based on heads above and below these units.

2.3.5.1 Vertical Hydraulic Gradients

Vertical hydraulic gradients calculated using available groundwater elevation data from February to August 2021 at nested well locations within the UD (*i.e.,* PMP) and UA wells indicated downward gradients [5], which was consistent with historical results [15]. Recent data collected through April 2023 is also consistent with these results. The results of the vertical hydraulic gradient calculations for these hydrostratigraphic units are summarized below:

- UD (*i.e.,* PMP) to UA:
  - Gradients calculated between APW05S (PMP) and APW05 (UA) were downward for all events.
  - Gradients calculated between APW04 (PMP) and APW10 (UA) were downward for all events.
  - Gradients calculated between APW03 (PMP) and APW09 (UA) were downward for all events.
  - Gradients calculated between APW02 (PMP) and APW17 (UA) were downward for all events.

2.3.5.2 Impact of Surface Water Bodies on Groundwater Flow

The surface water elevation at Newton Lake measured from February 15, 2021 to October 9, 2023 ranged from 503.56 to 504.84 feet at location SG02 near the outfall from the Secondary Pond. Groundwater flow in the UA generally flows southwest across the PAP with potentiometric surface elevations at downgradient wells around 491 feet (approximately 10-15 feet lower than the Newton Lake elevation). The separation observed in groundwater and surface water elevations (and observed downward vertical gradients) indicates groundwater within the UA does not flow into Newton Lake along the western portion of the site.

Groundwater elevations observed at APW10 located on the east side of the site are approximately 2 feet higher than surface water in Newton Lake (506 feet versus 504 feet) indicating groundwater migrates toward the Lake along the eastern boundary of the Unit. Based on the stratigraphic interpretations, the UA slopes upward in this area and approaches the former land surface, now beneath Newton Lake. As illustrated in cross-section B-B' (**Figure 2-8**), the UA may intersect the base of Newton Lake.

2.3.6 Hydraulic Conductivities

2.3.6.1 Field Hydraulic Conductivities

Field hydraulic conductivity tests were conducted by Ramboll during the 2021 investigation [5]. The results are summarized in **Table 2-1**, and discussed below:

- **CCR**: Results of field hydraulic tests in wells screened within the CCR (XPW01 through XPW04) ranged from 1.0×10^{-3} to 2.3×10^{-1} centimeters per second (cm/s), with a geometric mean of 2.0×10^{-2} cm/s.
- **UD**: Previous field hydraulic conductivity tests conducted by NRT in 2017 in wells screened within the Sangamon Soil of the UD (APW02, APW03, and APW04) ranged from 5.14×10^{-6} to 4.53×10^{-5} cm/s, with a geometric mean hydraulic conductivity of 1.5×10^{-5} cm/s [15].
  - **PMP**: Results of field hydraulic tests in wells screened within the Hagarstown PMP (APW05S and APW12) ranged from 6.1×10^{-4} to 1.5×10^{-2} cm/s, with a geometric mean hydraulic conductivity of 3.1×10^{-3} cm/s.
- **UCU**: No field hydraulic conductivity tests were performed as there are no wells screened within the UCU.
- **UA**: Results of field hydraulic tests in wells screened within the UA (APW11, APW13, APW14, APW15, APW16, APW17, and APW18) ranged from 2.0×10^{-4} to 1.5×10^{-1} cm/s, with a geometric mean of 6.8×10^{-3} cm/s. Previous field hydraulic conductivity tests conducted in 2017 obtained similar results with a geometric mean hydraulic conductivity of 1.2×10^{-3} cm/s [15]. The highest conductivities are measured in APW15, APW16, and APW17, which is consistent with groundwater flow toward these wells. In addition, the grain-size analyses of the UA materials from two samples collected at APW17 were amongst the highest observed at the Site, with sand and gravel contents of 91.1 and 93.3 percent.
- **LCU**: No field hydraulic conductivity tests were performed as there are no wells screened within the LCU.
- **Bedrock**: No field hydraulic conductivity tests were performed as there are no wells screened within the bedrock unit.

2.3.6.2 Laboratory Hydraulic Conductivities

Falling head permeability tests (ASTM D5084 Method F) were performed in the laboratory on samples collected during the 2021 investigations [5]. The results are summarized in **Table 2-2** and discussed below.

- **CCR**: Eight samples were collected from CCR borings XPW01 through XPW04, located within the PAP. However, the two samples collected from XPW02 (8 to 8.5 and 16.5 to 17 feet bgs) were general fill not CCR fill and are not included in summary of CCR characteristics. Laboratory falling head permeability test results for the six CCR samples indicated a geometric mean vertical hydraulic conductivity of 3.1×10^{-4} cm/s with a range of 1.6×10^{-5} to 1.3×10^{-3} cm/s.
- **UD**: One sample was collected from the Sangamon Soil at borings APW11 and APW15. Laboratory falling head permeability test results in the UD indicated a geometric mean vertical hydraulic conductivity of 5.9×10^{-8} cm/s and ranged from 3.1×10^{-8} to 8.6×10^{-8}

cm/s. These values are lower than previous samples collected in 2017 from APW02 AND APW04, which reported a geometric mean hydraulic conductivity of 1.3 x 10^{-5} cm/s [15].

- **PMP**: Three samples were collected from the Hagarstown Member, a PMP within the UD, at borings APW12 and APW13. Laboratory falling head permeability test results for the Hagarstown Member indicated a geometric mean vertical hydraulic conductivity of 3.5 x 10^{-5} cm/s and ranged from 1.1 x 10^{-7} to 9.6 x 10^{-5} cm/s.
- **UCU**: Four samples were collected from the Vandalia Till at borings APW14, APW17, SB300/APW18, and SB301. Laboratory falling head permeability test results for the UCU samples indicated a geometric mean vertical hydraulic conductivity of 6.7 x 10^{-8} cm/s and ranged from 3.3 x 10^{-8} to 9.7 x 10^{-8} cm/s. These values are similar to a previous investigation completed in 1997 that reported hydraulic conductivity values ranging from 6.3 x 10^{-9} to 2.1 x 10^{-8} cm/s with a geometric mean hydraulic conductivity of 1.1 x 10^{-8} cm/s [8].
- **UA**: Five samples were collected from the Mulberry Grove Formation at borings APW13, APW15, APW17, and APW18. Laboratory falling head permeability test results for the Mulberry Grove Formation indicated a geometric mean vertical hydraulic conductivity of 3.2 x 10^{-4} cm/s and ranged from 3.5 x 10^{-6} to 7.2 x 10^{-4} cm/s.
- **LCU**: Eight samples were collected from the glacial tills of the Smithboro Till at borings APW11, APW12, APW14, APW15, APW18, and SB301. Laboratory falling head permeability test results for the Smithboro Till indicated a geometric mean vertical hydraulic conductivity of 9.3 x 10^{-8} cm/s and ranged from 2.4 x 10^{-8} to 2.7 x 10^{-7} cm/s. No samples were collected from the Banner Formation of the LCU.
- **Bedrock**: No bedrock samples were analyzed.

2.4 Groundwater Monitoring

The monitoring system for the PAP is shown on **Figure 2-2** and consists of two background monitoring wells (APW05 and APW06), 16 compliance monitoring wells (APW02, APW03, APW04, APW05S, APW07, APW08, APW09, APW10, APW11, APW12, APW13, APW14, APW15, APW16, APW17, and APW18), and two temporary water level only surface water staff gages (XSG01 and SG02) to monitor potential impacts from the PAP [16]. These monitoring wells are screened within the UD/PMP (APW02, APW03, APW04, APW05S, and APW12) and the UA (APW05, APW06, APW07, APW08, APW09, APW10, APW11, APW13, APW14, APW15, APW16, APW17, and APW18) along the perimeter of the PAP. Porewater samples are collected from locations XPW01 and XPW02 on the northern side of the PAP, and from XPW03 and XPW04 on the northeastern side of the PAP (**Figure 2-2**).

2.5 Hydrogeologic Conceptual Site Model

The HCR [5] and information provided above forms the foundation of the PAP hydrogeological setting. The PAP overlies a potential recharge area for the underlying transmissive geologic media, which are composed of unlithified deposits. Recharge migrates downward into and through the UD and UCU into the UA. In locations where recharge intersects the Hagarstown, it mixes with groundwater and migrates within the unit, which is also monitored as a PMP in addition to the UA.

The silts of the UD and sands of the PMP are hydraulically connected and considered a single hydrostratigraphic unit although groundwater migration will be variable based on localized

hydraulic properties. The groundwater flow in the silts and clays of the UD and confining units of the UCU, LCU, and BCU is expected to be primarily vertical. The Hagarstown member PMP and sands of the UA are the primary units where the majority of the horizontal groundwater migration is expected to occur. The geologic conceptual model for the site used for the groundwater modeling [17] consists of the following layers:

- Silts and Clays (UD) – silt and clayey silt of the Peoria Silt and Sangamon Soil which extends beneath the topsoil.
- Discontinuous sands (PMP) – sandier soils of the Hagarstown Member.
- Vandalia Till (UCU) – a thick layer of low permeability till consisting of the Vandalia Till.
- Sands (UA) – sands and gravels of the Mulberry Grove Formation, laterally continuous sand and gravel deposit identified beneath the site.
- Smithboro Till (LCU) – composed of lean clay Smithboro Till and Banner Formation.
- BCU – lowermost unit identified at the site and underlies all unlithified deposits. This unit is composed of low permeability shale of the Mattoon Formation.
- Alluvial deposits of the Cahokia formation may replace UD and UCU deposits along the southeastern boundary of the PAP.

The United States Geological Survey (USGS) National Map places the NPP within the upper Illinois-Little Wabash watershed subbasin (Hydrologic Unit Code 05120114). The PAP hydrogeologic CSM extent is bounded by a hydrological catchment (watershed) divide to the east based on watershed data from USGS. The Newton Lake water levels are managed such that they remain at an elevation between 504.23 and 504.82 feet. Newton Lake is the receiving body of water for surface water.

Precipitation infiltrates and recharges the groundwater table throughout the site and upgradient. Groundwater in the UD migrates downward into the discontinuous sands of the Hagarstown Formation. The Hagarstown Formation, where present, is considered a PMP for groundwater adjacent to the PAP and localized lateral migration of groundwater may occur. The sands of the UA are separated from the Hagarstown Formation PMP and the base of CCR in the PAP by the laterally continuous low permeability UCU. The UA receives water from the overlying geologic units and potentially through its interpreted connection with Newton Lake. Water that percolates downward from layers overlying the UA is most likely to travel laterally from the site within the UA due to the lateral continuity, relatively high permeability, and horizontal gradients present within the UA as described above. Further downward migration is also limited by the relatively thick and low permeability LCU.

Based on the geology and hydrogeology, monitoring wells at the PAP can be separated into three distinct groupings which exhibit similar geologic and hydraulic characteristics. Monitoring well groupings are summarized as follows:

- UD/PMP wells: shallow wells (generally less than 40 feet bgs) screened in low to moderate permeability materials (generally $\leq 10^{-4}$ cm/s) including APW02, APW03, APW04, and APW05S. Based on the water levels measured within the PAP, UD/PMP wells are downgradient of the PAP.

Eastern UA wells: wells located on the eastern half of the PAP (APW05, APW10, APW11, APW13, and APW14) where the top of the UA is slightly shallower (~40 to 60 feet bgs). Results indicate that the hydraulic conductivity of the UA is lowest where the UA is shallowest at monitoring wells APW05 and APW10. Groundwater flow directions indicate these wells are currently downgradient of the former drainage feature that was present prior to construction of the PAP.

- Western UA wells: wells located on the western half of the PAP (APW06, APW07, APW08, APW15, APW16, APW17, and APW18) where the top of the UA is slightly deeper (~60 to 90 feet bgs). Several of these wells had high hydraulic conductivities. Groundwater flow directions indicate these wells represent groundwater from the western portion of the PAP and from areas located west of the PAP.

3. OCCURRENCE AND DISTRIBUTION OF GROUNDWATER EXCEEDANCES (EXTENT)

Results from groundwater samples collected from the PAP during E001 were received on June 8, 2023. In accordance with 35 I.A.C. § 845.610(b)(3)(C), comparison of statistically derived values with the GWPSs described in 35 I.A.C. § 845.600 to determine exceedances of the GWPS was completed [2]. Exceedances for which an ASD was not completed include the following parameters and wells by hydrostratigraphic unit:

- UA (**Figure 3-1**):
  - Sulfate at APW10
- UD (PMP; **Figure 3-2**):
  - Lithium at APW02
  - Sulfate at APW02, APW04, and APW05S
  - TDS at APW02, APW04, and APW05S

3.1 Additional Investigation to Define Nature and Extent

Following initial sampling in 2021, potential exceedances of the GWPS were identified for the parameters and locations identified above [18]. Additional investigation was completed in 2021 to collect soil samples and surface water samples to further evaluate the concentrations and potential attenuation mechanisms near the PAP (**Appendix A** and **Appendix B**).

A total of seven borings were advanced adjacent to locations with potential exceedances (APW02, APW04, APW05S, and APW10), and porewater wells (XPW01 and XPW04). Solids samples were collected and analyzed for the following:

- 6010B for 7-step sequential extraction (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- EPA 6010B for Total Metals (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- Bulk Mineralogy by Reitveld x-ray diffraction (XRD) Analysis;
- Cation Exchange Capacity (CEC) Analysis;
- Total Organic Carbon Analysis; and,
- SPLP Method 1312 Leachability Test (for CCR source samples only).

In addition, 28 surface water samples were collected to characterize the water quality in Newton Lake. Surface water samples were analyzed for 35 I.A.C. § 845.600 parameters (total and dissolved), ferrous and ferric iron, major ions, and monitored natural attenuation parameters. Data from this investigation has been incorporated into this report where applicable.

3.2 Extent in the Uppermost Aquifer

Groundwater samples are evaluated quarterly and exceedances are identified following comparison of lower confidence limits (LCLs) to the GWPSs described in 35 I.A.C. § 845.600. The

LCLs vary as the dataset is updated to include additional quarterly events (**Table 3-1**). The discussion below includes ranges of concentrations measured in wells with exceedances, because there is no single value for LCLs.

3.2.1 Sulfate

Sulfate exceedances in the UA are limited to APW10. Monitoring well APW10 is located on the southeast berm of the unit, between the PAP and Newton Lake. Concentrations of sulfate in APW10 range from 390 to 540 mg/L. The extents of concentrations above the GWPS are defined laterally in the UA to the southwest by monitoring well APW13 (**Figure 3-1**). The boring log from APW12 (location shown on **Figure 2-10**) indicates that the UA is not present northeast of APW10, and exceedances are not expected to extend a significant distance in this direction due to observed groundwater flow directions and the absence of UA materials observed at APW12. Newton Lake is located approximately 100 feet downgradient of APW10 and comparison of water elevations indicates that groundwater migrates toward Newton Lake. The extent of sulfate is defined downgradient by surface water samples collected near APW10 which indicate concentrations of sulfate are 39 mg/L (**Appendix B**), comparable to concentrations measured for sulfate in ambient portions of the lake distant from the PAP.

Downward migration of sulfate in the UA at APW10 is inhibited by the underlying Smithboro Till which has a thickness of greater than 10 feet. Vertical permeability tests completed on samples of the LCU beneath the UA indicate a geometric mean vertical hydraulic conductivity of 9.3×10^{-8} cm/s with a range from 2.4×10^{-8} to 2.7×10^{-7} cm/s. This is very low relative to the horizontal hydraulic conductivity measured within APW10 (5.5×10^{-4} cm/s). The significant contrast in permeability (greater than two orders of magnitude) indicates groundwater will preferentially migrate horizontally toward Newton Lake and the elevated sulfate concentrations will not extend into the underlying till and shale bedrock.

3.3 Extents in Upper Drift /Potential Migration Pathways

3.3.1 Sulfate

Concentrations of sulfate exceed the GWPS (400 mg/L) at UD/PMP wells APW02, APW04, and APW05S. Concentrations and the extent of sulfate at these locations (**Figure 3-2**) are summarized as follows:

- APW02 – Concentrations range from 1,500 to 3,200 mg/L. The lateral and downgradient extent of sulfate concentrations near APW02 is currently being investigated but is ultimately limited downgradient by Newton Lake. Concentrations of sulfate in Newton Lake near this location were 38 mg/L (**Appendix B**), comparable to concentrations measured for sulfate in ambient portions of the lake distant from the PAP. Vertically, the extent of sulfate is limited by the low permeability Vandalia Till which underlies this well (APW17 [40 to 42 feet bgs], 3.4×10^{-8} cm/s), and is supported by the low sulfate concentrations reported in APW17 (non-detect to 64 mg/L) which is nested with APW02 and screened in the UA beneath the PMP.
- APW04 – Concentrations range from 760 to 990 mg/L. The lateral extent of sulfate concentrations in the UD near APW04 is defined to the north by APW12 (56 to 712 mg/L) and to the southwest by APW03 (110 to 190 mg/L). APW04 is located approximately 100 feet from Newton Lake. As discussed for APW10, concentrations of sulfate in the adjacent area of

Newton Lake were 39 mg/L. Vertical extents at this location were discussed in the previous section regarding APW10.

- APW05S – Concentrations range from 200 to 2,100 mg/L. The lateral and downgradient extent of sulfate concentrations near APW05S is currently being investigated to the north and east but is defined by APW12 (56 to 712 mg/L) to the east. Vertically, the extent of sulfate is limited by the low permeability Vandalia Till which underlies this well (range of 6.3×10^{-9} to 9.7×10^{-8} cm/s measured in the till onsite). Lack of vertical migration is also supported by the low sulfate concentrations reported in APW05 (non-detect at 15 mg/L) which is nested with APW05S and screened in the UA beneath the PMP.

3.3.2 Lithium

Monitoring well APW02 is located near the southwest corner of the PAP and screened within the low conductivity materials of the UD. Concentrations of lithium range from 0.079 to 0.3 mg/L. The lateral and downgradient extent of lithium concentrations near APW02 is limited downgradient by Newton Lake and additional data is currently being collected to further evaluate the extent of lithium and sulfate concentrations in groundwater. Concentrations of lithium were not detected in Newton Lake near this location (<0.02 mg/L; **Appendix B**). Vertically, the extent of lithium is limited by the low permeability Vandalia Till which underlies this well (APW17 [40 to 42 feet bgs], 3.4×10^{-8} cm/s), and is supported by the low lithium concentrations reported in APW17 (non-detect to 0.0099 mg/L) which is nested with APW02 and screened in the UA beneath the PMP.

3.3.3 Total Dissolved Solids

TDS results indicate the mass of dissolved material in the groundwater and is a representation of multiple constituents present in the groundwater. Typically, major ions (such as sulfate) represent the primary contributors to TDS. TDS exceeded the GWPS at APW02 and APW04. Concentrations and the extent of TDS at these locations is summarized as follows:

- APW02 – Concentrations range from 1,910 to 5,500 mg/L. The lateral and downgradient extent of TDS concentrations near APW02 is currently being investigated but is limited downgradient by Newton Lake. Concentrations of TDS in Newton Lake near this location were 170 mg/L (**Appendix B**). Vertically, the extent of sulfate is limited by the low permeability Vandalia Till which underlies this well (APW17 [40 to 42 feet bgs], 3.4×10^{-8} cm/s), and is supported by the low TDS concentrations reported in APW17 which is nested with APW02 and screened in the UA beneath the PMP.
- APW05S - Concentrations range from 3,200 to 4,000 mg/L. The lateral and downgradient extent of TDS concentrations near APW05S is currently being investigated to the north and east but is defined by APW12 (990 to 1,740 mg/L) to the east. Vertically, the extent of TDS is limited by the low permeability Vandalia Till which underlies this well (range of 6.3×10^{-9} to 9.7×10^{-8} cm/s measured in till onsite) and is supported by the low TDS concentrations reported in APW05 (470 to 1,000 mg/L) which is nested with APW05S and screened in the UA beneath the PMP. Concentrations above the GWPS do not extend past the waste boundary downgradient as evidenced by concentrations in wells APW03 and APW04.

4. GEOCHEMICAL CONCEPTUAL SITE MODEL (NATURE)

A GCSM was developed to describe the conditions of the groundwater in the vicinity of the NPP PAP and is summarized here (full analysis presented in **Appendix C**). The GCSM describes the geochemical processes that contribute to the mobilization, distribution, and attenuation of chemicals in the environment. Only parameters that have exceeded the GWPS in PAP groundwater and will be addressed in the corrective action plan are included in the GCSM. As discussed in previous sections the exceedances observed at the PAP include sulfate, TDS, and lithium.

The GCSM includes two hydrostratigraphic units: the shallow UD/PMP and the deeper UA. The UA is shallowest (*i.e.*, in closest proximity to the upper drift/primary migration pathway) on the east side of the PAP. Groundwater in the UD/PMP and eastern UA wells tend to be geochemically similar: groundwater from these locations tends to be more oxidizing, exhibit lower pH, and have a cation signature dominated by calcium and magnesium. Groundwater in the rest of the UA tends to be more reducing (exhibiting higher dissolved iron concentrations), have higher pH, and have a greater contribution of sodium and potassium to the cation signature. These results suggest some degree of hydraulic connection between the UD/PMP and UA east of the PAP.

Sulfate is the major contributor to TDS in the PAP groundwater. Therefore, processes that control sulfate concentrations also control TDS. Elevated sulfate concentrations were observed in shallow groundwater wells (screened in the upper drift/primary migration pathway) and UA wells located east of the PMP. Sulfate in CCR porewater and the UD/PMP groundwater is correlated with sodium, indicating that dissolution of sodium sulfate from the CCR material is the primary source of sulfate to the CCR porewater. Sulfate exceedances in the UA, which occur exclusively on the east side of the PAP, are consistent with water migration from the UD/PMP. Potential sulfate attenuation mechanisms at the NPP PAP include sorption to solid-phase iron oxides. Based on results from laboratory batch testing, sulfate sorption may be more likely in the UA.

Lithium concentrations in groundwater are highest in UD/PMP and eastern UA groundwater. Although lithium was identified in solid samples located both upgradient and downgradient of the PAP, the similar distributions of lithium and sulfate suggest that CCR porewater is the primary source of lithium to the groundwater. The difference in groundwater lithium concentrations may be due to variability in porewater concentration or in attenuation to aquifer solids. Lithium in groundwater may be attenuated by sorption to exchangeable sites (readily reversible) or incorporation in clay mineral matrices (poorly reversible). According to results from laboratory batch testing, lithium may sorb to both UA/PMP and UA solids.

5. COMBINED GEOCHEMICAL AND HYDROGEOLOGIC CONCEPTUAL SITE MODELS

5.1 Sulfate and TDS Conceptual Site Model

The CSM describing current conditions at the PAP combining the hydrogeologic and geochemical CSMs for sulfate and TDS is as follows. Surface water within the PAP comes into contact with CCR and once it enters the pore spaces within the CCR we characterize it as porewater within the unlined CCR unit. Porewater containing elevated concentrations of sulfate mixes with groundwater of the UD. Groundwater within the UD/PMP in the vicinity of the PAP travels horizontally outward from the PAP, ultimately migrating toward Newton Lake, or vertically into the clay of the UCU that separates the UD from the UA. Sulfate concentrations are attenuated physically through dilution and dispersion; and may be geochemically attenuated by sorption to iron oxides. The limit of sulfate exceedances is defined by wells in the UA with concentrations below the GWPS and Newton Lake, where sulfate concentrations near APW10 are 39 mg/L (**Appendix B**). The sulfate concentrations in Newton Lake were evaluated and they do not present unacceptable risk [1]. Sulfate exceedances of the GWPS have been observed in 3 of 5 UD wells and 1 of 13 UA wells. The presence or absence of exceedances can be attributed to variability in both sulfate concentration within the CCR of the PAP and the extent of water migration between the UD/PMP and UA.

5.2 Lithium Conceptual Site Model

The CSM describing current conditions at the PAP combining the hydrogeologic and geochemical CSMs for lithium is as follows. Surface water within the PAP comes into contact with CCR and once it enters the pore spaces within the CCR we characterize it as porewater within the unlined CCR unit. Porewater containing elevated concentrations of lithium mixes with groundwater of the UD/PMP. Groundwater within the UD in the vicinity of the PAP travels horizontally outward from the PAP, ultimately migrating toward Newton Lake, or vertically into the clay of the UCU that separates the UD from the UA. Lithium concentrations are attenuated physically through dilution and dispersion and may be geochemically attenuated by sorption to and incorporation into clay minerals. The lithium exceedance is limited to one location (APW02) and is being further investigated laterally, but is limited in extent by Newton Lake, where concentrations in surface water were < 0.02 mg/L (**Appendix B**). The lithium concentrations in Newton Lake were evaluated and they do not present unacceptable risk [1]. Lithium exceedances of the GWPS have only been observed in UD well APW02 located along the western side of the PAP, which is the same side of the PAP where the highest concentrations of lithium were observed in porewater (XPW01), indicating exceedances at APW02 may be a result of proximity to portions of the PAP where CCR porewater contains relatively higher concentrations of lithium.

6. CONCLUSIONS AND FUTURE ACTIVITIES

In accordance with 35 I.A.C. § 845.650(d)(1), the nature and extent of GWPS exceedances of sulfate, TDS, and lithium have been described in sufficient detail to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the PAP.

The lateral extents of exceedances are illustrated in **Figures 3-1 and 3-2**. As discussed in Sections 3.3.1 and 3.3.2, the horizontal delineation of lithium at APW02 is ongoing, as well as additional characterization of sulfate exceedances at APW04, APW05S, and APW10. Wells will be installed upgradient of APW05S; downgradient of APW02, APW04, and APW10; and along the NEW PAP waste boundary, adjacent to APW02 in 2024. Findings from the installation and sampling of these additional wells will be incorporated into the final Corrective Action Plan Permit application, which will be submitted in 2025.

Sulfate was selected for modeling source control presented in the Final Closure Plan and was identified as a surrogate for the exceedances of lithium and TDS, as described in the Groundwater Modeling Report (GMR) [17]. For modeling purposes it was assumed that sulfate would not significantly sorb or chemically react with aquifer solids (soil adsorption coefficient [Kd] was set to 0 milliliters per gram [mL/g]), which is a conservative estimate for predicting contaminant transport times in the model. Additional geochemical modeling will be completed to evaluate how sorption to solid phases may affect sulfate and lithium mobility and therefore the time to reach the GWPS for these parameters.

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TABLES

TABLE 2-1. FIELD HYDRAULIC CONDUCTIVITIES
NATURE AND EXTENT REPORT
NEWTON POWER STATION
PRIMARY ASH POND
NEWTON, ILLINOIS

Well ID	Gradient Position	Bottom of Screen Elevation (ft NAVD88)	Screen Length [1] (ft)	Field Identified Screened Material	Slug Type	Analysis Method	Falling Head (Slug In) K (cm/s)			Rising Head (Slug Out) K (cm/s)			Minimum Hydraulic Conductivity (cm/s)	Maximum Hydraulic Conductivity (cm/s)	Hydraulic Conductivity Geometric Mean (cm/s)
							1	2	3	1	2	3			
Upper Drift Unit/Potential Migration Pathway															
APW5S	U	521.05	10	SP	Solid	C-B-P	8.9E-04	7.4E-04		6.1E-04	8.5E-04		6.1E-04	1.5E-02	3.1E-03
APW12	U	513.33	10	SP	Solid	C-B-P	1.3E-02	9.8E-03		1.3E-02	1.5E-02				
Uppermost Aquifer															
APW11	U	471.05	5	SP-SC/GP	Solid	KGS Model	6.8E-03	5.9E-03		3.5E-03	7.8E-03		2.0E-04	1.5E-01	6.8E-03
APW13	D	471.66	5	SM	Solid	C-B-P	1.6E-03	1.5E-03	3.3E-03	3.8E-03	3.4E-03				
APW14	D	468.85	5	SC	Solid	KGS Model	3.9E-03	4.3E-03		3.2E-04	3.2E-04	2.8E-03			
APW15	D	419.06	5	SP-SM	Solid	KGS Model	4.9E-04	2.0E-04	1.4E-01	1.5E-01	1.5E-01				
APW16	D	443.66	5	SP	Solid	B-Z	1.24E-01	1.41E-01		7.60E-02	7.96E-02				
APW17	D	437.84	5	(SW)g/(SP)g	Solid	C-B-P	1.13E-01	1.15E-02							
APW18	D	460.55	5	(SW)g/SC	Solid	C-B-P	2.67E-04								
Ash Pond															
XPW01	CCR	531.62	10	(SW)g	Solid	Bouwer-Rice	1.8E-01	1.3E-02		2.4E-02	1.4E-02		1.0E-03	2.3E-01	2.0E-02
XPW02	CCR	535.97	10	(SW)g	Solid	Bouwer-Rice	2.0E-03	2.6E-03							
XPW03	CCR	530.81	10	(SW)g/SP	Solid	Bouwer-Rice	5.7E-02	7.2E-02	2.3E-01	1.5E-01	1.2E-01	1.4E-01			
XPW04	CCR	531.90	10	(SW)g	Solid	KGS Model		2.1E-03		1.2E-03	1.0E-03				

[O: SSW 7/1/20; U:SSW 8/20/21; C:LDC 08/31/21]

Notes:
[1] All wells are constructed from 2 inch PVC with 0.01 inch slotted screens.
Test not analyzed/performed
B-Z = Butler-Zhan Test Solution
C-B-P = Cooper-Bredehoeft-Papadopulos Slug Test Solution
CCR = coal combustion residuals
cm/s = centimeters per second
D = downgradient
ft = foot/feet
K = hydraulic conductivity
KGS = Kansas Geological Survey
NAVD88 = North American Vertical Datum of 1988
U = upgradient

USCS = Unified Soil Classification System
GP = Poorly Graded Gravel
SC = Clayey Sand
SM = Silty Sand
SP = Poorly Graded Sand
SP-SC = Poorly Graded Sand to Clayey Sand
SP-SM = Poorly Graded Sand with Silt
(SW)g = Well Graded Sand with Gravel

TABLE 2-2. GEOTECHNICAL DATA SUMMARY
NATURE AND EXTENT REPORT
NEWTON POWER PLANT
PRIMARY ASH POND
NEWTON, ILLINOIS

Sample ID	Field Location ID	Top of Sample (ft bgs)	Bottom of Sample (ft bgs)	HSU	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Calculated Porosity [1] (%)	Vertical Hydraulic Conductivity (cm/s)	LL	PL	PI	Laboratory USCS	Gravel (%)	Sand (%)	Fines (%)
Sangamon Soil																
APW11	APW11	10	12	UD	17.8	111.7	2.645	32	8.57E-08	28	12	16	CL	1.1	45.1	53.8
APW15	APW15	20	22	UD	18.5	109.8	2.686	34	3.21E-08	33	10	23	CL	0.0	40.8	59.2
Hagarstown Member																
APW12	APW12	20	22	UD/PMP	15.1	118.3	2.694	30	1.07E-07	27	12	15	SC	7.4	46.8	45.8
APW12	APW12	25.5	26	UD/PMP	8.4	113.0	2.654	32	8.43E-06	10	13	NP	SP-SM	24.3	69.5	6.2
APW13	APW13	25	27	UD/PMP	21.2	87.1	2.649	47	9.63E-05	9	10	NP	SP-SM	0.0	88.9	11.1
Vandalia Till Member																
APW14	APW14	45	47	UCU	12.4	119.6	2.706	29	9.65E-08	26	14	12	CL	4.4	32.3	63.3
APW17	APW17	40	42	UCU	16.6	108.8	2.709	36	3.34E-08	26	13	13	CL	1.3	27.6	71.1
SB300	APW18	50	52	UCU	12.9	122.7	2.700	27	7.29E-08	32	12	20	CL	0.8	22.4	76.8
SB301	SB301	48	50	UCU	14.1	117.3	2.697	30	6.63E-08	27	14	13	CL	0.4	34.2	65.4
Mulberry Grove Member																
APW13	APW13	60.5	61	UA	14.5	114.3	2.661	31	2.18E-04	8	13	NP	SM	0.3	75.2	24.5
APW15	APW15	100.5	101	UA	12.1	116.4	2.665	30	3.50E-06	15	12	3	SM	4.4	49.8	45.8
APW17	APW17	71	71.5	UA	7.8	110.2	2.660	34	7.21E-04	5	9	NP	SW-SM	14.3	76.8	8.9
APW17	APW17	90.5	91	UA	6.1	116.8	2.672	30	6.39E-04	6	8	NP	SP-SM	28.2	65.1	6.7
SB300	APW18	61	61.5	UA	13.6	109.6	2.686	35	1.85E-05	5	9	NP	SM	4.7	78.2	17.1
Smithboro Till Member																
APW11	APW11	61	61.5	LCU	17.8	110.5	2.686	34	1.87E-07	27	18	9	CL	0.0	21.4	78.6
APW11	APW11	80	82	LCU	16.5	116.1	2.705	31	2.94E-08	32	14	18	CL	0.0	21	79
APW12	APW12	85	87	LCU	14.4	116.4	2.711	31	2.36E-08	29	14	15	CL	0.3	19.5	80.2
APW14	APW14	55.5	56	LCU	18.0	104.6	2.709	38	2.74E-07	25	15	10	CL	0.0	27.8	72.2
APW15	APW15	105	107	LCU	19.1	107.8	2.695	36	8.20E-08	29	13	16	CL	0.0	23.8	76.2
SB300	APW18	62.5	63	LCU	11.1	124.6	2.659	25	4.32E-06	20	14	6	CL-ML	0.0	42.4	57.6
SB300	APW18	105	107	LCU	14.1	116.4	2.710	31	4.28E-08	28	13	15	CL	0.0	30.7	69.3
SB301	SB301	68.5	69	LCU	13.1	121.3	2.723	29	4.05E-08	23	14	9	CL	0.0	31.3	68.7
SB301	SB301	98	100	LCU	15.7	118.2	2.720	30	6.13E-08	37	15	22	CL	0.0	17.8	82.2
CCR																
XPW01	XPW01	8.5	9	CCR	18.6	87.7	2.675	47	1.71E-04	47	57	NP	SP-SM	37.1	51.1	11.8
XPW01	XPW01	15.5	16	CCR	12.6	84.4	2.741	51	1.58E-05	35	17	18	CL	4.6	34.1	61.3
XPW03	XPW03	6	6.5	CCR	17.4	75.3	2.663	55	1.34E-03	33	27	6	SM	6.8	71.7	21.5
XPW03	XPW03	15.5	16	CCR	16.7	103.6	2.689	38	9.70E-05	12	19	NP	SM	16.4	67.3	16.3
XPW04	XPW04	6.5	7	CCR	31.1	73.9	2.697	56	1.61E-04	41	38	3	SM	1.6	84.5	13.9
XPW04	XPW04	15.5	16	CCR	31.1	80.8	2.650	51	7.83E-05	46	42	4	SM	15.7	51	33.3

TABLE 2-2. GEOTECHNICAL DATA SUMMARY
NATURE AND EXTENT REPORT
NEWTON POWER PLANT
PRIMARY ASH POND
NEWTON, ILLINOIS

Sample ID	Field Location ID	Top of Sample (ft bgs)	Bottom of Sample (ft bgs)	HSU	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Calculated Porosity [1] (%)	Vertical Hydraulic Conductivity (cm/s)	LL	PL	PI	Laboratory USCS	Gravel (%)	Sand (%)	Fines (%)
Fill																
XPW02	XPW02	8	8.5	CCR	29.1	92.9	2.691	45	6.07E-08	36	16	20	CL	0.3	44.8	54.9
XPW02	XPW02	16.5	17	CCR	21.8	103.7	2.694	38	7.38E-08	36	14	22	CL	0.0	19.8	80.2

[O: SSW 04/22/21, U:EDP 08/23/21, U: SSW 08/26/21, C: LDC 08/31/21; U: LDC 09/16/21, C: SSW 09/21/21]

Notes:
[1] Porosity calculated as relationship of bulk density to particle density (n = 100[1- (pb/pd)])
% = Percent
bgs = below ground surface
CCR = coal combustion residuals
cm/s = centimeters per second
ft = foot/feet
in = inch
LL = Liquid limit
NP = Non Plastic
pcf = pounds per cubic foot
PI = Plastic Index
PL = Plasticity Limit

HSU = Hydrostratigraphic Unit
LCU = lower confining unit
PMP = potential migration pathway
UA = uppermost aquifer
UCU = upper confining unit
UD = upper drift

USCS = Unified Soil Classification System
CL - Lean Clay
CL-ML = Silty Lean Clay
SC = Clayey Sand
SM = Silty Sand
SP-SM = Poorly Graded Sand with Silt
SW-SM = Well Graded Sand with Silt

Table 3-1. Exceedance Parameter Statistical Results
Nature and Extent Report
Newton Power Plant
Primary Ash Pond
Newton, Illinois

Location	Parameter	Unit	Groundwater Protection Standard	2023 Q1 LCL	2023 Q2 LCL	2023 Q3 LCL
APW02	Lithium, total	mg/L	0.04	0.09	0.09	0.10
APW02	Sulfate, total	mg/L	400	2,900	2,860	2,860
APW02	Total Dissolved Solids	mg/L	1,200	5,180	5,000	5,000
APW04	Sulfate, total	mg/L	400	844	837	832
APW04	Total Dissolved Solids	mg/L	1,200	1,710	1,720	1,720
APW05S	Sulfate, total	mg/L	400	640	640	640
APW05S	Total Dissolved Solids	mg/L	1,200	3,450	3,390	3,360
APW10	Total Dissolved Solids	mg/L	400	410	410	410

Notes:
LCL - Lower Confidence Level

Table 3-2. Summary of Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UD	APW02	C	Lithium, total	mg/L	12	0	0	2021/02/17	2023/10/10	0.0790	0.11	0.14	0.300
UD	APW02	C	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	1,500	3100	2900	3,200
UD	APW02	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	1,910	5100	5000	5,500
UD	APW03	C	Lithium, total	mg/L	12	2	17	2021/02/18	2023/10/10	0.00960	0.017	0.018	0.0350
UD	APW03	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	110	170	150	190
UD	APW03	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	520	640	710	3,000
UD	APW04	C	Lithium, total	mg/L	12	1	8	2021/02/18	2023/10/10	<0.0099	0.021	0.023	0.0450
UD	APW04	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	760	900	890	990
UD	APW04	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	1,600	1900	2000	3,100
UA	APW05	B	Lithium, total	mg/L	22	9	41	2015/12/15	2023/10/10	<0.005	0.0099	0.012	0.0230
UA	APW05	B	Sulfate, total	mg/L	33	8	24	2015/12/15	2023/10/10	<0.12	1.3	3.0	15.0
UA	APW05	B	Total Dissolved Solids	mg/L	32	0	0	2015/12/15	2023/10/10	470	550	550	1,000
UD	APW05S	C	Lithium, total	mg/L	11	0	0	2021/02/17	2023/10/10	0.0328	0.039	0.045	0.0910
UD	APW05S	C	Sulfate, total	mg/L	11	0	0	2021/02/17	2023/10/10	200	1900	1700	2,100
UD	APW05S	C	Total Dissolved Solids	mg/L	11	0	0	2021/02/17	2023/10/10	3,200	3600	3600	4,000
UA	APW06	B	Lithium, total	mg/L	22	8	36	2015/12/15	2023/10/10	<0.005	0.011	0.013	0.0300
UA	APW06	B	Sulfate, total	mg/L	33	4	12	2015/12/15	2023/10/10	<0.062	6.1	5.4	17.0
UA	APW06	B	Total Dissolved Solids	mg/L	32	0	0	2015/12/15	2023/10/10	420	500	500	640
UA	APW07	C	Lithium, total	mg/L	14	11	79	2015/12/15	2023/10/10	<0.0001	<0.0001	0.0020	0.00580
UA	APW07	C	Sulfate, total	mg/L	25	4	16	2015/12/15	2023/10/10	<0.12	7.5	12	66.0
UA	APW07	C	Total Dissolved Solids	mg/L	24	0	0	2015/12/15	2023/10/10	340	540	530	640
UA	APW08	C	Lithium, total	mg/L	14	7	50	2015/12/15	2023/10/10	<0.0001	0.0050	0.0057	0.0170
UA	APW08	C	Sulfate, total	mg/L	25	0	0	2015/12/15	2023/10/10	30.0	42	42	57.0
UA	APW08	C	Total Dissolved Solids	mg/L	24	0	0	2015/12/15	2023/10/10	490	600	590	700
UA	APW09	C	Lithium, total	mg/L	14	9	64	2015/12/15	2023/10/10	<0.0001	<0.0001	0.0032	0.0100
UA	APW09	C	Sulfate, total	mg/L	25	2	8	2015/12/15	2023/10/10	<0.12	9.7	77	1,500
UA	APW09	C	Total Dissolved Solids	mg/L	25	0	0	2015/12/15	2023/10/10	300	760	780	3,200
UA	APW10	C	Lithium, total	mg/L	16	0	0	2015/12/16	2023/10/10	0.0180	0.022	0.023	0.0300
UA	APW10	C	Sulfate, total	mg/L	27	0	0	2015/12/16	2023/10/10	390	410	420	540
UA	APW10	C	Total Dissolved Solids	mg/L	28	0	0	2015/12/16	2023/10/10	840	1000	1000	1,200
UA	APW11	C	Lithium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.0190	0.022	0.024	0.0380
UA	APW11	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	140	280	270	300
UA	APW11	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/18	2023/10/10	780	840	850	940

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Table 3-2. Summary of Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

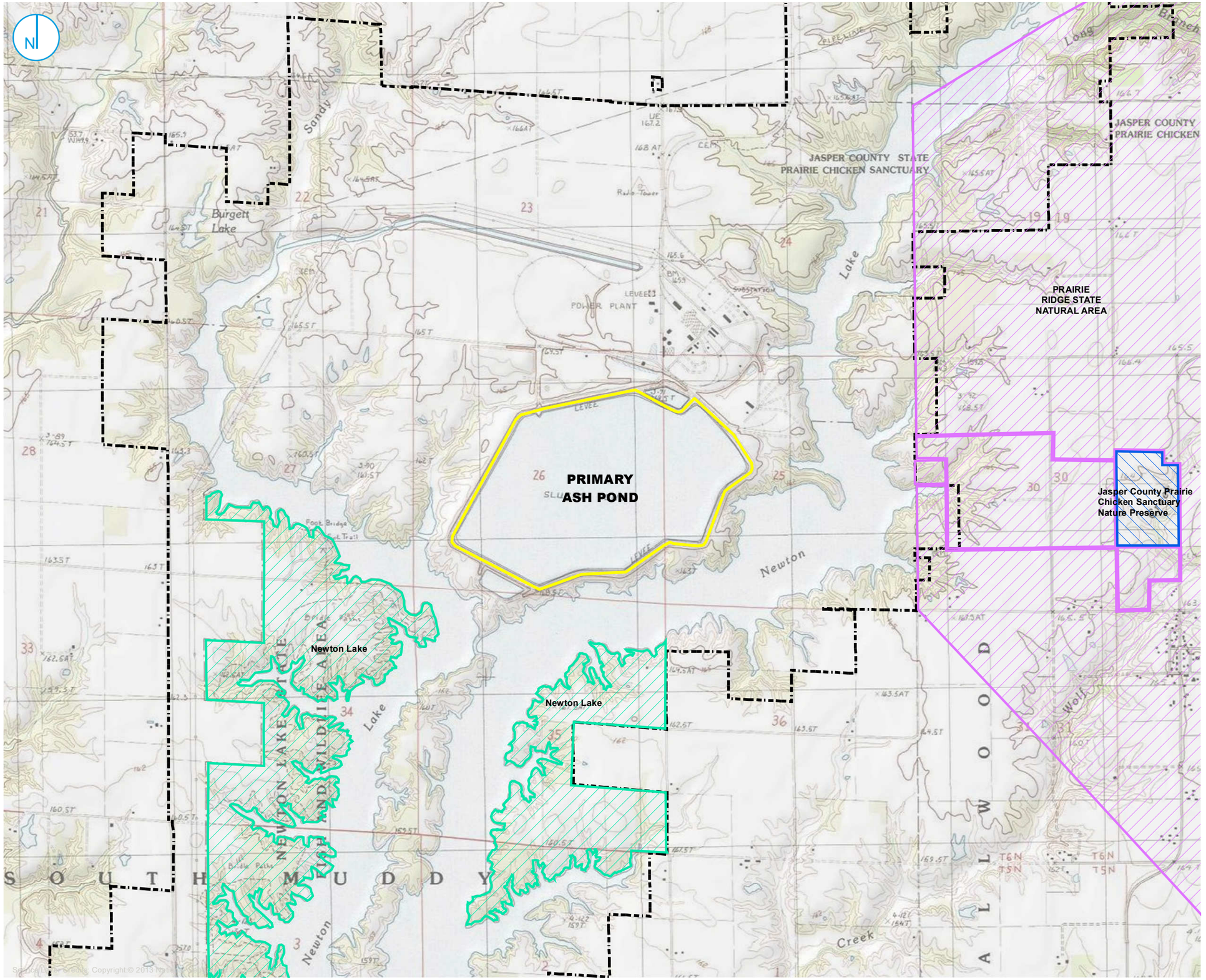
HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UD	APW12	C	Lithium, total	mg/L	12	0	0	2021/02/17	2023/10/11	0.0240	0.028	0.031	0.0460
UD	APW12	C	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/11	56.0	420	420	712
UD	APW12	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/11	990	1300	1400	1,740
UA	APW13	C	Lithium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0210	0.031	0.033	0.0540
UA	APW13	C	Sulfate, total	mg/L	12	0	0	2021/02/22	2023/10/10	210	220	220	250
UA	APW13	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/22	2023/10/10	760	860	860	940
UA	APW14	C	Lithium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0160	0.030	0.031	0.0510
UA	APW14	C	Sulfate, total	mg/L	12	0	0	2021/02/22	2023/10/10	310	330	340	380
UA	APW14	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/22	2023/10/10	830	970	950	1,000
UA	APW15	C	Lithium, total	mg/L	12	6	50	2021/02/23	2023/10/10	0.00610	0.0099	0.011	0.0220
UA	APW15	C	Sulfate, total	mg/L	12	8	67	2021/02/23	2023/10/10	<0.18	<0.18	2.5	16.0
UA	APW15	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	1,000	1100	1100	1,200
UA	APW16	C	Lithium, total	mg/L	12	10	83	2021/02/23	2023/10/10	0.00250	0.0099	0.0079	<0.0099
UA	APW16	C	Sulfate, total	mg/L	12	7	58	2021/02/23	2023/10/10	<0.18	1.90	2.2	14.0
UA	APW16	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	610	750	780	1,300
UA	APW17	C	Lithium, total	mg/L	12	10	83	2021/02/23	2023/10/10	0.00240	0.0099	0.0078	<0.0099
UA	APW17	C	Sulfate, total	mg/L	12	1	8	2021/02/23	2023/10/10	<4.6	40	40	64.0
UA	APW17	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	620	660	660	700
UA	APW18	C	Lithium, total	mg/L	12	9	75	2021/02/23	2023/10/10	<0.005	0.0099	0.0083	<0.0099
UA	APW18	C	Sulfate, total	mg/L	12	2	17	2021/02/23	2023/10/10	<0.18	11	21	52.0
UA	APW18	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	450	570	570	660

Notes:
B = Background
C = Compliance
HSU = Hydrostratigraphic Unit
UA = Uppermost Aquifer
UD = Upper Drift

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FIGURES

Y:\Mapping\Projects\221228\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-1_Site Location Map.mxd



REGULATED UNIT (SUBJECT UNIT)

JASPER COUNTY PRAIRIE CHICKEN SANCTUARY NATURE PRESERVE

NEWTON LAKE STATE FISH AND WILDLIFE AREA

PRAIRIE RIDGE STATE NATURAL AREA

PROPERTY BOUNDARY

0 1,000 2,000 Feet

SITE LOCATION MAP

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC



- COMPLIANCE MONITORING WELL
- BACKGROUND MONITORING WELL
- PORE WATER WELL
- STAFF GAGE, CCR UNIT
- STAFF GAGE, LAKE
- REGULATED UNIT (SUBJECT UNIT)
- SITE FEATURE
- PROPERTY BOUNDARY

0 500 1,000 Feet

SITE MAP

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

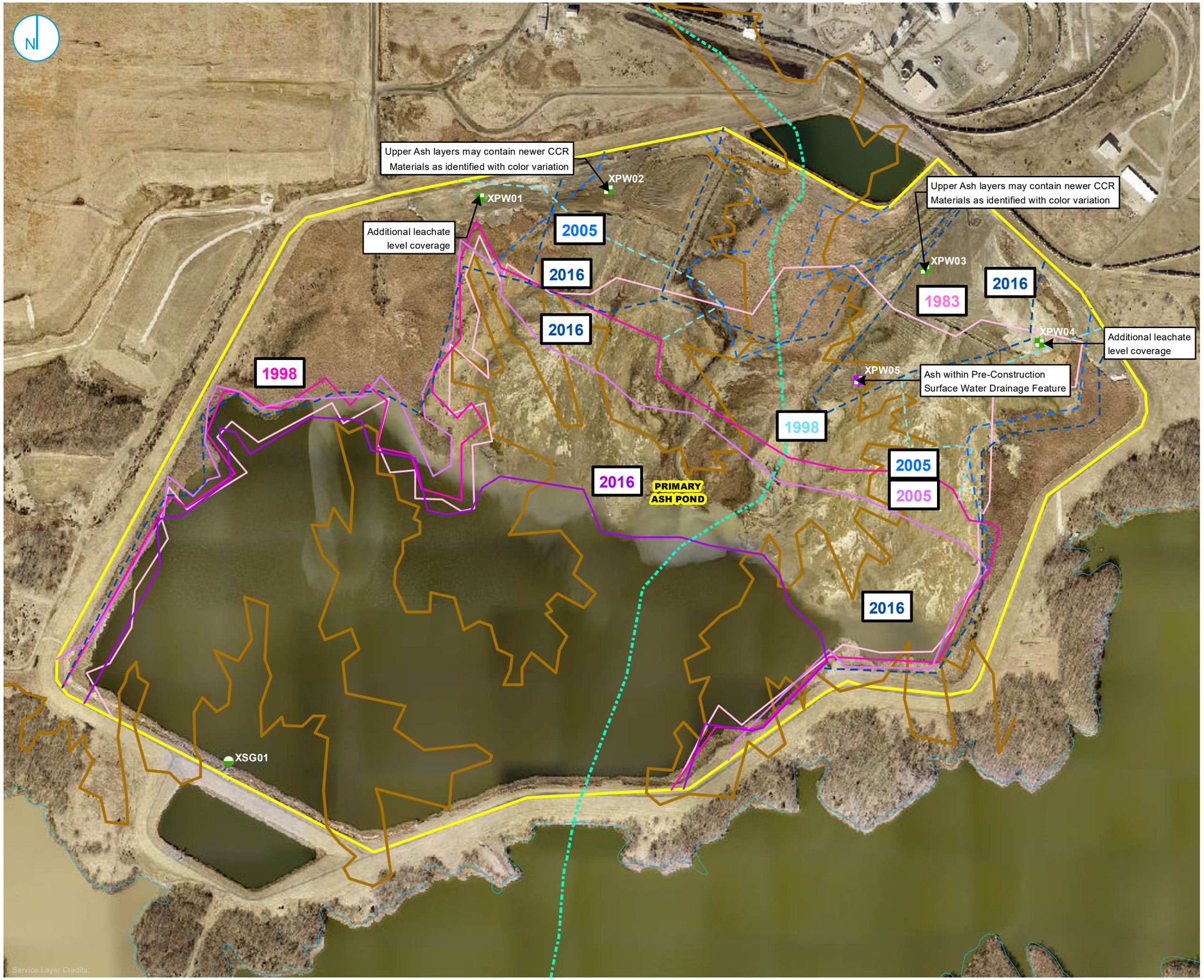
FIGURE 2-2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22885\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-2. Site Map.mxd

PROJECT: 169000XXX | DATED: 3/13/2024 | DESIGNER: GALARNMC



PORE WATER WELL

STAFF GAGE, CCR UNIT

PROPOSED LOCATION COULD NOT BE ACCESSED

APPROXIMATE LOCATION OF STREAM BASED ON 1953 TOPOGRAPHIC MAP (BASE OF STREAM ELEVATION DECREASES SOUTH TOWARD NEWTON LAKE)

APPROXIMATE LOCATION OF 530 FOOT GROUND SURFACE ELEVATION CONTOUR BASED ON 1953 TOPOGRAPHIC MAP (PRE-CONSTRUCTION SURFACE WATER DRAINAGE FEATURE)

APPROXIMATE LIMITS OF ASH BASED ON 1983 AERIAL

APPROXIMATE LIMITS OF ASH BASED ON 1998 AERIAL

APPROXIMATE LIMITS OF ASH BASED ON 2005 AERIAL

APPROXIMATE LIMITS OF ASH BASED ON 2016 AERIAL

APPROXIMATE LIMITS OF VARIANCE IN CCR MATERIAL COLORATION AS OBSERVED IN 1998 AERIAL

APPROXIMATE LIMITS OF VARIANCE IN CCR MATERIAL COLORATION AS OBSERVED IN 2005 AERIAL

APPROXIMATE LIMITS OF VARIANCE IN CCR MATERIAL COLORATION AS OBSERVED IN 2016 AERIAL

SURFACE WATER FEATURE

REGULATED UNIT (SUBJECT UNIT)

0 275 550
Feet

CCR OBSERVATIONS

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22851MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-3. CCR Observations.mxd

PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC



PORE WATER WELL
STAFF GAGE, CCR UNIT
PROPOSED LOCATION COULD NOT BE COMPLETED
540 ELEVATION CONTOUR
ACTIVE SLUICE AREA
LIMITED ACCESS AREA
LOW LYING VEGETATION AREA
RECENT SLUICE AREA
ELEVATION BELOW 540FT
REGULATED UNIT (SUBJECT UNIT)
SITE FEATURE

0 275 550
Feet

CCR ACCESS SUMMARY

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-4

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\2285\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-4. CCR Access Summary.mxd

PROJECT: 169000XXXX | DATED: 3/5/2024 | DESIGNER: GALARNMC



SOIL BORING AND BOTTOM OF ASH ELEVATION

10 FOOT HISTORIC ELEVATION CONTOUR

2 FOOT HISTORIC ELEVATION CONTOUR

CONSTRUCTION DRAWING S-69 INDICATES DRAINAGE FEATURE WAS TO BE FILLED TO MAX ELEVATION 508 PRIOR TO OPERATION OF THE UNIT.

REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

PROPERTY BOUNDARY

NOTES

1. CONTOUR LINES ARE A HISTORIC LAND SURFACE. THIS SURFACE IS BEING FURTHER EVALUATED AS THE CONSTRUCTION PERMIT IS BEING DEVELOPED.

0 400 800
Feet

BASE OF CCR

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-5

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22851\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-5_Base of CCR.mxd

PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC



MONITORING WELL

UPPERMOST AQUIFER ELEVATION (10-FOOT INTERVAL)

REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

PROPERTY BOUNDARY

NOTES:
* = NOT USED FOR CONTOURING
ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 400 800
Feet

TOP OF UPPERMOST AQUIFER

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

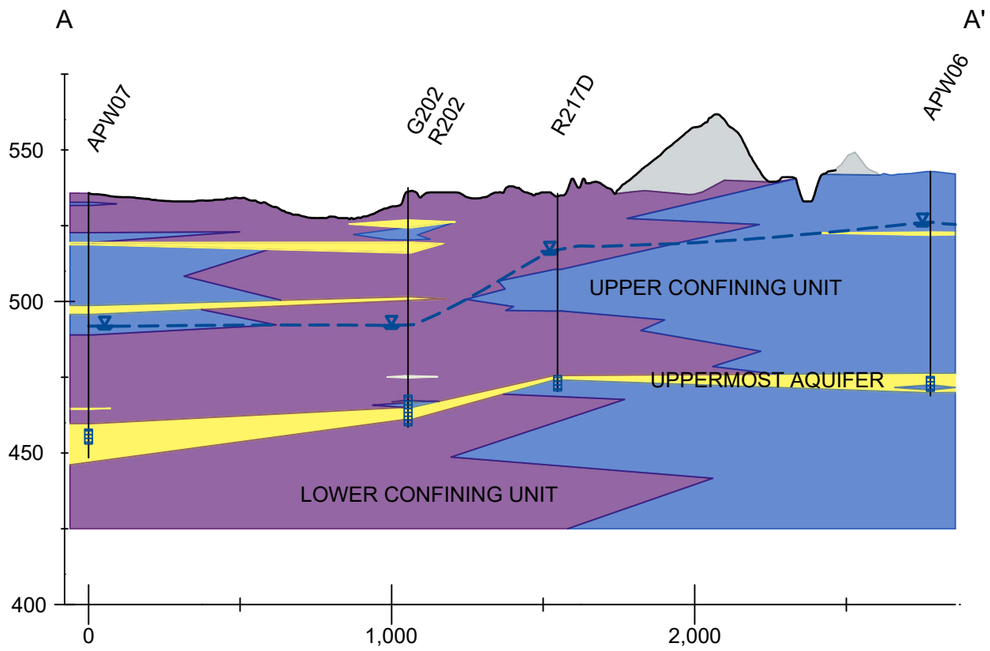
FIGURE 2-6

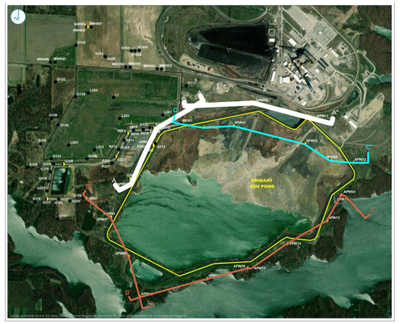
RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\2285\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-6_Top of Uppermost Aquifer.mxd

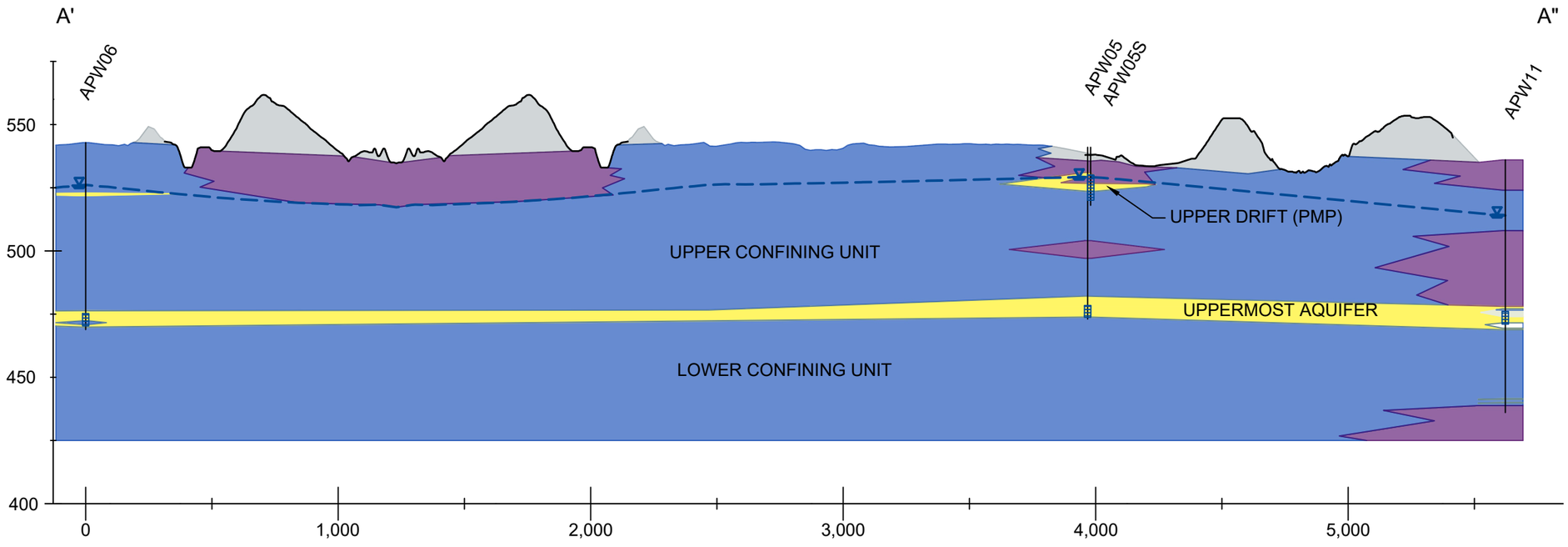
PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC





NOTES

1. This profile was developed by interpolation between widely spaced boreholes. Only at the borehole location should it be considered as an approximately accurate representation and then only to the degree implied by the notes on the borehole logs.
2. Scale is approximate.
3. Vertical scale is exaggerated 10X.
4. Groundwater elevations measured on June 24, 2021.
5. PMP = potential migration pathway



LEGEND

- FILL
- CLAY (CL/CH)
- SILT (ML)
- SAND (SP/SM/SW)
- GRAVEL (GP/GW)
- WELL SCREEN INTERVAL
- UPPERMOST AQUIFER POTENTIOMETRIC SURFACE
- UPPERMOST AQUIFER GROUNDWATER ELEVATION

50'
0
500'

GEOLOGIC CROSS SECTION
A-A' & A'-A"

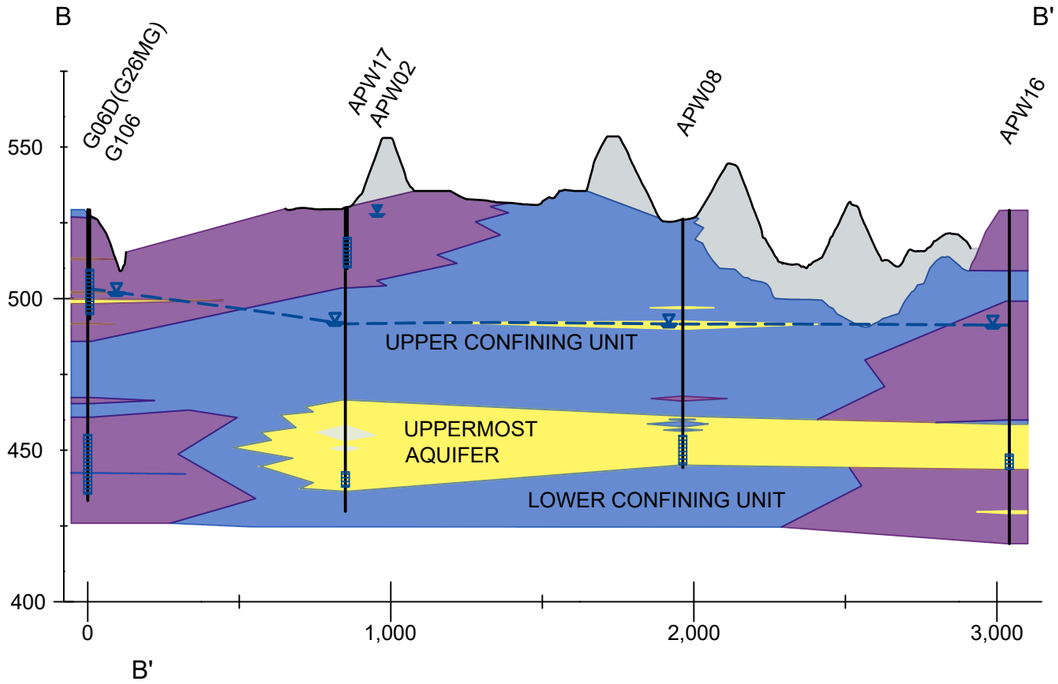
NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-7

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: #### \\ramboll.sharepoint.com@SSL\DavWWWRoot\sites\NewtonHydrogeoEVS\working files\CAD\Cross Sections\Newton-Cross Sections.dwg
DATE: 10/18/2022 \\ramboll.sharepoint.com@SSL\DavWWWRoot\sites\NewtonHydrogeoEVS\Shared Documents\-CCR GWDeliverables\Part 845 Operating Permits\Sites\Newton\Hydrogeo\EVS\working files\CAD\Cross Sections\Newton-Cross Sections.dwg



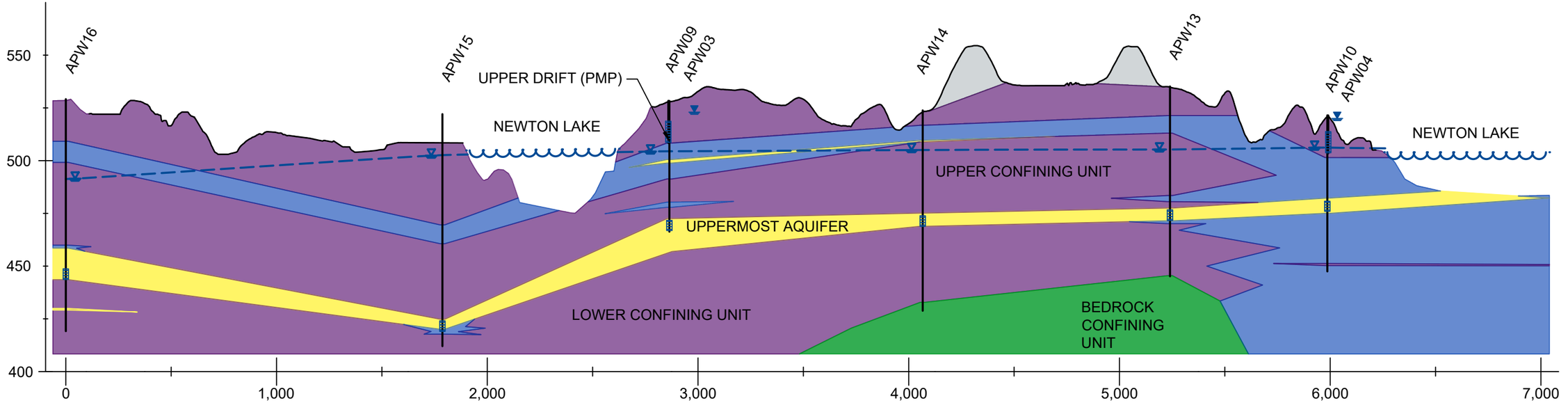


NOTES

1. This profile was developed by interpolation between widely spaced boreholes. Only at the borehole location should it be considered as an approximately accurate representation and then only to the degree implied by the notes on the borehole logs.
2. Scale is approximate.
3. Vertical scale is exaggerated 10X.
4. Groundwater elevations measured on June 24, 2021.
5. PMP = potential migration pathway

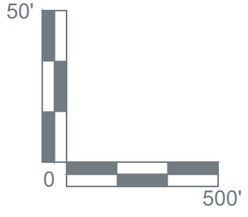
B'

B"



LEGEND

- FILL
- CLAY (CL/CH)
- SILT (ML)
- SAND (SP/SM/SW)
- GRAVEL (GP/GW)
- BEDROCK / WEATHERED BEDROCK (SHALE)
- WELL SCREEN INTERVAL
- UPPERMOST AQUIFER POTENTIOMETRIC SURFACE
- UPPERMOST AQUIFER GROUNDWATER ELEVATION
- BEDROCK GROUNDWATER / OTHER GROUNDWATER / SURFACE WATER ELEVATION(S)



GEOLOGIC CROSS SECTION
B-B' & B'-B"

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-8

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

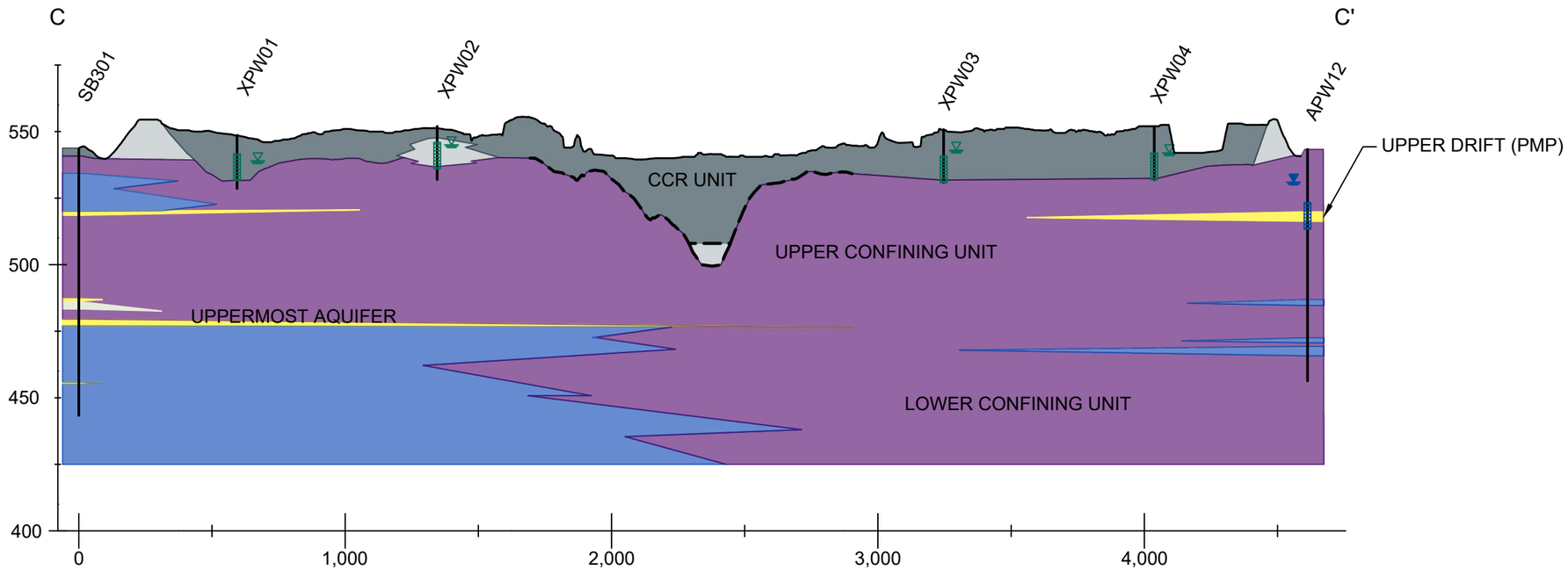
RAMBOLL

PROJECT: ####
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DATE: 10/8/2021 TIME: 10:49:00 AM USER: JWEBB
\\ramboll.sharepoint.com@SSL\DavWWWRoot\sites\NewtonHydrogeoEVS\Shared Documents\-CCR GWDeliverables\Part 845 Operating Permits\Sites\Newton\Hydrogeo\EVS\working files\CAD\Cross Sections\Newton-Cross Sections.dwg



NOTES

1. This profile was developed by interpolation between widely spaced boreholes. Only at the borehole location should it be considered as an approximately accurate representation and then only to the degree implied by the notes on the borehole logs.
2. Scale is approximate.
3. Vertical scale is exaggerated 10X.
4. Base of CCR Unit is based on historic land surface contours. This surface is being further evaluated as the construction permit is being developed.
5. Groundwater elevations measured on June 24, 2021.
6. PMP = potential migration pathway



LEGEND

- COAL COMBUSTION RESIDUALS (CCR)
- FILL
- CLAY (CL/CH)
- SILT (ML)
- SAND (SP/SM/SW)
- GRAVEL (GP/GW)
- WELL SCREEN INTERVAL
- POREWATER ELEVATION
- BEDROCK GROUNDWATER / OTHER GROUNDWATER / SURFACE WATER ELEVATION(S)

50' 0 500'

GEOLOGIC CROSS SECTION
C-C'

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-9

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: ####
\\ramboll.share.com\data\USSL\Projects\####\Shared Documents\-CCR GWDeliverables\Part 845 Operating Permits\Sites\Newton\Hydrogeo\EVS\working files\CAD\Cross Sections\Newton-Cross Sections.dwg
DATE: 10/8/2021 DESIGNER: ####



- COMPLIANCE MONITORING WELL
- BACKGROUND MONITORING WELL
- MONITORING WELL
- PORE WATER WELL
- LEACHATE WELL
- STAFF GAGE, CCR UNIT
- STAFF GAGE, LAKE
- GROUNDWATER ELEVATION CONTOUR (5-FT CONTOUR INTERVAL, NAVD88)
- INFERRED GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- REGULATED UNIT (SUBJECT UNIT)
- SITE FEATURE

NOTES:

1.ELEVATIONS IN PARENTHESES WERE NOT USED FOR CONTOURING.

2. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 400 800
Feet

UPPERMOST AQUIFER GROUNDWATER ELEVATION CONTOURS - APRIL 2023 (E001)

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 2-10

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\222\2285\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 2-10_Uppermost Aquifer GWE Contours E001.mxd
PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC



TOTAL SULFATE EXCEEDANCE

COMPLIANCE WELL WITHOUT EXCEEDANCE

REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

0 400 800
Feet

GWPS EXCEEDANCE MAP
UPPERMOST AQUIFER

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 3-1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC

Y:\Mapping\Projects\2212285\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 3-1. GWPS UA.mxd



TOTAL LITHIUM EXCEEDANCE

TOTAL SULFATE EXCEEDANCE

TOTAL DISSOLVED SOLIDS EXCEEDANCE

COMPLIANCE WELL WITHOUT EXCEEDANCE

REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

0 400 800 Feet

GWPS EXCEEDANCE MAP UPPER DRIFT AND POTENTIAL MIGRATION PATHWAYS

NATURE AND EXTENT REPORT
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

FIGURE 3-2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\222285\MXD\Nature_and_Extent\NEW\Nature_and_Extent_Report\Figure 3-2. GWPS UD.mxd

PROJECT: 169000XXXX | DATED: 3/7/2024 | DESIGNER: GALARNMC

APPENDICES

APPENDIX A
Technical Memorandum - Monitored Natural Attenuation Field Investigation Status Update

GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE December 15, 2021 **Project No.** 21454831

TO David Mitchell, Stu Cravens, Vic Modeer
Illinois Power Generating Company (IPGC)

CC Brian Hennings - Ramboll

FROM Pat Behling, Jeffrey Ingram - Golder **EMAIL Jingram@golder.com**

MONITORED NATURAL ATTENUATION FIELD INVESTIGATION STATUS UPDATE, PRIMARY ASH POND (CCR UNIT 501) NEWTON POWER PLANT, JASPER COUNTY, ILLINOIS

1.0 INTRODUCTION AND BACKGROUND

The following Technical Memorandum summarizes the results received to date from the Monitored Natural Attenuation (MNA) Field Investigation completed by Golder Associates USA Inc. (Golder) for the Primary Ash Pond (PAP, CCR Unit 501) located at the Newton Power Plant (NPP or Site) operated by Illinois Power Generating Company (IPGC) in Jasper County, Illinois. Data collected as a part of this investigation will be an integral part of the MNA Feasibility Demonstration for the PAP and will be used for IPGC's Illinois Part 845 Coal Combustion Residual (CCR) compliance program. A Site plan showing the PAP, existing Part 845 monitoring wells, and the MNA boring locations is provided in **Figure 1**.

This memorandum only includes laboratory analytical data that has been received to date. Golder will update this memorandum when the remaining data has been received and reviewed.

2.0 PROJECT SCOPE OF WORK

As part of the MNA Feasibility Demonstration, and ongoing discussions with IPGC, Golder completed the following activities as part of this Field Investigation:

- Screened for potential underground utilities in the vicinity of the proposed borings prior to completing any drilling or ground disturbance activities.
- Advanced a total of seven (7) soil borings ranging in depth from 15 to 90 feet below ground surface (ft bgs).
- Collected ten (10) soil samples from seven (7) soil borings for laboratory analysis.
- Collected groundwater samples from five (5) existing monitoring wells for laboratory analysis.

3.0 FIELD INVESTIGAITON

3.1 Private Utility Locate

Prior to conducting any work onsite, Golder reviewed Site plans/drawings provided by IPGC and/or Site representatives and met with Site representatives to assist in identifying underground utility locations in the vicinity

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13515 Barrett Parkway Drive, Suite 260, Ballwin, Missouri, USA 63021 T: +1 314 984-8800 F: +1 314 984-8770

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of the proposed borings. Golder also sub-contracted with GPRS to provide ground penetrating radar (GPR) and electromagnetic (EM) tracing services to screen the proposed boring locations in the field. All boring locations were cleared by GPRS personnel before drilling commenced.

3.2 Drilling and Aquifer Solids Sampling

Drilling was completed by Cascade Environmental Drilling (Cascade) using a roto-sonic drill rig under direct supervision of a Golder Geologist from August 17 – 21, 2021. Continuous soil core samples were obtained at each borehole location and were logged in the field by Golder personnel. Soils were classified according to the Unified Soil Classification System (USCS) and in accordance with the standard Golder Soil Logging Technical Procedure.

During the field investigation, seven (7) soil borings were advanced at the locations shown on **Figure 1**. Soil boring logs are provided in **Attachment A**. The following units were encountered during the field investigation (unit names are consistent with the Groundwater Monitoring Plan (Ramboll, 2021) in the Newton Part 845 Operating Permit):

- Shallow Saturated Zone – This zone is made up of the Upper Drift and the Upper Confining Units. The Upper Drift consists of low permeability silts and clays of the Peoria Silt and Sangamon Soil and the Hagarstown Member (Potential Migration Pathway) which consists of discontinuous sandier deposits. Below the Upper Drift is the Upper Confining unit, which consists of low permeability clay and silt of the Vandalia Till. The contact between the Upper Confining Unit and the underlying Uppermost aquifer ranges from approximately 467 feet above mean sea level (FT MSL) to 483 FT MSL in the borings completed for this investigation. Samples from the shallow saturated zone are shown in **Table 1**.
- Uppermost Aquifer – This zone consists of the Mulberry Grove Formation and is generally made up of fine to coarse, poorly to well graded sands, with occasional clayey sand layers and gravels. The formation is present between approximately 449 and 483 FT MSL. Samples collected from the uppermost aquifer are shown in **Table 1**.
- Lower Confining Unit – This unit consists of the Smithboro Till and is generally made up of compact glacial till consisting of low permeability silty clays and clayey silts with trace sand and gravel. The Till was present directly below the Uppermost Aquifer and the contact between these two units ranges from approximately 449 FT MSL to 474 FT MSL. Drilling was terminated in the Lower Confining Unit in most boreholes, therefore, evaluation of the full thickness of the unit was not completed as a part of this investigation. There were no samples collected from the lower confining unit.

Methane was encountered in soil boring SB-02, on August 18, 2021, while retrieving the soil from 60 to 80 feet below ground surface (FT BGS) within the bottom of the Shallow Saturated Zone and the top of the Uppermost Aquifer unit. Drilling was stopped until methane levels dropped below safe working levels and continued on August 19, 2021. Methane was only detected in this borehole during this investigation.

Ten (10) soil samples were collected for laboratory analysis from the soil borings (see **Figure 1** for sample location). Details regarding collected samples are included in **Table 1**.

Table 1: Laboratory Soil Sample Locations and Intervals Used for Laboratory Analysis

Borehole ID	Sample ID	Sample Depth (FT BGS)	Soil Type / Geologic Unit Sampled
N-SB-02	N-SB-02 (12.5 – 20.0)	12.5 - 20.0	Clayey Silt / Shallow Saturated Zone
	N-SB-02 (65.0 – 71.5)	65.0 – 71.5	Well Graded Sand /Uppermost Aquifer
N-SB-04	N-SB-04 (12.0 – 18.0)	12.0 – 18.0	Sandy Silty Clay / Shallow Saturated Zone
	N-SB-04 (38.8 – 45.4)	38.8 – 45.4	Clayey Sand / Uppermost Aquifer
N-SB-05	N-SB-05 (18.0 – 20.0)	18.0 – 20.0	Poorly Graded Sand / Shallow Saturated Zone
	N-SB-05 (60.0 – 67.1)	60.0 – 67.1	Poorly Graded Sand / Uppermost Aquifer
N-SB-14	N-SB-14 (44.2 – 52.0)	44.2 – 52.0	Sandy Clay / Uppermost Aquifer
N-SB-18	N-SB-18 (77.5 – 80.0)	77.5 – 80.0	Well Graded Sand / Uppermost Aquifer
N-SB-XPW01	N-SB-XPW01 (10.0 – 12.7)	10.0 – 12.7	CCR
N-SB-XPW04	N-SB-XPW04 (10.0 – 15.0)	10.0 – 15.0	CCR

Notes

1) FT BGS – Feet Below Ground Surface.

3.2.1 Soil Laboratory Analysis

Soil samples collected during the field investigation were placed in clean containers and properly labeled with sample location, depth, project name, sampler initials, analyses to be performed, date, and time of collection. Sample information was logged on a chain of custody (COC) and shipped to the following laboratories for analysis:

- Eurofins TestAmerica for 7-Step Sequential Extraction; and
- SiREM for the Batch Testing, Total Metals, Reitveld X-Ray Diffraction (XRD), leachability, Cation Exchange Capacity (CEC), and Total Organic Carbon (TOC) analyses.

The following laboratory analyses were conducted for each soil sample:

- 6010B for 7-step sequential extraction (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- EPA 6010B for Total Metals (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- Bulk Mineralogy by Reitveld XRD Analysis;
- Cation Exchange Capacity (CEC) Analysis;
- Total Organic Carbon Analysis; and,
- SPLP Method 1312 Leachability Test (for CCR source samples only).

Currently, only the results from Test America have been received, and are included in **Attachment B**. A separate Technical Memorandum will be provided when results from SiREM are completed.

3.2.2 Borehole Survey

On September 1, 2021, IngenAE completed a survey of the boring locations including the longitude/latitude of and elevation of each borehole location. Survey information is included in the boring logs in **Appendix A**.

3.3 Groundwater Sampling

Groundwater sampling was completed by Golder personnel on August 31, 2021. Five (5) existing monitoring wells were sampled, provided in **Figure 1**. Groundwater sample locations and adjacent borehole sample intervals for the MNA evaluation are included in **Table 2**.

Table 2: Groundwater Sample Locations

Well ID	Adjacent Borehole Sample
APW-02	N-SB-02 (12.5 – 20.0)
APW-04	N-SB-04 (12.0 – 18.0)
APW-05S (background)	N-SB-05 (18.0 – 20.0)
APW-05 (background)	N-SB-05 (60.0 – 67.1)
APW-14	N-SB-14 (44.2 – 52.0)

3.3.1 Groundwater Sample Laboratory Analysis

Groundwater samples collected during the field investigation were placed in clean containers and properly labeled with well ID, project name, sampler initials, analyses to be performed, date, and time of collection. Sample information was logged on a chain of custody (COC) and shipped to SiREM Laboratories to be included in batch testing analysis along with soil samples collected at adjacent boreholes. Results for the batch testing has not yet been completed and will be provided in a separate Technical Memorandum.

4.0 CLOSING

Golder appreciates the opportunity to serve as your consultant on this project. If you have any questions concerning this technical memorandum or need additional information, please contact the undersigned

Golder Associates Inc.



Jeffrey Ingram, R.G.
Senior Project Geologist

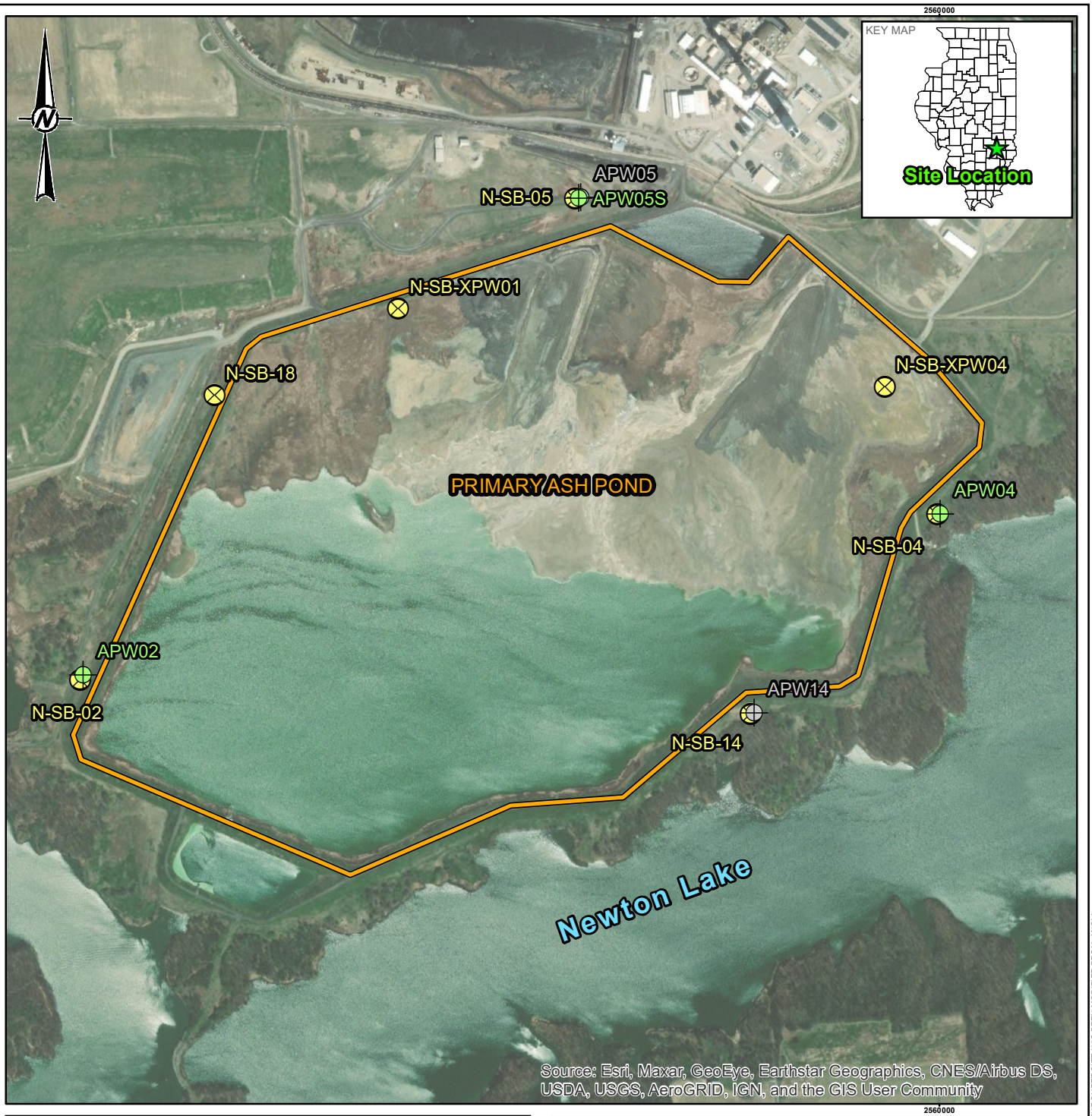


Pat Behlings, P.E.
Principal and Practice Leader

JSI/PJB

Attachments: Figure 1 – Newton Power Plant Monitored Natural Attenuation Boring and Groundwater Sample Locations
Appendix A – Soil Boring Logs
Appendix B – Eurofins TestAmerica Laboratory Data

Figures



LEGEND

- Primary Ash Pond - CCR Unit ID 501
- MNA Soil Boring Location
- Groundwater Sample Location - Part 845 Wells With No Potential Exceedances
- Groundwater Sample Location - Part 845 Wells With Potential Exceedances

0 3,000 Feet

NOTE(S)

1. SOIL BORING LOCATIONS SURVEYED BY INGENAE ON SEPTEMBER 1, 2021.

REFERENCE(S)

1. RAMBOLL 2021, TABLE 2 SUMMARY OF POTENTIAL EXCEEDANCES.
2. RAMBOLL 2021. GROUNDWATER MONITORING PLAN, PRIMARY ASH POND, NEWTON POWER PLANT, NEWTON ILLINOIS.

CLIENT
ILLINOIS POWER GENERATING COMPANY

PROJECT
NEWTON POWER PLANT MNA FEASABILITY STUDY

TITLE
MONITORED NATURAL ATTENUATION INVESTIGATION BORING AND GROUNDWATER SAMPLE LOCATIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2021-11-23
DESIGNED	BTT
PREPARED	ETF
REVIEWED	EMS
APPROVED	PJB

PROJECT NO. 21454831 PHASE 0004 FIGURE 1

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

1 in 0

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APPENDIX A

Soil Boring Logs

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67

ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-3.0) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand; dark yellowish orange (10YR 6/6); cohesive, w~PL, stiff.	CL		518.3				
		(3.0-10.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine to course sub-rounded well graded- grained sand, trace sub-rounded gravel; moderate brown (5YR 4/4); cohesive, w<PL, hard.	ML		3.0	1	SO	10.0 / 10.0	
10					511.3				
	6" Sonic	(10.0-12.5) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded poorly-graded sand; moderate yellowish brown (10YR 5/4); cohesive, w<PL, hard.	ML		10.0				
					508.8				
		(12.5-30.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand, trace coarse sub-rounded gravel; grayish orange (10YR 7/4) with dark yellowish orange (10YR 6/6) mottling; cohesive, w<PL, hard.			12.5				(12.5-20.0) Clayey Silt sample collected at 14:10 - 8/18/2021.
15						2	SO	10.0 / 10.0	
20					501.3				
		(20.0) Same As Above (SAA) except, light bluish gray (5B 7/1) with white (N9) mottling.	ML		20.0				
	6" Sonic					3	SO	10.0 / 10.0	
25									
30					491.3				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67
ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(30.0-32.5) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; medium gray (N5); non-cohesive, moist, compact.	SW		30.0 / 488.8				
35	6" Sonic	(32.5-60.0) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine to coarse sub-rounded gravel; medium gray (N5) with light bluish gray (5B 7/1) and white (N9) mottling; cohesive, w<PL, hard.	CL		32.5 / 481.3	4	SO	10.0 / 10.0	
40	6" Sonic	(40.0) SAA except, very stiff.	CL		40.0 / 471.3	5	SO	10.0 / 10.0	
45	6" Sonic		CL						
50	6" Sonic	(50.0) SAA except, with light olive brown (5Y 5/6) mottling.	CL		50.0 / 465.1	6	SO	10.0 / 10.0	
55	6" Sonic	(56.2) SAA except, with light brown (5YR 6/4) mottling.	CL		56.2 / 461.3				
60		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67

ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(60.0-71.5) (SW) SAND, fine to coarse sub-angular well-graded sand, some fine sub-rounded gravel, trace non-plastic fines, light gray (N7) to medium light gray (N6); non-cohesive, moist, compact.	SW		60.0	7	SO	10.0 / 20.0	(65.0-71.5) Sand sample collected at 12:00 - 8/19/2021.
65									
70									(60.0-80.0) Methane meter alarm is triggered with an LEL of 181 at 15:30 on August 18, 2021. Drilling stopped until methane dissipated. Drilling commenced on August 19, 2021 at 11:45. Following completion of drilling the hole was abandoned.
					449.8				
		(71.5-80.0) (SW&GW) SAND and GRAVEL, fine to coarse sub-angular to sub-rounded well-graded sand and gravel, trace non-plastic fines; medium dark gray (N4) to grayish brown (N2); non-cohesive, moist, compact.			71.5				
75			SW						
80					441.3				
		END OF BORING AT 80.0 FEET BELOW GROUND SURFACE.			80.0				
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51

ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-10.0) (CL) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w>PL, soft.	CH		511.9 / 10.0	1	SO	10.0 / 10.0	
10	6" Sonic	(10.0-20.0) (CL) sandy SILTY CLAY, low to medium plasticity fines, fine sub-rounded poorly graded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w~PL, stiff.	CL		501.9 / 20.0	2	SO	10.0 / 10.0	(10.0) Drilling paused at 16:10 on August 20, 2021 due to drill rig breaking. Drilling resumed following repair of rig at 07:20 on August 21, 2021. (12.0-18.0) Silty clay sample collected at 07:35 - 8/21/2021.
20	6" Sonic	(20.0-38.7) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 6/6) with light brown (5YR 6/4) and light bluish gray (5B 7/1) mottling; cohesive, w<PL, hard.	ML			3	SO	10.0 / 10.0	
30		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51

ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(20.0-38.7) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 6/6) with light brown (5YR 6/4) and light bluish gray (5B 7/1) mottling; cohesive, w<PL, hard. *(Continued)*	ML		483.2	4	SO	10.0 / 10.0	
		(38.7-41.0) (SP) SAND, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, moist, compact.	SP		38.7 480.9				(38.7-45.4) Clayey sand sample collected at 08:10 - 8/21/2021.
40		(41.0-45.4) (SC) CLAYEY SAND, fine poorly-graded sub-rounded sand, low to medium plasticity fines, trace sub-rounded gravel; light brown (5YR 5/6); non-cohesive, moist, compact.	SC		41.0 476.5	5	SO	7.0 / 10.0	
45		(45.4-50.0) (CL) sandy SILTY CLAY, low to medium plasticity fines, fine sub-rounded poorly graded sand, trace sub-rounded gravel; dusky brown (5YR 2/2); cohesive, w~PL, very stiff.	CL		45.4 471.9				
50		(50.0-56.8) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded poorly-graded sand, trace fine gravel; light gray (N6); cohesive, w~PL, very stiff.	ML		50.0 465.1	6	SO	10.0 / 10.0	
55		(56.8-60.0) (SC) CLAYEY SAND, fine sub-rounded poorly-graded sand, medium plasticity fines; light gray (N6); non-cohesive, moist, compact.	SC		56.8 461.9				
60		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51
ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60		END OF BORING AT 60.0 FEET BELOW GROUND SURFACE.			60.0				
65									
70									
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon
LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22

ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-1.5) FILL - (ML) gravelly SILT, non-plastic fines, fine to coarse sub-angular well-graded gravel, trace fine sub-rounded sand, trace organics (roots); dusky yellowish brown (10YR 5/4) TOPSOIL; non-cohesive, wet, loose,.	ML		527.9 1.5				
		(1.5-8.5) (ML) CLAYEY SILT, non-plastic fines, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel, trace low plasticity fines; dark yellowish brown (10YR 4/2); non-cohesive, dry, compact.	ML			1	SO	8.0 10.0	
		(8.5-9.5) (SP) SAND, fine to medium sub-rounded poorly-graded sand, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, dry, loose.	SP		520.9 8.5				
		(9.5-10.0) (CH) CLAY, high plasticity fines; medium dark gray (N4); cohesive, w<PL, very stiff.	CH		519.9 9.5				
		(10.0-18.0) (CL) SILTY CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w~PL, firm.	CL		519.4 10.0				
		(16.6) Same As Above (SAA) except, w<PL, some fine sand.			512.8 16.6	2	SO	10.0 10.0	
		(18.0-22.0) (SP) SAND, fine sub-rounded poorly-graded sand, trace non-plastic fines, trace native coal; moderate yellowish brown (10YR 5/4) with black (N1) coal pieces; non-cohesive, dry, loose.	SP		511.4 18.0				(18.0-20.0) Sand sample collected at 12:40 - 8/17/2021.
		(22.0-26.8) (CH) sandy CLAY, medium plasticity fines, fine sub-rounded poorly-graded sand; grayish orange (10YR 7/4); cohesive, w~PL, stiff.	CH		507.4 22.0	3	SO	10.0 10.0	(10.0-20.0) Over recovery due to expansion of clay material in sample bags (10.5 ft/10.0 ft).
		(26.8-59.3) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; medium dark gray (N4); cohesive, w<PL, very stiff.	ML		502.6 26.8				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22
ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(26.8-59.3) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; medium dark gray (N4); cohesive, w<PL, very stiff. *(Continued)*							(20.0-30.0) Over recovery due to expansion of clay material in sample bags (12.0 ft/10.0 ft).
35		(34.9) SAA except, light gray (N6) to light bluish gray (5B 7/1) mottling.			494.5 34.9	4	SO	10.0 10.0	
40		(40.0) SAA except, trace sub-angular to sub-rounded fine gravel.			489.4 40.0				
45	6" Sonic		ML			5	SO	10.0 10.0	
50									
55	6" Sonic					6	SO	10.0 10.0	
60			SP		470.1 59.3				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon
LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22
ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(59.3-67.1) (SP) SAND, fine sub-rounded poorly-graded sand, trace angular gravel, trace non-plastic fines; dark gray (N3); non-cohesive, moist, compact. *(Continued)*	SP			7	SO	10.0 / 10.0	(60.0-67.1) Sand sample collected at 15:40 - 8/17/2021.
65					462.3 / 67.1				
		(67.1-70.0) (ML) SILT, non-plastic fines, trace coarse sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense.	ML						
70		END OF BORING AT 70.0 FEET BELOW GROUND SURFACE.			459.4 / 70.0				
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76

ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-8.5) (CH) sandy CLAY, high plasticity fines, some fine sub-rounded poorly-graded sand; moderate yellowish brown (10YR 5/4) with yellowish gray (5Y 7/2) mottling; cohesive, w>PL, stiff.	CH		532.0 / 8.5	1	SO	8.0 / 10.0	
		(8.5-10.0) (SM) SILTY SAND, fine sub-rounded poorly-graded sand, non-plastic fines; moderate yellowish brown (10YR 5/4); non-cohesive, dry, dense.	SP		530.5 / 10.0				
10	6" Sonic	(10.0-20.0) (CL) SILTY CLAY, non-plastic to low plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel, trace roots; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w<PL, hard.	CL			2	SO	10.0 / 10.0	(18.7) Fine grained sand seam approximately 0.4' thick.
20	6" Sonic	(20.0-44.2) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w~PL, stiff. (21.1) Same As Above (SAA) except, moderate yellowish gray (5GY 7/4).	CL		520.5 / 20.0 519.4 / 21.1	3	SO	10.0 / 10.0	(20.4) Fine grained sand seam approximately 0.2' thick.
30		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76

ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(20.0-44.2) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w~PL, stiff. *(Continued)*	CL		509.9 30.6	4	SO	10.0 10.0	
		(30.6) SAA except, light gray (N7) mottling.							
40									(40.0-60.0) Driller pushed a 20 foot run due to material falling in on the run to 50 feet below ground surface.
					496.3				
		(44.2-52.0) (CL) sandy CLAY, medium to high plasticity fines, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 4/2) with light brown (5YR 6/4) sand; cohesive w>PL, soft.	CH		44.2				(44.2-52.0) Sandy clay sample collected at 14:45 - 8/19/2021.
45									
		(48.1) SAA except, stiff.			492.4 48.1				
50	6" Sonic					5	SO	20.0 20.0	
					488.5				
		(52.0-60.0) (CL) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2) with light gray (N7) to light blue (5B 7/6) mottling; cohesive, w~PL, hard.			52.0				
55			CH						
60					480.5				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76
ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60		END OF BORING AT 60.0 FEET BELOW GROUND SURFACE.			60.0				
65									
70									
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

SHEET 1 of 4

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19

ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-0.9) FILL - (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand; dark yellowish orange (10YR 6/6) TOPSOIL; cohesive, w~PL, soft.	CL		540.1 / 0.9				
		(0.9-12.2) (CL-ML) SILTY CLAY, low to medium plasticity fines, some fine sub-rounded poorly-graded sand; dark yellowish orange (10YR 6/6) with light gray (N5) mottling; cohesive, w~PL, soft.	CL			1	SO	10.0 / 10.0	
10		(10.0) Same As Above (SAA) except, very stiff.			531.0 / 10.0				
	6" Sonic	(12.2-20.0) (ML) SILT, non-plastic fines, trace fine sub-rounded sand, trace coarse sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 5/6) mottling; non-cohesive, moist, compact.	ML		528.8 / 12.2	2	SO	10.0 / 10.0	
15		(18.1) SAA except, no mottling.			522.9 / 18.1				
20	6" Sonic	(20.0-23.1) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, moist, compact.	SW		521.0 / 20.0	3	SO	10.0 / 10.0	
		(23.1-27.4) (ML) SILT, non-plastic fines, some sub-rounded poorly-graded sand; dusky yellowish brown (10YR 2/2) to dark yellowish brown (10YR 6/6); non-cohesive,moist, compact.	ML		517.9 / 23.1				
25		(27.4-30.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; dark yellowish brown (10YR 4/2); cohesive, w~PL, stiff.	ML		513.6 / 27.4				
30					511.0				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19

ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(30.0-73.0) (ML) SILT, non-plastic fines, some fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense.			30.0				
35						4	SO	10.0 / 10.0	
40		(40.0) SAA except, light gray (N7).			501.0 40.0				
45	6" Sonic		ML			5	SO	10.0 / 10.0	
50		(50.0) SAA except, trace coarse gravel; moderate reddish orange (10R 6/6) mottling; very stiff.	ML		491.0 50.0				
55	6" Sonic					6	SO	10.0 / 10.0	
60		Log continued on next page			481.0				

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19
ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(30.0-73.0) (ML) SILT, non-plastic fines, some fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense. *(Continued)* (60.0) SAA except, light gray (N7) to light bluish gray (5B 7/1).	ML		60.0	7	SO	9.0 / 10.0	(65.0) Approximately 1 foot of material fell on ground upon recovery.
65									
70					468.0				
75	6" Sonic	(73.0-77.5) (SC) CLAYEY SAND, fine sub-rounded poorly-graded sand, low to medium plasticity fines, trace fine sub-rounded gravel; light olive gray (5Y 5/2); non-cohesive, moist, compact.	SC		73.0	8	SO	10.0 / 10.0	
					463.5				
		(77.5-81.5) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; yellowish gray (5Y 7/2); non-cohesive, moist, compact.	SW		77.5				(77.5-80.0) Sand sample collected at 10:00 - 8/18/2021.
80					459.5				
85	6" Sonic	(81.5-90.0) (CL) SILTY CLAY, medium to high plasticity fines, trace fine sub-rounded sand; light gray (N7) with dusky yellow green (5GY 5/2) mottling; cohesive, w<PL, very stiff.	CL		81.5	9	SO	10.0 / 10.0	
90					451.0				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19
ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
90		END OF BORING AT 90.0 FEET BELOW GROUND SURFACE.			90.0				
95									
100									
105									
110									
115									
120									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-XPW01

SHEET 1 of 1

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/21/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,974.85 E: 997,833.22

ELEVATION: 548.42
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-10.0) CCR - (SM) gravelly SILTY SAND, fine sub-rounded poorly-graded sand, non-plastic fines, fine sub-rounded poorly-graded gravel; light brown (5YR 6/6) ASH; non-cohesive, dry, loose.	SM		538.4	1	SO	10.0 / 10.0	
10	6" Sonic	(10.0-12.7) CCR - (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; light gray (N7) to black (N1) ASH; cohesive, w<PL, very soft. (11.0) Same As Above (SAA) except, color change to medium light gray (N6) to black (N1).	ML		10.0 537.4 11.0 535.7				(10.0-12.7) CCR material sample collected at 10:10 - 8/21/2021.
15	6" Sonic	(12.7-20.0) (CH) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4) with light brown (5YR 5/6) and light gray (N7) mottling; cohesive, w~PL, firm. (17.8) SAA except, light gray (N7).	CH		12.7 530.6 17.8	2	SO	10.0 / 10.0	
20		END OF BORING AT 20.0 FEET BELOW GROUND SURFACE.			528.4 20.0				
25									
30									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-XPW04

SHEET 1 of 1

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/21/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,141.21 E: 1,001,087.48

ELEVATION: 551.70
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-11.0) CCR - (SW) gravelly SAND, fine to coarse sub-rounded well-graded sand, some fine sub-rounded gravel, trace non-plastic fines; dusky brown (5Y 2/2) ASH; non-cohesive, dry, loose.	SW			1	SO	10.0 / 10.0	(3.0) Clay seam 0.3' thick.
5									
		(8.0) Same As Above (SAA) except, gray (N6).			543.7 / 8.0				
10	6" Sonic	(11.0-15.0) CCR - (ML) sandy SILT, non-plastic fines, fine sub-rounded poorly-graded sand, trace sub-rounded gravel; medium light gray (N6) to black (N1) ASH; non-cohesive, wet, very loose.	ML		540.7 / 11.0	2	SO	5.0 / 5.0	(10.0-15.0) CCR material sample collected at 09:20 - 8/21/2021.
15		END OF BORING AT 15.0 FEET BELOW GROUND SURFACE.			536.7 / 15.0				
20									
25									
30									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

APPENDIX B

Eurofins TestAmerica Laboratory Data

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-24350-1
Client Project/Site: Newton Power Station - Illinois

For:
Golder Associates Inc.
13515 Barrett Parkway Drive
Suite 260
Ballwin, Missouri 63021

Attn: Jeffrey Ingram

Ryan Henry

Authorized for release by:
11/2/2021 4:41:43 PM

Ryan Henry, Project Manager I
(865)291-3000
williamr.henry@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Qualifiers

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F3	Duplicate RPD exceeds the control limit
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.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
L	A negative instrument reading had an absolute value greater than the reporting limit

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: 140-24350-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-24350-1

Receipt
The samples were received on 8/24/2021 at 9:40am and arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4º C.

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
S = Percent solids/100

A method blank, laboratory control sample and laboratory control sample duplicate were prepared and analyzed with each SEP step in

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

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.

SEP Report Notes:

The final report lists the results for each step, the result for the total digestion of the sample, and a sum of the results of steps 1 through 7 by element.

Magnesium was not reported for step 1 because the extraction solution for this step (magnesium sulfate) contains high levels of magnesium. Sodium was not reported for steps 2 and 5 since the extraction solutions for these steps contain high levels of sodium. The sum of steps 1 through 7 is much higher than the total result for sodium and magnesium due to the magnesium and sodium introduced by the extraction solutions.

The digestates for steps 1, 2 and 5 were analyzed at a dilution due to instrument problems caused by the high solids content of the digestates. The reporting limits were adjusted accordingly.

Method 6010B: The sample duplicate (DUP) precision for preparation batch 140-54251 and analytical batch 140-55243 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.

Method 6010B: The serial dilution performed for the following samples associated with batch 140-55243 was outside control limits: (140-24350-A-1-A SD ^5) and (140-24350-A-1-A SD ^50)

Method 6010B: The following samples were diluted due to the presence of titanium which interferes with Cobalt and Lead: N-SB-04 (12.0-18.0) (140-24350-7), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-02 (65.0-71.5) (140-24350-5). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of iron which interferes with Arsenic and Selenium: N-SB-02 (12.5-20.0) (140-24350-4). Elevated reporting limits (RLs) are provided.

Method 6010B: The following samples were diluted due to the nature of the sample matrix: N-SB-05 (18.0-20.0) (140-24350-1), N-SB-05 (60.0-67.1) (140-24350-2), N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (12.5-20.0) (140-24350-4), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-14 (44.2-52.0) (140-24350-6), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided for aluminum and calcium.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54371 and 140-54400 and analytical batch 140-55087 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.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54401, 140-54485, 140-54486 and 140-54566 and analytical batch 140-55146 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.

Method 6010B SEP: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-54486 and 140-54566 and analytical batch 140-55146 recovered outside control limits for the following analyte: Lithium. This analyte was biased high in the LCS/LCSD and was detected in the associated samples as an estimated value; therefore, the data have been

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

reported.

Method 6010B SEP: The following sample was diluted to bring the concentration of target analyte, calcium, within the calibration range: N-SB-05 (60.0-67.1) (140-24350-2). Elevated reporting limits (RLs) are provided.

Method 6010B SEP: The following samples were diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

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: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-24350-1	N-SB-05 (18.0-20.0)	Solid	08/17/21 12:40	08/24/21 09:40
140-24350-2	N-SB-05 (60.0-67.1)	Solid	08/17/21 15:40	08/24/21 09:40
140-24350-3	N-SB-18 (77.5-80.0)	Solid	08/18/21 10:00	08/24/21 09:40
140-24350-4	N-SB-02 (12.5-20.0)	Solid	08/18/21 14:10	08/24/21 09:40
140-24350-5	N-SB-02 (65.0-71.5)	Solid	08/19/21 12:00	08/24/21 09:40
140-24350-6	N-SB-14 (44.2-52.0)	Solid	08/19/21 14:45	08/24/21 09:40
140-24350-7	N-SB-04 (12.0-18.0)	Solid	08/21/21 07:35	08/24/21 09:40
140-24350-8	N-SB-04 (38.7-45.4)	Solid	08/21/21 08:30	08/24/21 09:40
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Solid	08/21/21 09:20	08/24/21 09:40
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Solid	08/21/21 10:10	08/24/21 09:40

Client Sample ID: N-SB-05 (18.0-20.0)
Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Calcium	**880**	**J B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Manganese	**2.8**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**16**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Calcium	**16000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Chromium	ND		1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Cobalt	**0.57**	**J**	8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Iron	**36**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lead	**0.77**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Manganese	**84**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Arsenic	**0.26**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Beryllium	ND		0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Calcium	**9.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Chromium	**0.31**	**J**	0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Cobalt	**0.62**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Iron	**240**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Manganese	**51**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**370**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Arsenic	**1.2**		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Beryllium	**0.077**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Calcium	**16000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

Client Sample ID: N-SB-05 (18.0-20.0)
Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.2	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Iron	3900		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lithium	0.99	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Manganese	93		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Molybdenum	0.45	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	210	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Calcium	11000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Chromium	2.1	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lithium	14	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Manganese	5.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2300		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Arsenic	2.2		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Beryllium	0.095	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Calcium	4500		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Chromium	3.9		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Cobalt	1.6	J	2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Iron	4500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lithium	3.9		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Manganese	61		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Molybdenum	0.24	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	25000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Arsenic	0.70		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Beryllium	0.37		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Calcium	3100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Chromium	9.3		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Cobalt	0.15	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Iron	2800		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lead	4.3		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lithium	6.9		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Manganese	53		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

Client Sample ID: N-SB-05 (18.0-20.0)

Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**28000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**4.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.55**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**52000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**11000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**9.8**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**26**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**350**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.69**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**26000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Arsenic	**5.3**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Beryllium	**0.55**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Calcium	**51000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Chromium	**17**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Cobalt	**3.2**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Iron	**10000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lead	**8.4**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lithium	**12**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Manganese	**280**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Molybdenum	**0.78**	**J**	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Selenium	ND		0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		49	7.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Arsenic	ND		2.5	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Beryllium	ND		1.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Calcium	**560**	**J B**	1200	9.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Chromium	ND		2.5	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Cobalt	ND		12	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Iron	ND		25	14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lead	ND		2.5	0.54	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lithium	ND		12	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Manganese	**2.7**	**J**	3.7	0.15	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Molybdenum	ND		9.8	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Selenium	ND		2.5	0.84	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33**	**J**	37	5.9	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Arsenic	ND		1.8	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Beryllium	ND		0.92	0.059	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Calcium	**25000**		920	8.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Chromium	ND		1.8	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Cobalt	ND		9.2	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Iron	**380**		18	11	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lead	**1.2**	**J**	1.8	0.41	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lithium	ND		9.2	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Manganese	**85**		2.8	1.0	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Molybdenum	ND		7.4	0.30	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Selenium	ND		1.8	0.63	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**340**		12	2.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Arsenic	**0.31**	**J**	0.62	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Beryllium	**0.054**	**J**	0.31	0.018	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Calcium	**6.9**	**J**	310	1.8	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Chromium	**0.77**		0.62	0.086	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Cobalt	**0.67**	**J**	3.1	0.055	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Iron	**4100**		6.2	3.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lead	**0.15**	**J**	0.62	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lithium	ND		3.1	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Manganese	**42**	**B**	0.92	0.033	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		12	2.0	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Arsenic	ND		0.62	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Beryllium	**0.026**	**J**	0.31	0.020	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Calcium	**59000**		620	5.4	mg/Kg	☼	10/05/21 08:00	10/25/21 17:56	2
Chromium	**0.80**		0.62	0.086	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.70	J	3.1	0.065	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Iron	3000		6.2	3.6	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lead	4.5		0.62	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lithium	0.95	J	3.1	0.18	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Manganese	350		0.92	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Selenium	ND		0.62	0.58	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	180	29	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Arsenic	ND		9.2	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Beryllium	ND		4.6	0.39	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Calcium	8700		4600	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Chromium	1.5	J	9.2	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Cobalt	ND		46	0.74	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Iron	ND		92	54	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lead	ND		9.2	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lithium	14	J B *+	46	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Manganese	5.4	J	14	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Molybdenum	ND		37	1.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Selenium	ND		9.2	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1800		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Arsenic	2.3		0.62	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Beryllium	0.076	J	0.31	0.015	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Calcium	7000		310	2.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Chromium	4.0		0.62	0.086	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Cobalt	2.0	J	3.1	0.057	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Iron	6300		6.2	3.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lead	2.1		0.62	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lithium	3.6		3.1	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Manganese	69		0.92	0.31	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Molybdenum	0.29	J	2.5	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	20	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Arsenic	0.61	J	0.62	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Beryllium	0.52		0.31	0.020	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Calcium	4800		3100	32	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Chromium	10		0.62	0.086	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Cobalt	0.34	J	3.1	0.032	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Iron	3400		6.2	5.0	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lead	4.4		0.62	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lithium	6.0		3.1	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Manganese	59		0.92	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**29000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.2**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.67**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**110000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**3.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**17000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**12**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**610**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.29**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		120	20	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Arsenic	**2.5**		0.62	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Beryllium	**0.54**		0.31	0.020	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Calcium	**84000**		3100	32	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Chromium	**13**		0.62	0.086	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Cobalt	**3.2**		3.1	0.032	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Iron	**14000**		6.2	5.0	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lead	**9.9**		0.62	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lithium	**9.6**		3.1	0.18	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Manganese	**380**		0.92	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Molybdenum	**0.31**	**J**	2.5	0.10	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Selenium	ND		0.62	0.21	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1

Client Sample ID: N-SB-18 (77.5-80.0)
Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3
Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.0	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Arsenic	ND		2.2	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Calcium	**500**	**J B**	1100	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lead	ND		2.2	0.48	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Manganese	**4.0**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Molybdenum	ND		8.8	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Selenium	ND		2.2	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Arsenic	ND		1.6	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Beryllium	ND		0.82	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Calcium	**12000**		820	7.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Cobalt	**0.91**	**J**	8.2	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Iron	**440**		16	9.5	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lead	**1.7**		1.6	0.36	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lithium	ND		8.2	0.49	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Manganese	**82**		2.5	0.92	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Selenium	ND		1.6	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**82**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Arsenic	**0.91**		0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Beryllium	**0.035**	**J**	0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Calcium	**6.5**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Chromium	**0.62**		0.55	0.077	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Cobalt	**0.53**	**J**	2.7	0.049	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Iron	**2500**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lead	**0.12**	**J**	0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Manganese	**69**	**B**	0.82	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Molybdenum	**0.13**	**J**	2.2	0.090	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**77**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Beryllium	**0.030**	**J**	0.27	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Calcium	**39000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Chromium	**0.87**		0.55	0.077	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

Client Sample ID: N-SB-18 (77.5-80.0)

Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3

Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.48	J	2.7	0.058	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Iron	3800		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lead	2.4		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lithium	0.83	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Manganese	360		0.82	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Molybdenum	0.11	J	2.2	0.090	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Selenium	ND		0.55	0.51	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	63	J B	160	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Arsenic	ND		8.2	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Beryllium	ND		4.1	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Calcium	7700		4100	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Chromium	1.4	J	8.2	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Cobalt	ND		41	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Iron	ND		82	48	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lead	ND		8.2	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lithium	12	J B *+	41	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Manganese	39		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Selenium	ND		8.2	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Arsenic	2.2		0.55	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Beryllium	0.084	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Calcium	25000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Chromium	2.9		0.55	0.077	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Cobalt	1.5	J	2.7	0.050	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Iron	8500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lithium	4.9		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Manganese	300		0.82	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Molybdenum	0.28	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Arsenic	0.66	J	1.1	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Beryllium	0.29		0.27	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Calcium	4200		2700	28	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Chromium	9.7		0.55	0.077	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Cobalt	0.71	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Iron	3300		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Lead	2.8		1.1	0.24	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Lithium	5.9		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Manganese	52		0.82	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-18 (77.5-80.0)
Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3
Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.090	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Selenium	ND		1.1	0.37	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.8**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.44**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**89000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**16**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**19000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.9**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**910**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.52**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**19000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Arsenic	**5.8**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Beryllium	**0.38**		0.27	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Calcium	**83000**		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Chromium	**17**		0.55	0.077	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Cobalt	**5.0**		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Iron	**13000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lead	**9.0**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lithium	**10**		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Manganese	**600**		0.82	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Molybdenum	**1.0**	**J**	2.2	0.090	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1

Client Sample ID: N-SB-02 (12.5-20.0)
Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		43	6.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Arsenic	ND		2.1	0.56	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Beryllium	ND		1.1	0.33	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Calcium	**1200**	**B**	1100	8.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Chromium	ND		2.1	0.30	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Cobalt	ND		11	0.19	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Iron	ND		21	12	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lead	ND		2.1	0.47	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lithium	ND		11	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Manganese	**3.1**	**J**	3.2	0.13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Molybdenum	ND		8.6	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Selenium	ND		2.1	0.73	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**12**	**J**	32	5.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Arsenic	ND		1.6	0.42	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Beryllium	ND		0.81	0.052	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Calcium	**18000**		810	7.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Cobalt	**0.31**	**J**	8.1	0.20	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Iron	**19**		16	9.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lead	**0.61**	**J**	1.6	0.35	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lithium	ND		8.1	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Manganese	**150**		2.4	0.90	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Molybdenum	ND		6.4	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Selenium	ND		1.6	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**58**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Arsenic	**0.24**	**J**	0.54	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Beryllium	ND		0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Calcium	**9.7**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Chromium	**0.25**	**J**	0.54	0.075	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Cobalt	**2.3**	**J**	2.7	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Iron	**310**		5.4	3.1	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lead	ND		0.54	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Manganese	**210**	**B**	0.81	0.029	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Molybdenum	**0.13**	**J**	2.1	0.088	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**510**		11	1.7	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Arsenic	ND		0.54	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Beryllium	**0.17**	**J**	0.27	0.017	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Calcium	**19000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Chromium	**1.6**		0.54	0.075	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.1	J	2.7	0.057	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Iron	8000		5.4	3.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lead	3.7		0.54	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lithium	1.4	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Manganese	170		0.81	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Molybdenum	0.75	J	2.1	0.088	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Selenium	ND		0.54	0.50	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	140	J B	160	25	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Arsenic	3.4	J	8.1	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Beryllium	ND		4.0	0.34	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Calcium	12000		4000	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Chromium	2.6	J	8.1	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Cobalt	ND		40	0.64	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Iron	ND		81	47	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lead	ND		8.1	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lithium	10	J B *+	40	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Manganese	17		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Molybdenum	ND		32	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Selenium	ND		8.1	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4000		11	1.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Arsenic	31		0.54	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Beryllium	0.23	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Calcium	5000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Chromium	6.9		0.54	0.075	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Cobalt	3.3		2.7	0.049	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Iron	19000		5.4	3.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lithium	6.6		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Manganese	120		0.81	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Molybdenum	2.8		2.1	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		110	17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:02	10
Arsenic	4.1		0.54	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Beryllium	0.57		0.27	0.017	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Calcium	2300		270	2.8	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Chromium	17		0.54	0.075	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Cobalt	0.44	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Iron	5200		5.4	4.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lithium	13		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Manganese	52		0.81	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.31	J	2.1	0.088	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Method: 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			11/02/21 15:59	1
Arsenic	38		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.97		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	57000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	28		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	7.4		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	33000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	31		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	720		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	4.0		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		110	17	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Arsenic	51		1.1	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Beryllium	0.76		0.27	0.017	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Calcium	54000		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Chromium	22		0.54	0.075	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Cobalt	6.2		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Iron	34000		11	8.8	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Lead	11		0.54	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Lithium	19		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Manganese	590		0.81	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Molybdenum	5.5		2.1	0.088	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Selenium	ND		1.1	0.37	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2

Client Sample ID: N-SB-02 (65.0-71.5)
Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Beryllium	ND		1.1	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Calcium	**300**	**J B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Manganese	**3.5**		3.4	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Molybdenum	ND		9.0	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J**	34	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Arsenic	ND		1.7	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Calcium	**11000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Cobalt	**0.29**	**J**	8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Iron	**270**		17	9.8	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Manganese	**68**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Molybdenum	ND		6.7	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**45**		11	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Arsenic	**0.62**		0.56	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Beryllium	**0.034**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Calcium	**6.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Chromium	**0.44**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Cobalt	**0.36**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Iron	**3100**		5.6	3.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lead	**0.16**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Manganese	**54**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**79**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Beryllium	ND		0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Calcium	**40000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Chromium	**0.87**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

Client Sample ID: N-SB-02 (65.0-71.5)
Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5
Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.30	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Iron	2200		5.6	3.3	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lead	1.7		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lithium	0.96	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Manganese	150		0.84	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Selenium	ND		0.56	0.53	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	46	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Calcium	7200		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Chromium	ND		8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lithium	7.6	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Manganese	14		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Molybdenum	ND		34	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Arsenic	2.0		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Beryllium	0.040	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Calcium	25000		280	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Chromium	4.3		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Cobalt	1.3	J	2.8	0.052	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Iron	3400		5.6	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lead	1.2		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lithium	3.6		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Manganese	49		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Molybdenum	ND		2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Arsenic	0.72	J	1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Beryllium	0.25	J	0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Calcium	4100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Chromium	7.4		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Cobalt	0.078	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Iron	2500		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Lead	3.7		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Lithium	11		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Manganese	45		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1

Client Sample ID: N-SB-02 (65.0-71.5)

Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5

Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.32**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**88000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**13**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**2.3**	**J**	2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**12000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.1**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**23**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**390**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	ND		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Arsenic	**3.0**		1.1	0.29	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Beryllium	**0.26**	**J**	0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Calcium	**95000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Chromium	**10**		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Cobalt	**2.6**	**J**	2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Iron	**14000**		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Lead	**6.8**		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Lithium	**7.6**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Manganese	**440**		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Molybdenum	**0.26**	**J**	2.2	0.092	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Selenium	ND		1.1	0.38	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Calcium	**1100**	**B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Manganese	**10**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**31**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Calcium	**25000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Chromium	**0.41**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Cobalt	ND		8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Iron	**160**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Manganese	**130**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**200**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Arsenic	**0.32**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Beryllium	**0.028**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Calcium	**8.5**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Chromium	**1.7**		0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Cobalt	**0.39**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Iron	**1700**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Manganese	**61**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Molybdenum	**0.29**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**300**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Beryllium	**0.064**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Calcium	**46000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

Client Sample ID: N-SB-14 (44.2-52.0)

Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Iron	2200		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lead	2.8		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lithium	1.6	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Manganese	300		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Molybdenum	0.28	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	130	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Calcium	14000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Chromium	2.0	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lithium	8.2	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Manganese	4.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3000		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Arsenic	2.4		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Beryllium	0.13	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Calcium	5900		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Chromium	5.5		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Cobalt	2.8		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Iron	8100		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lithium	5.4		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Manganese	100		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Molybdenum	0.38	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Arsenic	0.88		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Beryllium	0.49		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Calcium	3600		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Chromium	14		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Cobalt	0.22	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Iron	4000		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lead	3.8		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lithium	8.8		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Manganese	62		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.6**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.71**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**96000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**25**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**16000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**11**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**670**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.94**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**30000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Arsenic	**30**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Beryllium	**0.61**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Calcium	**81000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Chromium	**21**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Cobalt	**7.9**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Iron	**19000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lead	**9.2**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lithium	**15**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Manganese	**420**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Molybdenum	**8.3**		2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1

Client Sample ID: N-SB-04 (12.0-18.0)
Lab Sample ID: 140-24350-7

Date Collected: 08/21/21 07:35
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Calcium	**1400**	**B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Manganese	**0.62**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Molybdenum	ND		8.9	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**10**	**J**	33	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Calcium	**31000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Chromium	**0.32**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Cobalt	ND		8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Iron	ND		17	9.7	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lead	**0.82**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Manganese	**170**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Molybdenum	ND		6.7	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Arsenic	**0.42**	**J**	0.56	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Beryllium	**0.039**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Calcium	**7.8**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Chromium	**0.50**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Cobalt	**2.6**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Iron	**330**		5.6	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lead	**0.13**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Manganese	**450**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Molybdenum	**0.31**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**600**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Beryllium	**0.16**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Calcium	**28000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Chromium	**2.4**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.9	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Iron	6700		5.6	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lead	5.1		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lithium	1.7	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Manganese	220		0.84	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Molybdenum	0.60	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Selenium	0.52	J	0.56	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	200	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Calcium	13000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Chromium	2.5	J	8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lithium	8.4	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Manganese	11	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5400		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Arsenic	4.5		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Beryllium	0.24	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Calcium	5300		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Chromium	8.7		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Cobalt	4.0		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Iron	13000		5.6	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lead	3.8		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lithium	8.5		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Manganese	130		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Molybdenum	0.57	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	34000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:31	10
Arsenic	1.4		1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Beryllium	0.58		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Calcium	1700		280	2.9	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Chromium	21		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Cobalt	0.36	J	5.6	0.058	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Iron	4800		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Lead	3.1		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Lithium	16		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Manganese	46		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1

Client Sample ID: N-SB-04 (12.0-18.0)

Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7

Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.13	J	2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	40000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	6.4		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	1.0		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	80000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	35		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	8.8		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	25000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	35		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	1000		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	1.6	J	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	0.52		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	48000		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Arsenic	8.3		0.56	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Beryllium	0.98		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Calcium	67000		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Chromium	36		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Cobalt	10		5.6	0.058	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Iron	23000		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Lead	13		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Lithium	28		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Manganese	770		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Molybdenum	1.7	J	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Selenium	ND	L	0.56	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)

Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8

Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		46	7.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Arsenic	ND		2.3	0.60	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Beryllium	ND		1.2	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Calcium	**800**	**J B**	1200	8.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Chromium	ND		2.3	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Cobalt	ND		12	0.21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Iron	ND		23	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lead	ND		2.3	0.51	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lithium	ND		12	0.69	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Manganese	**9.1**		3.5	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Molybdenum	ND		9.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Selenium	ND		2.3	0.79	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13**	**J**	35	5.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Arsenic	ND		1.7	0.45	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Beryllium	ND		0.87	0.055	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Calcium	**19000**		870	7.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Cobalt	ND		8.7	0.22	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Iron	**40**		17	10	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lead	**0.97**	**J**	1.7	0.38	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lithium	ND		8.7	0.52	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Manganese	**120**		2.6	0.97	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Molybdenum	ND		6.9	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Selenium	ND		1.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		12	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Arsenic	ND		0.58	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Beryllium	**0.026**	**J**	0.29	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Calcium	**8.5**	**J**	290	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Chromium	**0.22**	**J**	0.58	0.081	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Cobalt	**0.069**	**J**	2.9	0.052	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Iron	**180**		5.8	3.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lead	ND		0.58	0.13	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lithium	ND		2.9	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Manganese	**23**	**B**	0.87	0.031	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Molybdenum	ND		2.3	0.095	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**470**		12	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Arsenic	ND		0.58	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Beryllium	**0.10**	**J**	0.29	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Calcium	**15000**		290	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Chromium	**1.8**		0.58	0.081	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.9	0.061	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Iron	5600		5.8	3.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lithium	1.1	J	2.9	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Manganese	100		0.87	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Molybdenum	1.6	J	2.3	0.095	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Selenium	ND		0.58	0.54	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	160	J B	170	27	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Arsenic	ND		8.7	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Beryllium	ND		4.3	0.36	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Calcium	8800		4300	13	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Chromium	1.9	J	8.7	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Cobalt	ND		43	0.69	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Iron	ND		87	51	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lead	ND		8.7	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lithium	8.0	J B *+	43	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Manganese	3.4	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Molybdenum	ND		35	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Selenium	ND		8.7	3.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2700		12	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Arsenic	4.0		0.58	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Beryllium	0.12	J	0.29	0.014	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Calcium	5300		290	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Chromium	5.2		0.58	0.081	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Cobalt	2.6	J	2.9	0.053	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Iron	12000		5.8	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lithium	4.5		2.9	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Manganese	94		0.87	0.29	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Molybdenum	3.5		2.3	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		120	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Arsenic	1.2		1.2	0.30	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Beryllium	0.54		0.29	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Calcium	5700		2900	30	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Chromium	17		0.58	0.081	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Cobalt	0.96	J	2.9	0.030	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Iron	5800		5.8	4.7	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Lead	4.9		1.2	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Lithium	7.5		2.9	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Manganese	91		0.87	0.13	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.28	J	2.3	0.095	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Selenium	ND		1.2	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2

Method: 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			11/02/21 15:59	1
Arsenic	5.2		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.79		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	54000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	27		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	24000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	12		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	21		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	440		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	5.4		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Arsenic	4.1		0.58	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Beryllium	0.55		0.29	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Calcium	61000		2900	30	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Chromium	15		0.58	0.081	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Cobalt	3.3		2.9	0.030	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Iron	15000		5.8	4.7	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lead	8.5		0.58	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lithium	10		2.9	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Manganese	330		0.87	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Molybdenum	2.6		2.3	0.095	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Selenium	ND		0.58	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		71	11	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Arsenic	ND		3.6	0.93	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Beryllium	ND		1.8	0.55	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Calcium	**3700**	**B**	1800	14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Chromium	**0.52**	**J**	3.6	0.50	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Cobalt	ND		18	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Iron	ND		36	21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lead	ND		3.6	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lithium	ND		18	1.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Manganese	ND		5.3	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Molybdenum	**1.8**	**J**	14	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Selenium	ND		3.6	1.2	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**9000**		53	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Arsenic	**3.5**		2.7	0.69	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Beryllium	**0.30**	**J**	1.3	0.085	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Calcium	**32000**		1300	12	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Chromium	**6.9**		2.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Cobalt	**0.49**	**J**	13	0.34	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Iron	**2000**		27	15	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lead	**1.2**	**J**	2.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lithium	**1.4**	**J**	13	0.80	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Manganese	**12**		4.0	1.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Molybdenum	**0.75**	**J**	11	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Selenium	**0.99**	**J**	2.7	0.91	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**6200**		18	3.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Arsenic	**0.87**	**J**	0.89	0.23	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Beryllium	**0.027**	**J**	0.44	0.027	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Calcium	**42**	**J**	440	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Chromium	**8.4**		0.89	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Cobalt	**0.91**	**J**	4.4	0.080	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Iron	**2400**		8.9	5.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lead	ND		0.89	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lithium	**0.61**	**J**	4.4	0.27	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Manganese	**2.7**	**B**	1.3	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Molybdenum	**1.2**	**J**	3.6	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Selenium	**0.98**		0.89	0.30	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**21000**		18	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Arsenic	**1.5**		0.89	0.39	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Beryllium	**1.7**		0.44	0.028	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Calcium	**42000**		440	3.9	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Chromium	**26**		0.89	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	8.0		4.4	0.094	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Iron	12000		8.9	5.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lead	13		0.89	0.20	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lithium	9.9		4.4	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Manganese	91		1.3	0.23	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Molybdenum	3.7		3.6	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Selenium	ND		0.89	0.84	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	330	B	270	42	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Arsenic	ND		13	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Beryllium	ND		6.7	0.56	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Calcium	26000		6700	20	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Chromium	11	J	13	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Cobalt	ND		67	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Iron	ND		130	78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lead	ND		13	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lithium	14	J B *+	67	3.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Manganese	9.2	J	20	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Molybdenum	ND		53	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Selenium	6.4	J	13	4.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		18	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Arsenic	10		0.89	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Beryllium	0.52		0.44	0.021	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Calcium	17000		440	3.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Chromium	8.4		0.89	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Cobalt	8.0	J	22	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Iron	12000		8.9	5.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Lead	24		4.4	0.98	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Lithium	16		4.4	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Manganese	60		1.3	0.44	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Molybdenum	0.65	J	3.6	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Selenium	ND		0.89	0.30	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		180	28	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Arsenic	1.8		1.8	0.46	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Beryllium	0.25	J	0.44	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Calcium	10000		4400	46	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Chromium	11		0.89	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Cobalt	3.3	J	8.9	0.093	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Iron	6000		8.9	7.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Lead	12		1.8	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Lithium	19		4.4	0.27	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Manganese	39		1.3	0.20	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.16	J	3.6	0.15	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Selenium	ND		1.8	0.61	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	93000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	18		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	2.8		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	130000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	72		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	21		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	35000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	51		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	61		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	210		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	8.2		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	8.3		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	73000		180	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Arsenic	16		0.89	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Beryllium	1.9		0.44	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Calcium	130000		4400	46	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Chromium	54		0.89	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Cobalt	20	J	22	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Iron	27000		8.9	7.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Lead	43		4.4	0.98	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Lithium	34		4.4	0.27	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Manganese	160		1.3	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Molybdenum	6.7		3.6	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Selenium	4.9		0.89	0.30	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10

Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		52	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Arsenic	ND		2.6	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Beryllium	ND		1.3	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Calcium	**520**	**J B**	1300	9.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Chromium	ND		2.6	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Cobalt	ND		13	0.23	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Iron	ND		26	15	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lead	ND		2.6	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lithium	ND		13	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Manganese	**3.5**	**J**	3.9	0.16	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Molybdenum	**0.86**	**J**	10	0.42	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Selenium	ND		2.6	0.88	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**		39	6.2	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Arsenic	ND		1.9	0.51	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Beryllium	**0.11**	**J**	0.97	0.062	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Calcium	**1700**		970	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Chromium	**0.52**	**J**	1.9	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Cobalt	**0.94**	**J**	9.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Iron	**1600**		19	11	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lead	**2.5**		1.9	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lithium	ND		9.7	0.58	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Manganese	**190**		2.9	1.1	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Molybdenum	ND		7.8	0.32	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Selenium	ND		1.9	0.66	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**810**		13	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Arsenic	**3.9**		0.65	0.17	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Beryllium	**0.24**	**J**	0.32	0.019	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Calcium	**7.7**	**J**	320	1.9	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Chromium	**1.5**		0.65	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Cobalt	**0.94**	**J**	3.2	0.058	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Iron	**2500**		6.5	3.8	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Lead	**1.3**		0.65	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Lithium	ND		3.2	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Manganese	**120**	**B**	0.97	0.035	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Molybdenum	**0.43**	**J**	2.6	0.11	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2500**		13	2.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Arsenic	**3.2**		0.65	0.28	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Beryllium	**0.21**	**J**	0.32	0.021	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Calcium	**800**		320	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Chromium	**4.2**		0.65	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10
Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.2	J	3.2	0.069	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Iron	5400		6.5	3.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lead	6.9		0.65	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lithium	2.0	J	3.2	0.19	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Manganese	140		0.97	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Molybdenum	0.84	J	2.6	0.11	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Selenium	0.66		0.65	0.61	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	190	30	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Arsenic	ND		9.7	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Beryllium	ND		4.9	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Calcium	110	J	4900	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Chromium	3.4	J	9.7	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Cobalt	ND		49	0.78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Iron	ND		97	57	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lead	ND		9.7	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lithium	8.8	J B *+	49	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Manganese	13	J	15	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Molybdenum	ND		39	1.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Selenium	ND		9.7	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5200		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Arsenic	2.2		0.65	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Beryllium	0.095	J	0.32	0.016	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Calcium	110	J	320	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Chromium	4.8		0.65	0.091	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Cobalt	0.83	J	3.2	0.060	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Iron	4400		6.5	3.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lead	2.2		0.65	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lithium	3.6		3.2	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Manganese	23		0.97	0.32	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Molybdenum	0.16	J	2.6	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	28000		130	21	mg/Kg	☼	10/08/21 08:00	10/26/21 12:45	10
Arsenic	2.0		1.3	0.34	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Beryllium	0.19	J	0.32	0.021	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Calcium	1700		320	3.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Chromium	14		0.65	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Cobalt	ND		6.5	0.067	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Iron	3500		6.5	5.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Lead	5.0		1.3	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Lithium	9.2		3.2	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Manganese	51		0.97	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10

Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.15	J	2.6	0.11	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Selenium	ND		1.3	0.44	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2

Method: 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			11/02/21 16:02	1
Arsenic	11		0.50	0.13	mg/Kg			11/02/21 16:02	1
Beryllium	0.85		0.25	0.0075	mg/Kg			11/02/21 16:02	1
Calcium	4900		250	0.74	mg/Kg			11/02/21 16:02	1
Chromium	29		0.50	0.070	mg/Kg			11/02/21 16:02	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 16:02	1
Iron	17000		5.0	4.1	mg/Kg			11/02/21 16:02	1
Lead	18		0.50	0.11	mg/Kg			11/02/21 16:02	1
Lithium	23		2.5	0.15	mg/Kg			11/02/21 16:02	1
Manganese	540		0.75	0.052	mg/Kg			11/02/21 16:02	1
Molybdenum	2.4		2.0	0.082	mg/Kg			11/02/21 16:02	1
Selenium	0.66		0.50	0.17	mg/Kg			11/02/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	36000		130	21	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Arsenic	9.4		0.65	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Beryllium	0.74		0.32	0.021	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Calcium	5100		3200	34	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Chromium	23		0.65	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Cobalt	4.6	J	6.5	0.067	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Iron	15000		6.5	5.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Lead	15		1.3	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Lithium	13		3.2	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Manganese	350		0.97	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Molybdenum	2.3	J	2.6	0.11	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Selenium	0.58	J	0.65	0.22	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1

Default Detection Limits

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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
Beryllium	0.25	0.077	mg/Kg
Calcium	250	1.9	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.015	mg/Kg
Calcium	250	1.5	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: 3010A

SEP: Metal Hydroxide

Default Detection Limits

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.47	mg/Kg

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
Beryllium	0.75	0.063	mg/Kg
Calcium	750	2.2	mg/Kg
Chromium	1.5	0.21	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
Selenium	1.5	0.52	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
Beryllium	0.25	0.012	mg/Kg
Calcium	250	2.1	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Residual

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg

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

Prep: Residual

Analyte	RL	MDL	Units
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	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
Beryllium	0.25	0.0075	mg/Kg
Calcium	250	0.74	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Total

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	mg/Kg

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

Lab Sample ID: MB 140-54251/17-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Arsenic	ND		0.50	0.13	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Beryllium	ND		0.25	0.016	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Calcium	ND		250	2.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Chromium	ND		0.50	0.070	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Cobalt	ND		2.5	0.026	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Iron	ND		5.0	4.1	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lead	ND		0.50	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lithium	ND		2.5	0.15	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Manganese	ND		0.75	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Selenium	ND		0.50	0.17	mg/Kg		09/29/21 08:00	10/27/21 10:49	1

Lab Sample ID: LCS 140-54251/18-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	99.3		mg/Kg		99	80 - 120
Arsenic	5.00	5.06		mg/Kg		101	80 - 120
Beryllium	2.50	2.57		mg/Kg		103	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.6		mg/Kg		106	80 - 120
Cobalt	5.00	5.19		mg/Kg		104	80 - 125
Iron	50.0	52.2		mg/Kg		104	80 - 120
Lead	5.00	5.20		mg/Kg		104	80 - 120
Lithium	5.00	4.90		mg/Kg		98	80 - 120
Manganese	5.00	5.26		mg/Kg		105	80 - 120
Molybdenum	25.0	26.0		mg/Kg		104	80 - 125
Selenium	7.50	7.30		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 140-54251/19-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	98.5		mg/Kg		98	80 - 120	1	30
Arsenic	5.00	4.94		mg/Kg		99	80 - 120	2	30
Beryllium	2.50	2.50		mg/Kg		100	80 - 120	3	30
Calcium	2500	2510		mg/Kg		100	80 - 120	2	30
Chromium	10.0	10.3		mg/Kg		103	80 - 120	3	30
Cobalt	5.00	5.05		mg/Kg		101	80 - 125	3	30
Iron	50.0	51.4		mg/Kg		103	80 - 120	2	30
Lead	5.00	5.14		mg/Kg		103	80 - 120	1	30
Lithium	5.00	4.86		mg/Kg		97	80 - 120	1	30
Manganese	5.00	5.13		mg/Kg		103	80 - 120	2	30
Molybdenum	25.0	25.4		mg/Kg		102	80 - 125	3	30
Selenium	7.50	7.21		mg/Kg		96	80 - 120	1	30

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

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	26000		28800		mg/Kg	☼	8	30
Calcium	51000		45400		mg/Kg	☼	12	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	5.3		5.81		mg/Kg	☼	8	30
Beryllium	0.55		0.571		mg/Kg	☼	4	30
Chromium	17		19.8		mg/Kg	☼	18	30
Cobalt	3.2		3.84		mg/Kg	☼	18	30
Iron	10000		11200		mg/Kg	☼	9	30
Lead	8.4		9.71		mg/Kg	☼	15	30
Lithium	12		13.0		mg/Kg	☼	9	30
Manganese	280		276		mg/Kg	☼	3	30
Molybdenum	0.78	J	1.31	J F5	mg/Kg	☼	51	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Method: 6010B SEP - SEP Metals (ICP)

Lab Sample ID: MB 140-54252/17-B ^4
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 1
Prep Batch: 54333

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		40	6.4	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Arsenic	ND		2.0	0.52	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Beryllium	ND		1.0	0.31	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Calcium	20.3	J	1000	7.6	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Chromium	ND		2.0	0.28	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Cobalt	ND		10	0.18	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Iron	ND		20	12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lead	0.558	J	2.0	0.44	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lithium	ND		10	0.60	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Manganese	ND		3.0	0.12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Molybdenum	ND		8.0	0.33	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Selenium	ND		2.0	0.68	mg/Kg		09/30/21 08:00	10/22/21 11:17	4

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

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
Beryllium	2.50	2.68		mg/Kg		107	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.2		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cobalt			5.00	4.98	J	mg/Kg		100	80 - 120		
Iron			50.0	52.2		mg/Kg		104	80 - 120		
Lead			5.00	4.96		mg/Kg		99	80 - 120		
Lithium			5.00	5.04	J	mg/Kg		101	80 - 120		
Manganese			5.00	5.28		mg/Kg		106	80 - 120		
Molybdenum			25.0	25.2		mg/Kg		101	80 - 120		
Selenium			7.50	7.34		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 140-54252/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 1
Prep Batch: 54333

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	96.7		mg/Kg		97	80 - 120	7	30
Arsenic			5.00	4.84		mg/Kg		97	80 - 120	4	30
Beryllium			2.50	2.52		mg/Kg		101	80 - 120	6	30
Calcium			2500	2430		mg/Kg		97	80 - 120	5	30
Chromium			10.0	9.69		mg/Kg		97	80 - 120	5	30
Cobalt			5.00	4.92	J	mg/Kg		98	80 - 120	1	30
Iron			50.0	48.9		mg/Kg		98	80 - 120	6	30
Lead			5.00	5.13		mg/Kg		103	80 - 120	3	30
Lithium			5.00	4.54	J	mg/Kg		91	80 - 120	10	30
Manganese			5.00	4.96		mg/Kg		99	80 - 120	6	30
Molybdenum			25.0	25.0		mg/Kg		100	80 - 120	1	30
Selenium			7.50	7.48		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 1
Prep Batch: 54333

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	ND			ND		mg/Kg	☼			NC	30
Arsenic	ND			ND		mg/Kg	☼			NC	30
Beryllium	ND			ND		mg/Kg	☼			NC	30
Calcium	880	J B		843	J	mg/Kg	☼			5	30
Chromium	ND			ND		mg/Kg	☼			NC	30
Cobalt	ND			ND		mg/Kg	☼			NC	30
Iron	ND			ND		mg/Kg	☼			NC	30
Lead	ND			ND		mg/Kg	☼			NC	30
Lithium	ND			ND		mg/Kg	☼			NC	30
Manganese	2.8	J		3.09	J	mg/Kg	☼			8	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54334/17-B ^3
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 2
Prep Batch: 54370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		30	4.8	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Arsenic	ND		1.5	0.39	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Beryllium	ND		0.75	0.048	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Calcium	ND		750	6.6	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Chromium	ND		1.5	0.21	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Cobalt	ND		7.5	0.19	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Iron	ND		15	8.7	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lead	ND		1.5	0.33	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lithium	ND		7.5	0.45	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Manganese	ND		2.3	0.84	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Molybdenum	ND		6.0	0.25	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Selenium	ND		1.5	0.51	mg/Kg		10/01/21 08:00	10/22/21 13:24	3

Lab Sample ID: LCS 140-54334/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	ND		mg/Kg		3	
Arsenic	5.00	3.62		mg/Kg		72	60 - 120
Beryllium	2.50	1.31		mg/Kg		52	40 - 70
Calcium	2500	641	J	mg/Kg		26	10 - 40
Chromium	10.0	7.44		mg/Kg		74	60 - 120
Cobalt	5.00	4.63	J	mg/Kg		93	80 - 120
Iron	50.0	ND		mg/Kg		4	
Lead	5.00	4.76		mg/Kg		95	70 - 120
Lithium	5.00	4.40	J	mg/Kg		88	80 - 120
Manganese	5.00	4.89		mg/Kg		98	80 - 120
Molybdenum	25.0	20.4		mg/Kg		82	70 - 120
Selenium	7.50	5.79		mg/Kg		77	70 - 120

Lab Sample ID: LCSD 140-54334/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	ND		mg/Kg		1		109	
Arsenic	5.00	3.80		mg/Kg		76	60 - 120	5	30
Beryllium	2.50	1.35		mg/Kg		54	40 - 70	3	30
Calcium	2500	648	J	mg/Kg		26	10 - 40	1	30
Chromium	10.0	7.61		mg/Kg		76	60 - 120	2	30
Cobalt	5.00	4.60	J	mg/Kg		92	80 - 120	1	30
Iron	50.0	ND		mg/Kg		2		52	
Lead	5.00	4.60		mg/Kg		92	70 - 120	3	30
Lithium	5.00	4.50	J	mg/Kg		90	80 - 120	2	30
Manganese	5.00	4.90		mg/Kg		98	80 - 120	0	30
Molybdenum	25.0	20.3		mg/Kg		81	70 - 120	0	30
Selenium	7.50	6.07		mg/Kg		81	70 - 120	5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 2
Prep Batch: 54370

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	16	J	15.7	J	mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	16000		15200		mg/Kg	☼	6	30
Chromium	ND		ND		mg/Kg	☼	NC	30
Cobalt	0.57	J	0.447	J	mg/Kg	☼	24	30
Iron	36		35.3		mg/Kg	☼	0.5	
Lead	0.77	J	1.01	J	mg/Kg	☼	26	30
Lithium	ND		ND		mg/Kg	☼	NC	30
Manganese	84		75.4		mg/Kg	☼	11	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54371/17-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 3
Prep Batch: 54400

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	2.1	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Beryllium	ND		0.25	0.015	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Calcium	ND		250	1.5	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Cobalt	ND		2.5	0.045	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Iron	ND		5.0	2.9	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lead	ND		0.50	0.11	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Manganese	0.0835	J	0.75	0.027	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/04/21 08:00	10/22/21 15:23	1

Lab Sample ID: LCS 140-54371/18-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 3
Prep Batch: 54400

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	93.2		mg/Kg		93	80 - 120
Arsenic	5.00	4.81		mg/Kg		96	80 - 120
Beryllium	2.50	2.62		mg/Kg		105	80 - 120
Calcium	2500	38.3	J	mg/Kg		2	
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.01		mg/Kg		100	80 - 120
Iron	50.0	48.5		mg/Kg		97	80 - 120
Lead	5.00	0.139	J	mg/Kg		3	
Lithium	5.00	4.75		mg/Kg		95	80 - 120
Manganese	5.00	5.18		mg/Kg		104	80 - 120
Molybdenum	25.0	24.5		mg/Kg		98	80 - 120
Selenium	7.50	7.34		mg/Kg		98	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54371/19-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 3
Prep Batch: 54400

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	95.6		mg/Kg		96	80 - 120	3	30
Arsenic			5.00	4.76		mg/Kg		95	80 - 120	1	30
Beryllium			2.50	2.60		mg/Kg		104	80 - 120	1	30
Calcium			2500	39.4	J	mg/Kg		2		3	
Chromium			10.0	10.0		mg/Kg		100	80 - 120	1	30
Cobalt			5.00	4.97		mg/Kg		99	80 - 120	1	30
Iron			50.0	50.8		mg/Kg		102	80 - 120	5	30
Lead			5.00	0.122	J	mg/Kg		2		13	
Lithium			5.00	4.95		mg/Kg		99	80 - 120	4	30
Manganese			5.00	5.15		mg/Kg		103	80 - 120	1	30
Molybdenum			25.0	24.2		mg/Kg		97	80 - 120	1	30
Selenium			7.50	7.31		mg/Kg		97	80 - 120	0	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 3
Prep Batch: 54400

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	52			55.7		mg/Kg	☼			8	30
Arsenic	0.26	J		0.285	J	mg/Kg	☼			10	30
Beryllium	ND			ND		mg/Kg	☼			NC	30
Calcium	9.2	J		9.35	J	mg/Kg	☼			1	
Chromium	0.31	J		0.452	J F5	mg/Kg	☼			38	30
Cobalt	0.62	J		0.294	J F5	mg/Kg	☼			72	30
Iron	240			258		mg/Kg	☼			6	30
Lead	ND			ND		mg/Kg	☼			NC	
Lithium	ND			ND		mg/Kg	☼			NC	30
Manganese	51	B		31.3	F3	mg/Kg	☼			48	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54401/17-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 4
Prep Batch: 54485

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Arsenic	ND		0.50	0.22	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Beryllium	ND		0.25	0.016	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Calcium	ND		250	2.2	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Chromium	ND		0.50	0.070	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Cobalt	ND		2.5	0.053	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Iron	ND		5.0	2.9	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lead	ND		0.50	0.11	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lithium	ND		2.5	0.15	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Manganese	ND		0.75	0.13	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Selenium	ND		0.50	0.47	mg/Kg		10/05/21 08:00	10/25/21 11:34	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54401/18-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 4
Prep Batch: 54485

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	99.5		mg/Kg		100	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 130		
Beryllium			2.50	2.68		mg/Kg		107	80 - 120		
Calcium			2500	2520		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.10		mg/Kg		102	80 - 120		
Iron			50.0	51.2		mg/Kg		102	80 - 120		
Lead			5.00	5.11		mg/Kg		102	80 - 120		
Lithium			5.00	5.03		mg/Kg		101	80 - 120		
Manganese			5.00	5.14		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.9		mg/Kg		104	80 - 120		
Selenium			7.50	0.568		mg/Kg		8			

Lab Sample ID: LCSD 140-54401/19-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 4
Prep Batch: 54485

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	4.96		mg/Kg		99	80 - 130	1	30
Beryllium			2.50	2.67		mg/Kg		107	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.2		mg/Kg		102	80 - 120	0	30
Cobalt			5.00	5.07		mg/Kg		101	80 - 120	1	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	0	30
Lead			5.00	5.10		mg/Kg		102	80 - 120	0	30
Lithium			5.00	5.02		mg/Kg		100	80 - 120	0	30
Manganese			5.00	5.13		mg/Kg		103	80 - 120	0	30
Molybdenum			25.0	25.7		mg/Kg		103	80 - 120	1	30
Selenium			7.50	ND		mg/Kg		5		45	

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 4
Prep Batch: 54485

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	370			492		mg/Kg	☼			29	30
Arsenic	1.2			1.80	F3	mg/Kg	☼			41	30
Beryllium	0.077	J		0.0858	J	mg/Kg	☼			11	30
Calcium	16000			10800	F3	mg/Kg	☼			36	30
Chromium	1.6			1.84		mg/Kg	☼			13	30
Cobalt	1.2	J		1.32	J	mg/Kg	☼			10	30
Iron	3900			4250		mg/Kg	☼			9	30
Lead	2.7			2.62		mg/Kg	☼			4	30
Lithium	0.99	J		1.08	J	mg/Kg	☼			9	30
Manganese	93			86.5		mg/Kg	☼			8	30
Molybdenum	0.45	J		0.463	J	mg/Kg	☼			3	30
Selenium	ND			ND		mg/Kg	☼			NC	

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54486/17-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 5
Prep Batch: 54566

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	32.1	J	150	24	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Arsenic	ND		7.5	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Beryllium	ND		3.8	0.32	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Calcium	ND		3800	11	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Chromium	ND		7.5	1.1	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Cobalt	ND		38	0.60	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Iron	ND		75	44	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lead	ND		7.5	1.7	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lithium	8.44	J	38	2.2	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Manganese	ND		11	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Molybdenum	ND		30	1.3	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Selenium	ND		7.5	2.6	mg/Kg		10/07/21 08:00	10/25/21 13:37	5

Lab Sample ID: LCS 140-54486/18-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	300	ND		mg/Kg		6	
Arsenic	15.0	9.89		mg/Kg		66	60 - 100
Beryllium	7.50	3.89		mg/Kg		52	40 - 70
Calcium	7500	2030	J	mg/Kg		27	20 - 50
Chromium	30.0	30.5		mg/Kg		102	80 - 130
Cobalt	15.0	0.863	J	mg/Kg		6	1 - 60
Iron	150	ND		mg/Kg		-2	
Lead	15.0	9.28		mg/Kg		62	40 - 80
Lithium	15.0	23.8	J *+	mg/Kg		159	80 - 150
Manganese	15.0	2.78	J	mg/Kg		19	1 - 60
Molybdenum	75.0	53.6		mg/Kg		72	60 - 100
Selenium	22.5	22.8		mg/Kg		101	80 - 140

Lab Sample ID: LCSD 140-54486/19-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	300	28.1	J	mg/Kg		9		47	
Arsenic	15.0	10.3		mg/Kg		68	60 - 100	4	30
Beryllium	7.50	3.83		mg/Kg		51	40 - 70	2	30
Calcium	7500	2000	J	mg/Kg		27	20 - 50	2	30
Chromium	30.0	30.3		mg/Kg		101	80 - 130	1	30
Cobalt	15.0	0.840	J	mg/Kg		6	1 - 60	3	30
Iron	150	ND		mg/Kg		-1		53	
Lead	15.0	9.87		mg/Kg		66	40 - 80	6	30
Lithium	15.0	23.9	J *+	mg/Kg		159	80 - 150	0	30
Manganese	15.0	2.73	J	mg/Kg		18	1 - 60	2	30
Molybdenum	75.0	53.4		mg/Kg		71	60 - 100	0	30
Selenium	22.5	22.4		mg/Kg		100	80 - 140	2	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 5
Prep Batch: 54566

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	210	B	205		mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	11000		10900		mg/Kg	☼	3	30
Chromium	2.1	J	1.68	J	mg/Kg	☼	20	30
Cobalt	ND		ND		mg/Kg	☼	NC	30
Iron	ND		ND		mg/Kg	☼	NC	
Lead	ND		ND		mg/Kg	☼	NC	30
Lithium	14	J B *+	13.4	J *+	mg/Kg	☼	3	30
Manganese	5.2	J	2.76	J F5	mg/Kg	☼	62	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54567/17-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 6
Prep Batch: 54567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Arsenic	ND		0.50	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Beryllium	ND		0.25	0.012	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Calcium	ND		250	2.1	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Chromium	ND		0.50	0.070	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Cobalt	ND		2.5	0.046	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Iron	ND		5.0	2.9	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lead	ND		0.50	0.11	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lithium	ND		2.5	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Manganese	ND		0.75	0.25	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Molybdenum	ND		2.0	0.099	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Selenium	ND		0.50	0.17	mg/Kg		10/07/21 08:00	10/25/21 15:37	1

Lab Sample ID: LCS 140-54567/18-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 6
Prep Batch: 54567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	96.9		mg/Kg		97	80 - 120
Arsenic	5.00	5.01		mg/Kg		100	80 - 120
Beryllium	2.50	2.64		mg/Kg		106	80 - 120
Calcium	2500	2470		mg/Kg		99	80 - 120
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.00		mg/Kg		100	80 - 120
Iron	50.0	50.1		mg/Kg		100	80 - 120
Lead	5.00	5.10		mg/Kg		102	80 - 120
Lithium	5.00	4.95		mg/Kg		99	80 - 120
Manganese	5.00	5.09		mg/Kg		102	80 - 120
Molybdenum	25.0	25.1		mg/Kg		100	80 - 120
Selenium	7.50	7.68		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54567/19-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 6
Prep Batch: 54567

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	101		mg/Kg		101	80 - 120	4	30
Arsenic			5.00	5.07		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.70		mg/Kg		108	80 - 120	2	30
Calcium			2500	2530		mg/Kg		101	80 - 120	2	30
Chromium			10.0	10.3		mg/Kg		103	80 - 120	2	30
Cobalt			5.00	5.10		mg/Kg		102	80 - 120	2	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	2	30
Lead			5.00	5.24		mg/Kg		105	80 - 120	3	30
Lithium			5.00	5.04		mg/Kg		101	80 - 120	2	30
Manganese			5.00	5.20		mg/Kg		104	80 - 120	2	30
Molybdenum			25.0	25.8		mg/Kg		103	80 - 120	3	30
Selenium			7.50	7.82		mg/Kg		104	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 6
Prep Batch: 54567

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	2300			1960		mg/Kg	☼			14	30
Arsenic	2.2			1.82		mg/Kg	☼			19	30
Beryllium	0.095	J		0.0803	J	mg/Kg	☼			17	30
Calcium	4500			3620		mg/Kg	☼			21	30
Chromium	3.9			3.48		mg/Kg	☼			12	30
Cobalt	1.6	J		1.28	J	mg/Kg	☼			23	30
Iron	4500			3880		mg/Kg	☼			14	30
Lead	2.0			1.66		mg/Kg	☼			18	30
Lithium	3.9			3.31		mg/Kg	☼			17	30
Manganese	61			49.6		mg/Kg	☼			20	30
Molybdenum	0.24	J		0.198	J	mg/Kg	☼			21	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54607/17-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Method Blank
Prep Type: Step 7
Prep Batch: 54607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Beryllium	ND		0.25	0.016	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Calcium	ND		250	2.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Cobalt	ND		2.5	0.026	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Iron	ND		5.0	4.1	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lead	ND		0.50	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Manganese	ND		0.75	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/08/21 08:00	10/26/21 11:23	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54607/18-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	98.4		mg/Kg		98	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 120		
Beryllium			2.50	2.52		mg/Kg		101	80 - 120		
Calcium			2500	2510		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.09		mg/Kg		102	80 - 125		
Iron			50.0	51.8		mg/Kg		104	80 - 120		
Lead			5.00	5.06		mg/Kg		101	80 - 120		
Lithium			5.00	4.99		mg/Kg		100	80 - 120		
Manganese			5.00	5.15		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.7		mg/Kg		103	80 - 125		
Selenium			7.50	7.37		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 140-54607/19-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	98.0		mg/Kg		98	80 - 120	0	30
Arsenic			5.00	5.04		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.54		mg/Kg		102	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.4		mg/Kg		104	80 - 120	1	30
Cobalt			5.00	5.16		mg/Kg		103	80 - 125	1	30
Iron			50.0	52.0		mg/Kg		104	80 - 120	0	30
Lead			5.00	5.15		mg/Kg		103	80 - 120	2	30
Lithium			5.00	4.97		mg/Kg		99	80 - 120	0	30
Manganese			5.00	5.18		mg/Kg		104	80 - 120	1	30
Molybdenum			25.0	26.1		mg/Kg		104	80 - 125	2	30
Selenium			7.50	7.51		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	25000			24700		mg/Kg	☼			0.4	30
Calcium	3100			3220		mg/Kg	☼			2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.70			0.687		mg/Kg	☼			2	30
Beryllium	0.37			0.366		mg/Kg	☼			2	30
Chromium	9.3			8.59		mg/Kg	☼			8	30
Cobalt	0.15	J		0.112	J	mg/Kg	☼			26	30
Iron	2800			2670		mg/Kg	☼			5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Lead	4.3			4.29		mg/Kg	☼			0.5	30
Lithium	6.9			5.78		mg/Kg	☼			17	30
Manganese	53			54.1		mg/Kg	☼			3	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Metals

Prep Batch: 54251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Total	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Total	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Total	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Total	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Total	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Total	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Total	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Total	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Total	
MB 140-54251/17-A	Method Blank	Total/NA	Solid	Total	
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	Total	
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	Total	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	

SEP Batch: 54252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	Exchangeable	
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	Exchangeable	
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	Exchangeable	
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	Exchangeable	
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	Exchangeable	
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	Exchangeable	
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	Exchangeable	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	Exchangeable	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	Exchangeable	
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	Exchangeable	
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	Exchangeable	
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	Exchangeable	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	

Prep Batch: 54333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	3010A	54252
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	3010A	54252
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	3010A	54252
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	3010A	54252
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	3010A	54252
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	3010A	54252
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	3010A	54252
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	3010A	54252
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	3010A	54252
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	3010A	54252
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	3010A	54252
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	3010A	54252
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Metals

SEP Batch: 54334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	Carbonate	
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	Carbonate	
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	Carbonate	
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	Carbonate	
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	Carbonate	
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	Carbonate	
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	Carbonate	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	Carbonate	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	Carbonate	
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	Carbonate	
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	Carbonate	
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	Carbonate	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	

Prep Batch: 54370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	3010A	54334
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	3010A	54334
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	3010A	54334
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	3010A	54334
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	3010A	54334
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	3010A	54334
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	3010A	54334
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	3010A	54334
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	3010A	54334
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	3010A	54334
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	3010A	54334
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	3010A	54334
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334

SEP Batch: 54371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	Non-Crystalline	
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	Non-Crystalline	
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	Non-Crystalline	
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	Non-Crystalline	
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	Non-Crystalline	
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	Non-Crystalline	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	Non-Crystalline	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	Non-Crystalline	
MB 140-54371/17-B	Method Blank	Step 3	Solid	Non-Crystalline	
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	Non-Crystalline	
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	Non-Crystalline	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	

Metals

Prep Batch: 54400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	3010A	54371
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	3010A	54371
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	3010A	54371
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	3010A	54371
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	3010A	54371
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	3010A	54371
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	3010A	54371
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	3010A	54371
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	3010A	54371
MB 140-54371/17-B	Method Blank	Step 3	Solid	3010A	54371
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	3010A	54371
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	3010A	54371
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371

SEP Batch: 54401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	Metal Hydroxide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	Metal Hydroxide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	Metal Hydroxide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	Metal Hydroxide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	Metal Hydroxide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	Metal Hydroxide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	Metal Hydroxide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	Metal Hydroxide	
MB 140-54401/17-B	Method Blank	Step 4	Solid	Metal Hydroxide	
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	Metal Hydroxide	
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	Metal Hydroxide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	

Prep Batch: 54485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	3010A	54401
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	3010A	54401
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	3010A	54401
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	3010A	54401
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	3010A	54401
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	3010A	54401
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	3010A	54401
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	3010A	54401
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	3010A	54401
MB 140-54401/17-B	Method Blank	Step 4	Solid	3010A	54401
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	3010A	54401
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	3010A	54401
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401

Metals

SEP Batch: 54486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	Organic-Bound	
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	Organic-Bound	
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	Organic-Bound	
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	Organic-Bound	
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	Organic-Bound	
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	Organic-Bound	
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	Organic-Bound	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	Organic-Bound	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	Organic-Bound	
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	Organic-Bound	
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	Organic-Bound	
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	Organic-Bound	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	

Prep Batch: 54566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	3010A	54486
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	3010A	54486
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	3010A	54486
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	3010A	54486
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	3010A	54486
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	3010A	54486
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	3010A	54486
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	3010A	54486
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	3010A	54486
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	3010A	54486
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	3010A	54486
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	3010A	54486
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486

SEP Batch: 54567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	Acid/Sulfide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	Acid/Sulfide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	Acid/Sulfide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	Acid/Sulfide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	Acid/Sulfide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	Acid/Sulfide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	Acid/Sulfide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	Acid/Sulfide	
MB 140-54567/17-A	Method Blank	Step 6	Solid	Acid/Sulfide	
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	Acid/Sulfide	
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	Acid/Sulfide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	

Metals

Prep Batch: 54607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	Residual	
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	Residual	
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	Residual	
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	Residual	
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	Residual	
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	Residual	
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	Residual	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	Residual	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	Residual	
MB 140-54607/17-A	Method Blank	Step 7	Solid	Residual	
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	Residual	
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	Residual	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	

Analysis Batch: 55087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	6010B SEP	54333
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	6010B SEP	54370
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	6010B SEP	54400
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	6010B SEP	54333
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	6010B SEP	54370
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	6010B SEP	54400
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	6010B SEP	54333
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	6010B SEP	54370
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	6010B SEP	54400
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	6010B SEP	54333
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	6010B SEP	54370
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	6010B SEP	54400
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	6010B SEP	54333
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	6010B SEP	54370
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	6010B SEP	54400
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	6010B SEP	54333
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	6010B SEP	54370
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	6010B SEP	54400
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	6010B SEP	54333
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	6010B SEP	54370
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	6010B SEP	54333
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	6010B SEP	54370
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	6010B SEP	54333
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	6010B SEP	54370
MB 140-54371/17-B	Method Blank	Step 3	Solid	6010B SEP	54400
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	6010B SEP	54333

Metals (Continued)

Analysis Batch: 55087 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	6010B SEP	54370
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	6010B SEP	54400
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	6010B SEP	54333
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	6010B SEP	54370
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	6010B SEP	54400
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400

Analysis Batch: 55146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	6010B SEP	54566
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	6010B SEP	54567
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	6010B SEP	54485
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	6010B SEP	54566
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	6010B SEP	54567
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	6010B SEP	54485
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	6010B SEP	54566
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	6010B SEP	54567
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	6010B SEP	54485
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	6010B SEP	54566
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	6010B SEP	54567
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	6010B SEP	54485
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	6010B SEP	54566
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	6010B SEP	54567
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	6010B SEP	54485
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	6010B SEP	54566
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	6010B SEP	54485
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	6010B SEP	54566
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	6010B SEP	54485
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	6010B SEP	54566
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	6010B SEP	54567
MB 140-54401/17-B	Method Blank	Step 4	Solid	6010B SEP	54485
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	6010B SEP	54566
MB 140-54567/17-A	Method Blank	Step 6	Solid	6010B SEP	54567
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	6010B SEP	54485
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	6010B SEP	54566
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	6010B SEP	54567
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	6010B SEP	54485

Metals (Continued)

Analysis Batch: 55146 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	6010B SEP	54566
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	6010B SEP	54567
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567

Analysis Batch: 55197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
MB 140-54607/17-A	Method Blank	Step 7	Solid	6010B SEP	54607
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	6010B SEP	54607
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607

Analysis Batch: 55243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251

Metals (Continued)

Analysis Batch: 55243 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
MB 140-54251/17-A	Method Blank	Total/NA	Solid	6010B	54251
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	6010B	54251
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251

Analysis Batch: 55436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-2	N-SB-05 (60.0-67.1)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-3	N-SB-18 (77.5-80.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-4	N-SB-02 (12.5-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-5	N-SB-02 (65.0-71.5)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-6	N-SB-14 (44.2-52.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-7	N-SB-04 (12.0-18.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-8	N-SB-04 (38.7-45.4)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Sum of Steps 1-7	Solid	6010B SEP	

General Chemistry

Analysis Batch: 53225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Moisture	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Moisture	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Moisture	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Moisture	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Moisture	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Moisture	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Moisture	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Moisture	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Moisture	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:14	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:39	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:50	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:03	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		2			55146	10/25/21 17:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:08	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:07	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)

Lab Sample ID: 140-24350-3

Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:06	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:20	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:50	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:59	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4
Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:13	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:11	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:07	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:18	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)
Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:04	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:30	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:55	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-14 (44.2-52.0)
Lab Sample ID: 140-24350-6
Date Collected: 08/19/21 14:45
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-14 (44.2-52.0)

Lab Sample ID: 140-24350-6

Date Collected: 08/19/21 14:45

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:12	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:35	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (12.0-18.0)

Lab Sample ID: 140-24350-7

Date Collected: 08/21/21 07:35

Matrix: Solid

Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:06	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)
Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-04 (38.7-45.4)
Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 86.5

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:35	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)

Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 86.5

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:05	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		5			55243	10/27/21 16:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:53	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		5			55146	10/25/21 18:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:09	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 16:02	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 77.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:33	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10

Date Collected: 08/21/21 10:10

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 77.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55146	10/25/21 11:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:19	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-54251/17-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:49	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54252/17-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:17	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54334/17-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:24	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54371/17-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54401/17-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54486/17-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:37	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc. Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Method Blank — Lab Sample ID: MB 140-54567/17-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank — Lab Sample ID: MB 140-54607/17-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54251/18-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:54	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54252/18-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:22	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54334/18-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:29	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54371/18-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:28	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54401/18-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:39	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54486/18-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54567/18-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54607/18-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54251/19-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:59	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54252/19-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:27	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54334/19-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54371/19-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:32	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54401/19-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:44	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54486/19-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54567/19-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54607/19-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:33	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:47	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:19	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:36	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:44	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:55	KNC	TAL KNX
	Instrument ID: DUO									

Laboratory References:
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
Arkansas DEQ	State	88-0688	06-17-22
California	State	2423	06-30-22
Colorado	State	TN00009	02-28-22
Connecticut	State	PH-0223	02-28-22
Florida	NELAP	E87177	06-30-22
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21 *
Kentucky (DW)	State	90101	12-31-21
Louisiana	NELAP	83979	06-30-22
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-22
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-22
New Hampshire	NELAP	299919	01-17-22
New Jersey	NELAP	TN001	06-30-22
New York	NELAP	10781	03-31-22
North Carolina (DW)	State	21705	07-31-22
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-22
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-22
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-22
West Virginia (DW)	State	9955C	01-02-22
West Virginia DEP	State	345	04-30-22
Wisconsin	State	998044300	08-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Method	Method Description	Protocol	Laboratory
6010B	SEP Metals (ICP) - Total	SW846	TAL KNX
6010B SEP	SEP Metals (ICP)	SW846	TAL KNX
Moisture	Percent Moisture	EPA	TAL KNX
3010A	Preparation, Total Metals	SW846	TAL KNX
Acid/Sulfide	Sequential Extraction Procedure, Acid/Sulfide Fraction	TAL-KNOX	TAL KNX
Carbonate	Sequential Extraction Procedure, Carbonate Fraction	TAL-KNOX	TAL KNX
Exchangeable	Sequential Extraction Procedure, Exchangeable Fraction	TAL-KNOX	TAL KNX
Metal Hydroxide	Sequential Extraction Procedure, Metal Hydroxide Fraction	TAL-KNOX	TAL KNX
Non-Crystalline	Sequential Extraction Procedure, Non-crystalline Materials	TAL-KNOX	TAL KNX
Organic-Bound	Sequential Extraction Procedure, Organic Bound Fraction	TAL-KNOX	TAL KNX
Residual	Sequential Extraction Procedure, Residual Fraction	TAL-KNOX	TAL KNX
Total	Preparation, Total Material	TAL-KNOX	TAL 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:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Brendan Talbert	Lab PM: Henry, Ryan	Carrier Tracking No(s):	COC No: 140-9736-2903.2
Client Contact: Jeffrey Ingram	Phone: (636) 485-8185	E-Mail: williamr.henry@eurofinset.com	State of Origin: IL	Page: Page 1 of 2
Company: Golder Associates Inc.	PWSID:			Job #:
Address: 13515 Barrett Parkway Drive Suite 260	Due Date Requested:			
City: Ballwin	TAT Requested (days):			
State, Zip: MO, 63021	Compliance Project: Δ Yes Δ No			
Phone: 314-984-8800(Tel) 636-724-9323(Fax)	PO #: Purchase Order not required			
Email: Jeffrey_Ingram@golder.com	WO #:			
Project Name: ~~Kincaid~~ Newton Power Station - Illinois	Project #: 14006434			
Site:	SSOW#:			

Analysis Requested

140-24350 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	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 - Select Total Metals	6010B_SEP - SEP	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
N-SB-05(18.0-20.0)	8-17-21	1240	G	S	N	N	/	/		
N-SB-05(60.0-67.1)	8-17-21	1540	G	S			/	/		
N-SB-18 (77.5-80.0)	8-18-21	1000	G	S			/	/		
N-SB-02 (12.5-20.0)	8-18-21	1410	G	S			/	/		
N-SB-02(65.0-71.5)	8-19-21	1200	G	S			/	/		
N-SB-14 ~~(Foam Core)~~	8-19-21	1445	G	S			/	/		N-SB-14 (44.2-52.0)
N-SB-04 (12.0-18.0)	8-21-21	0735	G	S			/	/		
N-SB-04 ~~(Foam Core)~~	8-21-21	0830	G	S			/	/		N-SB-04 (38.7-45.4)
N-SB-xpw04 (10.0-15.0)	8-21-21	0920	G	S			/	/		
N-SB-xpw01 (10.0-12.7)	8-21-21	1010	G	S			/	Y		

Possible Hazard Identification
☐ 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 ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Brendan Talbert	8-23-21 / 1830	Golder		8/24/21 0940	ETA
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.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:** Loc: 140 **24350**

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 : SC 71 Correction factor: +0.1	/			☐ 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

RT: 1.3°C CT: 1.4°C
1 cooler, FedEx Pg
Custody seal intact
Tr# 2828 8850 9224
KW 8/24/21

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 #: 1400647 PM Instructions:

Sample Receiving Associate: Kelsey Date: 8/24/21

QA026R32.doc, 062719

APPENDIX B
Technical Memorandum – Surface Water Sampling

GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE December 16, 2021 **Project No.** 21454831

TO David Mitchell, Stu Cravens, Vic Modeer
Illinois Power Generating Company

FROM Patrick J. Behling, Jeffrey Ingram - Golder **EMAIL Jingram@golder.com**

SURFACE WATER SAMPLING SUMMARY, NEWTON POWER PLANT, JASPER COUNTY, ILLINOIS

1.0 INTRODUCTION AND BACKGROUND

Golder Associates USA Inc. (Golder) is pleased to submit this Technical Memorandum summarizing recent surface water sampling activities at the Newton Power Plant (NPP or Site) operated by Illinois Power Generating Company (IPGC) in Jasper County, Illinois. During the field investigation, 28 samples were collected and sent for laboratory analysis from Newton Lake, which is adjacent to the Site, in the vicinity of the Primary Ash Pond (PAP, CCR Unit ID 501). A sample location map is provided in **Figure 1**.

2.0 PROJECT SCOPE OF WORK

The scope of work for this project consisted of the following:

- Preparation of a Site-specific Health, Safety, and Environment Plan (HASEP).
- Review of baseline data to determine sample locations and constituents for analysis.
- Collection of 28 surface water samples from Newton Lake.
- Preparation of a Technical Memorandum to summarize the sampling and the results.

3.0 FIELD INVESTIGATION

3.1 Health, Safety, and Environment Plan

This work was performed under a Site-Specific HASEP that was approved by IPGC. The HASEP was prepared in accordance with IPGC sub-contractor requirements and includes identification of occupation and health and safety hazards (risks) related to the field team, site conditions, specific risk controls, training requirements, personal protective equipment (PPE) requirements, and information on potential emergencies.

3.2 Surface Water Sampling Locations

Surface water sampling on Newton Lake was completed on October 4th and October 5th, 2021. To access the sample locations, Golder subcontracted with Environmental Restoration, LLC. (ER) to provide and operate an open boat with a low horsepower outboard motor. Twenty-eight (28) surface water samples were collected from Newton Lake at locations agreed upon prior to sampling between Golder and IPGC. Sample locations were

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confirmed in the field using a Trimble Geo7X handheld GPS unit as displayed in **Figure 1**.

3.3 Surface Water Sample Collection and Results

At each sampling location, the field methods described in section 3.2.1.3 of the *Surface Water Sampling Work Plan – Newton Power Plan, Jasper County, Illinois* were completed as applicable. Field parameters including turbidity, pH, specific conductivity, dissolved oxygen, redox potential, and temperature were recorded prior to collecting each sample as shown on the field forms provided in **Appendix A**.

Surface water samples were placed in clean laboratory-supplied containers and properly labeled with well ID, project name, sampler initials, analyses to be performed, date, and time of collection. Sample information was logged on a chain of custody (COC) and the samples and COC were shipped to PDC Laboratories, LLC (PDC) for analysis. Sampling data validation was completed by Golder following receipt of the analytical data from PDC. A summary of the results is displayed in **Table 1** and the laboratory data packet from PDC as well as the data validation is provided in **Appendix B**.

No exceedances of the Site Groundwater Protection Standards (GWPS) used for Part 845 groundwater monitoring were noted based on our initial evaluation of the surface water sampling results. Further evaluation of the surface water data will be completed as part of the MNA evaluation for the site.

4.0 CLOSING

Golder appreciates the opportunity to continue to work on this project. Should you require any additional information about this technical memo, please feel free to contact the undersigned.

Sincerely,

Golder Associates Inc.





Jeffrey Ingram
Senior Project Geologist
JSI/PJB

Patrick J. Behling
Principal and Practice Leader

Attachments: Table 1 – Newton Lake Surface Water Sampling Results
Figure 1 – Newton Lake Surface Water Sample Locations
Appendix A – Surface Water Sampling Field Forms
Appendix B – Laboratory Analytical Data

Tables

Table 1
Newton Lake Surface Water Sampling Results
Newton Power Plant
Jasper County, Illinois

Analyte	Units	Site GWPS	N-A-1	N-A-2M	N-A-2D	N-B-1	N-B-2M	N-B-2D	N-C-1	N-C-2M
Field Parameters										
Dissolved Oxygen	mg/L	NA	7.65	6.21	5.11	4.82	0.38	0.38	5.05	1.81
Redox Potential	mV	NA	-15.8	-41.3	-26.4	-6.7	-20.6	-79.9	-23.2	8.0
Specific Conductance	µS/cm	NA	273.6	274.6	275.7	278.6	288.9	282.2	283.5	276.9
Temperature	°C	NA	27.8	27.3	25.6	27.6	25.3	24.8	27.5	25.1
Turbidity	NTU	NA	14.7	12.5	39.4	9.51	10.1	13.6	50.4	10.7
Sample Depth	FT BLE	NA	0.9	3.4	6.8	1.2	7.0	14.0	1.1	8.1
Part 845 Constituents										
Antimony, Total	mg/L	0.006	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Total	mg/L	0.059	0.0022	0.0023	0.0023	0.0023	0.0035	0.0032	0.0024	0.0022
Barium, Total	mg/L	2	0.070	0.069	0.082	0.070	0.150	0.094	0.072	0.090
Beryllium, Total	mg/L	0.004	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Total	mg/L	2	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.12
Cadmium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Total	mg/L	NA	21	21	22	21	21	21	21	21
Chloride, Total	mg/L	200	9.0	9.0	9.1	9.0	8.8	8.7	9.1	8.8
Chromium, Total	mg/L	0.1	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	0.0	ND < 0.004
Cobalt, Total	mg/L	0.006	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Fluoride, Total	mg/L	4	0.394	0.389	0.400	0.425	0.425	0.414	0.368	0.415
Lead, Total	mg/L	0.0075	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Total	mg/L	0.04	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Total	mg/L	0.002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Total	mg/L	0.1	0.0050	0.0050	0.0051	0.0051	0.0050	0.0048	0.0062	0.0050
pH	SU	6.4 - 9.0	8.86	8.85	8.40	8.41	7.39	7.14	8.13	7.59
Radium (226 + 228)	pCi/L	6.9	0.534 J	0.420 J	ND	ND	ND	0.326 J	ND	0.722 J
Selenium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Sulfate, Total	mg/L	400	39	37	39	38	38	36	40	36
Thallium, Total	mg/L	0.002	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Total Dissolved Solids	mg/L	1200	170	190	240	170	170	200	170	170
Dissolved Metals										
Antimony, Dissolved	mg/L	NA	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Dissolved	mg/L	NA	0.0019	0.0020	0.0015	0.0021	0.0037	0.003	0.0021	0.0018
Barium, Dissolved	mg/L	NA	0.066	0.066	0.067	0.067	0.082	0.081	0.070	0.071
Beryllium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Dissolved	mg/L	NA	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.14
Cadmium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Dissolved	mg/L	NA	22	22	22	22	22	22	22	22
Chromium, Dissolved	mg/L	NA	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Dissolved	mg/L	NA	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Lead, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Dissolved	mg/L	NA	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Dissolved	mg/L	NA	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Dissolved	mg/L	NA	0.0054	0.0054	0.0054	0.0055	0.0052	0.0052	0.0056	0.0054
Selenium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Thallium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Iron Speciation										
Ferric Iron	mg/L	NA	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21
Ferrous Iron	mg/L	NA	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20
Additional Major Cations/Anions										
Alkalinity, Bicarbonate	mg/L	NA	50	50	62	75	75	75	50	75
Alkalinity, Carbonate	mg/L	NA	25	25	ND < 10	ND < 10	ND < 10	ND < 10	25	ND < 10
Sodium, Dissolved	mg/L	NA	21	22	21	22	21	21	22	22
Sodium, Total	mg/L	NA	22	22	22	22	22	21	22	22
Magnesium, Dissolved	mg/L	NA	5.6	5.7	5.7	5.6	5.7	5.7	5.7	5.7
Magnesium, Total	mg/L	NA	5.6	5.7	5.8	5.5	5.6	5.6	5.5	5.4
Potassium, Dissolved	mg/L	NA	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Potassium, Total	mg/L	NA	6.1	6.0	6.3	6.1	6.1	6.1	5.9	10.0
Manganese, Dissolved	mg/L	NA	0.0020	ND < 0.001	0.0290	ND < 0.001	0.7600	0.5200	0.0056	ND < 0.001
Manganese, Total	mg/L	NA	0.0800	0.0710	0.1600	0.0750	0.6900	0.5500	0.0610	0.1100
Iron, Dissolved	mg/L	NA	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	0.130	0.170	ND < 0.01	ND < 0.01
Iron, Total	mg/L	NA	0.390	0.270	1.200	0.210 J	0.450	0.550	0.210	0.100
Additoinal MNA Parameters										
Sulfide, Total	mg/L	NA	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2
Total Organic Carbon	mg/L	NA	5.8	5.9	5.4	5.6	5.4	5.4	5.7	5.5
Nitrate, Total	mg/L	NA	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	0.09	ND < 0.03	0.08
Phosphorus, Total	mg/L	NA	0.075	0.068	0.100	0.065	0.089	0.095	0.065	0.550

Notes:
1. Unit Abbreviations: °C - degrees celcius, µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, mV - millivolts, µS/cm - microsiemens per centimeter, NTU - nephelometric turbidity unit, pCi/L - picocuries per liter, FT BLE - feet below lake elevation.
2. ND - Non Detects. NDs reported as less than the Method Detection Limit (MDL) or adjusted Practical Quanitation Limit (PQL) basd on data validation.
3. Radium (226 + 228) is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
4. J - Flags are estimated values based on data validation.
5. Site Groundwater Protection Standards (GWPS) from Table 3-1, Background Groundwater Quality Standards from the Newton Groundwater Monitoring Plan.
6. For pH, the values represent the upper / lower limits. Values outside of these values represents a statistical exceedance.
7. No values are present above the Site GWPS, therefore, no highlighting is used in the table.

Table 1
Newton Lake Surface Water Sampling Results
Newton Power Plant
Jasper County, Illinois

Analyte	Units	Site GWPS	N-C-2D	N-D-1	N-D-2M	N-D-2D	N-E-1	N-E-2M	N-E-2D	N-F-1
Field Parameters										
Dissolved Oxygen	mg/L	NA	0.17	7.08	5.67	0.19	9.27	6.24	1.21	8.24
Redox Potential	mV	NA	-90.1	-9.9	11.6	-84.3	-28.5	-15.1	-45.6	-21.2
Specific Conductance	µS/cm	NA	280.8	277.5	273.9	276.0	271.7	273.4	276.3	270.9
Temperature	°C	NA	24.1	24.8	24.5	23.7	25.1	24.7	24.3	26.4
Turbidity	NTU	NA	20.1	11.6	8.17	10.9	14.1	7.83	17.2	12.4
Sample Depth	FT BLE	NA	16.2	2.7	11.6	23.2	2.5	11.2	22.4	1.4
Part 845 Constituents										
Antimony, Total	mg/L	0.006	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Total	mg/L	0.059	0.0034	0.002	0.0022	0.0042	0.0022	0.002	0.003	0.0021
Barium, Total	mg/L	2	0.100	0.070	0.068	0.110	0.071	0.069	0.060	0.073
Beryllium, Total	mg/L	0.004	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Total	mg/L	2	0.12	0.12	0.12	0.13	0.12	0.12	0.11	0.12
Cadmium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Total	mg/L	NA	22	21	21	22	21	21	21	21
Chloride, Total	mg/L	200	8.8	9.0	8.8	8.5	9.0	8.8	8.7	9.6
Chromium, Total	mg/L	0.1	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Total	mg/L	0.006	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Fluoride, Total	mg/L	4	0.417	0.393	0.398	0.378	0.413	0.404	0.414	0.512
Lead, Total	mg/L	0.0075	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Total	mg/L	0.04	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Total	mg/L	0.002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Total	mg/L	0.1	0.0047	0.0050	0.0050	0.0053	0.0049	0.0049	0.0050	0.0051
pH	SU	6.4 - 9.0	7.11	8.49	8.03	7.17	8.98	8.33	7.31	8.91
Radium (226 + 228)	pCi/L	6.9	0.713 J	ND	ND	0.826	ND	ND	1.75	0.531 J
Selenium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Sulfate, Total	mg/L	400	37	37	37	36	38	39	35	95
Thallium, Total	mg/L	0.002	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Total Dissolved Solids	mg/L	1200	170	170	170	190	170	190	170	170
Dissolved Metals										
Antimony, Dissolved	mg/L	NA	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Dissolved	mg/L	NA	0.0032	0.0017	0.0019	0.0035	0.0019	0.0017	0.0036	0.0019
Barium, Dissolved	mg/L	NA	0.082	0.065	0.066	0.067	0.065	0.066	0.32	0.065
Beryllium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Dissolved	mg/L	NA	0.14	0.14	0.14	0.13	0.14	0.14	0.13	0.13
Cadmium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Dissolved	mg/L	NA	22	21	22	22	22	22	22	22
Chromium, Dissolved	mg/L	NA	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	0.0043	ND < 0.004	ND < 0.004
Cobalt, Dissolved	mg/L	NA	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Lead, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Dissolved	mg/L	NA	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Dissolved	mg/L	NA	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Dissolved	mg/L	NA	0.0052	0.0052	0.0055	0.0053	0.0054	0.0054	0.0130	0.0054
Selenium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Thallium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Iron Speciation										
Ferric Iron	mg/L	NA	0.22	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	0.38	ND < 0.21
Ferrous Iron	mg/L	NA	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20
Additional Major Cations/Anions										
Alkalinity, Bicarbonate	mg/L	NA	75	75	75 J	75	50	75	75	50
Alkalinity, Carbonate	mg/L	NA	ND < 10	ND < 10	ND < 10	ND < 10	25	ND < 10	ND < 10	25
Sodium, Dissolved	mg/L	NA	21	21	21	20	21	21	20	21
Sodium, Total	mg/L	NA	21	21	21	19	21	21	20	21
Magnesium, Dissolved	mg/L	NA	5.8	5.6	5.8	5.6	5.6	5.7	5.7	5.5
Magnesium, Total	mg/L	NA	5.6	5.5	5.5	5.6	5.4	5.5	5.5	5.6
Potassium, Dissolved	mg/L	NA	6.0	5.9	6.0	5.9	5.9	6.0	5.9	5.9
Potassium, Total	mg/L	NA	6.1	6.0	6.0	5.8	6.0	6.0	6	6.0
Manganese, Dissolved	mg/L	NA	0.6000	ND < 0.001	ND < 0.001	0.6100	0.0015	ND < 0.001	0.5500	0.0032
Manganese, Total	mg/L	NA	0.6100	0.0700	0.0680	0.6500	0.0790	0.0600	0.4900	0.0570
Iron, Dissolved	mg/L	NA	0.220	ND < 0.01	0.027	0.210	0.013	0.020	0.380	ND < 0.01
Iron, Total	mg/L	NA	0.560	0.240	0.100	0.570	0.350	0.160	0.097	0.250
Additoinal MNA Parameters										
Sulfide, Total	mg/L	NA	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2
Total Organic Carbon	mg/L	NA	5.4	5.5	5.5	5.3	5.9	5.6	5.8	5.8
Nitrate, Total	mg/L	NA	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	0.28
Phosphorus, Total	mg/L	NA	0.110	0.060	0.054	0.150	0.071	0.073	0.052	0.062

Notes:
1. Unit Abbreviations: °C - degrees celcius, µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, mV - millivolts, µS/cm - microsiemens per centimeter, NTU - nephelometric turbidity unit, pCi/L - picocuries per liter, FT BLE - feet below lake elevation.
2. ND - Non Detects. NDs reported as less than the Method Detection Limit (MDL) or adjusted Practical Quanitation Limit (PQL) basd on data validation.
3. Radium (226 + 228) is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
4. J - Flags are estimated values based on data validation.
5. Site Groundwater Protection Standards (GWPS) from Table 3-1, Background Groundwater Quality Standards from the Newton Groundwater Monitoring Plan.
6. For pH, the values represent the upper / lower limits. Values outside of these values represents a statistical exceedance.
7. No values are present above the Site GWPS, therefore, no highlighting is used in the table.

Table 1
Newton Lake Surface Water Sampling Results
Newton Power Plant
Jasper County, Illinois

Analyte	Units	Site GWPS	N-F-2M	N-F-2D	N-G-1	N-G-2M	N-G-2D	N-I-1	N-I-2M	N-I-2D
Field Parameters										
Dissolved Oxygen	mg/L	NA	6.29	5.15	7.97	7.09	0.59	7.84	7.48	6.98
Redox Potential	mV	NA	-1.5	-16.1	-97.8	54.2	7.9	-6.8	-31.8	14
Specific Conductance	µS/cm	NA	272.6	277.7	276.7	277.3	280.4	275.7	276.6	277.3
Temperature	°C	NA	24.8	24.6	24.0	24.1	23.7	24.1	24.2	24.2
Turbidity	NTU	NA	10.2	27.3	8.85	6.71	25.0	9.43	11.0	13.9
Sample Depth	FT BLE	NA	9.6	19.1	2.7	8.6	17.1	2.0	6.8	13.6
Part 845 Constituents										
Antimony, Total	mg/L	0.006	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Total	mg/L	0.059	0.002	0.0023	0.0021	0.0022	0.0035	0.002	0.0022	0.0022
Barium, Total	mg/L	2	0.069	0.080	0.069	0.071	0.640	0.070	0.070	0.074
Beryllium, Total	mg/L	0.004	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Total	mg/L	2	0.12	0.14	0.13	0.14	0.13	0.13	0.13	0.13
Cadmium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Total	mg/L	NA	21	22	21	22	22	21	21	22
Chloride, Total	mg/L	200	9.1	9.6	9.5 J	9.4	9.2	9.0	9.0	9.1
Chromium, Total	mg/L	0.1	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Total	mg/L	0.006	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Fluoride, Total	mg/L	4	0.350	0.504	0.488	0.483	0.503	0.405	0.404	0.397
Lead, Total	mg/L	0.0075	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Total	mg/L	0.04	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Total	mg/L	0.002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Total	mg/L	0.1	0.0051	0.0052	0.0053	0.0054	0.0052	0.0054	0.0053	0.0053
pH	SU	6.4 - 9.0	8.75	8.12	7.92	9.12	7.97	9.16	9.02	8.82
Radium (226 + 228)	pCi/L	6.9	1.63	0.534 J	ND	0.404 J	2.05 J	ND	1.52	0.926 J
Selenium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Sulfate, Total	mg/L	400	38	40	39 J	37	35	37	39	35
Thallium, Total	mg/L	0.002	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Total Dissolved Solids	mg/L	1200	190	200	170	210	200	200	170 J	200 J
Dissolved Metals										
Antimony, Dissolved	mg/L	NA	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Dissolved	mg/L	NA	0.0019	0.0017	0.0018	0.0018	0.0025	0.0018	0.0018	0.0015
Barium, Dissolved	mg/L	NA	0.064	0.066	0.065	0.064	0.070	0.065	0.064	0.065
Beryllium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Dissolved	mg/L	NA	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Cadmium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Dissolved	mg/L	NA	22	22	22	22	22	22	22	22
Chromium, Dissolved	mg/L	NA	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Dissolved	mg/L	NA	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Lead, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Dissolved	mg/L	NA	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Dissolved	mg/L	NA	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Dissolved	mg/L	NA	0.0053	0.0055	0.0053	0.0052	0.0054	0.0054	0.0054	0.0053
Selenium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Thallium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Iron Speciation										
Ferric Iron	mg/L	NA	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21	ND < 0.21
Ferrous Iron	mg/L	NA	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20
Additional Major Cations/Anions										
Alkalinity, Bicarbonate	mg/L	NA	50	75	50	75	75	50	50	50
Alkalinity, Carbonate	mg/L	NA	25	ND < 10	25	ND < 10	ND < 10	25	25	25
Sodium, Dissolved	mg/L	NA	21	21	21	21	20	21	21	22
Sodium, Total	mg/L	NA	21	20	20	21	20	20	20	20
Magnesium, Dissolved	mg/L	NA	5.7	5.6	5.6	5.6	5.6	5.7	5.7	5.8
Magnesium, Total	mg/L	NA	5.6	5.6	5.4	5.5	5.6	5.4	5.5	5.5
Potassium, Dissolved	mg/L	NA	6.0	6.0	5.9	6.0	5.9	6.0	5.9	6.1
Potassium, Total	mg/L	NA	6.1	5.9	5.8	6.0	5.9	5.9	5.9	6.0
Manganese, Dissolved	mg/L	NA	ND < 0.001	0.016	ND < 0.001	ND < 0.001	0.4000	ND < 0.001	ND < 0.001	0.0020
Manganese, Total	mg/L	NA	0.0480	0.1100	0.0440	0.0620	0.5700	0.0480	0.0500	0.0670
Iron, Dissolved	mg/L	NA	ND < 0.01	0.014	ND < 0.01	0.022	0.015	ND < 0.01	ND < 0.01	ND < 0.01
Iron, Total	mg/L	NA	0.140	0.440	0.120	0.110	0.560	0.160	0.14	0.260
Additoinal MNA Parameters										
Sulfide, Total	mg/L	NA	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2	ND < 2
Total Organic Carbon	mg/L	NA	5.7	5.5	5.6	5.6	6.1	5.8	5.7	5.6
Nitrate, Total	mg/L	NA	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03
Phosphorus, Total	mg/L	NA	0.058	0.082	0.058	0.073	0.300	0.068	0.072	0.070

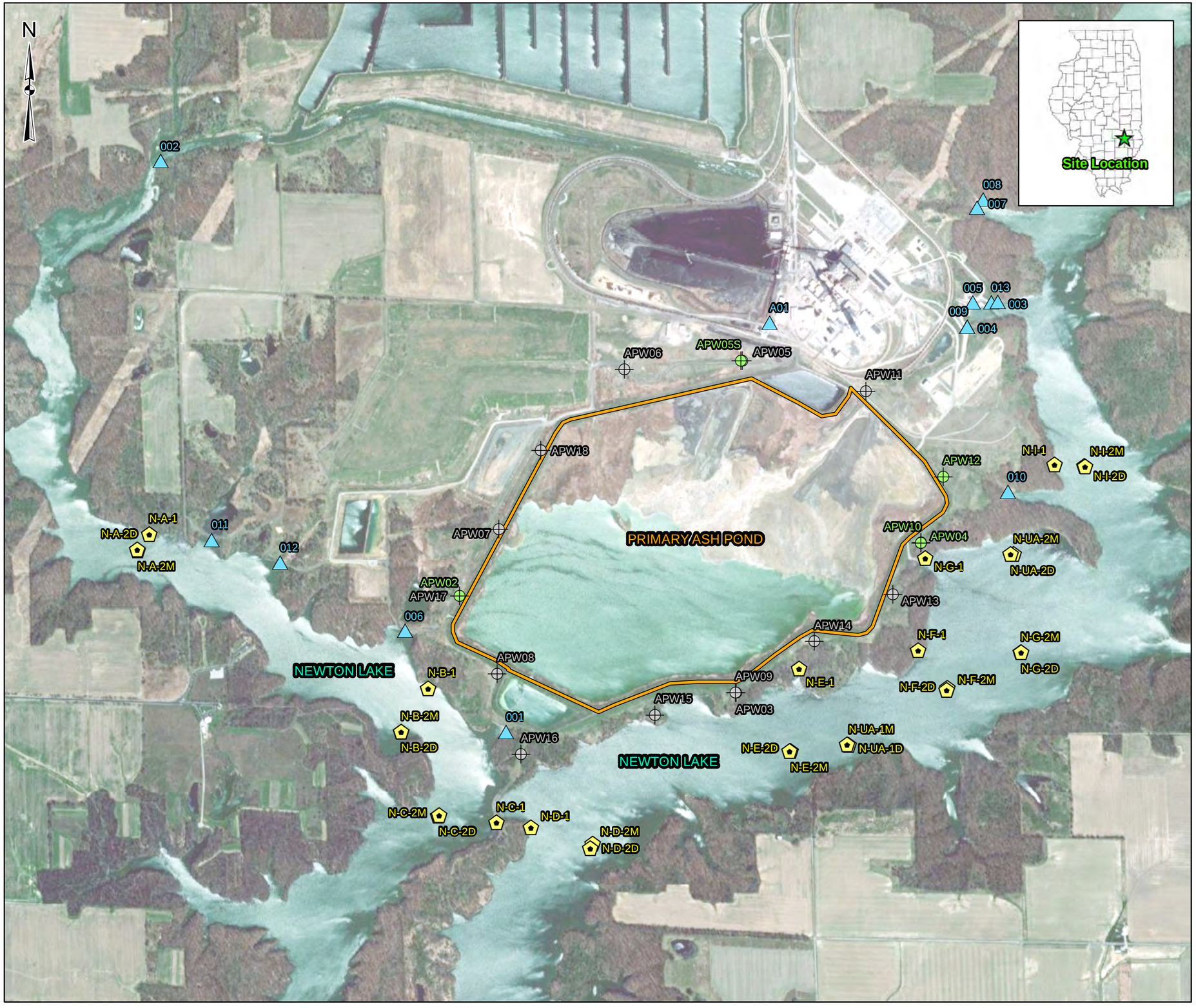
Notes:
1. Unit Abbreviations: °C - degrees celcius, µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, mV - millivolts, µS/cm - microsiemens per centimeter, NTU - nephelometric turbidity unit, pCi/L - picocuries per liter, FT BLE - feet below lake elevation.
2. ND - Non Detects. NDs reported as less than the Method Detection Limit (MDL) or adjusted Practical Quanitation Limit (PQL) basd on data validation.
3. Radium (226 + 228) is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
4. J - Flags are estimated values based on data validation.
5. Site Groundwater Protection Standards (GWPS) from Table 3-1, Background Groundwater Quality Standards from the Newton Groundwater Monitoring Plan.
6. For pH, the values represent the upper / lower limits. Values outside of these values represents a statistical exceedance.
7. No values are present above the Site GWPS, therefore, no highlighting is used in the table.

Table 1
Newton Lake Surface Water Sampling Results
Newton Power Plant
Jasper County, Illinois

Analyte	Units	Site GWPS	N-UA-1M	N-UA-1D	N-UA-2M	N-UA-2D
Field Parameters						
Dissolved Oxygen	mg/L	NA	6.38	2.00	7.22	0.25
Redox Potential	mV	NA	-27.0	-50.6	-14.8	-32.0
Specific Conductance	µS/cm	NA	273	275.70	276.9	280.8
Temperature	°C	NA	24.9	24.6	24.2	24.0
Turbidity	NTU	NA	8.71	28.5	12.2	26.8
Sample Depth	FT BLE	NA	11.2	22.4	8.9	17.8
Part 845 Constituents						
Antimony, Total	mg/L	0.006	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Total	mg/L	0.059	0.0018	0.0023	0.0022	0.0034
Barium, Total	mg/L	2	0.064	0.052	0.073	0.210
Beryllium, Total	mg/L	0.004	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Total	mg/L	2	0.11	0.12	0.13	0.13
Cadmium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Total	mg/L	NA	19	21	21	22
Chloride, Total	mg/L	200	8.8	8.8	9.4	9.0
Chromium, Total	mg/L	0.1	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Total	mg/L	0.006	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Fluoride, Total	mg/L	4	0.421	0.406	0.490	0.347
Lead, Total	mg/L	0.0075	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Total	mg/L	0.04	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Total	mg/L	0.002	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Total	mg/L	0.1	0.0046	0.0051	0.0054	0.0054
pH	SU	6.4 - 9.0	8.15	7.39	9.86	7.56
Radium (226 + 228)	pCi/L	6.9	0.464 J	ND	1.17 J	0.502 J
Selenium, Total	mg/L	0.005	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Sulfate, Total	mg/L	400	36	35	39	39
Thallium, Total	mg/L	0.002	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Total Dissolved Solids	mg/L	1200	170	170	170	190
Dissolved Metals						
Antimony, Dissolved	mg/L	NA	ND < 0.003	ND < 0.003	ND < 0.003	ND < 0.003
Arsenic, Dissolved	mg/L	NA	0.0017	0.0030	0.0018	0.0022
Barium, Dissolved	mg/L	NA	0.065	0.150	0.063	0.062
Beryllium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Boron, Dissolved	mg/L	NA	0.14	0.14	0.14	0.14
Cadmium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Calcium, Dissolved	mg/L	NA	22	22	22	22
Chromium, Dissolved	mg/L	NA	ND < 0.004	ND < 0.004	ND < 0.004	ND < 0.004
Cobalt, Dissolved	mg/L	NA	ND < 0.002	ND < 0.002	ND < 0.002	ND < 0.002
Lead, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Lithium, Dissolved	mg/L	NA	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.02
Mercury, Dissolved	mg/L	NA	ND < 0.0002	ND < 0.0002	ND < 0.0002	ND < 0.0002
Molybdenum, Dissolved	mg/L	NA	0.0057	0.005	0.0054	0.0053
Selenium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Thallium, Dissolved	mg/L	NA	ND < 0.001	ND < 0.001	ND < 0.001	ND < 0.001
Iron Speciation						
Ferric Iron	mg/L	NA	ND < 0.21	0.45	ND < 0.21	ND < 0.21
Ferrous Iron	mg/L	NA	ND < 0.20	ND < 0.20	ND < 0.20	ND < 0.20
Additional Major Cations/Anions						
Alkalinity, Bicarbonate	mg/L	NA	75	75	50	75
Alkalinity, Carbonate	mg/L	NA	ND < 10	ND < 10	25	ND < 10
Sodium, Dissolved	mg/L	NA	21	20	21	21
Sodium, Total	mg/L	NA	20	21	20	20
Magnesium, Dissolved	mg/L	NA	5.6	5.7	5.7	5.7
Magnesium, Total	mg/L	NA	5.0	5.6	5.4	5.6
Potassium, Dissolved	mg/L	NA	6.0	5.9	5.9	6.0
Potassium, Total	mg/L	NA	5.6	6.1	5.9	5.9
Manganese, Dissolved	mg/L	NA	ND < 0.001	0.390	ND < 0.001	0.120
Manganese, Total	mg/L	NA	0.058	0.280	0.052	0.330
Iron, Dissolved	mg/L	NA	0.014	0.45	ND < 0.01	0.019
Iron, Total	mg/L	NA	0.130	0.027	0.140	0.700
Additoinal MNA Parameters						
Sulfide, Total	mg/L	NA	ND < 2	ND < 2	ND < 2	ND < 2
Total Organic Carbon	mg/L	NA	5.9	5.6	5.9	5.3
Nitrate, Total	mg/L	NA	ND < 0.03	ND < 0.03	ND < 0.03	ND < 0.03
Phosphorus, Total	mg/L	NA	ND < 0.05	ND < 0.05	0.068	0.120

Notes:
1. Unit Abbreviations: °C - degrees celcius, µg/L - micrograms per liter, mg/L - milligrams per liter, SU - standard units, mV - millivolts, µS/cm - microsiemens per centimeter, NTU - nephelometric turbidity unit, pCi/L - picocuries per liter, FT BLE - feet below lake elevation.
2. ND - Non Detects. NDs reported as less than the Method Detection Limit (MDL) or adjusted Practical Quanitation Limit (PQL) basd on data validation.
3. Radium (226 + 228) is reported as the sum of the Radium 226 and the Radium 228 activity concentrations unless the sum of the Radium 226 and Radium 228 Minimum Detectable Concentrations (MDC) is higher in which case it is displayed as ND.
4. J - Flags are estimated values based on data validation.
5. Site Groundwater Protection Standards (GWPS) from Table 3-1, Background Groundwater Quality Standards from the Newton Groundwater Monitoring Plan.
6. For pH, the values represent the upper / lower limits. Values outside of these values represents a statistical exceedance.
7. No values are present above the Site GWPS, therefore, no highlighting is used in the table.

Figures



LEGEND

- Surface Water Sampling Location
- Part 845 Wells With No Potential Exceedances
- Part 845 Wells With Potential Exceedances
- NPDES Outfall Locations
- Primary Ash Pond

0 500 1,000 2,000 3,000

Feet

NOTE(S)

1. LOCATIONS FOR SURFACE WATER SAMPLES WERE OBTAINED DURING SAMPLING USING A TRIMBLE GEO7X UNIT.
2. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
3. NPDES - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM.

REFERENCE(S)

1. RAMBOLL 2021. GROUNDWATER MONITORING PLAN, PRIMARY ASH POND, NEWTON POWER PLANT, NEWTON ILLINOIS.
2. RAMBOLL 2021. TABLE 2 SUMMARY OF POTENTIAL EXCEEDANCES.
3. NPDES PERMIT NO. IL0049191.

CLIENT
ILLINOIS POWER GENERATING COMPANY
NEWTON POWER PLANT

PROJECT
MONITORED NATURAL ATTENUATION EVALUATION

TITLE
NEWTON LAKE SURFACE WATER SAMPLING LOCATIONS

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	11/23/2021
DESIGNED	JSI
PREPARED	ETF
REVIEWED	BTT
APPROVED	PJB

PROJECT NO.
21454831

FIGURE
1

PATH: C:\Users\EVFlorrey\Golder Associates\21454831, Vistra IL MNA Part 845 Support - 5 Technical Work\Phase4 - Newton\4.11-Figures\SW-Work\plan\SW Tech Memo\20210802_F1-MPP-SWLocations.mxd PRINTED ON: 2021-11-23 AT 5:10:10 PM

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

APPENDIX A

Surface Water Sampling Field Forms

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 75°F Weather Clear

SAMPLE INFORMATION

Sample Location N-A-1 Sample No. N-A-1
Sample Date 10/4/21 Time 1115 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear, Some light colored suspended solids
Depth to Bottom of Lake: 0.9 ft
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1113	
~~Volume Discharged~~	gals		(ES)
pH	Standard	8.86	
Spec. Cond.	µS/CM	273.6	
Turbidity	NTU	14.7	
Temperature	°C	27.8	
Dissolved Oxygen	mg/l	7.65	
Redox Potential	+/- mV	-15.8	

Northing: 823551.51
Easting: 991516.56
Elevation: 397.83

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1 x 250mL Plastic	NO	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	500mL Plastic	No	2N Acetate/NaOH
5	Nitrate	1x500mL Plastic	No	None
6	Total Organic Carbon	3 x 40mL Glass	No	H_2SO_4
7	Phosphorus	1 x 250mL Plastic	No	HNO_3
8	Radium 226 & 228 1x2.5L Plastic	~~2x 1L Plastic~~ (84)	No	HNO_3
9	Ferrous/Ferric Iron	1L Plastic	~~NO~~ Yes (85)	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831

WEATHER CONDITIONS

Temperature 80's Weather clear

SAMPLE INFORMATION

Sample Location N-A-7M Sample No. N-A-7M
Sample Date 10/14/21 Time 1130 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Some ~~Slight~~ Light Suspended Solids
Depth to Bottom of Lake: TD= 6.8ft Sample Collected from 3.0ft.
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1129	
~~Volume Discharged~~	~~gals~~		(E8)
pH	Standard	8.85	
Spec. Cond.	µS/CM	274.6	
Turbidity	NTU	12.3	
Temperature	°C	27.3	
Dissolved Oxygen	mg/l	6.21	
Redox Potential	+/- mV	-41.3	

Northing: 823349.12
Easting: 991361.00
Elevation: 398.13

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1x500mL Plastic	No	Zn Acetate/NaOH
5	Nitrate	1x500mL Plastic	No	None
6	Total Organic Carbon	3x40mL Glass	No	H_2SO_4
7	Phosphorus	1x250mL Plastic	No	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	No	HNO_3
9	Ferrous/Ferric Iron	1x1L Plastic	~~No~~ Yes (E8)	None

REMARKS: M.S Sample Collected @ 3.0ft

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 75°F Weather Clear

SAMPLE INFORMATION

Sample Location N-A-2D Sample No. N-A-2D
Sample Date 10/4/21 Time 1150 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Some light Suspended Solids
Depth to Bottom of Lake: ~~Dry~~ 6.8 FT
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1148	
Volume ~~Discharged~~	gals		
pH	Standard	8.40	
Spec. Cond.	µ S/CM	275.7	
Turbidity	NTU	39.4	
Temperature	°C	25.6	
Dissolved Oxygen	mg/l	5.11	
Redox Potential	+/- mV	-26.4	

Northing: 823360.55N
Easting: 661358.02
Elevation: 397.44

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1x500mL Plastic	No	Zn Acetate / NaOH
5	Nitrate	1x 500mL Plastic	(Yes) No	None
6	Total Organic Carbon	3x40mL Plastic	Glass No	H_2SO_4
7	Phosphorus	1x250mL Plastic	No	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	No	HNO_3
9	Ferrous/Ferric Iron	1x1L Plastic	No Yes (FE)	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.000 BH

WEATHER CONDITIONS

Temperature 75°F Weather Clear

SAMPLE INFORMATION

Sample Location N-B-1 Sample No. N-B-1
Sample Date 10/14/21 Time ~~08:30~~ 0935 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Some light Suspended Solids
Depth to Bottom of Lake: 1.23ft.
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0936	
~~Volume Discharged~~	gals		
pH	Standard	8.41	
Spec. Cond.	µS/CM	278.6	
Turbidity	NTU	9.51	
Temperature	°C	27.6	
Dissolved Oxygen	mg/l	4.82	
Redox Potential	+/- mV	-6.7	

Northing: 821513.08
Easting: 995048.22
Elevation: 408.15

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1	1	Zn Acetate / NaOH
5	Nitrate	1	1	None
6	Total Organic Carbon	3x40mL Glass Vials	1	H_2SO_4
7	Phosphorus	1x250mL Plastic	1	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	1	HNO_3
9	Ferrous/Ferric Iron	1x 1L Plastic	1 Yes	None

REMARKS: N-DUP-1 Collected @ 1000
Mapped location Full of Algae unable to Sample in exact spot. Sample location ~ 6ft offshore

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation **Project No. : 21454831.0004**

WEATHER CONDITIONS

Temperature 70's Weather Clear

SAMPLE INFORMATION

Sample Location N-B-2M Sample No. N-B-2M

Sample Date 10/4/21 Time 1035 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear-Colorless 700

Depth to Bottom of Lake: ~~17.7ft~~ 14.0ft ~~0.3~~ = M.d depth

Other Water Sample notes: ~~Collected at NA~~

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1032	
~~Volume Discharged~~	~~gals~~		
pH	Standard	7.39	
Spec. Cond.	µS/CM	288.9	
Turbidity	NTU	10.1	
Temperature	°C	25.3	
Dissolved Oxygen	mg/l	0.38	
Redox Potential	+/- mV	-20.6	

Northing: 820964.99
Easting: 994684.04
Elevation: 400.56

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		HNO_3
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: ~~#~~ 2 Mid + Deep Samples Collected at Same location (Different depths

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 70's Weather Clear

SAMPLE INFORMATION

Sample Location N-B-2D Sample No. N-B-2D
Sample Date 10/4/21 Time 1045 Sample By RMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear Colorless
Depth to Bottom of Lake: 14.0 Ft
Other Water Sample notes: N/A

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1043	
~~Volume Discharged~~	~~gals~~		
pH	Standard	7.14	
Spec. Cond.	M S/CM	287.2	
Turbidity	NTU	13.6	
Temperature	°C	24.8	
Dissolved Oxygen	mg/l	0.38	
Redox Potential	+/- mV	-79.9	

Northing: 820964.99
Easting: 994684.04
Elevation: 400.56

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate / NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		HNO_3
9	Ferrous/Ferric Iron	1x1L Plastic	* Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation **Project No. : 21454831.0054**

WEATHER CONDITIONS

Temperature 70°F Weather clear

SAMPLE INFORMATION

Sample Location N-C-1 Sample No. N-C-1

Sample Date 10/4/2021 Time 0815 Sample By EMS/SSI

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear - little turbidity

Depth to Bottom of Lake: 1.1 Ft

Other Water Sample notes: N/A

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0810	
~~Volume Discharged~~	~~gals~~		
pH	Standard	8.13	
Spec. Cond.	µS/CM	2835	
Turbidity	NTU	50.4	
Temperature	°C	27.5	
Dissolved Oxygen	~~mg/l~~	~~6.5~~ 5.05	
Redox Potential	+/- mV	-23.2	

Northing: 819~~78~~96

Easting: 995882.98

Elevation: 402.98

Depth: 1.1 ft

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	〃	〃	Zn Acetate/NaOH
5	Nitrate	〃	〃	None
6	Total Organic Carbon	3x40mL Glass	〃	H_2SO_4
7	Phosphorus	1x250mL Plastic	〃	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	〃	〃
9	Ferrous/Ferric Iron	1x 1L Plastic	~~No~~ Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.6008 4/7

WEATHER CONDITIONS

Temperature 70°F Weather clear

SAMPLE INFORMATION

Sample Location N-C-2M (mid) Sample No. N-C-2M
Sample Date 10/4/21 Time 0850 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear - Colorless (16.2 TD, 8.1 = M.d depth)
Depth to Bottom of Lake: ~~15.5~~, 1/2 depth = 7.75
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0847	
~~Volume Discharged~~	~~gals~~		
pH	Standard	7.59	
Spec. Cond.	µS/CM	276.9	
Turbidity	NTU	10.7	
Temperature	°C	25.1	
Dissolved Oxygen	mg/l	1.81	
Redox Potential	+/- mV	8.0	

Northing: 819879.30
Easting: ~~795~~139.02
Elevation: 904.69

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO3
2	Dissolved Metals	"	Yes	HNO3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	"	"	Zn Acetate / NaOH
5	Nitrate	"	"	None
6	Total Organic Carbon	1x250mL Plastic	"	H_2SO_4
7	Phosphorus (8)	3x40mL Glass	"	HNO3
8	Radium 226 & 228	1x2.5L Plastic	"	"
9	Ferrous/Ferric Iron	1x1L Plastic	~~Yes~~	None

REMARKS: M.d depth Sample Collected first

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation **Project No. : 21454831.0004**

WEATHER CONDITIONS

Temperature 70's Weather Clear

SAMPLE INFORMATION

Sample Location N-C-2D Sample No. N-C-2D

Sample Date 10/14/21 Time 0915 Sample By EMC

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear- Colorless

Depth to Bottom of Lake: 16.2 Ft

Other Water Sample notes: N/A - Collected AT 16.2 Ft BTOW

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0911	
~~Volume Discharged~~	~~gals~~		
pH	Standard	7.11	
Spec. Cond.	µS/CM	280.8	
Turbidity	NTU	20.1	
Temperature	°C	24.1	
Dissolved Oxygen	mg/l	0.17	
Redox Potential	+/- mV	-90.1	

Northing: 819886.9
Easting: 995146.04
Elevation: 404.14

819872.07
995134.92

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	HNO_3
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x 2.5L Plastic		2
9	Ferrous/Ferric Iron	1x1L Plastic	~~No~~ Yes	None

REMARKS: Collected at Lake Bottom.

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831 .0004

WEATHER CONDITIONS

Temperature ~~N-D+~~ 70's (ES) Weather ~~N-D-1~~ (ES) Clear - pt Cloudy

SAMPLE INFORMATION

Sample Location N-D1 Sample No. N-D-1

Sample Date 10/4/2021 Time 1335 Sample By BMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear-Colorless / Some light Suspended Solids

Depth to Bottom of Lake: 2.70

Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1532	
Volume Discharged	gals		
pH	Standard	7.49	8.49
Spec. Cond.	µ S/CM	2.2	277.5
Turbidity	NTU		11.6
Temperature	°_C__	27.2	24.8
Dissolved Oxygen	mg/l	4.70	7.08
Redox Potential	+/- mV	12.3	-9.9

(ES)

(ES) Northing: ~~814707.644~~

Easting: ~~916327.98~~ 916327.98

Elevation: ~~426.20~~ (ES) 397.30

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL plastic	No	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL plastic	No	None
4	Sulfide	1	1	Zn Acetate/NaOH
5	Nitrate	1	1	None (ES)
6	Total Organic Carbon	3x40mL Glass	1	~~HNO_3~~ H_2SO_4
7	Phosphorus	1x250mL Plastic	1	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	1	1
9	Ferrous/Ferric Iron	1x1L Plastic	*Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831. 0004

WEATHER CONDITIONS

Temperature 80's Weather Clear

SAMPLE INFORMATION

Sample Location N-D-2M Sample No. N-D-2M
Sample Date 10/4/21 Time 1305 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear - Colorless Some light Suspended Solids
Depth to Bottom of Lake: 23.20 Midpoint = 11.60 FT
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1300	
~~Volume Discharged~~	gals		
pH	Standard	8.03	
Spec. Cond.	µS/CM	273.9	
Turbidity	NTU	8.17	
Temperature	°C	24.3	
Dissolved Oxygen	mg/l	5.67	
Redox Potential	+/- mV	11.6	

Northing: 919480.36
Easting: 997107.36
Elevation: 385.159

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL plastic	No	HNO_3
2	Dissolved Metals	⊥	Yes	⊥
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	⊥	⊥	2N Acetate/NaOH
5	Nitrate	⊥	⊥	None
6	Total Organic Carbon	3x 40mL Glass	⊥	H_2SO_4
7	Phosphorus	1x250mL Plastic	⊥	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	⊥	⊥
9	Ferrous/Ferric Iron	2x 1L Plastic	~~No~~ Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 70's Weather Overcast

SAMPLE INFORMATION

Sample Location N-D-2D Sample No. N-D-2D

Sample Date 10/4/21 Time 1318 Sample By EMS/JSF

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear-Colorless

Depth to Bottom of Lake: 23.20

Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1316	
~~Volume Discharged~~	~~gals~~	~~[illegible]~~	
pH	Standard	~~7.87~~ → 7.17	
Spec. Cond.	µS/CM	276.0	
Turbidity	NTU	10.9	
Temperature	°C	23.7	
Dissolved Oxygen	mg/l	0.19	
Redox Potential	+/- mV	-84.3	

Northing: 819423.94
Easting: 997075.24
Elevation: 400.61

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1	1	ZN Acetate/NaOH
5	Nitrate	1	1	None
6	Total Organic Carbon	3x 40mL Glass		H2SO4
7	Phosphorus	1x250mL Plastic		HNO3
8	Radium 226 & 228	2x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	~~No~~ Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831, 0003/4

WEATHER CONDITIONS

Temperature 80's Weather Clear

SAMPLE INFORMATION

Sample Location N-E-1 Sample No. N-E-1
Sample Date 10/4/21 Time 1400 Sample By EMS/JSI
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear-Colorless Some Suspended Solids
Depth to Bottom of Lake: 2.5 Ft
Other Water Sample notes: N/A

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1358	
~~Volume Discharged~~	gals		
pH	Standard	8.98	
Spec. Cond.	µS/CM	271.7	
Turbidity	NTU	14.1	
Temperature	°C	25.1	
Dissolved Oxygen	mg/l	9.27	
Redox Potential	+/- mV	-28.5	

Northing: 821667.87
Easting: 899789.26
Elevation: 385.63

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	NO	HNO3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: Algae Present in area of Sample Collection
N-FB-1 taken @ 1410

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.6004

WEATHER CONDITIONS

Temperature 70's Weather Clear

SAMPLE INFORMATION

Sample Location N-E-2M Sample No. N-E-2M

Sample Date 10/4/21 Time 1435 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: ~~Light~~ Clear-Colorless

Depth to Bottom of Lake: 22.4 11.2 is midpoint

Other Water Sample notes: NNA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1434	
~~Volume Discharged~~	~~gals~~		
pH	Standard	8.33	
Spec. Cond.	µS/CM	273.37	
Turbidity	NTU	7.83	
Temperature	°C	24.7	
Dissolved Oxygen	mg/l	6.24	
Redox Potential	+/- mV	-15.1	

Northing: 820614.18
Easting: 994661.17
Elevation: 396.60

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x 40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x 1L Plastic	Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 70's Weather Pt Cloudy

SAMPLE INFORMATION

Sample Location N-E-2D Sample No. N-E-2D
Sample Date 10/4/21 Time 1455 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear Colorless
Depth to Bottom of Lake: 22.4
Other Water Sample notes: N/A

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1453	
Volume Discharged	gals		
pH	Standard	7.31	
Spec. Cond.	µS/CM	276.3	
Turbidity	NTU	17.2	
Temperature	°C	24.3	
Dissolved Oxygen	mg/l	1.21	
Redox Potential	+/- mV	-45.6	

Northing: 820616.37
Easting: 999648.73
Elevation: 399.80

820618.25
999653.81
401.23

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 75 Weather Clear - pty

SAMPLE INFORMATION

Sample Location N-F-1 Sample No. N-F-1
Sample Date 10/4/21 Time 1610 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear - slightly turbid
Depth to Bottom of Lake: 1.42
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1608	
~~Volume Discharged~~	~~gals~~		
pH	Standard	8.91	
Spec. Cond.	µS/CM	270.9	
Turbidity	NTU	12.4	
Temperature	°_C__	26.4	
Dissolved Oxygen	mg/l	8.24	
Redox Potential	+/- mV	-71.2	

Northing: 821872.37
Easting: 1001317.18
Elevation: 407.05

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	2
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1	1	ZnAcetate/NaOH
5	Nitrate			None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic	(Yes)	None HNO_3
8	Radium 226 & 228	1x2.5L Plastic		2
9	Ferrous/Ferric Iron	1x1L Plastic	~~No~~ Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

SURFACE WATER SAMPLE COLLECTION FORM

GOLDER
MEMBER OF WSP

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 75°F Weather Pt Cloudy

SAMPLE INFORMATION

Sample Location N-F-2M Sample No. N-F-2M
Sample Date 10/4/21 Time 1630 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear Some Suspended Solids
Depth to Bottom of Lake: 19.1 Sample Collected @ 9.6
Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1629	
~~Volume Discharged~~	~~gals~~		
pH	Standard	~~8.20~~ (ES) 8.75	
Spec. Cond.	µ S/CM	~~271.6~~ (ES) 272.6	
Turbidity	NTU	10.2	
Temperature	°C	~~24.1~~ (ES) 24.8	
Dissolved Oxygen	mg/l	6.29	
Redox Potential	+/- mV	-1.5	

Northing: 821378.62
Easting: 1101684.37
Elevation: 379.13

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate			None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	No Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831 , 0004

WEATHER CONDITIONS

Temperature 75°F Weather Clear

SAMPLE INFORMATION

Sample Location N-F-2D Sample No. N-F-2D

Sample Date 10/4/21 Time 1655 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Slightly turbid Some fine Suspended Solids

Depth to Bottom of Lake: 19.1 FT

Other Water Sample notes: None, Turbidity final = 16.1

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1650	
Volume Discharged	gals		
pH	Standard	8.12	
Spec. Cond.	µ S/CM	277.7	
Turbidity	NTU	27.3	
Temperature	°C	24.6	
Dissolved Oxygen	mg/l	5.15	
Redox Potential	+/- mV	-16.1	

Northing: 821357.41
Easting: 1001675.19
Elevation: 398.14

Turbidity after ~ 5 minutes at 16.1 NTU

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	〃		Zinc Acetate/NaOH
5	Nitrate	〃		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		〃
9	Ferrous/Ferric Iron	1x1L Plastic	~~Yes~~	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65 °F Weather Sunny

SAMPLE INFORMATION

Sample Location NG-1 Sample No. ~~N-NG-1~~ ~~N-6~~ N-G-1 (EB)

Sample Date 10/5/2021 Time 0805 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: clear colorless

Depth to Bottom of Lake: 2.7 ft

Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0805	
Volume Discharged	gals	—	
pH	Standard	7.92	
Spec. Cond.	µ S/CM	276.7	
Turbidity	NTU	8.85	
Temperature	°C	24.0	
Dissolved Oxygen	mg/l	7.97	
Redox Potential	+/- mV	-97.8	

Northing: 823046.67
Easting: 1001433.50
Elevation: 398.49

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	NO	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	NO	None
4	Sulfide	1		ZN Acetate/NaOH
5	Nitrate			None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: Collect MS/MSD

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65°F Weather Foggy / Overcast

SAMPLE INFORMATION

Sample Location N-GW-2M Sample No. N-GW-2M
Sample Date 10-5-21 Time 0845 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless
Depth to Bottom of Lake: 17.1 ft TD, mid point Sample = 8.6 FT
Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	24.1	
Volume Discharged	gals	—	
pH	Standard	9.12	
Spec. Cond.	µ S/CM	277.3	
Turbidity	NTU	6.71	
Temperature	°C	24.1	
Dissolved Oxygen	mg/l	7.09	
Redox Potential	+/- mV	54.2	

Northing: 821818.75
Easting: 1002624
Elevation: 398.79

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	〃	〃	2x Acetate/NaOH
5	Nitrate	〃	〃	None
6	Total Organic Carbon	3x40mL Glass	〃	H2SO4
7	Phosphorus	1x250mL Plastic	〃	HNO3
8	Radium 226 & 228	1x2.5L Plastic	〃	2
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: NA

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65°F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-G-2 Sample No. N-G-2D
Sample Date 10/5/2021 Time 0900 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless
Depth to Bottom of Lake: 17.1 ft
Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	~~23.7~~ 0900	
Volume Discharged	gals	—	
pH	Standard	~~8.38~~ 7.97	
Spec. Cond.	µS/CM	280.4	
Turbidity	NTU	25.0	
Temperature	°C	23.7	
Dissolved Oxygen	mg/l	0.59	
Redox Potential	+/- mV	7.9	

Northing: 821815.77
Easting: 1002633.83
Elevation: 397.94

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1x250mL Plastic	Yes	↓
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	↓	↓	Zn Acetate / NaOH
5	Nitrate	↓	↓	None
6	Total Organic Carbon	3x40mL Glass	↓	H_2SO_4
7	Phosphorus	1x250mL Plastic	↓	HNO_3
8	Radium 226 & 228	1x 2.5L Plastic	↓	↓
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: NA

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65°F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-I-1 Sample No. N-I-1
Sample Date 10-5-2024 Time 1000 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless
Depth to Bottom of Lake: 2 ft
Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	100	
Volume Discharged	gals	~~24~~	
pH	Standard	6.16	
Spec. Cond.	µS/CM	275.7	
Turbidity	NTU	9.43	
Temperature	°C	24.1	
Dissolved Oxygen	mg/l	7.84	
Redox Potential	+/- mV	-6.8	

Northing: 824210.31
Easting: 1003108.04
Elevation: ~~404.5~~ 404.6 ft HTE

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	"	Yes	"
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	"		2N Acetic/NaOH
5	Nitrate	"		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic	"	"
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: NA

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65°F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-I-2 Sample No. N-I-2M

Sample Date 10/5/2021 Time 1030 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless

Depth to Bottom of Lake: 13.6 FT = TD Midpoint = Sample = 6.8 FT

Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1030	
Volume Discharged	gals	—	
pH	Standard	9.02	
Spec. Cond.	µS/CM	276.6	
Turbidity	NTU	11.0	
Temperature	°C	24.2	
Dissolved Oxygen	mg/l	7.48	
Redox Potential	+/- mV	-31.8	

Northing: 824183.71
Easting: 1003493.68
Elevation: 3962 ft HAE

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	〃	〃	Zn Acetate / NaOH
5	Nitrate	〃	〃	None
6	Total Organic Carbon	3x40mL Glass	〃	H2SO4
7	Phosphorus	1x250mL Plastic	〃	HNO3
8	Radium 226 & 228	1x2.5L Plastic	〃	〃
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: NA

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831.0004

WEATHER CONDITIONS

Temperature 65 70°F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-I-2 Sample No. N-I-2D
Sample Date 10/5/2021 Time 1045 Sample By EMS
Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless
Depth to Bottom of Lake: 13.6 ft
Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1045	
Volume Discharged	gals	—	
pH	Standard	8.82	
Spec. Cond.	µS/CM	277.3	
Turbidity	NTU	13.9	
Temperature	°C	24.2	
Dissolved Oxygen	mg/l	6.98	
Redox Potential	+/- mV	140	

Northing: 824176.70
Easting: 1003501.16
Elevation: 401.59 ft HAE

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	1	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate/NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic	1	1
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: NA

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation **Project No. : 21454831.0004**

WEATHER CONDITIONS

Temperature 70's Weather Clear - Overcast

SAMPLE INFORMATION

Sample Location N-UA-1M Sample No. N-UA-1M

Sample Date 10/5/21 Time 1520 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear Colorless

Depth to Bottom of Lake: 22.4 Sampled 11.2

Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	1526	
~~Volume Discharged~~	gals		
pH	Standard	8.15	
Spec. Cond.	µS/CM	2730	
Turbidity	NTU	8.71	
Temperature	°C	24.9	
Dissolved Oxygen	mg/l	6.38	
Redox Potential	+/- mV	-27.0	

Northing: 820676.28
Easting: 1000407.42
Elevation: 405.67

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	NO	HNO_3
2	Dissolved Metals	2	Yes	1
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	1		Zn Acetate / NaOH
5	Nitrate	1		None
6	Total Organic Carbon	3x40mL Glass		H_2SO_4
7	Phosphorus	1x250mL Plastic		HNO_3
8	Radium 226 & 228	1x2.5L Plastic		1
9	Ferrous/Ferric Iron	1x1L Plastic	↓	None

REMARKS: Searched for Deepest Point in Proposed Sample Area - 22.4 ft was deepest.

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831, 0004

WEATHER CONDITIONS

Temperature 75° Weather Clear/Pt Cloudy

SAMPLE INFORMATION

Sample Location N- UA-1D Sample No. N-UA-1D

Sample Date 10/4/21 Time 1550 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear - lightly turbid

Depth to Bottom of Lake: 22.4

Other Water Sample notes: None

FIELD MEASUREMENTS

Turbid. Ended. 14.8

Parameter	Units	Measurement	Sample
Time	hhmm	1545	
Volume Discharged	gals		
pH	Standard	7.39	
Spec. Cond.	µS/CM	275.7	
Turbidity	NTU	28.5	
Temperature	°C	24.6	
Dissolved Oxygen	mg/l	2.00	
Redox Potential	+/- mV	-50.6	

Northing: 820684.47
Easting: 1005875
Elevation: 405.32

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	〃	〃	Zn Acetate/NaOH
5	Nitrate	〃	〃	None
6	Total Organic Carbon	3x40mL Glass	〃	H_2SO_4
7	Phosphorus	1x250mL Plastic	〃	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	〃	〃
9	Ferrous/Ferric Iron	1x1L Plastic	〃	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation Project No. : 21454831 . 0004

WEATHER CONDITIONS

Temperature 65'F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-UA-2 Sample No. N-UA-2M

Sample Date 10-5-2021 Time 0925 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear-Colorless

Depth to Bottom of Lake: 17.8 ft Sample at 8.9 ft

Other Water Sample notes: None

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0925	
Volume Discharged	gals	—	
pH	Standard	9.86	
Spec. Cond.	µ S/CM	276.9	
Turbidity	NTU	12.2	
Temperature	°C	24.2	
Dissolved Oxygen	mg/l	7.22	
Redox Potential	+/- mV	-14.8	

Northing: 823072.73
Easting: 1002564.04
Elevation: 400.80

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	~~No~~	HNO_3
2	Dissolved Metals	〃	Yes	〃
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	Ware
4	Sulfide	〃	〃	Zn Acetate/NaOH
5	Nitrate	〃	〃	None
6	Total Organic Carbon	#3x40mL Glass	〃	H_2SO_4
7	Phosphorus	1x250mL Plastic	〃	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	〃	〃
9	Ferrous/Ferric Iron	1x1L Plastic	~~No~~ Yes	Ware

REMARKS: None

NA = Not applicable

SAMPLING METHODS:

Bailer: Other: Peristaltic Pump

GOLDER
MEMBER OF WSP

SURFACE WATER SAMPLE COLLECTION FORM

Project Ref: Surface Water Sampling - Kincaid & Newton - MNA Evaluation **Project No. : 21454831.0004**

WEATHER CONDITIONS

Temperature 65°F Weather Cloudy

SAMPLE INFORMATION

Sample Location N-UA-2 Sample No. N-UA-2D

Sample Date 10-5-2021 Time 0940 Sample By EMS

Sample Method Peristaltic Sample Type GRAB

Appearance of Sample: Clear & Colorless

Depth to Bottom of Lake: 17.8 ft

Other Water Sample notes: NA

FIELD MEASUREMENTS

Parameter	Units	Measurement	Sample
Time	hhmm	0940	
Volume Discharged	gals	—	
pH	Standard	7.56	
Spec. Cond.	µ S/CM	280.8	
Turbidity	NTU	26.8	
Temperature	°C	24.0	
Dissolved Oxygen	mg/l	0.25	
Redox Potential	+/- mV	-32.0	

Northing: 823072.66
Easting: 1002526.33
Elevation: 401.80

LABORATORY CONTAINERS

Sub-Sample	Analysis Requested	Type and Size of Sample Container	Filtered (Yes or No)	Type of Preservative
1	Total Metals	1x250mL Plastic	No	HNO_3
2	Dissolved Metals	↓	Yes	↓
3	Chloride Fluoride Sulfate TDS Alkalinity	1x500mL Plastic	No	None
4	Sulfide	↓	↓	ZN Acetate/NaOH
5	Nitrate	↓	↓	None
6	Total Organic Carbon	3x40mL Glass	↓	~~HCl~~ H_2SO_4
7	Phosphorus	1x250mL Plastic	↓	HNO_3
8	Radium 226 & 228	1x2.5L Plastic	↓	↓
9	Ferrous/Ferric Iron	1x1L Plastic	Yes	None

REMARKS: None

NA = Not applicable

SAMPLING METHODS:
Bailer: Other: Peristaltic Pump

APPENDIX B

Laboratory Analytical Data

November 01, 2021

Jeffrey Ingram
Golder Associates, Inc
13515 Barrett Parkway Dr, Suite 260
Ballwin, MO 63021

RE: GOLDER VISTRA NEWTON

Dear Jeffrey Ingram:

Please find enclosed the **revised** analytical results for the **30** sample(s) the laboratory received on **10/5/21 4:30 pm** and logged in under work order **EJ00598**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Gail J Schindler

Project Manager
(309) 692-9688 x1716
gschindler@pdclab.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order EJ00598

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
NO	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
YES	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

ANALYTICAL RESULTS

Sample: EJ00598-01
Name: N-D-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0773 U	pCi/L			1	0.994	10/22/21 16:19		904.0 903.0

Sample: EJ00598-02
Name: N-A-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0119 U	pCi/L			1	0.936	10/22/21 16:19		904.0 903.0

Sample: EJ00598-03
Name: N-A-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.420 J	pCi/L			1	0.956	10/22/21 16:19		904.0 903.0

Sample: EJ00598-04
Name: N-A-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.534 J	pCi/L			1	0.946	10/22/21 16:19		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-05
Name: N-B-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.326 J	pCi/L			1	0.768	10/22/21 16:19		904.0 903.0

Sample: EJ00598-06
Name: N-B-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0308 U	pCi/L			1	0.803	10/22/21 16:19		904.0 903.0

Sample: EJ00598-07
Name: N-B-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0636 U	pCi/L			1	1.04	10/22/21 16:19		904.0 903.0

Sample: EJ00598-08
Name: N-C-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.713 J	pCi/L			1	0.856	10/22/21 16:19		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-09
Name: N-C-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.722 J	pCi/L			1	1.09	10/22/21 16:19		904.0 903.0

Sample: EJ00598-10
Name: N-F-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	1.63	pCi/L			1	0.859	10/22/21 16:19		904.0 903.0

Sample: EJ00598-11
Name: N-F-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.531 J	pCi/L			1	0.844	10/22/21 16:19		904.0 903.0

Sample: EJ00598-12
Name: N-UA-1D
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.370 U	pCi/L			1	0.918	10/22/21 16:19		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-13
Name: N-UA-1M
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:20
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.464 J	pCi/L			1	0.719	10/22/21 16:19		904.0 903.0

Sample: EJ00598-14
Name: N-E-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	1.75	pCi/L			1	0.756	10/22/21 16:19		904.0 903.0

Sample: EJ00598-15
Name: N-E-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0381 U	pCi/L			1	0.834	10/22/21 16:19		904.0 903.0

Sample: EJ00598-16
Name: N-E-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.252 U	pCi/L			1	0.869	10/22/21 16:19		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-17
Name: N-D-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.0987 U	pCi/L			1	0.914	10/22/21 16:19		904.0 903.0

Sample: EJ00598-18
Name: N-D-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:18
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.826	pCi/L			1	0.817	10/22/21 16:19		904.0 903.0

Sample: EJ00598-19
Name: N-C-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.231 U	pCi/L			1	0.871	10/22/21 16:19		904.0 903.0

Sample: EJ00598-20
Name: N-DUP-1
Matrix: Surface Water - Field Duplicate

Sampled: 10/04/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	1.49	pCi/L			1	1.26	10/22/21 13:00		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-21
Name: N-FB-1
Matrix: Surface Water - Field Blank

Sampled: 10/04/21 14:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.378 U	pCi/L			1	1.17	10/22/21 13:00		904.0 903.0

Sample: EJ00598-22
Name: N-I-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.926 J	pCi/L			1	0.935	10/22/21 13:00		904.0 903.0

Sample: EJ00598-23
Name: N-I-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	1.52	pCi/L			1	0.815	10/22/21 13:00		904.0 903.0

Sample: EJ00598-24
Name: N-I-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.109 U	pCi/L			1	0.875	10/22/21 13:00		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-25
Name: N-UA-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:40
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.502 J	pCi/L			1	0.83	10/22/21 13:00		904.0 903.0

Sample: EJ00598-26
Name: N-UA-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:25
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	1.17	pCi/L			1	0.768	10/22/21 13:00		904.0 903.0

Sample: EJ00598-27
Name: N-G-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	2.05	pCi/L			1	0.887	10/22/21 13:00		904.0 903.0

Sample: EJ00598-28
Name: N-G-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.404 J	pCi/L			1	0.873	10/22/21 13:00		904.0 903.0

ANALYTICAL RESULTS

Sample: EJ00598-29
Name: N-G-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.382 U	pCi/L			1	0.884	10/22/21 16:19		904.0 903.0

Sample: EJ00598-30
Name: N-F-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Miscellaneous - Pace Analytical - Mt Juliet, Tn									
Rad 226 and 228-Subcontract	0.534 J	pCi/L			1	0.866	10/22/21 13:00		904.0 903.0

ANALYTICAL RESULTS

ANALYTICAL RESULTS

Sample: EJ00598-01
Name: N-D-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/05/21 21:26	1	1.0	10/05/21 21:26	CRD	EPA 300.0 REV 2.1
Fluoride	0.398	mg/L		10/05/21 21:26	1	0.250	10/05/21 21:26	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 21:26	1	0.03	10/05/21 21:26	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/05/21 21:44	25	25	10/05/21 21:44	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L	M	10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.5	mg/L		10/06/21 17:32	1	0.50	10/06/21 17:32	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:39	1	0.20	10/12/21 14:39	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:39	5	0.21	10/13/21 08:58	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 08:58	JMW	EPA 6020A
Arsenic, Dissolved	1.9	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:32	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 08:58	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 08:58	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 08:58	JMW	EPA 6020A
Iron, Dissolved	27	ug/L		10/12/21 06:52	5	10	10/13/21 08:58	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Magnesium, Dissolved	5800	ug/L		10/12/21 06:52	5	100	10/13/21 08:58	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 08:58	JMW	EPA 6020A
Molybdenum, Dissolved	5.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 08:58	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 08:58	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-01
Name: N-D-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 08:58	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:27	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 13:45	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Barium	68	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 13:45	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.20	10/12/21 13:45	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 13:45	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 13:45	JMW	EPA 6020A
Iron	100	ug/L		10/07/21 13:28	5	10	10/12/21 13:45	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:45	JMW	EPA 6020A
Manganese	68	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 15:12	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Phosphorus	54	ug/L		10/07/21 13:28	5	50	10/12/21 13:45	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:45	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:45	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:45	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:13	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-02
Name: N-A-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.1	mg/L		10/05/21 22:02	1	1.0	10/05/21 22:02	CRD	EPA 300.0 REV 2.1
Fluoride	0.400	mg/L		10/05/21 22:02	1	0.250	10/05/21 22:02	CRD	EPA 300.0 REV 2.1
Nitrate-N	0.03	mg/L		10/05/21 22:02	1	0.03	10/05/21 22:02	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/05/21 22:20	25	25	10/05/21 22:20	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	62	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	240	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.4	mg/L		10/06/21 18:59	1	0.50	10/06/21 18:59	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:43	1	0.20	10/12/21 14:43	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:43	5	0.21	10/13/21 09:01	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:01	JMW	EPA 6020A
Arsenic, Dissolved	1.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Barium, Dissolved	67	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:35	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:01	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:01	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:01	JMW	EPA 6020A
Iron, Dissolved	10	ug/L		10/12/21 06:52	5	10	10/13/21 09:01	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:01	JMW	EPA 6020A
Manganese, Dissolved	29	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:01	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:01	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:01	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-02
Name: N-A-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:01	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:48	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 13:49	JMW	EPA 6020A
Arsenic	2.3	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Barium	82	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 13:49	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 13:28	5	0.20	10/12/21 13:49	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 13:49	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 13:49	JMW	EPA 6020A
Iron	1200	ug/L		10/07/21 13:28	5	10	10/12/21 13:49	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Magnesium	5.8	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:49	JMW	EPA 6020A
Manganese	160	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 13:49	JMW	EPA 6020A
Molybdenum	5.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Phosphorus	100	ug/L		10/07/21 13:28	5	50	10/12/21 13:49	JMW	EPA 6020A*
Potassium	6.3	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:49	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:49	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:49	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:16	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-03
Name: N-A-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/05/21 22:38	1	1.0	10/05/21 22:38	CRD	EPA 300.0 REV 2.1
Fluoride	0.389	mg/L		10/05/21 22:38	1	0.250	10/05/21 22:38	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 22:38	1	0.03	10/05/21 22:38	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/05/21 22:57	25	25	10/05/21 22:57	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	190	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.9	mg/L		10/06/21 19:17	1	0.50	10/06/21 19:17	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:43	1	0.20	10/12/21 14:43	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:43	5	0.21	10/13/21 09:05	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:05	JMW	EPA 6020A
Arsenic, Dissolved	2.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:39	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:05	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:05	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:05	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 09:05	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:05	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:05	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:05	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:05	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-03
Name: N-A-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:05	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:51	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 13:53	JMW	EPA 6020A
Arsenic	2.3	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Barium	69	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 13:53	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.20	10/12/21 13:53	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 13:53	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 13:53	JMW	EPA 6020A
Iron	270	ug/L		10/07/21 13:28	5	10	10/12/21 13:53	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Magnesium	5.7	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:53	JMW	EPA 6020A
Manganese	71	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 13:53	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Phosphorus	68	ug/L		10/07/21 13:28	5	50	10/12/21 13:53	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:53	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 13:53	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 13:53	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:28	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-04
Name: N-A-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/05/21 23:15	1	1.0	10/05/21 23:15	CRD	EPA 300.0 REV 2.1
Fluoride	0.394	mg/L		10/05/21 23:15	1	0.250	10/05/21 23:15	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 23:15	1	0.03	10/05/21 23:15	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 00:09	25	25	10/06/21 00:09	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.8	mg/L		10/06/21 19:35	1	0.50	10/06/21 19:35	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:44	1	0.20	10/12/21 14:44	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:44	5	0.21	10/13/21 09:08	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:08	JMW	EPA 6020A
Arsenic, Dissolved	1.9	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:43	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:08	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:08	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:08	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 09:08	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 09:08	JMW	EPA 6020A
Manganese, Dissolved	2.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:08	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:08	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:08	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-04
Name: N-A-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 11:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:08	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:53	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:08	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Barium	70	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:08	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:08	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:08	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:08	JMW	EPA 6020A
Iron	390	ug/L		10/07/21 13:28	5	10	10/12/21 14:08	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:08	JMW	EPA 6020A
Manganese	80	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:08	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Phosphorus	75	ug/L		10/07/21 13:28	5	50	10/12/21 14:08	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:08	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:08	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:08	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:30	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-05
Name: N-B-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.7	mg/L		10/06/21 00:28	1	1.0	10/06/21 00:28	CRD	EPA 300.0 REV 2.1
Fluoride	0.414	mg/L		10/06/21 00:28	1	0.250	10/06/21 00:28	CRD	EPA 300.0 REV 2.1
Nitrate-N	0.09	mg/L		10/06/21 00:28	1	0.03	10/06/21 00:28	CRD	EPA 300.0 REV 2.1
Sulfate	36	mg/L		10/06/21 00:46	25	25	10/06/21 00:46	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	200	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.4	mg/L		10/06/21 19:52	1	0.50	10/06/21 19:52	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:45	1	0.20	10/12/21 14:45	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:45	5	0.21	10/13/21 09:12	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:12	JMW	EPA 6020A
Arsenic, Dissolved	3.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Barium, Dissolved	81	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:46	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:12	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:12	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:12	JMW	EPA 6020A
Iron, Dissolved	170	ug/L		10/12/21 06:52	5	10	10/13/21 09:12	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:12	JMW	EPA 6020A
Manganese, Dissolved	520	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:12	JMW	EPA 6020A
Molybdenum, Dissolved	5.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:12	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:12	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-05
Name: N-B-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:12	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:55	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:12	JMW	EPA 6020A
Arsenic	3.2	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Barium	94	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:12	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:12	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:12	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:12	JMW	EPA 6020A
Iron	550	ug/L		10/07/21 13:28	5	10	10/12/21 14:12	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:12	JMW	EPA 6020A
Manganese	550	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:12	JMW	EPA 6020A
Molybdenum	4.8	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Phosphorus	95	ug/L		10/07/21 13:28	5	50	10/12/21 14:12	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:12	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:12	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:12	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:33	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-06
Name: N-B-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 01:05	1	1.0	10/06/21 01:05	CRD	EPA 300.0 REV 2.1
Fluoride	0.425	mg/L		10/06/21 01:05	1	0.250	10/06/21 01:05	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:05	1	0.03	10/06/21 01:05	CRD	EPA 300.0 REV 2.1
Sulfate	38	mg/L		10/06/21 01:24	25	25	10/06/21 01:24	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.4	mg/L		10/06/21 20:09	1	0.50	10/06/21 20:09	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:45	1	0.20	10/12/21 14:45	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:45	5	0.21	10/13/21 09:16	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:16	JMW	EPA 6020A
Arsenic, Dissolved	3.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Barium, Dissolved	82	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:50	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:16	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:16	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:16	JMW	EPA 6020A
Iron, Dissolved	130	ug/L		10/12/21 06:52	5	10	10/13/21 09:16	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:16	JMW	EPA 6020A
Manganese, Dissolved	760	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:16	JMW	EPA 6020A
Molybdenum, Dissolved	5.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:16	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:16	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-06
Name: N-B-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 10:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:16	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 13:58	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:15	JMW	EPA 6020A
Arsenic	3.5	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Barium	150	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:15	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:15	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:15	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:15	JMW	EPA 6020A
Iron	450	ug/L		10/07/21 13:28	5	10	10/12/21 14:15	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:15	JMW	EPA 6020A
Manganese	690	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:15	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Phosphorus	89	ug/L		10/07/21 13:28	5	50	10/12/21 14:15	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:15	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:15	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:15	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:35	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-07
Name: N-B-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/06/21 01:43	1	1.0	10/06/21 01:43	CRD	EPA 300.0 REV 2.1
Fluoride	0.425	mg/L		10/06/21 01:43	1	0.250	10/06/21 01:43	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:43	1	0.03	10/06/21 01:43	CRD	EPA 300.0 REV 2.1
Sulfate	38	mg/L		10/06/21 02:02	25	25	10/06/21 02:02	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L		10/06/21 21:01	1	0.50	10/06/21 21:01	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:46	1	0.20	10/12/21 14:46	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:46	5	0.21	10/13/21 09:19	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:19	JMW	EPA 6020A
Arsenic, Dissolved	2.1	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Barium, Dissolved	67	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:54	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:19	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:19	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:19	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 09:19	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 09:19	JMW	EPA 6020A
Manganese, Dissolved	1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:19	JMW	EPA 6020A
Molybdenum, Dissolved	5.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:19	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:19	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-07
Name: N-B-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:19	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:00	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:19	JMW	EPA 6020A
Arsenic	2.3	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Barium	70	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:19	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:19	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:19	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:19	JMW	EPA 6020A
Iron	210	ug/L		10/07/21 13:28	5	10	10/12/21 14:19	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:19	JMW	EPA 6020A
Manganese	75	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:19	JMW	EPA 6020A
Molybdenum	5.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Phosphorus	65	ug/L		10/07/21 13:28	5	50	10/12/21 14:19	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:19	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:19	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:19	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:38	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-08
Name: N-C-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 02:21	1	1.0	10/06/21 02:21	CRD	EPA 300.0 REV 2.1
Fluoride	0.417	mg/L		10/06/21 02:21	1	0.250	10/06/21 02:21	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 02:21	1	0.03	10/06/21 02:21	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/06/21 02:40	25	25	10/06/21 02:40	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.4	mg/L		10/06/21 21:18	1	0.50	10/06/21 21:18	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:47	1	0.20	10/12/21 14:47	CRD	SM 3500-Fe D MOD*
Ferric iron	0.22	mg/L		10/12/21 14:47	5	0.21	10/13/21 09:23	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:23	JMW	EPA 6020A
Arsenic, Dissolved	3.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Barium, Dissolved	82	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 13:57	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:23	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:23	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:23	JMW	EPA 6020A
Iron, Dissolved	220	ug/L		10/12/21 06:52	5	10	10/13/21 09:23	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Magnesium, Dissolved	5800	ug/L		10/12/21 06:52	5	100	10/13/21 09:23	JMW	EPA 6020A
Manganese, Dissolved	600	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:23	JMW	EPA 6020A
Molybdenum, Dissolved	5.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:23	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:23	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-08
Name: N-C-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 09:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:23	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:03	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:23	JMW	EPA 6020A
Arsenic	3.4	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Barium	100	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:23	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:23	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:23	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:23	JMW	EPA 6020A
Iron	560	ug/L		10/07/21 13:28	5	10	10/12/21 14:23	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:23	JMW	EPA 6020A
Manganese	610	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:23	JMW	EPA 6020A
Molybdenum	4.7	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Phosphorus	110	ug/L		10/07/21 13:28	5	50	10/12/21 14:23	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:23	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:23	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:23	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:40	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-09
Name: N-C-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 02:58	1	1.0	10/06/21 02:58	CRD	EPA 300.0 REV 2.1
Fluoride	0.415	mg/L		10/06/21 02:58	1	0.250	10/06/21 02:58	CRD	EPA 300.0 REV 2.1
Nitrate-N	0.08	mg/L		10/06/21 02:58	1	0.03	10/06/21 02:58	CRD	EPA 300.0 REV 2.1
Sulfate	36	mg/L		10/06/21 03:55	25	25	10/06/21 03:55	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.5	mg/L		10/06/21 21:36	1	0.50	10/06/21 21:36	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:48	1	0.20	10/12/21 14:48	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:48	5	0.21	10/13/21 09:27	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:27	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Barium, Dissolved	71	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	11	10/13/21 14:25	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:27	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:27	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:27	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 09:27	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:27	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:27	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:27	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:27	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-09
Name: N-C-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:27	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:05	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:26	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Barium	90	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:26	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:26	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:26	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:26	JMW	EPA 6020A
Iron	100	ug/L		10/07/21 13:28	5	10	10/12/21 14:26	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Magnesium	5.4	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:26	JMW	EPA 6020A
Manganese	110	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:26	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Phosphorus	550	ug/L		10/07/21 13:28	5	50	10/12/21 14:26	JMW	EPA 6020A*
Potassium	10	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:26	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:26	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:26	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:42	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-10
Name: N-F-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.1	mg/L		10/06/21 09:53	1	1.0	10/06/21 09:53	CRD	EPA 300.0 REV 2.1
Fluoride	0.350	mg/L		10/07/21 16:17	1	0.250	10/07/21 16:17	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 09:53	1	0.03	10/06/21 09:53	CRD	EPA 300.0 REV 2.1
Sulfate	38	mg/L		10/06/21 10:11	25	25	10/06/21 10:11	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	190	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.7	mg/L		10/06/21 21:54	1	0.50	10/06/21 21:54	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 14:50	1	0.20	10/12/21 14:50	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 14:50	5	0.21	10/13/21 09:30	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 09:30	JMW	EPA 6020A
Arsenic, Dissolved	1.9	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Barium, Dissolved	64	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	11	10/13/21 14:28	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:30	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 09:30	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 09:30	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 09:30	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 09:30	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 09:30	JMW	EPA 6020A
Molybdenum, Dissolved	5.3	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:30	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 09:30	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-10
Name: N-F-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 09:30	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:08	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:30	JMW	EPA 6020A
Arsenic	2.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Barium	69	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:30	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:30	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:30	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:30	JMW	EPA 6020A
Iron	140	ug/L		10/07/21 13:28	5	10	10/12/21 14:30	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:30	JMW	EPA 6020A
Manganese	48	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:30	JMW	EPA 6020A
Molybdenum	5.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Phosphorus	58	ug/L		10/07/21 13:28	5	50	10/12/21 14:30	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:30	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:30	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:30	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:45	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-11
Name: N-F-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.6	mg/L		10/06/21 10:15	1	1.0	10/06/21 10:15	CRD	EPA 300.0 REV 2.1
Fluoride	0.512	mg/L		10/06/21 10:15	1	0.250	10/06/21 10:15	CRD	EPA 300.0 REV 2.1
Nitrate-N	0.28	mg/L		10/06/21 10:15	1	0.03	10/06/21 10:15	CRD	EPA 300.0 REV 2.1
Sulfate	95	mg/L		10/06/21 10:33	25	25	10/06/21 10:33	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.8	mg/L		10/06/21 22:12	1	0.50	10/06/21 22:12	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L	Q3	10/12/21 15:10	1	0.20	10/12/21 15:10	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:10	5	0.21	10/13/21 10:09	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:09	JMW	EPA 6020A
Arsenic, Dissolved	1.9	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Boron, Dissolved	130	ug/L		10/12/21 06:52	5	10	10/13/21 10:09	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:09	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:09	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:09	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:09	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Magnesium, Dissolved	5500	ug/L		10/12/21 06:52	5	100	10/13/21 10:09	JMW	EPA 6020A
Manganese, Dissolved	3.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:09	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:09	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:09	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-11
Name: N-F-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:09	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:10	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:34	JMW	EPA 6020A
Arsenic	2.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Barium	73	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:34	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:34	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:34	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:34	JMW	EPA 6020A
Iron	250	ug/L		10/07/21 13:28	5	10	10/12/21 14:34	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:34	JMW	EPA 6020A
Manganese	57	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:34	JMW	EPA 6020A
Molybdenum	5.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Phosphorus	62	ug/L		10/07/21 13:28	5	50	10/12/21 14:34	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:34	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:34	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:34	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:47	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-12
Name: N-UA-1D
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 04:14	1	1.0	10/06/21 04:14	CRD	EPA 300.0 REV 2.1
Fluoride	0.406	mg/L		10/06/21 04:14	1	0.250	10/06/21 04:14	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 04:14	1	0.03	10/06/21 04:14	CRD	EPA 300.0 REV 2.1
Sulfate	35	mg/L		10/06/21 04:33	25	25	10/06/21 04:33	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L		10/06/21 22:30	1	0.50	10/06/21 22:30	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:12	1	0.20	10/12/21 15:12	CRD	SM 3500-Fe D MOD*
Ferric iron	0.45	mg/L		10/12/21 15:12	5	0.21	10/13/21 10:13	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:13	JMW	EPA 6020A
Arsenic, Dissolved	3.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Barium, Dissolved	150	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:13	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:13	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:13	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:13	JMW	EPA 6020A
Iron, Dissolved	450	ug/L		10/12/21 06:52	5	10	10/13/21 10:13	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 10:13	JMW	EPA 6020A
Manganese, Dissolved	390	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:13	JMW	EPA 6020A
Molybdenum, Dissolved	5.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:13	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Sodium, Dissolved	20	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:13	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-12
Name: N-UA-1D
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:50
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:13	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:16	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:37	JMW	EPA 6020A
Arsenic	2.3	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Barium	52	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 14:37	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:37	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:37	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:37	JMW	EPA 6020A
Iron	27	ug/L		10/07/21 13:28	5	10	10/12/21 14:37	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:37	JMW	EPA 6020A
Manganese	280	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:37	JMW	EPA 6020A
Molybdenum	5.1	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Phosphorus	< 50	ug/L		10/07/21 13:28	5	50	10/12/21 14:37	JMW	EPA 6020A*
Potassium	6.1	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:37	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:37	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:37	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:50	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-13
Name: N-UA-1M
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:20
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 04:52	1	1.0	10/06/21 04:52	CRD	EPA 300.0 REV 2.1
Fluoride	0.421	mg/L		10/06/21 04:52	1	0.250	10/06/21 04:52	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 04:52	1	0.03	10/06/21 04:52	CRD	EPA 300.0 REV 2.1
Sulfate	36	mg/L		10/06/21 05:10	25	25	10/06/21 05:10	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.9	mg/L		10/06/21 22:48	1	0.50	10/06/21 22:48	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:13	1	0.20	10/12/21 15:13	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:13	5	0.21	10/13/21 10:17	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:17	JMW	EPA 6020A
Arsenic, Dissolved	1.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:17	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:17	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:17	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:17	JMW	EPA 6020A
Iron, Dissolved	14	ug/L		10/12/21 06:52	5	10	10/13/21 10:17	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 10:17	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:17	JMW	EPA 6020A
Molybdenum, Dissolved	5.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:17	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:17	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-13
Name: N-UA-1M
Matrix: Surface Water - Grab

Sampled: 10/04/21 15:20
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:17	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:18	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:41	JMW	EPA 6020A
Arsenic	1.8	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Barium	64	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Boron	110	ug/L		10/07/21 13:28	5	10	10/12/21 14:41	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Calcium	19	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:41	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:41	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:41	JMW	EPA 6020A
Iron	130	ug/L		10/07/21 13:28	5	10	10/12/21 14:41	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Magnesium	5.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:41	JMW	EPA 6020A
Manganese	58	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:41	JMW	EPA 6020A
Molybdenum	4.6	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Phosphorus	< 50	ug/L		10/07/21 13:28	5	50	10/12/21 14:41	JMW	EPA 6020A*
Potassium	5.6	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:41	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:41	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:41	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:56	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-14
Name: N-E-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.7	mg/L		10/06/21 05:29	1	1.0	10/06/21 05:29	CRD	EPA 300.0 REV 2.1
Fluoride	0.414	mg/L		10/06/21 05:29	1	0.250	10/06/21 05:29	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 05:29	1	0.03	10/06/21 05:29	CRD	EPA 300.0 REV 2.1
Sulfate	35	mg/L		10/06/21 05:48	25	25	10/06/21 05:48	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/08/21 09:09	1	2.0	10/08/21 09:09	nwt	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.8	mg/L		10/06/21 23:05	1	0.50	10/06/21 23:05	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:13	1	0.20	10/12/21 15:13	CRD	SM 3500-Fe D MOD*
Ferric iron	0.38	mg/L		10/12/21 15:13	5	0.21	10/13/21 10:20	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:20	JMW	EPA 6020A
Arsenic, Dissolved	3.6	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Barium, Dissolved	320	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Boron, Dissolved	130	ug/L		10/12/21 06:52	5	10	10/13/21 10:20	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:20	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:20	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:20	JMW	EPA 6020A
Iron, Dissolved	380	ug/L		10/12/21 06:52	5	10	10/13/21 10:20	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 10:20	JMW	EPA 6020A
Manganese, Dissolved	550	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:20	JMW	EPA 6020A
Molybdenum, Dissolved	13	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:20	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Sodium, Dissolved	20	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:20	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-14
Name: N-E-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:20	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:21	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 14:57	JMW	EPA 6020A
Arsenic	3.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Barium	60	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Boron	110	ug/L		10/07/21 13:28	5	10	10/12/21 14:57	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 14:57	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 14:57	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 14:57	JMW	EPA 6020A
Iron	97	ug/L		10/07/21 13:28	5	10	10/12/21 14:57	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:57	JMW	EPA 6020A
Manganese	490	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 14:57	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Phosphorus	52	ug/L		10/07/21 13:28	5	50	10/12/21 14:57	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:57	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 13:28	5	0.10	10/12/21 14:57	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 14:57	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 11:58	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-15
Name: N-E-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.8	mg/L		10/06/21 06:07	1	1.0	10/06/21 06:07	CRD	EPA 300.0 REV 2.1
Fluoride	0.404	mg/L		10/06/21 06:07	1	0.250	10/06/21 06:07	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 06:07	1	0.03	10/06/21 06:07	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 06:26	25	25	10/06/21 06:26	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	190	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L		10/06/21 23:23	1	0.50	10/06/21 23:23	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:14	1	0.20	10/12/21 15:14	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:14	5	0.21	10/13/21 10:24	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:24	JMW	EPA 6020A
Arsenic, Dissolved	1.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:24	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:24	JMW	EPA 6020A
Chromium, Dissolved	4.3	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:24	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:24	JMW	EPA 6020A
Iron, Dissolved	20	ug/L		10/12/21 06:52	5	10	10/13/21 10:24	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 10:24	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:24	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:24	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:24	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-15
Name: N-E-2M
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:24	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:23	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 15:01	JMW	EPA 6020A
Arsenic	2.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Barium	69	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 15:01	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 15:01	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 15:01	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 15:01	JMW	EPA 6020A
Iron	160	ug/L		10/07/21 13:28	5	10	10/12/21 15:01	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:01	JMW	EPA 6020A
Manganese	60	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 15:01	JMW	EPA 6020A
Molybdenum	4.9	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Phosphorus	73	ug/L		10/07/21 13:28	5	50	10/12/21 15:01	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:01	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:01	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:01	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 12:01	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-16
Name: N-E-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/05/21 21:26	1	1.0	10/05/21 21:26	CRD	EPA 300.0 REV 2.1
Fluoride	0.413	mg/L		10/07/21 16:35	1	0.250	10/07/21 16:35	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 21:26	1	0.03	10/05/21 21:26	CRD	EPA 300.0 REV 2.1
Sulfate	38	mg/L		10/05/21 21:44	25	25	10/05/21 21:44	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.9	mg/L		10/06/21 23:41	1	0.50	10/06/21 23:41	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:14	1	0.20	10/12/21 15:14	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:14	5	0.21	10/13/21 10:28	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:28	JMW	EPA 6020A
Arsenic, Dissolved	1.9	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:28	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:28	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:28	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:28	JMW	EPA 6020A
Iron, Dissolved	13	ug/L		10/12/21 06:52	5	10	10/13/21 10:28	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 10:28	JMW	EPA 6020A
Manganese, Dissolved	1.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:28	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:28	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:28	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-16
Name: N-E-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 14:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:28	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:26	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 15:04	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Barium	71	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 15:04	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 15:04	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 15:04	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 15:04	JMW	EPA 6020A
Iron	350	ug/L		10/07/21 13:28	5	10	10/12/21 15:04	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Magnesium	5.4	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:04	JMW	EPA 6020A
Manganese	79	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 15:04	JMW	EPA 6020A
Molybdenum	4.9	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Phosphorus	71	ug/L		10/07/21 13:28	5	50	10/12/21 15:04	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:04	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:04	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:04	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 12:03	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-17
Name: N-D-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/05/21 22:02	1	1.0	10/05/21 22:02	CRD	EPA 300.0 REV 2.1
Fluoride	0.393	mg/L		10/07/21 16:53	1	0.250	10/07/21 16:53	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 22:02	1	0.03	10/05/21 22:02	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/05/21 22:56	25	25	10/05/21 22:56	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.5	mg/L		10/08/21 17:10	1	0.50	10/08/21 17:10	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:15	1	0.20	10/12/21 15:15	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:15	5	0.21	10/13/21 10:31	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:31	JMW	EPA 6020A
Arsenic, Dissolved	1.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:31	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Calcium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:31	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:31	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:31	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:31	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 10:31	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:31	JMW	EPA 6020A
Molybdenum, Dissolved	5.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:31	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:31	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-17
Name: N-D-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:35
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:31	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:28	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 13:28	5	3.0	10/12/21 15:08	JMW	EPA 6020A
Arsenic	2.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Barium	70	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Boron	120	ug/L		10/07/21 13:28	5	10	10/12/21 15:08	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 13:28	5	0.15	10/12/21 15:08	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 13:28	5	4.0	10/12/21 15:08	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 13:28	5	2.0	10/12/21 15:08	JMW	EPA 6020A
Iron	240	ug/L		10/07/21 13:28	5	10	10/12/21 15:08	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:08	JMW	EPA 6020A
Manganese	70	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 13:28	5	0.20	10/12/21 15:08	JMW	EPA 6020A
Molybdenum	5.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Phosphorus	60	ug/L		10/07/21 13:28	5	50	10/12/21 15:08	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:08	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 13:28	5	0.10	10/12/21 15:08	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 13:28	5	1.0	10/12/21 15:08	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 13:28	1	20	10/12/21 12:05	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-18
Name: N-D-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:18
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	8.5	mg/L		10/05/21 23:14	1	1.0	10/05/21 23:14	CRD	EPA 300.0 REV 2.1
Fluoride	0.378	mg/L		10/07/21 17:11	1	0.250	10/07/21 17:11	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 23:14	1	0.03	10/05/21 23:14	CRD	EPA 300.0 REV 2.1
Sulfate	36	mg/L		10/05/21 23:32	25	25	10/05/21 23:32	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	190	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.3	mg/L		10/08/21 18:03	1	0.50	10/08/21 18:03	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:16	1	0.20	10/12/21 15:16	CRD	SM 3500-Fe D MOD*
Ferric iron	0.21	mg/L		10/12/21 15:16	5	0.21	10/13/21 10:35	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:35	JMW	EPA 6020A
Arsenic, Dissolved	3.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Barium, Dissolved	67	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Boron, Dissolved	130	ug/L		10/12/21 06:52	5	10	10/13/21 10:35	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:35	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:35	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:35	JMW	EPA 6020A
Iron, Dissolved	210	ug/L		10/12/21 06:52	5	10	10/13/21 10:35	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 10:35	JMW	EPA 6020A
Manganese, Dissolved	610	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:35	JMW	EPA 6020A
Molybdenum, Dissolved	5.3	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:35	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Sodium, Dissolved	20	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:35	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-18
Name: N-D-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 13:18
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:35	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:31	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 12:43	JMW	EPA 6020A
Arsenic	4.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Barium	110	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 12:43	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 12:43	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 12:43	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 12:43	JMW	EPA 6020A
Iron	570	ug/L		10/07/21 16:15	5	10	10/13/21 12:43	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:43	JMW	EPA 6020A
Manganese	650	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 12:43	JMW	EPA 6020A
Molybdenum	5.3	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Phosphorus	150	ug/L		10/07/21 16:15	5	50	10/13/21 12:43	JMW	EPA 6020A*
Potassium	5.8	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:43	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Sodium	19	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:43	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:43	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:13	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-19
Name: N-C-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.1	mg/L		10/05/21 23:51	1	1.0	10/05/21 23:51	CRD	EPA 300.0 REV 2.1
Fluoride	0.368	mg/L		10/07/21 18:06	1	0.250	10/07/21 18:06	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/05/21 23:51	1	0.03	10/05/21 23:51	CRD	EPA 300.0 REV 2.1
Sulfate	40	mg/L		10/06/21 00:09	25	25	10/06/21 00:09	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.7	mg/L		10/08/21 18:20	1	0.50	10/08/21 18:20	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:17	1	0.20	10/12/21 15:17	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:17	5	0.21	10/13/21 10:39	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:39	JMW	EPA 6020A
Arsenic, Dissolved	2.1	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Barium, Dissolved	70	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Boron, Dissolved	150	ug/L		10/12/21 06:52	5	10	10/13/21 10:39	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:39	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:39	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:39	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:39	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 10:39	JMW	EPA 6020A
Manganese, Dissolved	5.6	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:39	JMW	EPA 6020A
Molybdenum, Dissolved	5.6	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:39	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:39	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-19
Name: N-C-1
Matrix: Surface Water - Grab

Sampled: 10/04/21 08:15
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:39	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:33	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 12:47	JMW	EPA 6020A
Arsenic	2.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Barium	72	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Boron	140	ug/L		10/07/21 16:15	5	10	10/13/21 12:47	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 16:15	5	0.15	10/13/21 12:47	JMW	EPA 6020A
Chromium	6.7	ug/L		10/07/21 16:15	5	4.0	10/13/21 12:47	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 12:47	JMW	EPA 6020A
Iron	210	ug/L		10/07/21 16:15	5	10	10/13/21 12:47	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:47	JMW	EPA 6020A
Manganese	61	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 12:47	JMW	EPA 6020A
Molybdenum	6.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Phosphorus	65	ug/L		10/07/21 16:15	5	50	10/13/21 12:47	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:47	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Sodium	22	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:47	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:47	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:15	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-20
Name: N-DUP-1
Matrix: Surface Water - Field Duplicate

Sampled: 10/04/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.2	mg/L		10/06/21 00:27	1	1.0	10/06/21 00:27	CRD	EPA 300.0 REV 2.1
Fluoride	0.371	mg/L		10/07/21 18:24	1	0.250	10/07/21 18:24	CRD	EPA 300.0 REV 2.1
Nitrate-N	0.04	mg/L		10/06/21 00:27	1	0.03	10/06/21 00:27	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 00:45	25	25	10/06/21 00:45	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:04	1	34	10/06/21 14:13	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.4	mg/L		10/08/21 18:38	1	0.50	10/08/21 18:38	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:17	1	0.20	10/12/21 15:17	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:17	5	0.21	10/13/21 10:42	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:42	JMW	EPA 6020A
Arsenic, Dissolved	2.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 10:42	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:42	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:42	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:42	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:42	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 10:42	JMW	EPA 6020A
Manganese, Dissolved	1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:42	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:42	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:42	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-20
Name: N-DUP-1
Matrix: Surface Water - Field Duplicate

Sampled: 10/04/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:42	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:35	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 12:51	JMW	EPA 6020A
Arsenic	2.5	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Barium	71	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Boron	140	ug/L		10/07/21 16:15	5	10	10/13/21 12:51	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 12:51	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 12:51	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 12:51	JMW	EPA 6020A
Iron	160	ug/L		10/07/21 16:15	5	10	10/13/21 12:51	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:51	JMW	EPA 6020A
Manganese	71	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 12:51	JMW	EPA 6020A
Molybdenum	5.3	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Phosphorus	66	ug/L		10/07/21 16:15	5	50	10/13/21 12:51	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:51	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:51	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:51	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:17	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-21
Name: N-FB-1
Matrix: Surface Water - Field Blank

Sampled: 10/04/21 14:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		10/06/21 01:03	1	1.0	10/06/21 01:03	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		10/07/21 18:42	1	0.250	10/07/21 18:42	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:03	1	0.03	10/06/21 01:03	CRD	EPA 300.0 REV 2.1
Sulfate	< 1.0	mg/L		10/06/21 01:03	1	1.0	10/06/21 01:03	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	< 2.0	mg/L		10/12/21 11:35	1	2.0	10/12/21 11:35	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 2.0	mg/L		10/12/21 11:35	1	2.0	10/12/21 11:35	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	< 17	mg/L		10/11/21 11:18	1	17	10/11/21 12:24	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	< 0.50	mg/L		10/08/21 18:55	1	0.50	10/08/21 18:55	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:33	1	0.20	10/12/21 15:33	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:33	5	0.21	10/13/21 10:59	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 10:59	JMW	EPA 6020A
Arsenic, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Barium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Boron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:59	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Calcium, Dissolved	< 0.10	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:59	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 10:59	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 10:59	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 10:59	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Magnesium, Dissolved	< 100	ug/L		10/12/21 06:52	5	100	10/13/21 10:59	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 10:59	JMW	EPA 6020A
Molybdenum, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Potassium, Dissolved	< 0.10	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:59	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Sodium, Dissolved	0.12	mg/L		10/12/21 06:52	5	0.10	10/13/21 10:59	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-21
Name: N-FB-1
Matrix: Surface Water - Field Blank

Sampled: 10/04/21 14:10
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 10:59	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:38	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 12:54	JMW	EPA 6020A
Arsenic	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Barium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Boron	< 10	ug/L		10/07/21 16:15	5	10	10/13/21 12:54	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Calcium	< 0.15	mg/L		10/07/21 16:15	5	0.15	10/13/21 12:54	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 12:54	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 12:54	JMW	EPA 6020A
Iron	< 10	ug/L		10/07/21 16:15	5	10	10/13/21 12:54	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Magnesium	< 0.10	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:54	JMW	EPA 6020A
Manganese	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 12:54	JMW	EPA 6020A
Molybdenum	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Phosphorus	< 50	ug/L		10/07/21 16:15	5	50	10/13/21 12:54	JMW	EPA 6020A*
Potassium	< 0.10	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:54	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Sodium	< 0.10	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:54	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:54	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:23	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-22
Name: N-I-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.1	mg/L		10/06/21 01:39	1	1.0	10/06/21 01:39	CRD	EPA 300.0 REV 2.1
Fluoride	0.397	mg/L		10/07/21 19:00	1	0.250	10/07/21 19:00	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:39	1	0.03	10/06/21 01:39	CRD	EPA 300.0 REV 2.1
Sulfate	35	mg/L		10/06/21 02:33	25	25	10/06/21 02:33	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	200	mg/L	M	10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L		10/08/21 19:12	1	0.50	10/08/21 19:12	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:33	1	0.20	10/12/21 15:33	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:33	5	0.21	10/13/21 11:03	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:03	JMW	EPA 6020A
Arsenic, Dissolved	1.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:03	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:03	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:03	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:03	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 11:03	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Magnesium, Dissolved	5800	ug/L		10/12/21 06:52	5	100	10/13/21 11:03	JMW	EPA 6020A
Manganese, Dissolved	2.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:03	JMW	EPA 6020A
Molybdenum, Dissolved	5.3	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Potassium, Dissolved	6.1	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:03	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Sodium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:03	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-22
Name: N-I-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:03	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:44	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 12:58	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Barium	74	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 12:58	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 12:58	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 12:58	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 12:58	JMW	EPA 6020A
Iron	260	ug/L		10/07/21 16:15	5	10	10/13/21 12:58	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:58	JMW	EPA 6020A
Manganese	67	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 12:58	JMW	EPA 6020A
Molybdenum	5.3	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Phosphorus	70	ug/L		10/07/21 16:15	5	50	10/13/21 12:58	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:58	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 12:58	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 12:58	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:26	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-23
Name: N-I-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/06/21 02:51	1	1.0	10/06/21 02:51	CRD	EPA 300.0 REV 2.1
Fluoride	0.404	mg/L		10/07/21 19:18	1	0.250	10/07/21 19:18	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 02:51	1	0.03	10/06/21 02:51	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 03:10	25	25	10/06/21 03:10	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L	M	10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.7	mg/L		10/08/21 19:30	1	0.50	10/08/21 19:30	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:34	1	0.20	10/12/21 15:34	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:34	5	0.21	10/13/21 11:06	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:06	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Barium, Dissolved	64	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:06	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:06	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:06	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:06	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 11:06	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 11:06	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:06	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:06	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:06	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-23
Name: N-I-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:30
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:06	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:46	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 13:02	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Barium	70	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 13:02	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 16:15	5	0.15	10/13/21 13:02	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 13:02	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 13:02	JMW	EPA 6020A
Iron	140	ug/L		10/07/21 16:15	5	10	10/13/21 13:02	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:02	JMW	EPA 6020A
Manganese	50	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 13:02	JMW	EPA 6020A
Molybdenum	5.3	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Phosphorus	72	ug/L		10/07/21 16:15	5	50	10/13/21 13:02	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:02	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:02	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:02	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:28	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-24
Name: N-I-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/06/21 03:28	1	1.0	10/06/21 03:28	CRD	EPA 300.0 REV 2.1
Fluoride	0.405	mg/L		10/07/21 19:36	1	0.250	10/07/21 19:36	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 03:28	1	0.03	10/06/21 03:28	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/06/21 03:46	25	25	10/06/21 03:46	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	200	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.8	mg/L		10/08/21 19:48	1	0.50	10/08/21 19:48	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:34	1	0.20	10/12/21 15:34	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:34	5	0.21	10/13/21 11:10	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:10	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:10	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:10	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:10	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:10	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 11:10	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 11:10	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:10	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:10	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:10	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-24
Name: N-I-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 10:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:10	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:49	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 13:05	JMW	EPA 6020A
Arsenic	2.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Barium	70	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 13:05	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 16:15	5	0.15	10/13/21 13:05	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 13:05	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 13:05	JMW	EPA 6020A
Iron	160	ug/L		10/07/21 16:15	5	10	10/13/21 13:05	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Magnesium	5.4	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:05	JMW	EPA 6020A
Manganese	48	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 13:05	JMW	EPA 6020A
Molybdenum	5.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Phosphorus	68	ug/L		10/07/21 16:15	5	50	10/13/21 13:05	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:05	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:05	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:05	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:31	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-25
Name: N-UA-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:40
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.0	mg/L		10/06/21 04:04	1	1.0	10/06/21 04:04	CRD	EPA 300.0 REV 2.1
Fluoride	0.347	mg/L		10/07/21 19:54	1	0.250	10/07/21 19:54	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 04:04	1	0.03	10/06/21 04:04	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 04:22	25	25	10/06/21 04:22	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	190	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.3	mg/L		10/08/21 20:45	1	0.50	10/08/21 20:45	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:35	1	0.20	10/12/21 15:35	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:35	5	0.21	10/13/21 11:14	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:14	JMW	EPA 6020A
Arsenic, Dissolved	2.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Barium, Dissolved	62	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:14	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:14	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:14	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:14	JMW	EPA 6020A
Iron, Dissolved	19	ug/L		10/12/21 06:52	5	10	10/13/21 11:14	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 11:14	JMW	EPA 6020A
Manganese, Dissolved	120	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:14	JMW	EPA 6020A
Molybdenum, Dissolved	5.3	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:14	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:14	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-25
Name: N-UA-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:40
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:14	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:51	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 13:09	JMW	EPA 6020A
Arsenic	3.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Barium	210	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 13:09	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 13:09	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 13:09	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 13:09	JMW	EPA 6020A
Iron	700	ug/L		10/07/21 16:15	5	10	10/13/21 13:09	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:09	JMW	EPA 6020A
Manganese	330	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 13:09	JMW	EPA 6020A
Molybdenum	5.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Phosphorus	120	ug/L		10/07/21 16:15	5	50	10/13/21 13:09	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:09	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:09	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:09	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:33	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-26
Name: N-UA-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:25
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.4	mg/L		10/06/21 01:06	1	1.0	10/06/21 01:06	CRD	EPA 300.0 REV 2.1
Fluoride	0.490	mg/L		10/06/21 01:06	1	0.250	10/06/21 01:06	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:06	1	0.03	10/06/21 01:06	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L		10/06/21 01:25	25	25	10/06/21 01:25	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.9	mg/L		10/08/21 21:02	1	0.50	10/08/21 21:02	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:36	1	0.20	10/12/21 15:36	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:36	5	0.21	10/13/21 11:17	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:17	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Barium, Dissolved	63	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:17	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:17	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:17	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:17	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 11:17	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Magnesium, Dissolved	5700	ug/L		10/12/21 06:52	5	100	10/13/21 11:17	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:17	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:17	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:17	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-26
Name: N-UA-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:25
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:17	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:54	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 13:13	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Barium	73	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 13:13	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Calcium	21	mg/L		10/07/21 16:15	5	0.15	10/13/21 13:13	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 13:13	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 13:13	JMW	EPA 6020A
Iron	140	ug/L		10/07/21 16:15	5	10	10/13/21 13:13	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Magnesium	5.4	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:13	JMW	EPA 6020A
Manganese	52	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 13:13	JMW	EPA 6020A
Molybdenum	5.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Phosphorus	68	ug/L		10/07/21 16:15	5	50	10/13/21 13:13	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:13	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:13	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:13	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:36	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-27
Name: N-G-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.2	mg/L		10/06/21 01:44	1	1.0	10/06/21 01:44	CRD	EPA 300.0 REV 2.1
Fluoride	0.503	mg/L		10/06/21 01:44	1	0.250	10/06/21 01:44	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 01:44	1	0.03	10/06/21 01:44	CRD	EPA 300.0 REV 2.1
Sulfate	35	mg/L		10/06/21 02:03	25	25	10/06/21 02:03	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	200	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	6.1	mg/L		10/08/21 21:20	1	0.50	10/08/21 21:20	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:36	1	0.20	10/12/21 15:36	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:36	5	0.21	10/13/21 11:21	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:21	JMW	EPA 6020A
Arsenic, Dissolved	2.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Barium, Dissolved	70	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:21	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:21	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:21	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:21	JMW	EPA 6020A
Iron, Dissolved	15	ug/L		10/12/21 06:52	5	10	10/13/21 11:21	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 11:21	JMW	EPA 6020A
Manganese, Dissolved	400	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:21	JMW	EPA 6020A
Molybdenum, Dissolved	5.4	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:21	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Sodium, Dissolved	20	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:21	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-27
Name: N-G-2D
Matrix: Surface Water - Grab

Sampled: 10/05/21 09:00
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:21	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:56	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 13:16	JMW	EPA 6020A
Arsenic	3.5	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Barium	640	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Boron	130	ug/L		10/07/21 16:15	5	10	10/13/21 13:16	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 13:16	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 13:16	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 13:16	JMW	EPA 6020A
Iron	560	ug/L		10/07/21 16:15	5	10	10/13/21 13:16	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:16	JMW	EPA 6020A
Manganese	570	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 13:16	JMW	EPA 6020A
Molybdenum	5.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Phosphorus	300	ug/L		10/07/21 16:15	5	50	10/13/21 13:16	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:16	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 13:16	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 13:16	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:38	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-28
Name: N-G-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.4	mg/L		10/06/21 02:22	1	1.0	10/06/21 02:22	CRD	EPA 300.0 REV 2.1
Fluoride	0.483	mg/L		10/06/21 02:22	1	0.250	10/06/21 02:22	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 02:22	1	0.03	10/06/21 02:22	CRD	EPA 300.0 REV 2.1
Sulfate	37	mg/L		10/06/21 03:18	25	25	10/06/21 03:18	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	210	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L		10/08/21 21:37	1	0.50	10/08/21 21:37	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:37	1	0.20	10/12/21 15:37	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:37	5	0.21	10/13/21 11:25	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:25	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Barium, Dissolved	64	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:25	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:25	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:25	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:25	JMW	EPA 6020A
Iron, Dissolved	22	ug/L		10/12/21 06:52	5	10	10/13/21 11:25	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 11:25	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:25	JMW	EPA 6020A
Molybdenum, Dissolved	5.2	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:25	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:25	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-28
Name: N-G-2M
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:45
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:25	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 14:58	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 14:01	JMW	EPA 6020A
Arsenic	2.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Barium	71	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Boron	140	ug/L		10/07/21 16:15	5	10	10/13/21 14:01	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 14:01	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 14:01	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 14:01	JMW	EPA 6020A
Iron	110	ug/L		10/07/21 16:15	5	10	10/13/21 14:01	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Magnesium	5.5	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:01	JMW	EPA 6020A
Manganese	62	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 14:01	JMW	EPA 6020A
Molybdenum	5.4	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Phosphorus	73	ug/L		10/07/21 16:15	5	50	10/13/21 14:01	JMW	EPA 6020A*
Potassium	6.0	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:01	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Sodium	21	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:01	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:01	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:40	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-29
Name: N-G-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.5	mg/L	Q4	10/06/21 13:16	1	1.0	10/06/21 13:16	CRD	EPA 300.0 REV 2.1
Fluoride	0.488	mg/L		10/06/21 13:16	1	0.250	10/06/21 13:16	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 13:16	1	0.03	10/06/21 13:16	CRD	EPA 300.0 REV 2.1
Sulfate	39	mg/L	Q4	10/06/21 14:10	25	25	10/06/21 14:10	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	50	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	25	mg/L		10/12/21 08:33	1	10	10/12/21 08:33	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	170	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.6	mg/L	Q3	10/09/21 00:19	1	0.50	10/09/21 00:19	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L	Q3	10/12/21 15:31	1	0.20	10/12/21 15:31	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:31	5	0.21	10/13/21 11:28	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:28	JMW	EPA 6020A
Arsenic, Dissolved	1.8	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Barium, Dissolved	65	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:28	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:28	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:28	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:28	JMW	EPA 6020A
Iron, Dissolved	< 10	ug/L		10/12/21 06:52	5	10	10/13/21 11:28	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 11:28	JMW	EPA 6020A
Manganese, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:28	JMW	EPA 6020A
Molybdenum, Dissolved	5.3	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Potassium, Dissolved	5.9	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:28	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:28	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-29
Name: N-G-1
Matrix: Surface Water - Grab

Sampled: 10/05/21 08:05
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:28	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 15:01	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/08/21 12:59	5	3.0	10/13/21 11:54	JMW	EPA 6020A
Arsenic	2.1	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Barium	69	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Boron	130	ug/L		10/08/21 12:59	5	10	10/13/21 11:54	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Calcium	21	mg/L		10/08/21 12:59	5	0.15	10/13/21 11:54	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/08/21 12:59	5	4.0	10/13/21 11:54	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/08/21 12:59	5	2.0	10/13/21 11:54	JMW	EPA 6020A
Iron	120	ug/L		10/08/21 12:59	5	10	10/13/21 11:54	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Magnesium	5.4	mg/L		10/08/21 12:59	5	0.10	10/13/21 11:54	JMW	EPA 6020A
Manganese	44	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/08/21 12:59	5	0.20	10/13/21 11:54	JMW	EPA 6020A
Molybdenum	5.3	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Phosphorus	58	ug/L		10/08/21 12:59	5	50	10/13/21 11:54	JMW	EPA 6020A*
Potassium	5.8	mg/L		10/08/21 12:59	5	0.10	10/13/21 11:54	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Sodium	20	mg/L		10/08/21 12:59	5	0.10	10/13/21 11:54	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/08/21 12:59	5	1.0	10/13/21 11:54	JMW	EPA 6020A
Lithium	< 20	ug/L		10/08/21 12:59	1	20	10/12/21 13:15	TJJ	EPA 6010B*

ANALYTICAL RESULTS

Sample: EJ00598-30
Name: N-F-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	9.6	mg/L	Q4	10/06/21 14:28	1	1.0	10/06/21 14:28	CRD	EPA 300.0 REV 2.1
Fluoride	0.504	mg/L		10/06/21 14:28	1	0.250	10/06/21 14:28	CRD	EPA 300.0 REV 2.1
Nitrate-N	< 0.03	mg/L		10/06/21 14:28	1	0.03	10/06/21 14:28	CRD	EPA 300.0 REV 2.1
Sulfate	40	mg/L	Q4	10/06/21 15:59	25	25	10/06/21 15:59	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - bicarbonate as CaCO3	75	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Alkalinity - carbonate as CaCO3	< 10	mg/L		10/11/21 13:10	1	10	10/11/21 13:10	JAA	SM 2320B 1997*
Solids - total dissolved solids (TDS)	200	mg/L		10/06/21 11:06	1	34	10/07/21 08:59	JAA	SM 2540C
Sulfide	< 2.0	mg/L		10/07/21 00:00	1	2.0	10/07/21 00:00	DLE	SM 4500 S2 F 2000*
Total Organic Carbon (TOC)	5.5	mg/L		10/08/21 21:55	1	0.50	10/08/21 21:55	CRD	SM 5310C 2000
Soluble General Chemistry - PIA									
Ferrous iron	< 0.20	mg/L		10/12/21 15:38	1	0.20	10/12/21 15:38	CRD	SM 3500-Fe D MOD*
Ferric iron	< 0.21	mg/L		10/12/21 15:38	5	0.21	10/13/21 11:32	JMW	calculated
Soluble Metals - PIA									
Antimony, Dissolved	< 3.0	ug/L		10/12/21 06:52	5	3.0	10/13/21 11:32	JMW	EPA 6020A
Arsenic, Dissolved	1.7	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Barium, Dissolved	66	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Beryllium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Boron, Dissolved	140	ug/L		10/12/21 06:52	5	10	10/13/21 11:32	JMW	EPA 6020A
Cadmium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Calcium, Dissolved	22	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:32	JMW	EPA 6020A
Chromium, Dissolved	< 4.0	ug/L		10/12/21 06:52	5	4.0	10/13/21 11:32	JMW	EPA 6020A
Cobalt, Dissolved	< 2.0	ug/L		10/12/21 06:52	5	2.0	10/13/21 11:32	JMW	EPA 6020A
Iron, Dissolved	14	ug/L		10/12/21 06:52	5	10	10/13/21 11:32	JMW	EPA 6020A*
Lead, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Magnesium, Dissolved	5600	ug/L		10/12/21 06:52	5	100	10/13/21 11:32	JMW	EPA 6020A
Manganese, Dissolved	16	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Mercury, Dissolved	< 0.20	ug/L		10/12/21 06:52	5	0.20	10/13/21 11:32	JMW	EPA 6020A
Molybdenum, Dissolved	5.5	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Potassium, Dissolved	6.0	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:32	JMW	EPA 6020A
Selenium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Sodium, Dissolved	21	mg/L		10/12/21 06:52	5	0.10	10/13/21 11:32	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: EJ00598-30
Name: N-F-2D
Matrix: Surface Water - Grab

Sampled: 10/04/21 16:55
Received: 10/05/21 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Thallium, Dissolved	< 1.0	ug/L		10/12/21 06:52	5	1.0	10/13/21 11:32	JMW	EPA 6020A
Lithium, Dissolved	< 20	ug/L		10/12/21 12:52	1	20	10/12/21 15:12	TJJ	EPA 6010B*
Total Metals - PIA									
Antimony	< 3.0	ug/L		10/07/21 16:15	5	3.0	10/13/21 14:05	JMW	EPA 6020A
Arsenic	2.3	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Barium	80	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Beryllium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Boron	140	ug/L		10/07/21 16:15	5	10	10/13/21 14:05	JMW	EPA 6020A
Cadmium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Calcium	22	mg/L		10/07/21 16:15	5	0.15	10/13/21 14:05	JMW	EPA 6020A
Chromium	< 4.0	ug/L		10/07/21 16:15	5	4.0	10/13/21 14:05	JMW	EPA 6020A
Cobalt	< 2.0	ug/L		10/07/21 16:15	5	2.0	10/13/21 14:05	JMW	EPA 6020A
Iron	440	ug/L		10/07/21 16:15	5	10	10/13/21 14:05	JMW	EPA 6020A*
Lead	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Magnesium	5.6	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:05	JMW	EPA 6020A
Manganese	110	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Mercury	< 0.20	ug/L		10/07/21 16:15	5	0.20	10/13/21 14:05	JMW	EPA 6020A
Molybdenum	5.2	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Phosphorus	82	ug/L		10/07/21 16:15	5	50	10/13/21 14:05	JMW	EPA 6020A*
Potassium	5.9	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:05	JMW	EPA 6020A
Selenium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Sodium	20	mg/L		10/07/21 16:15	5	0.10	10/13/21 14:05	JMW	EPA 6020A
Thallium	< 1.0	ug/L		10/07/21 16:15	5	1.0	10/13/21 14:05	JMW	EPA 6020A
Lithium	< 20	ug/L		10/07/21 16:15	1	20	10/12/21 12:43	TJJ	EPA 6010B*

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144544 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144544-CCB1)				Prepared & Analyzed: 10/05/21					
Sulfate	0.00	mg/L							
Nitrate-N	0.00	mg/L							
Fluoride	0.00	mg/L							
Chloride	0.224	mg/L							
Calibration Check (B144544-CCV1)				Prepared & Analyzed: 10/05/21					
Sulfate	4.98	mg/L		5.000		100	90-110		
Nitrate-N	0.969	mg/L		1.000		97	90-110		
Fluoride	5.26	mg/L		5.000		105	90-110		
Chloride	4.83	mg/L		5.000		97	90-110		
Batch B144547 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144547-CCB1)				Prepared & Analyzed: 10/05/21					
Sulfate	0.00	mg/L							
Nitrate-N	0.00	mg/L							
Chloride	0.748	mg/L							
Calibration Check (B144547-CCV1)				Prepared & Analyzed: 10/05/21					
Chloride	4.61	mg/L		5.000		92	90-110		
Nitrate-N	0.941	mg/L		1.000		94	90-110		
Sulfate	4.81	mg/L		5.000		96	90-110		
Batch B144549 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144549-CCB1)				Prepared & Analyzed: 10/05/21					
Sulfate	0.0699	mg/L							
Chloride	0.625	mg/L							
Fluoride	0.00	mg/L							
Nitrate-N	0.00	mg/L							
Calibration Check (B144549-CCV1)				Prepared & Analyzed: 10/05/21					
Sulfate	5.05	mg/L		5.000		101	90-110		
Chloride	4.88	mg/L		5.000		98	90-110		
Fluoride	5.04	mg/L		5.000		101	90-110		
Nitrate-N	1.01	mg/L		1.000		101	90-110		
Batch B144564 - No Prep - SM 2540C									
Blank (B144564-BLK1)				Prepared & Analyzed: 10/06/21					
Solids - total dissolved solids (TDS)	< 17	mg/L							
LCS (B144564-BS1)				Prepared & Analyzed: 10/06/21					
Solids - total dissolved solids (TDS)	967	mg/L		1000		97	84.9-109		
Duplicate (B144564-DUP1)	**Sample: EJ00598-19**			Prepared & Analyzed: 10/06/21					
Solids - total dissolved solids (TDS)	173	mg/L			173			0	5
Duplicate (B144564-DUP2)	**Sample: EJ00598-20**			Prepared & Analyzed: 10/06/21					
Solids - total dissolved solids (TDS)	227	mg/L			173			27	5
Batch B144565 - No Prep - SM 2540C									

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144565 - No Prep - SM 2540C									
Blank (B144565-BLK1)				Prepared: 10/06/21 Analyzed: 10/07/21					
Solids - total dissolved solids (TDS)	< 17	mg/L							
LCS (B144565-BS1)				Prepared: 10/06/21 Analyzed: 10/07/21					
Solids - total dissolved solids (TDS)	940	mg/L		1000		94	84.9-109		
Duplicate (B144565-DUP1)	**Sample: EJ00598-22**			Prepared: 10/06/21 Analyzed: 10/07/21					
Solids - total dissolved solids (TDS)	173	mg/L	M		200			14	5
Duplicate (B144565-DUP2)	**Sample: EJ00598-23**			Prepared: 10/06/21 Analyzed: 10/07/21					
Solids - total dissolved solids (TDS)	187	mg/L	M		173			7	5
Batch B144695 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144695-CCB1)				Prepared & Analyzed: 10/06/21					
Chloride	0.498	mg/L							
Sulfate	0.0888	mg/L							
Nitrate-N	0.00	mg/L							
Calibration Check (B144695-CCV1)				Prepared & Analyzed: 10/06/21					
Sulfate	4.87	mg/L		5.000		97	90-110		
Nitrate-N	0.985	mg/L		1.000		98	90-110		
Chloride	4.76	mg/L		5.000		95	90-110		
Batch B144698 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144698-CCB1)				Prepared & Analyzed: 10/06/21					
Chloride	0.969	mg/L							
Nitrate-N	0.00	mg/L							
Fluoride	0.00	mg/L							
Sulfate	0.00	mg/L							
Calibration Check (B144698-CCV1)				Prepared & Analyzed: 10/06/21					
Nitrate-N	1.04	mg/L		1.000		104	90-110		
Fluoride	5.23	mg/L		5.000		105	90-110		
Sulfate	5.10	mg/L		5.000		102	90-110		
Chloride	4.80	mg/L		5.000		96	90-110		
Matrix Spike (B144698-MS1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/06/21					
Fluoride	2.02	mg/L		1.500	0.488	102	80-120		
Nitrate-N	0.32	mg/L		0.3000	ND	106	80-120		
Chloride	1.0E9	mg/L	Q4	1.500	9.5	NR	80-120		
Sulfate	1.00E9	mg/L	Q4	1.500	39.1	NR	80-120		
Matrix Spike (B144698-MS2)	**Sample: EJ00598-30**			Prepared & Analyzed: 10/06/21					
Sulfate	1.00E9	mg/L	Q4	1.500	40.1	NR	80-120		
Nitrate-N	0.31	mg/L		0.3000	ND	102	80-120		
Fluoride	1.91	mg/L		1.500	0.504	94	80-120		
Chloride	1.0E9	mg/L	Q4	1.500	9.6	NR	80-120		
Matrix Spike Dup (B144698-MSD1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/06/21					
Chloride	1.0E9	mg/L	Q4	1.500	9.5	NR	80-120	0	20
Fluoride	2.02	mg/L		1.500	0.488	102	80-120	0.3	20
Sulfate	1.00E9	mg/L	Q4	1.500	39.1	NR	80-120	0	20

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144698 - IC No Prep - EPA 300.0 REV 2.1									
Matrix Spike Dup (B144698-MSD1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/06/21					
Nitrate-N	0.33	mg/L		0.3000	ND	111	80-120	4	20
Matrix Spike Dup (B144698-MSD2)	**Sample: EJ00598-30**			Prepared & Analyzed: 10/06/21					
Fluoride	2.01	mg/L		1.500	0.504	101	80-120	5	20
Nitrate-N	0.33	mg/L		0.3000	ND	110	80-120	7	20
Chloride	1.0E9	mg/L	Q4	1.500	9.6	NR	80-120	0	20
Sulfate	1.00E9	mg/L	Q4	1.500	40.1	NR	80-120	0	20
Batch B144735 - No Prep - SM 5310C 2000									
Calibration Blank (B144735-CCB1)				Prepared & Analyzed: 10/06/21					
Total Organic Carbon (TOC)	0.00	mg/L							
Calibration Check (B144735-CCV1)				Prepared & Analyzed: 10/06/21					
Total Organic Carbon (TOC)	5.15	mg/L		5.000		103	90-110		
Matrix Spike (B144735-MS1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/06/21					
Total Organic Carbon (TOC)	10.9	mg/L		5.000	5.48	108	80-120		
Matrix Spike Dup (B144735-MSD1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/06/21					
Total Organic Carbon (TOC)	11.3	mg/L		5.000	5.48	117	80-120	4	20
Batch B144743 - SW 3015 - EPA 6020A									
Blank (B144743-BLK1)				Prepared: 10/07/21 Analyzed: 10/12/21					
Antimony	< 3.0	ug/L							
Arsenic	< 1.0	ug/L							
Barium	< 1.0	ug/L							
Beryllium	< 1.0	ug/L							
Boron	< 10	ug/L							
Cadmium	< 1.0	ug/L							
Calcium	< 0.20	mg/L							
Chromium	< 4.0	ug/L							
Cobalt	< 2.0	ug/L							
Iron	< 10	ug/L							
Lead	< 1.0	ug/L							
Magnesium	< 0.10	mg/L							
Manganese	< 1.0	ug/L							
Mercury	< 0.20	ug/L							
Molybdenum	< 1.0	ug/L							
Phosphorus	< 50	ug/L							
Potassium	< 0.10	mg/L							
Selenium	< 1.0	ug/L							
Sodium	< 0.10	mg/L							
Thallium	< 1.0	ug/L							
Lithium	< 20	ug/L							
LCS (B144743-BS1)				Prepared: 10/07/21 Analyzed: 10/12/21					
Antimony	554	ug/L		555.6		100	80-120		
Arsenic	521	ug/L		555.6		94	80-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144743 - SW 3015 - EPA 6020A									
LCS (B144743-BS1)				Prepared: 10/07/21 Analyzed: 10/12/21					
Barium	563	ug/L		555.6		101	80-120		
Beryllium	494	ug/L		555.6		89	80-120		
Boron	470	ug/L		555.6		85	80-120		
Cadmium	531	ug/L		555.6		96	80-120		
Calcium	5.72	mg/L		5.556		103	80-120		
Chromium	583	ug/L		555.6		105	80-120		
Cobalt	573	ug/L		555.6		103	80-120		
Iron	579	ug/L		555.6		104	80-120		
Lead	546	ug/L		555.6		98	80-120		
Magnesium	5.75	mg/L		5.556		103	80-120		
Manganese	570	ug/L		555.6		103	80-120		
Mercury	50.3	ug/L		55.56		90	80-120		
Molybdenum	504	ug/L		555.6		91	80-120		
Phosphorus	519	ug/L		555.6		93	80-120		
Potassium	5.68	mg/L		5.556		102	80-120		
Selenium	540	ug/L		555.6		97	80-120		
Sodium	5.73	mg/L		5.556		103	80-120		
Thallium	544	ug/L		555.6		98	80-120		
Lithium	640	ug/L		555.6		115	80-120		
Batch B144772 - No Prep - SM 4500 S2 F 2000									
Calibration Check (B144772-CCV1)				Prepared & Analyzed: 10/08/21					
Sulfide	23.6	mg/L		25.00		94	0-200		
Duplicate (B144772-DUP1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/08/21					
Sulfide	< 2.0	mg/L			0.0899				200
Batch B144793 - SW 3015 - EPA 6020A									
Blank (B144793-BLK1)				Prepared: 10/07/21 Analyzed: 10/13/21					
Antimony	< 3.0	ug/L							
Arsenic	< 1.0	ug/L							
Barium	< 1.0	ug/L							
Beryllium	< 1.0	ug/L							
Boron	< 10	ug/L							
Cadmium	< 1.0	ug/L							
Calcium	< 0.20	mg/L							
Chromium	< 4.0	ug/L							
Cobalt	< 2.0	ug/L							
Iron	< 10	ug/L							
Lead	< 1.0	ug/L							
Magnesium	< 0.10	mg/L							
Manganese	< 1.0	ug/L							
Mercury	< 0.20	ug/L							
Molybdenum	< 1.0	ug/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144793 - SW 3015 - EPA 6020A									
Blank (B144793-BLK1)				Prepared: 10/07/21 Analyzed: 10/13/21					
Phosphorus	< 50	ug/L							
Potassium	< 0.10	mg/L							
Selenium	< 1.0	ug/L							
Sodium	< 0.10	mg/L							
Thallium	< 1.0	ug/L							
Lithium	< 20	ug/L							
LCS (B144793-BS1)				Prepared: 10/07/21 Analyzed: 10/13/21					
Antimony	573	ug/L		555.6		103	80-120		
Arsenic	544	ug/L		555.6		98	80-120		
Barium	569	ug/L		555.6		102	80-120		
Beryllium	547	ug/L		555.6		99	80-120		
Boron	563	ug/L		555.6		101	80-120		
Cadmium	526	ug/L		555.6		95	80-120		
Calcium	5.88	mg/L		5.556		106	80-120		
Chromium	561	ug/L		555.6		101	80-120		
Cobalt	553	ug/L		555.6		100	80-120		
Iron	501	ug/L		555.6		90	80-120		
Lead	545	ug/L		555.6		98	80-120		
Magnesium	5.89	mg/L		5.556		106	80-120		
Manganese	553	ug/L		555.6		100	80-120		
Mercury	51.0	ug/L		55.56		92	80-120		
Molybdenum	520	ug/L		555.6		94	80-120		
Phosphorus	560	ug/L		555.6		101	80-120		
Potassium	5.56	mg/L		5.556		100	80-120		
Selenium	545	ug/L		555.6		98	80-120		
Sodium	5.54	mg/L		5.556		100	80-120		
Thallium	517	ug/L		555.6		93	80-120		
Lithium	661	ug/L		555.6		119	80-120		
Batch B144887 - SW 3015 - EPA 6020A									
Blank (B144887-BLK1)				Prepared: 10/08/21 Analyzed: 10/13/21					
Antimony	< 3.0	ug/L							
Arsenic	< 1.0	ug/L							
Barium	< 1.0	ug/L							
Beryllium	< 1.0	ug/L							
Boron	< 10	ug/L							
Cadmium	< 1.0	ug/L							
Calcium	< 0.20	mg/L							
Chromium	< 4.0	ug/L							
Cobalt	< 2.0	ug/L							
Iron	< 10	ug/L							
Lead	< 1.0	ug/L							
Magnesium	< 0.10	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144887 - SW 3015 - EPA 6020A									
Blank (B144887-BLK1)				Prepared: 10/08/21 Analyzed: 10/13/21					
Manganese	< 1.0	ug/L							
Mercury	< 0.20	ug/L							
Molybdenum	< 1.0	ug/L							
Phosphorus	< 50	ug/L							
Potassium	< 0.10	mg/L							
Selenium	< 1.0	ug/L							
Sodium	< 0.10	mg/L							
Thallium	< 1.0	ug/L							
Lithium	< 20	ug/L							
LCS (B144887-BS1)				Prepared: 10/08/21 Analyzed: 10/13/21					
Antimony	572	ug/L		555.6		103	80-120		
Arsenic	549	ug/L		555.6		99	80-120		
Barium	570	ug/L		555.6		103	80-120		
Beryllium	549	ug/L		555.6		99	80-120		
Boron	568	ug/L		555.6		102	80-120		
Cadmium	538	ug/L		555.6		97	80-120		
Calcium	5.88	mg/L		5.556		106	80-120		
Chromium	564	ug/L		555.6		102	80-120		
Cobalt	564	ug/L		555.6		101	80-120		
Iron	511	ug/L		555.6		92	80-120		
Lead	549	ug/L		555.6		99	80-120		
Magnesium	5.95	mg/L		5.556		107	80-120		
Manganese	560	ug/L		555.6		101	80-120		
Mercury	52.4	ug/L		55.56		94	80-120		
Molybdenum	534	ug/L		555.6		96	80-120		
Phosphorus	559	ug/L		555.6		101	80-120		
Potassium	5.53	mg/L		5.556		100	80-120		
Selenium	550	ug/L		555.6		99	80-120		
Sodium	5.59	mg/L		5.556		101	80-120		
Thallium	527	ug/L		555.6		95	80-120		
Lithium	563	ug/L		555.6		101	80-120		
Matrix Spike (B144887-MS1)	**Sample: EJ00598-29**			Prepared: 10/08/21 Analyzed: 10/13/21					
Antimony	578	ug/L		555.6	0.178	104	75-125		
Arsenic	548	ug/L		555.6	2.07	98	75-125		
Barium	645	ug/L		555.6	68.9	104	75-125		
Beryllium	546	ug/L		555.6	ND	98	75-125		
Boron	682	ug/L		555.6	131	99	75-125		
Cadmium	533	ug/L		555.6	ND	96	75-125		
Calcium	27.2	mg/L		5.556	21.3	106	75-125		
Chromium	571	ug/L		555.6	ND	103	75-125		
Cobalt	553	ug/L		555.6	ND	100	75-125		
Iron	669	ug/L		555.6	123	98	75-125		
Lead	549	ug/L		555.6	ND	99	75-125		
Magnesium	11.1	mg/L		5.556	5.42	102	75-125		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144887 - SW 3015 - EPA 6020A									
Matrix Spike (B144887-MS1)	**Sample: EJ00598-29**			Prepared: 10/08/21 Analyzed: 10/13/21					
Manganese	606	ug/L		555.6	44.4	101	75-125		
Mercury	51.5	ug/L		55.56	ND	93	75-125		
Molybdenum	536	ug/L		555.6	5.26	95	75-125		
Phosphorus	615	ug/L		555.6	57.5	100	75-125		
Potassium	11.1	mg/L		5.556	5.82	96	75-125		
Selenium	550	ug/L		555.6	0.817	99	75-125		
Sodium	25.6	mg/L		5.556	20.3	96	75-125		
Thallium	523	ug/L		555.6	ND	94	75-125		
Lithium	582	ug/L		555.6	ND	105	75-125		
Matrix Spike Dup (B144887-MSD1)	**Sample: EJ00598-29**			Prepared: 10/08/21 Analyzed: 10/13/21					
Antimony	577	ug/L		555.6	0.178	104	75-125	0.1	20
Arsenic	557	ug/L		555.6	2.07	100	75-125	2	20
Barium	646	ug/L		555.6	68.9	104	75-125	0.2	20
Beryllium	558	ug/L		555.6	ND	100	75-125	2	20
Boron	700	ug/L		555.6	131	103	75-125	3	20
Cadmium	542	ug/L		555.6	ND	98	75-125	2	20
Calcium	27.0	mg/L		5.556	21.3	102	75-125	0.7	20
Chromium	570	ug/L		555.6	ND	103	75-125	0.2	20
Cobalt	555	ug/L		555.6	ND	100	75-125	0.3	20
Iron	642	ug/L		555.6	123	93	75-125	4	20
Lead	549	ug/L		555.6	ND	99	75-125	0.09	20
Magnesium	11.2	mg/L		5.556	5.42	105	75-125	1	20
Manganese	613	ug/L		555.6	44.4	102	75-125	1	20
Mercury	53.1	ug/L		55.56	ND	96	75-125	3	20
Molybdenum	552	ug/L		555.6	5.26	98	75-125	3	20
Phosphorus	638	ug/L		555.6	57.5	105	75-125	4	20
Potassium	11.2	mg/L		5.556	5.82	97	75-125	0.7	20
Selenium	553	ug/L		555.6	0.817	99	75-125	0.6	20
Sodium	25.7	mg/L		5.556	20.3	98	75-125	0.4	20
Thallium	525	ug/L		555.6	ND	94	75-125	0.3	20
Lithium	552	ug/L		555.6	ND	99	75-125	5	200
Batch B144898 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B144898-CCB1)				Prepared & Analyzed: 10/07/21					
Fluoride	0.00	mg/L							
Calibration Check (B144898-CCV1)				Prepared & Analyzed: 10/07/21					
Fluoride	4.97	mg/L		5.000		99	90-110		
Batch B144948 - No Prep - SM 5310C 2000									
Calibration Blank (B144948-CCB1)				Prepared & Analyzed: 10/08/21					
Total Organic Carbon (TOC)	0.00	mg/L							
Calibration Check (B144948-CCV1)				Prepared & Analyzed: 10/08/21					
Total Organic Carbon (TOC)	5.00	mg/L		5.000		100	90-110		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B144948 - No Prep - SM 5310C 2000									
Matrix Spike (B144948-MS1)	**Sample: EJ00598-17**			Prepared & Analyzed: 10/08/21					
Total Organic Carbon (TOC)	11.0	mg/L		5.000	5.51	110	80-120		
Matrix Spike (B144948-MS2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/09/21					
Total Organic Carbon (TOC)	11.1	mg/L	Q1	5.000	5.64	110	80-120		
Matrix Spike Dup (B144948-MSD1)	**Sample: EJ00598-17**			Prepared & Analyzed: 10/08/21					
Total Organic Carbon (TOC)	10.9	mg/L		5.000	5.51	108	80-120	1	20
Matrix Spike Dup (B144948-MSD2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/09/21					
Total Organic Carbon (TOC)	11.8	mg/L	Q2	5.000	5.64	123	80-120	6	20
Batch B145002 - No Prep - SM 2540C									
Blank (B145002-BLK1)				Prepared & Analyzed: 10/11/21					
Solids - total dissolved solids (TDS)	< 17	mg/L							
LCS (B145002-BS1)				Prepared & Analyzed: 10/11/21					
Solids - total dissolved solids (TDS)	867	mg/L		1000		87	84.9-109		
Batch B145055 - No Prep - SM 2320B 1997									
Blank (B145055-BLK1)				Prepared & Analyzed: 10/11/21					
Alkalinity - bicarbonate as CaCO3	2.50	mg/L							
Duplicate (B145055-DUP1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/11/21					
Alkalinity - bicarbonate as CaCO3	87.5	mg/L	M		75.0			15	10
Batch B145056 - No Prep - SM 2320B 1997									
Blank (B145056-BLK1)				Prepared & Analyzed: 10/11/21					
Alkalinity - carbonate as CaCO3	< 2.0	mg/L							
Blank (B145056-BLK2)				Prepared & Analyzed: 10/11/21					
Alkalinity - carbonate as CaCO3	< 2.0	mg/L							
Duplicate (B145056-DUP1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/11/21					
Alkalinity - carbonate as CaCO3	< 10	mg/L			ND				10
Batch B145066 - 6020 Sol no prep - EPA 6020A									
Blank (B145066-BLK1)				Prepared: 10/12/21 Analyzed: 10/13/21					
Antimony	< 3.0	ug/L							
Arsenic	< 1.0	ug/L							
Barium	< 1.0	ug/L							
Beryllium	< 1.0	ug/L							
Boron	< 10	ug/L							
Cadmium	< 1.0	ug/L							
Calcium	< 0.10	mg/L							
Chromium	< 4.0	ug/L							
Cobalt	< 2.0	ug/L							
Iron	< 10	ug/L							
Lead	< 1.0	ug/L							
Magnesium	< 100	ug/L							
Manganese	< 1.0	ug/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B145066 - 6020 Sol no prep - EPA 6020A									
Blank (B145066-BLK1)				Prepared: 10/12/21 Analyzed: 10/13/21					
Mercury	< 0.20	ug/L							
Molybdenum	< 1.0	ug/L							
Potassium	< 0.10	mg/L							
Selenium	< 1.0	ug/L							
Sodium	< 0.10	mg/L							
Thallium	< 1.0	ug/L							
LCS (B145066-BS1)				Prepared: 10/12/21 Analyzed: 10/13/21					
Antimony	252	ug/L		250.0		101	80-120		
Arsenic	242	ug/L		250.0		97	80-120		
Barium	240	ug/L		250.0		96	80-120		
Beryllium	237	ug/L		250.0		95	80-120		
Boron	2350	ug/L		2500		94	80-120		
Cadmium	236	ug/L		250.0		95	80-120		
Calcium	23.7	mg/L		25.00		95	80-120		
Chromium	237	ug/L		250.0		95	80-120		
Cobalt	248	ug/L		250.0		99	80-120		
Iron	21200	ug/L		25000		85	80-120		
Lead	246	ug/L		250.0		99	80-120		
Magnesium	24100	ug/L		25000		96	80-120		
Manganese	233	ug/L		250.0		93	80-120		
Mercury	22.8	ug/L		25.00		91	80-120		
Molybdenum	237	ug/L		250.0		95	80-120		
Potassium	22.9	mg/L		25.00		92	80-120		
Selenium	246	ug/L		250.0		98	80-120		
Sodium	23.2	mg/L		25.00		93	80-120		
Thallium	243	ug/L		250.0		97	80-120		
Matrix Spike (B145066-MS3)	**Sample: EJ00598-18**			Prepared: 10/12/21 Analyzed: 10/13/21					
Antimony	257	ug/L		250.0	ND	103	75-125		
Arsenic	252	ug/L		250.0	3.51	99	75-125		
Barium	314	ug/L		250.0	67.3	99	75-125		
Beryllium	239	ug/L		250.0	ND	96	75-125		
Boron	2600	ug/L		2500	134	98	75-125		
Cadmium	234	ug/L		250.0	ND	94	75-125		
Calcium	45.3	mg/L		25.00	22.0	93	75-125		
Chromium	239	ug/L		250.0	0.490	95	75-125		
Cobalt	252	ug/L		250.0	ND	101	75-125		
Iron	21500	ug/L		25000	211	85	75-125		
Lead	248	ug/L		250.0	ND	99	75-125		
Magnesium	29700	ug/L		25000	5580	97	75-125		
Manganese	818	ug/L		250.0	607	84	75-125		
Mercury	23.6	ug/L		25.00	ND	94	75-125		
Molybdenum	241	ug/L		250.0	5.31	94	75-125		
Potassium	29.2	mg/L		25.00	5.92	93	75-125		
Selenium	249	ug/L		250.0	0.795	99	75-125		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B145066 - 6020 Sol no prep - EPA 6020A									
Matrix Spike (B145066-MS3)	**Sample: EJ00598-18**			Prepared: 10/12/21 Analyzed: 10/13/21					
Sodium	42.9	mg/L		25.00	20.1	91	75-125		
Thallium	241	ug/L		250.0	ND	96	75-125		
Matrix Spike Dup (B145066-MSD3)	**Sample: EJ00598-18**			Prepared: 10/12/21 Analyzed: 10/13/21					
Antimony	256	ug/L		250.0	ND	102	75-125	0.3	20
Arsenic	254	ug/L		250.0	3.51	100	75-125	0.9	20
Barium	310	ug/L		250.0	67.3	97	75-125	1	20
Beryllium	241	ug/L		250.0	ND	96	75-125	1	20
Boron	2590	ug/L		2500	134	98	75-125	0.3	20
Cadmium	237	ug/L		250.0	ND	95	75-125	1	20
Calcium	45.3	mg/L		25.00	22.0	93	75-125	0.2	20
Chromium	238	ug/L		250.0	0.490	95	75-125	0.6	20
Cobalt	251	ug/L		250.0	ND	100	75-125	0.4	20
Iron	21400	ug/L		25000	211	85	75-125	0.8	20
Lead	249	ug/L		250.0	ND	100	75-125	0.6	20
Magnesium	29500	ug/L		25000	5580	96	75-125	0.8	20
Manganese	817	ug/L		250.0	607	84	75-125	0.1	20
Mercury	23.2	ug/L		25.00	ND	93	75-125	2	20
Molybdenum	243	ug/L		250.0	5.31	95	75-125	0.7	20
Potassium	28.7	mg/L		25.00	5.92	91	75-125	2	20
Selenium	250	ug/L		250.0	0.795	100	75-125	0.3	20
Sodium	42.5	mg/L		25.00	20.1	90	75-125	0.8	20
Thallium	246	ug/L		250.0	ND	98	75-125	2	20
Batch B145132 - 6010 Sol no prep - EPA 6010B									
Blank (B145132-BLK1)				Prepared & Analyzed: 10/12/21					
Lithium	< 20	ug/L							
LCS (B145132-BS1)				Prepared & Analyzed: 10/12/21					
Lithium	513	ug/L		500.0		103	80-120		
Matrix Spike (B145132-MS1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/12/21					
Lithium	522	ug/L		500.0	1.01	104	75-125		
Matrix Spike (B145132-MS2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Lithium	548	ug/L		500.0	1.15	109	75-125		
Matrix Spike Dup (B145132-MSD1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/12/21					
Lithium	521	ug/L		500.0	1.01	104	75-125	0.1	200
Matrix Spike Dup (B145132-MSD2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Lithium	527	ug/L		500.0	1.15	105	75-125	4	200
Batch B145143 - No Prep - SM 2320B 1997									
Blank (B145143-BLK1)				Prepared & Analyzed: 10/12/21					
Alkalinity - bicarbonate as CaCO3	2.50	mg/L							
Duplicate (B145143-DUP1)	**Sample: EJ00598-03**			Prepared & Analyzed: 10/12/21					
Alkalinity - bicarbonate as CaCO3	50.0	mg/L			50.0			0	10
Duplicate (B145143-DUP2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B145143 - No Prep - SM 2320B 1997									
Duplicate (B145143-DUP2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Alkalinity - bicarbonate as CaCO3	50.0	mg/L			50.0			0	10
Batch B145145 - No Prep - SM 2320B 1997									
Blank (B145145-BLK1)				Prepared & Analyzed: 10/12/21					
Alkalinity - carbonate as CaCO3	2.50	mg/L							
Duplicate (B145145-DUP1)	**Sample: EJ00598-03**			Prepared & Analyzed: 10/12/21					
Alkalinity - carbonate as CaCO3	25.0	mg/L			25.0			0	10
Duplicate (B145145-DUP2)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Alkalinity - carbonate as CaCO3	25.0	mg/L			25.0			0	10
Batch B145176 - No Prep - SM 3500-Fe D MOD									
Calibration Blank (B145176-CCB1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	-0.0233	mg/L							
Calibration Check (B145176-CCV1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	1.00	mg/L		1.004		100	90-110		
Matrix Spike (B145176-MS1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/12/21					
Ferrous iron	0.978	mg/L		1.004	ND	97	80-120		
Matrix Spike Dup (B145176-MSD1)	**Sample: EJ00598-01**			Prepared & Analyzed: 10/12/21					
Ferrous iron	1.02	mg/L		1.004	ND	102	80-120	4	20
Batch B145177 - No Prep - SM 3500-Fe D MOD									
Calibration Blank (B145177-CCB1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	-0.00662	mg/L							
Calibration Check (B145177-CCV1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	1.00	mg/L		1.004		100	90-110		
Matrix Spike (B145177-MS1)	**Sample: EJ00598-11**			Prepared & Analyzed: 10/12/21					
Ferrous iron	0.416	mg/L	Q1	1.004	ND	41	80-120		
Matrix Spike Dup (B145177-MSD1)	**Sample: EJ00598-11**			Prepared & Analyzed: 10/12/21					
Ferrous iron	0.527	mg/L	Q2	1.004	ND	53	80-120	24	20
Batch B145178 - No Prep - SM 3500-Fe D MOD									
Calibration Blank (B145178-CCB1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	0.0101	mg/L							
Calibration Check (B145178-CCV1)				Prepared & Analyzed: 10/12/21					
Ferrous iron	1.05	mg/L		1.000		105	90-110		
Matrix Spike (B145178-MS1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Ferrous iron	< 0.20	mg/L	Q1	1.000	ND		80-120		
Matrix Spike Dup (B145178-MSD1)	**Sample: EJ00598-29**			Prepared & Analyzed: 10/12/21					
Ferrous iron	< 0.20	mg/L	Q2	1.000	ND		80-120		20
Batch B145182 - No Prep - SM 2320B 1997									
Blank (B145182-BLK1)				Prepared & Analyzed: 10/12/21					
Alkalinity - carbonate as CaCO3	< 2.0	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B145182 - No Prep - SM 2320B 1997									
Duplicate (B145182-DUP1)	**Sample: EJ00598-21**			Prepared & Analyzed: 10/12/21					
Alkalinity - carbonate as CaCO3	< 2.0	mg/L			ND				10
Batch B145183 - No Prep - SM 2320B 1997									
Blank (B145183-BLK1)				Prepared & Analyzed: 10/12/21					
Alkalinity - bicarbonate as CaCO3	< 2.0	mg/L							
Duplicate (B145183-DUP1)	**Sample: EJ00598-21**			Prepared & Analyzed: 10/12/21					
Alkalinity - bicarbonate as CaCO3	2.00	mg/L			ND				10

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Memos

Radium Subcontracted - report attached
Revised Report - QC added

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

M	Analyte failed to meet the required acceptance criteria for duplicate analysis.
Q1	Matrix Spike failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q2	Matrix Spike Duplicate failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q3	Matrix Spike/Matrix Spike Duplicate both failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q4	The matrix spike recovery result is unusable since the analyte concentration in the sample is greater than four times the spike level. The associated blank spike was acceptable.

Gail J Schindler

Certified by: Gail Schindler, Project Manager

ANALYTICAL REPORT

October 29, 2021

PDC Laboratory, Inc.

Sample Delivery Group:	L1416552
Samples Received:	10/12/2021
Project Number:	EJ00598
Description:	

Report To: Gail Schindler
2231 W. Altorfer Drive
Peoria, IL 61615

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

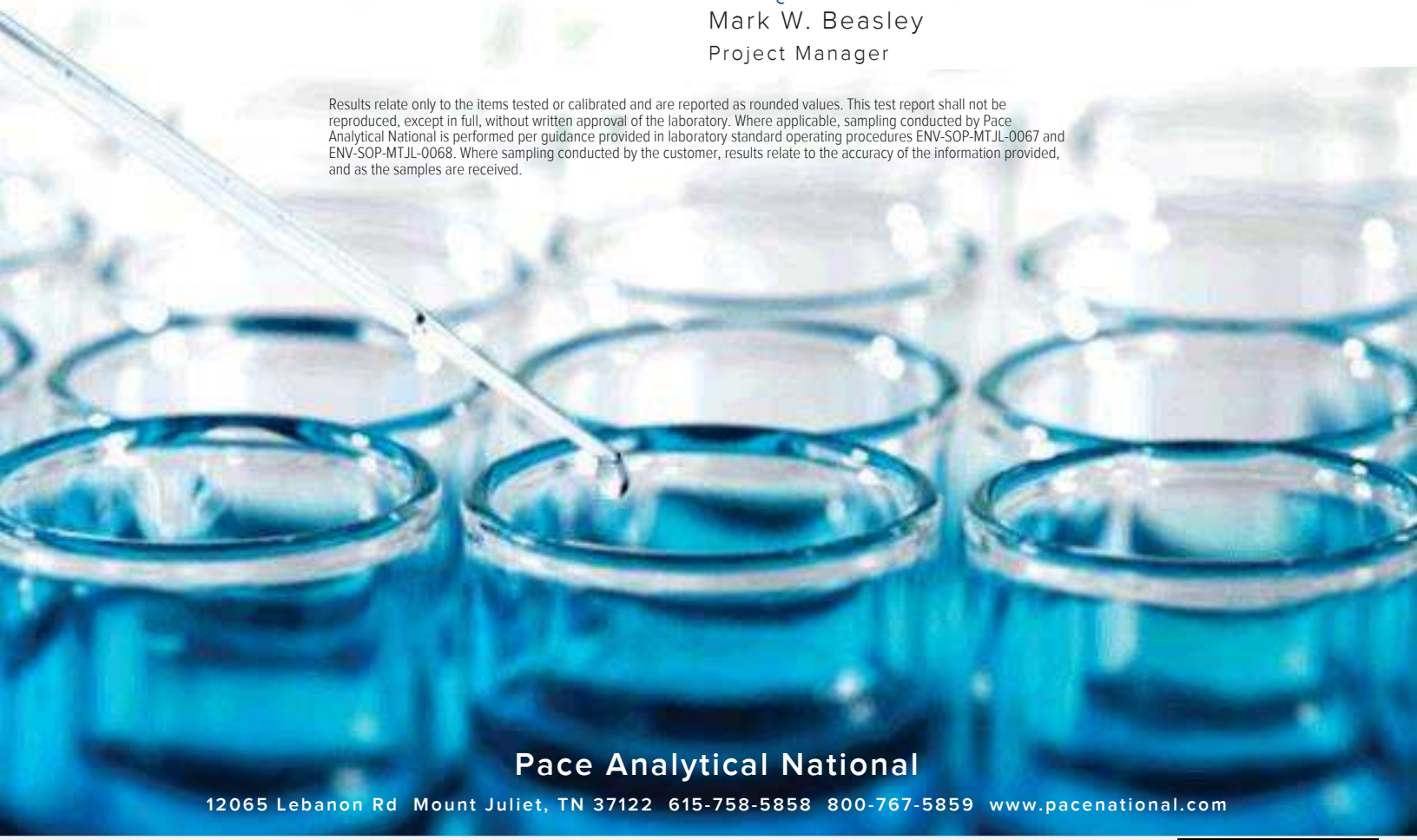


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EJ00598-01 L1416552-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 13:05	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-02 L1416552-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 11:50	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-03 L1416552-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 11:30	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-04 L1416552-04 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 11:15	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-05 L1416552-05 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 10:45	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-06 L1416552-06 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 10:35	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-07 L1416552-07 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 09:35	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-08 L1416552-08 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 09:15	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-09 L1416552-09 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 08:50	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-10 L1416552-10 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 16:30	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-11 L1416552-11 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 16:10	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-12 L1416552-12 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 15:50	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-13 L1416552-13 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 15:20	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-14 L1416552-14 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 14:55	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-15 L1416552-15 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 14:35	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/25/21 18:31	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/25/21 18:31	RGT	Mt. Juliet, TN

EJ00598-16 L1416552-16 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 14:00	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-17 L1416552-17 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 13:35	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-18 L1416552-18 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 13:18	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-19 L1416552-19 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 08:15	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-20 L1416552-20 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 10:00	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-21 L1416552-21 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 14:10	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-22 L1416552-22 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 10:45	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-23 L1416552-23 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 10:30	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-24 L1416552-24 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 10:00	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 21:27	RGT	Mt. Juliet, TN

EJ00598-25 L1416552-25 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 09:40	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-26 L1416552-26 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 09:25	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-27 L1416552-27 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 09:00	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-28 L1416552-28 Non-Potable Water

	Collected by	Collected date/time	Received date/time
		10/04/21 08:45	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

EJ00598-29 L1416552-29 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 08:05	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1758750	1	10/22/21 10:08	10/22/21 16:19	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1758750	1	10/22/21 10:08	10/22/21 16:19	RGT	Mt. Juliet, TN

EJ00598-30 L1416552-30 Non-Potable Water

Collected by	Collected date/time	Received date/time
	10/04/21 16:55	10/12/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754684	1	10/18/21 13:39	10/22/21 13:00	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754684	1	10/18/21 13:39	10/20/21 12:45	RGT	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley
Project Manager

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.721	U	0.368	0.699	10/19/2021 14:00	WG1755794
(T) Barium	*104*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*104*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0773	U	0.540	0.994	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0773	U	0.172	0.295	10/22/2021 16:19	WG1758750
(T) Barium-133	*93.0*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.000	U	0.351	0.649	10/19/2021 14:00	WG1755794
(T) Barium	*102*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*96.5*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0119	U	0.474	0.936	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0119	U	0.123	0.287	10/22/2021 16:19	WG1758750
(T) Barium-133	*89.3*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.227	U	0.344	0.632	10/19/2021 14:00	WG1755794
(T) Barium	*92.5*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*106*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.420	J	0.580	0.956	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.194	J	0.236	0.324	10/22/2021 16:19	WG1758750
(T) Barium-133	*96.7*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.467	J	0.341	0.618	10/19/2021 14:00	WG1755794
(T) Barium	*96.5*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*89.7*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.534	J	0.517	0.946	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0677	U	0.176	0.328	10/22/2021 16:19	WG1758750
(T) Barium-133	*87.5*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.201	U	0.294	0.54	10/19/2021 14:00	WG1755794
(T) Barium	*90.3*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*99.5*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.326	J	0.459	0.768	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.125	J	0.165	0.228	10/22/2021 16:19	WG1758750
(T) Barium-133	*92.5*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.169	U	0.312	0.586	10/19/2021 14:00	WG1755794
(T) Barium	*98.6*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*104*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0308	U	0.410	0.803	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0308	U	0.0983	0.217	10/22/2021 16:19	WG1758750
(T) Barium-133	*92.5*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.0798	U	0.462	0.856	10/19/2021 14:00	WG1755794
(T) Barium	*104*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*104*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0636	U	0.573	1.04	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0636	U	0.111	0.184	10/22/2021 16:19	WG1758750
(T) Barium-133	*97.5*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.633		0.347	0.624	10/19/2021 14:00	WG1755794
(T) Barium	*100*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*106*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.713	J	0.487	0.856	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0800	U	0.140	0.232	10/22/2021 16:19	WG1758750
(T) Barium-133	*85.5*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.704	J	0.461	0.834	10/19/2021 14:00	WG1755794
(T) Barium	*97.9*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*104*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.722	J	0.572	1.09	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0179	U	0.111	0.256	10/22/2021 16:19	WG1758750
(T) Barium-133	*96.3*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.62		0.345	0.586	10/19/2021 14:00	WG1755794
(T) Barium	*99.1*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*102*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.63		0.462	0.859	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0113	U	0.117	0.273	10/22/2021 16:19	WG1758750
(T) Barium-133	*94.0*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.457	J	0.325	0.589	10/19/2021 14:00	WG1755794
(T) Barium	*104*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*97.9*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.531	J	0.471	0.844	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0735	U	0.146	0.255	10/22/2021 16:19	WG1758750
(T) Barium-133	*88.0*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.370	J	0.286	0.519	10/19/2021 14:00	WG1755794
(T) Barium	*104*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*101*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.370	U	0.455	0.918	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	-0.0197	U	0.169	0.399	10/22/2021 16:19	WG1758750
(T) Barium-133	*82.2*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.433	J	0.278	0.502	10/19/2021 14:00	WG1755794
(T) Barium	*104*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*106*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.464	J	0.376	0.719	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0308	U	0.0983	0.217	10/22/2021 16:19	WG1758750
(T) Barium-133	*89.2*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.49		0.331	0.565	10/19/2021 14:00	WG1755794
(T) Barium	*88.4*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*105*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.75		0.544	0.756	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.256		0.213	0.191	10/22/2021 16:19	WG1758750
(T) Barium-133	*90.7*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0289	U	0.306	0.569	10/19/2021 14:00	WG1755794
(T) Barium	*102*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*106*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0381	U	0.443	0.834	10/25/2021 18:31	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0381	U	0.137	0.265	10/25/2021 18:31	WG1758750
(T) Barium-133	*101*			*30.0-143*	*10/25/2021 18:31*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.140	U	0.328	0.601	10/19/2021 14:00	WG1755794
(T) Barium	*106*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*98.8*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.252	U	0.502	0.869	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.112	J	0.174	0.268	10/22/2021 16:19	WG1758750
(T) Barium-133	*89.7*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.255	U	0.307	0.579	10/19/2021 14:00	WG1755794
(T) Barium	*93.5*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*103*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0987	U	0.507	0.914	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0987	U	0.200	0.335	10/22/2021 16:19	WG1758750
(T) Barium-133	*84.8*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.771		0.283	0.5	10/19/2021 14:00	WG1755794
(T) Barium	*96.9*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*99.4*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.826		0.450	0.817	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0550	U	0.167	0.317	10/22/2021 16:19	WG1758750
(T) Barium-133	*97.6*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.231	U	0.288	0.528	10/19/2021 14:00	WG1755794
(T) Barium	*97.2*			*62.0-143*	*10/19/2021 14:00*	WG1755794
(T) Yttrium	*106*			*79.0-136*	*10/19/2021 14:00*	WG1755794

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.231	U	0.456	0.871	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	-0.00423	U	0.168	0.343	10/22/2021 16:19	WG1758750
(T) Barium-133	*100*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.49		0.509	0.932	10/22/2021 13:00	WG1755799
(T) Barium	*85.8*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*98.6*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.49		0.650	1.26	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.00523	U	0.141	0.332	10/20/2021 12:45	WG1754684
(T) Barium-133	*93.4*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.330	U	0.438	0.833	10/22/2021 13:00	WG1755799
(T) Barium	*85.1*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*94.6*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.378	U	0.614	1.17	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0489	U	0.176	0.341	10/20/2021 12:45	WG1754684
(T) Barium-133	*92.1*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.582	J	0.345	0.648	10/22/2021 13:00	WG1755799
(T) Barium	*86.8*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*108*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.926	J	0.620	0.935	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.344		0.275	0.287	10/20/2021 12:45	WG1754684
(T) Barium-133	*103*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.413	U	0.299	0.592	10/22/2021 13:00	WG1755799
(T) Barium	*92.6*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*103*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.52		0.817	0.815	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.52		0.518	0.223	10/20/2021 12:45	WG1754684
(T) Barium-133	*94.9*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.353	U	0.312	0.616	10/22/2021 13:00	WG1755799
(T) Barium	*87.7*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*103*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.109	U	0.480	0.875	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.109	J	0.168	0.259	10/20/2021 21:27	WG1754684
(T) Barium-133	*95.3*			*30.0-143*	*10/20/2021 21:27*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.292	J	0.322	0.61	10/22/2021 13:00	WG1755799
(T) Barium	*91.6*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*100*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.502	J	0.523	0.83	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.210	J	0.201	0.22	10/20/2021 12:45	WG1754684
(T) Barium-133	*91.2*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.14		0.319	0.576	10/22/2021 13:00	WG1755799
(T) Barium	*92.6*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*103*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.17		0.406	0.768	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0273	U	0.0871	0.192	10/20/2021 12:45	WG1754684
(T) Barium-133	*93.6*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.69		0.383	0.685	10/22/2021 13:00	WG1755799
(T) Barium	*85.7*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*110*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.05		0.628	0.887	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.356		0.245	0.202	10/20/2021 12:45	WG1754684
(T) Barium-133	*98.3*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.000	U	0.310	0.598	10/22/2021 13:00	WG1755799
(T) Barium	*89.7*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*101*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.404	J	0.602	0.873	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.404		0.292	0.275	10/20/2021 12:45	WG1754684
(T) Barium-133	*89.7*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.282	J	0.311	0.592	10/22/2021 13:00	WG1755799
(T) Barium	*89.4*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*90.9*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.382	U	0.487	0.884	10/22/2021 16:19	WG1758750

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.101	U	0.176	0.292	10/22/2021 16:19	WG1758750
(T) Barium-133	*74.8*			*30.0-143*	*10/22/2021 16:19*	WG1758750

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.378	J	0.305	0.576	10/22/2021 13:00	WG1755799
(T) Barium	*89.5*			*62.0-143*	*10/22/2021 13:00*	WG1755799
(T) Yttrium	*106*			*79.0-136*	*10/22/2021 13:00*	WG1755799

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.534	J	0.510	0.866	10/22/2021 13:00	WG1754684

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.156	J	0.205	0.29	10/20/2021 12:45	WG1754684
(T) Barium-133	*88.2*			*30.0-143*	*10/20/2021 12:45*	WG1754684

Method Blank (MB)

(MB) R3719504-1 10/19/21 14:00

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	0.0509	U	0.247	0.456
(T) Barium	*103*		*103*	
(T) Yttrium	*93.5*		*93.5*	

L1416552-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1416552-06 10/19/21 14:00 • (DUP) R3719504-5 10/19/21 14:00

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.169	0.312	0.943	0.841	1	200	1.24	J	20	3
(T) Barium	*98.6*		*97.0*	*97.0*						
(T) Yttrium	*104*		*101*	*101*						

Laboratory Control Sample (LCS)

(LCS) R3719504-2 10/19/21 14:00

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.72	94.4	80.0-120	
(T) Barium			*100*		
(T) Yttrium			*105*		

L1416552-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1416552-07 10/19/21 14:00 • (MS) R3719504-3 10/19/21 14:00 • (MSD) R3719504-4 10/19/21 14:00

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.0798	19.2	17.9	115	107	1	70.0-130			7.44		20
(T) Barium		*104*			*102*	*100*							
(T) Yttrium		*104*			*94.8*	*99.1*							

Method Blank (MB)

(MB) R3723020-1 10/22/21 13:00

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / - pCi/l	MB MDA pCi/l
Radium-228	0.549		0.219	0.406
(T) Barium	*100*		*100*	
(T) Yttrium	*101*		*101*	

L1410735-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1410735-01 10/22/21 13:00 • (DUP) R3723020-5 10/22/21 13:00

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	13.8	0.572	12.3	1.02	1	11.9	1.33		20	3
(T) Barium	*198*		*146*	*146*				C1		
(T) Yttrium	*96.0*		*96.0*	*96.0*						

Laboratory Control Sample (LCS)

(LCS) R3723020-2 10/22/21 13:00

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.41	88.2	80.0-120	
(T) Barium			*102*		
(T) Yttrium			*96.8*		

L1416552-29 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1416552-29 10/22/21 13:00 • (MS) R3723020-3 10/22/21 13:00 • (MSD) R3723020-4 10/22/21 13:00

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.282	21.6	19.1	128	113	1	70.0-130			12.4		20
(T) Barium		*89.4*			*88.8*	*92.7*							
(T) Yttrium		*90.9*			*101*	*105*							

Method Blank (MB)

(MB) R3719656-1 10/20/21 12:45

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / - pCi/l	MB MDA pCi/l
Radium-226	0.0141	U	0.0450	0.0994
(T) Barium-133	*54.8*		*54.8*	

L1407821-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1407821-01 10/20/21 12:45 • (DUP) R3719656-5 10/20/21 12:45

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	26.1	2.14	25.0	2.03	1	4.07	0.353		20	3
(T) Barium-133	*95.8*		*97.9*	*97.9*						

Laboratory Control Sample (LCS)

(LCS) R3719656-2 10/20/21 12:45

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.12	102	80.0-120	
(T) Barium-133			*65.2*		

L1417794-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1417794-01 10/20/21 12:45 • (MS) R3719656-3 10/20/21 12:45 • (MSD) R3719656-4 10/20/21 12:45

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.124	19.8	20.3	97.7	100	1	75.0-125			2.50		20
(T) Barium-133		*85.7*			*92.3*	*87.2*							

Method Blank (MB)

(MB) R3721064-1 10/22/21 16:19

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / - pCi/l	MB MDA pCi/l
Radium-226	-0.0110	U	0.0210	0.0691
(T) Barium-133	*96.0*		*96.0*	

L1416552-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1416552-01 10/22/21 16:19 • (DUP) R3721064-5 10/22/21 16:19

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.0773	0.172	0.0376	0.0930	1	69.0	0.203	U	20	3
(T) Barium-133	*93.0*		*95.0*	*95.0*						

Laboratory Control Sample (LCS)

(LCS) R3721064-2 10/22/21 16:19

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.08	101	80.0-120	
(T) Barium-133			*98.1*		

L1416552-29 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1416552-29 10/22/21 16:19 • (MS) R3721064-3 10/22/21 16:19 • (MSD) R3721064-4 10/22/21 16:19

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.101	18.8	19.4	93.1	96.1	1	75.0-125			3.09		20
(T) Barium-133		*74.8*			*93.8*	*95.5*							

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C1	Tracer recovery limits have been exceeded; values are outside upper control limits.
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc. B115

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

L1416552

Sample: EJ00598-01
Name: N-D-2M

Sampled: 10/04/21 13:05
Matrix: Surface Water
Preservative: HNO3, pH <2

-01

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 13:05	

Sample: EJ00598-02
Name: ~~N-A-1D~~ N-A-2D GS

Sampled: 10/04/21 11:50
Matrix: Surface Water
Preservative: HNO3, pH <2

-02

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 11:50	

Sample: EJ00598-03
Name: ~~N-A-1M~~ N-A-2M GS

Sampled: 10/04/21 11:30
Matrix: Surface Water
Preservative: HNO3, pH <2

-03

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 11:30	

Sample: EJ00598-04
Name: N-A-1

Sampled: 10/04/21 11:15
Matrix: Surface Water
Preservative: HNO3, pH <2

-04

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 11:15	

Sample: EJ00598-05
Name: N-B-2D

Sampled: 10/04/21 10:45
Matrix: Surface Water
Preservative: HNO3, pH <2

-05

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 10:45	

21.5+0=21.5 ATGA

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

L1416662

Sample: EJ00598-06
Name: N-B-2M

Sampled: 10/04/21 10:35
Matrix: Surface Water
Preservative: HNO3, pH <2

-06

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 10:35	

Sample: EJ00598-07
Name: N-B-1

Sampled: 10/04/21 09:35
Matrix: Surface Water
Preservative: HNO3, pH <2

-07

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 09:35	

Sample: EJ00598-08
Name: N-C-2D

Sampled: 10/04/21 09:15
Matrix: Surface Water
Preservative: HNO3, pH <2

-08

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 09:15	

Sample: EJ00598-09
Name: N-C-2M

Sampled: 10/04/21 08:50
Matrix: Surface Water
Preservative: HNO3, pH <2

-09

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 08:50	

Sample: EJ00598-10
Name: N-F-2M

Sampled: 10/04/21 16:30
Matrix: Surface Water
Preservative: HNO3, pH <2

-10

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 16:30	21.5+0 = 21.5 Alm

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

L1416552

Sample: EJ00598-11
Name: N-F-1

Sampled: 10/04/21 16:10
Matrix: Surface Water
Preservative: HNO3, pH <2

-11

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 16:10	

Sample: EJ00598-12
Name: N-UA-1D

Sampled: 10/04/21 15:50
Matrix: Surface Water
Preservative: HNO3, pH <2

-12

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 15:50	

Sample: EJ00598-13
Name: N-UA-1M

Sampled: 10/04/21 15:20
Matrix: Surface Water
Preservative: HNO3, pH <2

-13

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 15:20	

Sample: EJ00598-14
Name: N-E-2D

Sampled: 10/04/21 14:55
Matrix: Surface Water
Preservative: HNO3, pH <2

-14

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 14:55	

Sample: EJ00598-15
Name: N-E-2M

Sampled: 10/04/21 14:35
Matrix: Surface Water
Preservative: HNO3, pH <2

-15

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 14:35	

21.5 to = 21.5
Alm

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

L1416552

Sample: EJ00598-16
Name: N-E-1

Sampled: 10/04/21 14:00
Matrix: Surface Water
Preservative: HNO3, pH <2

-16

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 14:00	

Sample: EJ00598-17
Name: N-D-1

Sampled: 10/04/21 13:35
Matrix: Surface Water
Preservative: HNO3, pH <2

-17

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 13:35	

Sample: EJ00598-18
Name: N-D-2D

Sampled: 10/04/21 13:18
Matrix: Surface Water
Preservative: HNO3, pH <2

-18

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 13:18	

Sample: EJ00598-19
Name: N-C-1

Sampled: 10/04/21 08:15
Matrix: Surface Water
Preservative: HNO3, pH <2

-19

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 08:15	

Sample: EJ00598-20
Name: N-DUP-1

Sampled: 10/04/21 10:00
Matrix: Surface Water
Preservative: HNO3, pH <2

-20

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 10:00	

21.5+0=21.5
AMK

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

LH16552

Sample: EJ00598-21
Name: N-FB-1

Sampled: 10/04/21 14:10
Matrix: Surface Water
Preservative: HNO3, pH <2

-21

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 14:10	

Sample: EJ00598-22
Name: N-I-2D

Sampled: 10/05/21 10:45
Matrix: Surface Water
Preservative: HNO3, pH <2

-22

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 10:45	

Sample: EJ00598-23
Name: N-I-2M

Sampled: 10/05/21 10:30
Matrix: Surface Water
Preservative: HNO3, pH <2

-23

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 10:30	

Sample: EJ00598-24
Name: N-I-1

Sampled: 10/05/21 10:00
Matrix: Surface Water
Preservative: HNO3, pH <2

-24

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 10:00	

Sample: EJ00598-25
Name: N-UA-2D

Sampled: 10/05/21 09:40
Matrix: Surface Water
Preservative: HNO3, pH <2

-25

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 09:40	

2.5 to = 21.5
Add

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

Pace Analytical - Mt Juliet, Tn
12065 Lebanon Rd
Mt Juliet, TN 37122
(615) 758-5858

L1416552

Sample: EJ00598-26
Name: N-UA-2M

Sampled: 10/05/21 09:25
Matrix: Surface Water
Preservative: HNO3, pH <2

-26

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 09:25	

Sample: EJ00598-27
Name: N-G-2D

Sampled: 10/05/21 09:00
Matrix: Surface Water
Preservative: HNO3, pH <2

-27

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 09:00	

Sample: EJ00598-28
Name: N-G-2M

Sampled: 10/05/21 08:45
Matrix: Surface Water
Preservative: HNO3, pH <2

-28

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 08:45	

Sample: EJ00598-29
Name: N-G-1

Sampled: 10/05/21 08:05
Matrix: Surface Water
Preservative: HNO3, pH <2

-29

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/03/22 08:05	ADD MS/MSD

Sample: EJ00598-30
Name: N-F-2D

Sampled: 10/04/21 16:55
Matrix: Surface Water
Preservative: HNO3, pH <2

-30

Analysis	Due	Expires	Comments
01-Radium 226/228 combined	10/14/21 16:00	04/02/22 16:55	

21.5 + 0 = 21.5

AGW

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

EJ00598

L14116552

Sample Receipt Checklist

COC Seal Present/Intact:	Y	N	If Applicable		
COC Signed/Accurate:	Y	N	VOA Zero Headspace:	Y	N
Bottles arrive intact:	Y	N	Pres.Correct/Check:	Y	N
Correct bottles used:	Y	N			
Sufficient volume sent:	Y	N			
RAD Screen <0.5 mR/hr:	Y	N			

Please email results to Gail Schindler at gschindler@pdclab.com

Date Shipped: 10-6-21 Total # of Containers: 32 Sample Origin (State): IL PO #: 15532

Turn-Around Time Requested ☑ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10-6-21 12:50		
		[signature]	10/11/21 9:30

Sample Temperature Upon Receipt	____ °C
Sample(s) Received on Ice	Y or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or N

PDC LABORATORIES, INC.
WWW.PDCLAB.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: **GOLDER & ASSOCIATES**

ADDRESS: **13515 BARRETT PKY DR, SUITE 260**

CITY / STATE / ZIP: **BALLWIN MO 63021**

CONTACT PERSON: **JEFFREY INGRAM**

PROJECT NUMBER | PROJECT LOCATION | PURCHASE ORDER #

PHONE NUMBER | E-MAIL | DATE SHIPPED

SAMPLER (PLEASE PRINT)

SAMPLER'S SIGNATURE

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # EJ00598-30
LOGGED BY: KEG
CLIENT: GOLDER & ASSOCIATES
PROJECT: GOLDER VISTRA NEWTON
PROJ. MGR.: GAIL SCHINDLER

2 SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL,F,NO3,SO4,CO,HCO3	AS*,B*,BA*,BE*,CA*	CD*,CO*,CR*,FE*,	FE+3**,FE+2**,K*,LI*	HG*,MG*,MN*,MO*,NA*,	P,PB*,S2,SB*,TOC,SE*	TDS,TL*,RAD 226/228	REMARKS
N-D-2M	10-4-21	1305	G		SW	9	2,3,4,6	✓	✓	✓	✓	✓	✓	✓	*DISSOLVED & TOTAL
N-A-2D		1150													**DISSOLVED Report as N-A-2M
N-A-1M		1130													Report as N-A-2M
N-A-2		1115													
N-B-2D		1045													
N-B-2M		~~1033~~ 1035													
N-B-1		0935													
N-C-2D		0915													
N-C-2M		0850													

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

DATE RESULTS NEEDED

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

EMAIL IF DIFFERENT FROM ABOVE:

PHONE # IF DIFFERENT FROM ABOVE:

6 *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

7 RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	10/5/21	1330		10/5/21	1330
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	10/5/21	1630		10/05/21	1630

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 2.2 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N

DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

PDC LABORATORIES, INC.
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REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: GOLDER & ASSOCIATES
ADDRESS: 13515 BARRETT PKY DR, SUITE 260
CITY STATE ZIP: BALLWIN MO 63021
CONTACT PERSON: JEFFREY INGRAM

PROJECT NUMBER | PROJECT LOCATION | PURCHASE ORDER #
PHONE NUMBER | E-MAIL | DATE SHIPPED
SAMPLER (PLEASE PRINT)
SAMPLER'S SIGNATURE

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # EJ00598-30
LOGGED BY: KEG
CLIENT: GOLDER & ASSOCIATES
PROJECT: GOLDER VISTRA NEWTON
PROJ. MGR.: GAIL SCHINDLER

(2) SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL,F,NO3,SO4,CO,HCO3	AS*,B*,BA*,BE*,CA*	CD*,CO*,CR*,FE*,	FE+3**,FE+2**,K*,LI*	HG*,MG*,MN*,MO*,NA*,	P,PB*,S2,SB*,TOC,SE*	TDS,TL*,RAD 226/228	REMARKS
N-F-2M	10/4/21	1630	G		SW	9	2,3,4,1	✓	✓	✓	✓	✓	✓	✓	*DISSOLVED & TOTAL
N-F-1		1610													**DISSOLVED
N-UA-1D		1550													
N-UA-1M		1520													
N-E-2D		1455													
N-E-2M		1435													
N-E-1		1400													
N-D-1		1335													
N-D-2D		1318													

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
DATE RESULTS NEEDED
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

(6) *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*
PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	10/5/21	1330		10/5/21	1330
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	10/5/21	1630	Kathryn Gray	10/05/21	1630

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 2.2 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

2

PDC LABORATORIES, INC.
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REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

OF CUSTODY RECORD

ERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: **GOLDER & ASSOCIATES**

ADDRESS: **13515 BARRETT PKY DR, SUITE 260**

CITY / STATE / ZIP: **BALLWIN MO 63021**

CONTACT PERSON: **JEFFREY INGRAM**

PROJECT NUMBER | PROJECT LOCATION | PURCHASE ORDER #

PHONE NUMBER | E-MAIL | DATE SHIPPED

SAMPLER (PLEASE PRINT)

SAMPLER'S SIGNATURE

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # EJ00598-30
LOGGED BY: KEG
CLIENT: GOLDER & ASSOCIATES
PROJECT: GOLDER VISTRA NEWTON
PROJ. MGR.: GAIL SCHINDLER

2 SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL,F,NO3,SO4,CO,HCO3	AS*,B*,BA*,BE*,CA*	CD*,CO*,CR*,FE*,	FE+3**,FE+2**,K*,LI*	HG*,MG*,MN*,MO*,NA*,	P,PB*,S2,SB*,TOC,SE*	TDS,TL*,RAD 226/228	REMARKS
N-C-1	10-4-21	0805	G		SW	9	2,3,4,	✓	✓	✓	✓	✓	✓	✓	*DISSOLVED & TOTAL
N-DUP-1	"	1000													**DISSOLVED
N-FB-1	"	1410													
N-MS-1	10/5/21	0805													
N-MSD-1	"	0805													

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

DATE RESULTS NEEDED

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

EMAIL IF DIFFERENT FROM ABOVE:

PHONE # IF DIFFERENT FROM ABOVE:

6 *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

7		DATE		
RELINQUISHED BY: (SIGNATURE)		10/5/21	RECEIVED BY: (SIGNATURE)	10/5/21
		TIME 1330		TIME 1850
RELINQUISHED BY: (SIGNATURE)		DATE	RECEIVED BY: (SIGNATURE)	DATE
		TIME		TIME
RELINQUISHED BY: (SIGNATURE)		DATE 10/5/21	RECEIVED BY: (SIGNATURE)	DATE 10/05/21
		TIME 1630		TIME 1630

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 2-2 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N

DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

3

PDC LABORATORIES, INC.
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REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: GOLDER & ASSOCIATES

ADDRESS: 13515 BARRETT PKY DR, SUITE 260

CITY / STATE / ZIP: BALLWIN MO 63021

CONTACT PERSON: JEFFREY INGRAM

PROJECT NUMBER: 21454831

PROJECT LOCATION: Newton

PURCHASE ORDER #:

PHONE NUMBER: 719-213-8548

E-MAIL: Jeffrey_Ingram@golder.com

DATE SHIPPED: 10/5/2021

SAMPLER (PLEASE PRINT): Eric Schneider

SAMPLER'S SIGNATURE:

MATRIX TYPES: WW- WASTEWATER; DW- DRINKING WATER; GW- GROUND WATER; WWSL- SLUDGE; NAS- NON AQUEOUS SOLID; LCHT-LEACHATE; OIL-OIL; SO-SOIL; SOL-SOLID

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)

LOGIN # EJ00598-30

LOGGED BY: KEN

CLIENT: GOLDER & ASSOCIATES

PROJECT: GOLDER VISTRA NEWTON

PROJ. MGR.: GAIL SCHINDLER

2 SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE (CLIENT PROVIDED)	CL,F,NO3,SO4,CO,HCO3	AS*,B*,BA*,BE*,CA*	CD*,CO*,CR*,FE*,	FE+3**,FE+2**,K*,LI*	HG*,MG*,MN*,MO*,NA*,	P,PB*,S2,SB*,TOC,SE*	TDS,TL*,RAD 226/228	REMARKS
~~N-F-2~~ N-I-2D	10-5-21	1045	G		SW	9	2, 3, 4,	✓	✓	✓	✓	✓	✓	✓	*DISSOLVED & TOTAL
N-I-2M		1030													**DISSOLVED
N-I-1		1000													
N-UA-2D		0940													
N-UA-2M		0925													
N-G-2D		0900													
N-G-2M		0845													
N-G-1		0805													
N-F-2D	10/4/21	1655													

CHEMICAL PRESERVATION CODES: 1 – HCL; 2 – H2SO4; 3 – HNO3; 4 – NAOH; 5 – NA2S2O3; 6 – UNPRESERVED; 7 – OTHER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

EMAIL IF DIFFERENT FROM ABOVE:

PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED

6 *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

7	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
		10/5/21	1330		10/5/21	1330
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
		10/5/21	1330			
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
		10/5/21	1630	Kathryn Gray	10/05/21	1630

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 2.0 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N

SAMPLE(S) RECEIVED ON ICE Y OR N

SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N

DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

4

MEMORANDUM

DATE November 19, 2021 **Project No.** 21454831

TO Project File
Golder Associates

CC Jeff Ingram

FROM Annie Muehlfarth **EMAIL AMuehlfarth@golder.com**

DATA VALIDATION SUMMARY, VISTRA MNA – NEWTON, SURFACE WATER SAMPLING, DATA PACKAGE EJ00598, INORGANIC

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- When a compound was detected in a blank (i.e. method, field), and the blank comparison criterion was not met, associated sample results were qualified as estimates (J) or non-detects (U).
- When duplicate criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When matrix spike/matrix spike duplicate (MS/MSD) criterion was not met, the associated sample result was qualified as an estimate (J for detects, UJ for non-detects).
- When a compound was detected in a sample result between the MDL and the PQL the results were recorded at the detection value and qualified as estimates (J).

Golder Associates Inc.
13515 Barrett Parkway Drive, Suite 260,
Ballwin, Missouri, USA 63021

T: +1 314 984-8800 F: +1 314 984-8770

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golder.com

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates, Inc
Project Manager: J. Ingram
Project Name: Vistra IL MNA - Newton
Project Number: 21454831
Reviewer: A. Muehlfarth
Validation Date: 11/19/2021

Laboratory: PDC and Pace Analytical National (Radium)
SDG #: EJ00598
Analytical Method (type and no.): Anions (EPA 300.0), Alkalinity (SM 2320B), TDS (SM 2540C), Sulfide (SM 4500 S2 F 2000*), Ferrous and Ferric Iron (SM 3500-Fe D MOD*),
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐ Dissolved and Total Metals (EPA 6020A/EPA 6010B*)
Sample Names N-D-2M, N-A-2D, N-A-2M, N-A-1, N-B-2D, N-B-2M, N-B-1, N-C-2D, N-C-2M, N-F-2M, N-F-1, N-UA-1D, N-UA-1M, N-E-2D, N-E-2M, N-E-1, N-D-1, N-D-2D, N-C-1, N-DUP-1, N-FB-1, N-I-2D, N-I-2M, N-I-1, N-UA-2D, N-UA-2M, N-G-2D, N-G-2M, N-G-1, N-F-2D

NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	x			10/4/2021 - 10/5/2021
b) Sampling team indicated?	x			EMS/JI/AMM
c) Sample location noted?	x			
d) Sample depth indicated (Soils)?			x	
e) Sample type indicated (grab/composite)?	x			Grab
f) Field QC noted?	x			See notes
g) Field parameters collected (note types)?	x			pH, Spec. Conductivity, turbidity, temperature, DO, ORP
h) Field Calibration within control limits?	x			
i) Notations of unacceptable field conditions/performances from field logs or field notes?		x		
j) Does the laboratory narrative indicate deficiencies?			x	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	x			
b) Was the COC signed by both field and laboratory personnel?	x			
c) Were samples received in good condition?	x			

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	x			
b) Were hold times met for sample analysis?	x			
c) Were the correct preservatives used?	x			
d) Was the correct method used?	x			
e) Were appropriate reporting limits achieved?	x			
f) Were any sample dilutions noted?	x			See Notes
g) Were any matrix problems noted?	x			See Notes

QA LEVEL II - INORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	x			See Notes
b) Were analytes detected in the field blank(s)?	x			See Notes
c) Were analytes detected in the equipment blank(s)?			x	
d) Were analytes detected in the trip blank(s)?			x	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	x			
b) Were the proper analytes included in the LCS?	x			
c) Was the LCS accuracy criteria met?	x			

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	x			N-DUP-1 @ N-B-1
b) Were field dup. precision criteria met (note RPD)?		x		See Notes
c) Were lab duplicates analyzed (note original and duplicate samples)?	x			
d) Were lab dup. precision criteria met (note RPD)?		x		

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, analytes included and concentrations)?			x	
b) Was the %D within control limits?			x	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?		x		See Notes
Recovery could not be calculated since sample contained high concentration of analyte?			x	
b) Was MSD accuracy criteria met?		x		See Notes
Recovery could not be calculated since sample contained high concentration of analyte?			x	
c) Were MS/MSD precision criteria met?		x		See Notes

Comments/Notes:

Dilutions: Sulfate, Ferric Iron, Soluble Metals (excluding lithium), and Total Metals (excluding lithium) were analyzed at a dilution in multiple samples. No qualification was required.

Blanks:

B145055-BLK1: Alkalinity (2.50), associated with samples -01, -02, -05 through -09, -12 through -15, -17, -18, -20, 25, 27, and -30.

Sample results greater than 10x blank result, no qualification necessary.

B145143-BLK1: Alkalinity (2.50), associated with samples -03, -04, -10, -11, -16, -19, -22, -23, -24, -26, -29, -29.

Sample results greater than 10x blank result, no qualification necessary.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Comments/Notes:

B145145-BLK1: Alkalinity (2.50), associated with samples -03, -04, -10, -11, -16, -19, -22, -23, -24, -26, -29, -29. Sample results greater than 10x blank result, no qualification necessary.

(MB) R3723020-1: Radium-228 (0.549 +/- 0.219). Associated with samples L1416552-20 through -30. Sample results <10x blank were qualified as an estimate (J).

FB:

N-FB-1 @ N-E-1: Dissolved Sodium (0.12). Associated result is >RL and 10x blank, no qualification necessary.

DUP:

N-DUP-1 @ N-B-1: DUP RPD exceeded limit (20%) for Total Iron (27.0%); Total Nitrate Nitrogen and Radium-228 detected in DUP and non-detect in sample.

The lab analyzed sample duplicates for Radium, TDS,

B144564-DUP2: RPD limit (5%) exceeded by TDS (27%). Associated with sample -20

B144565-DUP1: RPD limit (5%) exceeded by TDS (14%). Associated with sample -22

B144565-DUP2: RPD limit (5%) exceeded by TDS (7%). Associated with sample -23

B145055-DUP1: RPD limit (10%) exceeded by Alkalinity (15%). Associated with sample -01

MS/MSD:

B144698-MS1/B144698-MSD1: MS/MSD % recovery unusable since analyte concentration in sample is >4x spike for Chloride and Sulfate, associated with sample -29. Qualified as an estimate.

B144698-MS2/B144698-MSD2: MS/MSD % recovery unusable since analyte concentration in sample is >4x spike for Chloride and Sulfate, associated with sample -30. Qualified as an estimate.

B145177-MS1/B145177-MSD1: % recovery low and RPD exceeds limit for Ferrous Iron, associated with sample N-F-1. Qualified as an estimate.

QA LEVEL IV - INORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason
N-B-1	Total Iron	210	J	DUP RPD exceeds limit
"	Total Nitrate Nitrogen	0.03	UJ	Detected in DUP, ND in sample
"	Radium-228	-0.0798 +/- 0.462	UJ	Detected in MB, result <10x blank; Detected in DUP, ND in sample
N-DUP-1	Total Iron	160	J	DUP RPD exceeds limit
"	Total Nitrate Nitrogen	0.04	J	Detected in DUP, ND in sample
"	Radium-228	1.49 +/- 0.509	J	"
N-DUP-1	TDS	170	J	Lab DUP RPD exceeds limit
N-I-2D	"	200	J	"
N-I-2M	"	170	J	"
N-D-2M	Alkalinity	75	J	"
N-G-1	Chloride	9.5	J	MS/MSD % recovery not calculated, result >4x spike
"	Sulfate	39	J	"
N-F-2D	Chloride	9.6	J	"
"	Sulfate	40	J	"
"	Radium-228	0.378 +/- 0.305	J	Detected in MB, result <10x blank
N-I-2D	"	0.582 +/- 0.345	J	"
N-UA-2D	"	0.292 +/- 0.322	J	"
N-UA-2M	"	1.14 +/- 0.319	J	"
N-G-2D	"	1.69 +/- 0.383	J	"
N-G-1	"	0.282 +/- 0.311	J	"
N-F-1	Ferrous Iron	0.21	UJ	Non-detect, MS/MSD % recovery and RPD outside control limits

Signature: Ann Muehlforth Date: 11/19/2021

MEMORANDUM

DATE November 19, 2021 **Project No.** 21454831

TO Project File
Golder Associates

CC Jeff Ingram

FROM Annie Muehlfarth **EMAIL AMuehlfarth@golder.com**

DATA VALIDATION SUMMARY, VISTRA MNA – NEWTON, SURFACE WATER SAMPLING, DATA PACKAGE EJ00598, ORGANIC

The following is a summary of instances where quality control criteria in the functional guidelines were not met and data qualification was required:

- None.

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QA LEVEL II - ORGANIC DATA EVALUATION CHECKLIST

Company Name: Golder Associates, Inc
Project Manager: J. Ingram
Project Name: Vistra IL MNA - Newton
Project Number: 21454831
Reviewer: A. Muehlfarth
Validation Date: 11/1/2021

Laboratory: PDC
SDG #: EJ00598
Analytical Method (type and no.): Total Organic Carbon (SM 5310C 2000)
Matrix: ☐ Air ☐ Soil/Sed. ■ Water ☐ Waste ☐
Sample Names N-D-2M, N-A-2D, N-A-2M, N-A-1, N-B-2D, N-B-2M, N-B-1, N-C-2D, N-C-2M, N-F-2M, N-F-1, N-UA-1D, N-UA-1M, N-E-2D, N-E-2M, N-E-1, N-D-1, N-D-2D, N-C-1, N-DUP-1, N-FB-1, N-I-2D, N-I-2M, N-I-1, N-UA-2D, N-UA-2M, N-G-2D, N-G-2M, N-G-1, N-F-2D

NOTE: Please provide calculation in Comment areas or on the back (if on the back please indicate in comment areas).

Field Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	☒	☐	☐	10/4/2021 - 10/5/2021
b) Sampling team indicated?	☒	☐	☐	EMS/JI/AMM
c) Sample location noted?	☒	☐	☐	
d) Sample depth indicated (Soils)?	☐	☐	☒	
e) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
f) Field QC noted?	☒	☐	☐	See notes
g) Field parameters collected (note types)?	☒	☐	☐	pH, Spec. Conductivity, turbidity, temperature, DO, ORP
h) Field Calibration within control limits?	☒	☐	☐	
i) Notations of unacceptable field conditions/performances from field logs or field notes?	☐	☒	☐	
j) Does the laboratory narrative indicate deficiencies?	☐	☐	☒	

Note Deficiencies:

Chain-of-Custody (COC)	YES	NO	NA	COMMENTS
a) Was the COC properly completed?	☒	☐	☐	
b) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
c) Were samples received in good condition?	☒	☐	☐	

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were hold times met for sample pretreatment?	☒	☐	☐	
b) Were hold times met for sample analysis?	☒	☐	☐	
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were appropriate reporting limits achieved?	☒	☐	☐	
f) Were any sample dilutions noted?	☐	☒	☐	
g) Were any matrix problems noted?	☒	☐	☐	See Notes

QA LEVEL II - ORGANIC DATA EVALUATION CHECKLIST

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☐	☒	☐	
b) Were analytes detected in the field blank(s)?	☐	☒	☐	N-FB-1 @ N-E-1
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	

Laboratory Control Sample (LCS)	YES	NO	NA	COMMENTS
a) Was a LCS analyzed once per SDG?	☐	☒	☐	No LCS analyzed for TOC
b) Were the proper compounds included in the LCS?	☐	☐	☒	
c) Was the LCS accuracy criteria met?	☐	☐	☒	

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	N-DUP-1 @ N-B-1
b) Were field dup. precision criteria met (note RPD)?	☒	☐	☐	Max RPD: 3.6% [<20%]
c) Were lab duplicates analyzed (note original and duplicate samples)?	☐	☐	☒	
d) Were lab dup. precision criteria met (note RPD)?	☐	☐	☒	

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used (indicate name, compounds included and concentrations)?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Matrix Spike/Matrix Spike Duplicate (MS/MSD)	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☒	☐	☐	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
b) Was MSD accuracy criteria met?	☐	☒	☐	See Notes
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
c) Were MS/MSD precision criteria met?	☒	☐	☐	

Surrogate Spikes	YES	NO	NA	COMMENTS
a) Were surrogate recoveries within control limits?	☐	☐	☒	
b) Were surrogate recoveries not calculated due to dilutions?	☐	☐	☒	

Comments/Notes:

MS/MSD:

B144948-MSD2: MSD % recovery exceeds control limits. Associated with sample N-G-1. Only 1 QC indicator outside control limits, no qualification necessary.

QA LEVEL II - ORGANIC DATA EVALUATION CHECKLIST

Data Qualification:

Sample Name	Constituent(s)	Result	Qualifier	Reason

Signature: Ann Muehlfarth

Date: 11/1/2021

APPENDIX C
Geochemical Conceptual Site Model

Intended for
Illinois Power Generating Company

Date
April 3, 2024

Project No.
1940103584-008

GEOCHEMICAL CONCEPTUAL SITE MODEL

NEWTON PRIMARY ASH POND

NEWTON POWER PLANT

NEWTON, ILLINOIS

RAMBOLL Bright ideas. Sustainable change.

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Attachment 2. Eurofins Sequential Extraction Laboratory Report
Attachment 3. SGS Sequential Extraction Laboratory Report
Attachment 4. SGS X-Ray Diffraction (XRD) Laboratory Report
Attachment 5. SGS X-Ray Fluorescence (XRF) Laboratory Report
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Attachment 10. Laboratory Treatability Study Report

ACRONYMS AND ABBREVIATIONS

35 I.A.C.	Title 35 of the Illinois Administrative Code
CCR	Coal combustion residuals
CEC	Cation exchange capacity
ft bgs	Feet below ground surface
KD	Linear sorption coefficient
KL	Langmuir sorption coefficient
LOI	Loss on ignition
N&E	Nature and extent
NPP	Newton Power Plant
ORP	Oxidation reduction potential
PAP	Primary Ash Pond
PC	Principal component
PCA	Principal components analysis
Redox	Reduction-oxidation
SEP	Sequential extraction procedure
TDS	Total dissolved solids
UA	Uppermost aquifer
UD/PMP	Upper drift/potential migration pathway
XRD	X-ray diffraction
XRF	X-ray fluorescence

1. EXECUTIVE SUMMARY

This report documents the geochemical conceptual site model GCSM describing the conditions of the groundwater in the vicinity of Newton Power Plant (NPP) Primary Ash Pond (PAP). A GCSM describes the geochemical processes that contribute to the mobilization, distribution, and attenuation of chemicals in the environment. This report describes the GCSM for parameters that have exceeded the GWPS in PAP groundwater and which will be addressed in the corrective action plan. The exceedances observed at the PAP were sulfate, total dissolved solids (TDS), and lithium.

Groundwater was monitored in two hydrostratigraphic units: the shallow upper drift/potential migration pathway (UD/PMP) and the deeper uppermost aquifer (UA). The uppermost aquifer is shallowest (*i.e.*, in closest proximity to the upper drift/primary migration pathway) on the east side of the PAP. Groundwater in the UD/PMP and eastern UA wells tend to be geochemically similar: groundwater from these locations tends to be more oxidizing, exhibit lower pH, and have a cation signature dominated by calcium and magnesium. Groundwater in the rest of the UA tends to be more reducing (exhibiting higher dissolved iron concentrations), have higher pH, and have a greater contribution of sodium and potassium to the cation signature. These results suggest some degree of hydraulic connection between the UD/PMP and UA east of the PAP.

Sulfate is the major contributor to TDS in the PAP groundwater. Therefore, processes that control sulfate concentrations also control TDS. Elevated sulfate concentrations were observed in shallow groundwater wells (screened in the upper drift/primary migration pathway) and uppermost aquifer wells located east of the PMP. Sulfate in CCR porewater and the UD/PMP groundwater is correlated with sodium, indicating that dissolution of sodium sulfate from the CCR material is the primary source of sulfate to the CCR porewater. Sulfate exceedances in the UA, which occur exclusively on the east side of the PAP, are consistent with water migration from the UD/PMP. Potential sulfate attenuation mechanisms at the NPP PAP include sorption to solid-phase iron oxides. Based on results from laboratory batch testing, sulfate sorption may be more likely in the UA.

Lithium concentrations in groundwater are highest in UD/PMP and eastern UA groundwater. Although lithium was identified in solid samples located both upgradient and downgradient of the PAP, the similar distributions of lithium and sulfate suggest that CCR porewater is the primary source of lithium to the groundwater. The difference in groundwater lithium concentrations may be due to variability in porewater concentration or in attenuation to aquifer solids. Lithium in groundwater may be attenuated by sorption to exchangeable sites (readily reversible) or incorporation in clay mineral matrices (poorly reversible). According to results from laboratory batch testing, lithium may sorb to both UA/PMP and UA solids.

2. INTRODUCTION

This report documents the GCSM describing the conditions of the groundwater in the vicinity of NPP PAP. This GCSM serves as an attachment to thee NPP PAP Nature and Extent Report (NPP PAP N&E Report) and describes the chemical processes that contribute to the mobilization, distribution, and potential attenuation mechanisms of parameters that exceed the GWPS in PAP groundwater (*i.e.*, the nature of the exceedance parameters). Exceedances in PAP monitoring network wells were submitted to the Illinois Environmental Protection Agency (IEPA) in accordance with Illinois Administrative Code (I.A.C) Title 35 § 845 (35 I.A.C. § 845) for the second, third, and fourth quarters of 2023 (Ramboll, 2023, 2024a, b).The exceedances observed at the PAP were sulfate and total dissolved solids (TDS) at monitoring wells APW02, APW04, APW05S, and APW10 and lithium at monitoring well APW02. Wells APW02, APW04, and APW05 are screened in the upper drift/potential migration pathway (UD/PMP) and well APW10 is screened in the uppermost aquifer (UA).

2.1 Site Overview

A detailed overview of the site history, geology, and hydrogeology is presented in (NPP PAP N&E Report). Briefly, the NPP is located in Jasper County in the southeastern part of central Illinois, approximately seven miles southwest of the town of Newton. The PAP is located south of the NPP and surrounded by Newton Lake to the south, east, and west (**Figure 2-1**). Beyond the lake is agricultural land. The PAP is an unlined coal combustion residual (CCR) surface impoundment constructed in 1977 and used to manage CCR and non-CCR waste streams at the NPP. The PAP is known to contain bottom ash and fly ash derived from Illinois (pre-1997) and Powder River Basin (post-1997) coals.

There are six hydrostratigraphic units in the vicinity of the PAP: CCR, the UD/PMP, the upper confining unit, the UA, the lower confining unit, and the bedrock unit (from shallowest to deepest). The UD/PMP is composed of low permeability clays and silts of the Peoria Silt and Sangamon Soil with discontinuous sand and sandy clay lenses of the Hagarstown Member. The UA is a continuous zone of moderate permeability comprising poorly graded sand, silty sand, clayey sand, and gravel of the Mulberry Grove Formation. The UA is shallowest east of the PAP and deeper west of the PAP. Background and compliance monitoring well locations (per the Groundwater Monitoring Plan for the PAP; Ramboll, 2021) and the fourth quarter 2023 (Q4 2023) UA groundwater contours are shown on **Figure 2-1**. Groundwater flow in the UA is generally north to south beneath the center of the PAP (from APW05/APW06 toward APW09/APW15). Beneath the western portion of the PAP, flow is west to southwest converging towards a former surface drainage feature located west of the PAP and an area where the uppermost aquifer is lowest in elevation and has the highest hydraulic conductivity. Beneath the eastern portion of the PAP groundwater flows east to southeast (from APW05 toward APW11-APW14). The groundwater elevation within the PAP is greater than the groundwater elevation in the UD/PMP, indicating that there may be radial flow away from the unit within the UD/PMP.

2.2 Constituent Transport and Fate

Sulfate is the primary form of oxidized sulfur (S(VI)) in the environment and is a divalent oxyanion at pH values greater than 2 SU (Stumm and Morgan 1996). Sulfate in groundwater may sorb onto positively charged sites on solid metal oxide phases, most commonly iron and manganese oxides (Brown et al., 1999). The extent and strength of sulfate sorption to metal

oxide surfaces depends on pH, ionic strength, and oxide surface area available for sorption. Sulfate can also form insoluble complexes such as barite (BaSO4) (Nation Center for Biotechnology Information (NCBI), n.d.). Sulfate in groundwater may be reduced to elemental sulfur (S(0)) or sulfide (S(-II)) under sufficiently reducing conditions, a process governed by local microbial communities(Stumm and Morgan, 1996). Generally, reduced sulfur is less mobile in groundwater than sulfate. Reduced sulfur readily precipitates as metal sulfides and sorbs to solid phases (such as iron and manganese oxides; Stumm and Morgan, 1996).

TDS represents the mass of dissolved material in the water rather than a specific chemical constituent. Individual constituent contributions to TDS depend on both the concentration and molar mass of each contributor. Typically, major ions (*i.e.*, calcium, sodium, magnesium, potassium, chloride, sulfate, and carbonate species) represent the primary contributors to TDS. Therefore, source and sink terms that affect the primary contributors to TDS, such as sulfate, will ultimately have the greatest effect on TDS concentrations.

Lithium is a monovalent cation in the same periodic table group as sodium and potassium but has a smaller ionic radius. Lithium can sorb to exchangeable sites on metal oxides and clay minerals (Steinhoefel et al., 2021) but tends to be displaced by other cations during ion exchange. However, lithium sorbed to clays may be incorporated deeper into the mineral matrix for more permanent immobilization, a process which drives lithium fractionation in the environment (Li and Liu, 2020; Steinhoefel et al., 2021).

3. SOLIDS CHARACTERIZATION

3.1 Methods

Attachment 1 details CCR and aquifer solid boring locations and collection methodology. Both CCR and aquifer solid borings were located adjacent to monitoring wells at depth corresponding to screened intervals. **Table 3-1** summarizes boring identifiers and collection depths per **Attachment 1**; adjacent groundwater monitoring well names, used in this section to refer to the solid phase samples for easier comparison with groundwater results; and methods of analysis. Aquifer solids collected adjacent to APW05 represent upgradient (*i.e.*, background) conditions in the UA. The UD and PMP are discussed together because they are screened at similar depths and only one sample location represents the PMP (APW05S). The UD/PMP does not have background samples due to the hydraulic gradients between the pond and the UD/PMP.

Bulk solids characterization included cation exchange capacity (CEC), loss on ignition (LOI), X-ray fluorescence (XRF), and total metals. The CEC of a solid phase represents the negative surface charge, and therefore the potential to sorb cations such as lithium. Clays and organic matter in aquifer materials typically carry a negative surface charge and therefore tend to enhance cation exchange capacity. LOI represents the combustible portion of a solid material and is often an approximation of organic matter in a sample. Therefore, it may be inferred that organic matter (as quantified by LOI) is a major contributor to CEC if CEC and LOI are directly correlated in solid phase materials. XRF analysis is a test that measures the fluorescent x-rays emitted from a solid sample excited by a primary x-ray source to quantify the relative proportions of major elements in a sample. Results from XRF analysis are reported as oxides due to the borate fusion preparation method used.

Sequential extraction procedure (SEP) is an analytical method that uses progressively stronger reagents to dissolve solid phase fractions and measures the metal content associated with each fraction. The natures of the solid-phase fractions are functionally defined by the reagents used in each dissolution step and should therefore not be considered definitive characterizations.

Metals in aquifer solids samples were analyzed by SEP by Eurofins in 2021 and by SGS in 2023. The two labs used different methods for the SEP analysis: Eurofins used a seven-step procedure while SGS used a six-step procedure (**Attachment 2** and **Attachment 3** respectively for details). The extractions performed for the two test methods generally target a similar set of soil fractions, though variations in extraction conditions and reagents (**Table 3-2**) may lead to differences in absolute values. It is therefore helpful to define nomenclature to discuss results based on the target fractions. In the Eurofins 2021 seven-step procedure, step three ("Non-Crystalline Materials") represents, in part, non-crystalline iron and manganese oxides, while step four ("Metal Hydroxides") encompasses more crystalline iron and manganese oxides. In the SGS 2023 six-step procedure, the iron and manganese oxides (implicitly both non-crystalline and crystalline) are represented by a single "Fe and Mn Oxides" fraction (step four). In the following discussion, "metal oxides" is used to describe Eurofins steps three and four and SGS step four results across analyses. In the Eurofins 2021 seven-step procedure, the most recalcitrant (*i.e.,* resistant to mobilization) fractions are extracted separately as "Acid/Sulfides" (step six, extracted by aqua regia) and "Residual" (step seven, extracted by mixed acids including HF), whereas in the SGS 2023 six-step procedure the "Residual" (step six, extracted by mixed acids including HF) fraction will encompass all of the recalcitrant material. Therefore, "recalcitrant" is used to

describe Eurofins steps six and seven and SGS step six results across analyses. Differences in results between the two methods may also be due to sample heterogeneity as different depths may have been analyzed for the same location and hydrostratigraphic unit (summarized in **Table 3-1**). The percent contribution of each fraction was calculated by summing the results of fractions one through seven (excluding non-detect values) and dividing each detected result by that sum.

Mineralogy was determined using x-ray diffraction (XRD), TESCAN integrated mineral analysis (TIMA), and electron microprobe analysis (EMPA) with laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). Identifying mineral phases aids in understanding attenuation mechanisms and aquifer capacity. XRD quantifies the relative proportion of crystalline mineral phases by comparing the x-ray diffraction patterns observed in a sample to those of known compounds in a reference database. TIMA identifies mineral phases using a combination of energy dispersive X-ray silicon drift detectors and backscattered electron and secondary electron detectors. EMPA analyzes the chemical composition of selected minerals (in this case, clays and micas). LA-ICP-MA is combined with EMPA to determine the lithium content of the clays and micas characterized by EMPA.

3.2 CCR

The SEP results for lithium, iron, and manganese in CCR materials are shown in **Figure 3-1** and tabulated in **Table 3-3**. Iron and manganese oxides and hydroxides tend to coat soil particles and carry a surface charge that vary based on pH. Iron and manganese oxides and hydroxides therefore represent possible sorption sites for many ions, including lithium and sulfate. There is considerable heterogeneity in lithium, iron, and manganese concentrations and dominant SEP fractions between the two sampling locations.

Results of XRD characterization of CCR solids are summarized in **Table 3-4** (lab report in **Attachment 4**). The material from XPW01 was primarily quartz with other major contributions from albite (a sodium-rich feldspar), microcline (a potassium-rich feldspar), and muscovite (a mica). In contrast, the material from XPW04 contained a lower proportion of quartz and had at least 8% contribution each from albite, calcite (calcium carbonate), diopside, perovskite, and gehlenite. Perovskite, gehlenite, and many of the trace (<5% abundance) minerals found in XPW04 (periclase, hematite, magnetite, mullite, and ganophyllite) were not detected in XPW01.

The SEP and XRD characterization of these two CCR samples suggest considerable variability in the chemical composition of the CCR stored in the PAP. Additionally, the differences in SEP fractions and minerals suggest differences in chemical mobility between the two samples. The ash composition and the local geochemical environment will control porewater composition within the unit.

3.3 Aquifer Solids

3.3.1 Bulk Characterization

Figure 3-2 shows the CEC and LOI results for solid samples from the aquifer solids. The UD and PMP samples typically had a higher CEC and lower LOI (suggesting lower organic content) relative to the UA samples. This suggests that the greater CEC of the UD and PMP samples is not related to greater organic matter content and may instead be due to clay mineral components.

3.3.2 Metals

Figure 3-3 shows the concentrations of iron, manganese, and lithium in each SEP fraction as well as the proportion each fraction represents out of the summed SEP results for samples analyzed in 2021 (**Figure 3-3a**) and 2023 (**Figure 3-3b**) (results tabulated in **Table 3-3**). Summed iron in the 2021 UD/PMP results was lowest in APW05S and highest in APW02. In 2023 analyses, summed SEP iron was lowest in APW05S and highest in APW04. APW05S may have the lowest concentrations of iron due to a smaller surface area of sandier PMP material. In both analyses, over 50% of the total iron was in the recalcitrant fractions followed by presence in the metal oxide fractions. The 2021 results indicate that in the UD/PMP, iron was not abundant in the non-crystalline material (<3% of iron). Summed SEP iron concentrations in the UA were similar to UD/PMP concentrations, and downgradient concentrations were not consistently different from the background location. Similar to in the UD/PMP, iron in UA samples in both the 2021 and 2023 analyses was most abundant in the recalcitrant fractions followed by the metal oxide fractions. Results from the 2021 samples indicate that iron in UA samples is present in more equal proportion between the non-crystalline material and metal hydroxide fractions in the UA relative to the UD/PMP. The exception to this is the sample from APW10, which has a distribution more similar to UD/PMP wells. Non-crystalline iron hydroxides tend to have a greater capacity to sorb ions compared to more crystalline phases (Trivedi & Axe, 2001). These results suggest that despite similar concentrations of iron in the combined non-crystalline material and metal hydroxide fractions in the UD/PMP and UA, solid-phase iron in many UA locations may have greater capacity for sorbing ions.

Summed SEP manganese concentrations in the UD/PMP were lowest in APW05S and highest in APW04 in both 2021 and 2023 results. Similar to iron, APW05S may have the lowest concentrations of manganese due to a smaller surface area of sandier PMP material. Summed SEP manganese concentrations at downgradient UA locations were not consistently different from the background location. The 2021 analysis of UD/PMP and UA samples shows manganese distributed throughout the carbonate, non-crystalline material, metal hydroxide, and recalcitrant fractions, whereas the 2023 analysis showed the majority of the manganese in the carbonate fraction in both UA and UD/PMP samples. The 2021 analysis shows that the proportion of manganese in the non-crystalline material in UA samples tended to be lower relative to the UD/PMP, potentially indicating greater manganese oxide crystallinity in the UA compared to the UD/PMP. These results indicate that manganese is predominantly in reactive, rather than recalcitrant, in UD/PMP and UA aquifer solids.

Summed SEP results for lithium are slightly higher in the UD/PMP relative to the UA in both 2021 and 2023 analyses. Summed SEP lithium concentrations at UA compliance locations were not consistently different from the background location. Results from 2021 SEP analysis indicate that lithium is predominantly in the recalcitrant fractions and organic fraction with a small proportion in the metal hydroxide fraction in both the UD/PMP and UA. Results from 2023 suggest that lithium is predominantly in the recalcitrant fractions with a some in the Fe Mn oxide fraction and even less in the organic, carbonate, and exchangeable fractions in both UD/PMP and UA samples. This discrepancy in organic phase results may be due to the difference in reagents used (see **Section 3.1**). The higher lithium concentrations in the UD/PMP relative to the UA are largely due to a higher concentration measured in the recalcitrant fractions.

In general, these results indicate that lithium is strongly associated with recalcitrant solid-phase fractions (rather than weakly bound in the water soluble or exchangeable fractions). The

presence of lithium in the recalcitrant fraction of the background location indicates some naturally occurring lithium within the aquifer. However, aqueous lithium in groundwater may contribute to the lithium found in the metal oxide fractions by co-precipitation or sorption and/or to the recalcitrant fractions by sorption to clays and incorporation into the clay matrix (Steinhoefel, et al., 2021).

Aquifer solid contents were also analyzed by X-ray fluorescence (XRF) (**Attachment 5**). XRF analyses determine the percent by weight of individual elements (reported as their oxides due to the analytical method) based on their electron properties. Unlike in XRD, the XRF results are not normalized to 100%, so some proportion of the mass remains uncharacterized. **Figure 3-4** shows XRF results for the 2023 solids samples (the 2021 samples were not analyzed by XRF; **Table 3-1**). The dominant element in the XRF analysis was silicon, a major component of quartz (omitted from **Figure 3-4** due to scale). The next most prevalent species was aluminum, the other major component of aluminosilicate minerals. Calcium and magnesium, the central species in many carbonate minerals, were also abundant in all samples with the exception of APW05S. Iron was also relatively abundant in the XRF analysis, consistent with SEP results.

3.3.3 Mineralogical Analysis

The mineralogical composition of UD/PMP and UA solid phase samples was characterized by XRD (**Attachment 4**) and TESCAN integrated mineral analysis (TIMA) (**Attachment 6**). **Figure 3-5** shows the XRD results for the 2021 and 2023 samples (tabulated with mineral formulas in **Table 3-4**). XRD results are normalized to 100% of the total weight, meaning that material not characterized by XRD is ignored in the percent calculation. The dominant crystalline mineral contributor to solids in the UD and UA is quartz, which is omitted from **Figure 3-5** due to scale. In most samples, the next most abundant mineral phases were the carbonate minerals dolomite ($CaMg(CO_3)_2$) and calcite ($CaCO_3$). This finding is consistent with the abundance of manganese associated with the carbonate fraction in the SEP analysis. The one notable exception to the general abundance of carbonate minerals is the 2023 sample of APW05S, which had minimal carbonate minerals detected in the 2023 sample. This is consistent with the low contributions of calcium and magnesium in the XRF results measured on a sample from the same depth range, 10 to 16.6 feet below ground surface (ft bgs). In contrast, the 2021 XRD analysis for APW05S (collected from 18-20 ft bgs; **Table 3-1**) showed more abundant carbonate minerals. This difference in results at APW-05S indicates variability in aquifer solid composition within the PMP at this location. Muscovite, a phyllosilicate clay mineral, is more prevalent in most UD/PMP samples relative to UA samples. Other mineral phases detected include tectosilicate minerals (albite, orthoclase, and microcline); other phyllosilicate minerals (biotite and chlorite); inosilicate minerals (diopside and actinolite); ankerite (a carbonate mineral with varying proportions of calcium, magnesium, iron, and manganese as cations); and fluorapatite (a phosphate mineral). These minerals do not show substantial variability between UD/PMP and UA samples. Montmorillonite was detected only in the 2023 APW05S sample. The UA compliance samples did now show consistent variability relative to the background sample results.

Three UD/PMP samples were analyzed by TIMA (**Figure 3-5**). These samples represented the same depth ranges as those analyzed by XRD in 2023 (**Table 3-1**). The dominant mineral phase in all samples was quartz (omitted from **Figure 3-5** due to scale). Mixed clays/micas represented the next most abundant phase at APW04 and APW05S and had notably lower contributions to APW02. Plagioclase minerals (the mineral family to which albite, which was identified in XRD analysis, belongs) were prevalent in all three samples. Calcite and dolomite were also prevalent

phases samples from APW02 and APW04 but not in APW05S, consistent with the 2023 XRD results for carbonate minerals.

Figure 3-6 shows the results of the EMPA and LA-ICP-MS analysis. Data for EMPA is reported as a mass percent for the simple oxide of each element (**Attachment 7**). For Figure 3-6, mass percent was converted to the moles of each element and the mole fraction was obtained by normalizing to total moles of all elements. Using mole fraction rather than mass percent allows for a direct comparison of the abundance of each element independent of their weight. EMPA analysis identified that the composition of mixed clays/micas is predominantly silicon and aluminum followed by either calcium (APW02) or iron (APW04 and APW05S) (**Figure 3-6**). Concentrations of lithium in mixed clays/micas were between 53.3 mg/kg and 93.3 mg/kg, which are higher than concentrations observed in the total soil analyzed by SEP. This suggests that lithium is at higher concentrations in mixed clays/micas than in other mineral phases.

4. AQUEOUS CHARACTERIZATION

The PAP porewater and groundwater data discussed in this section are summarized in **Table 4-1** and tabulated in full in **Attachment 8**. Over time, different parameters have been collected at different frequencies at various wells due to the regulatory history of the unit. Wells in this discussion are grouped by the hydrostratigraphic unit in which they are screened (CCR porewater, UA, or UD/PMP) and by their classification in the monitoring network (background [B] or compliance [C]). Background wells are only screened in the UA (APW05 and APW06); upgradient UD/PMP locations are not available due to the hydraulic gradients present around the unit (NPP PAP N&E Report). Porewater is evaluated as a mobile source endmember representing conditions within the unit since collection began in 2021 (**Table 4-1**).

4.1 Exceedance Parameters and CCR Tracers

Figure 4-1 shows boxplots of boron, sulfate, and lithium data collected since 2015 from porewater, background groundwater, and compliance groundwater. Boron and sulfate are commonly used CCR tracers, and sulfate and lithium are the exceedance parameters of interest at the PAP because TDS includes sulfate concentrations. Boron is higher in all CCR porewater wells relative to groundwater and is highest in XPW01. With the exception of UD well APW03, boron concentrations in compliance groundwater are within the range of background boron concentrations. Compliance wells with the highest sulfate concentrations are UD/PMP wells and UA wells located east of the PAP where the UA is closest to the ground surface (APW10, APW11, APW13, and APW14). These eastern UA wells represent the extent of elevated sulfate in the UA and are referred to as a group throughout this discussion. Sulfate concentrations at other UA wells were largely consistent with background. Lithium was highest in porewater location XPW01 and UD well APW02. Lithium concentrations were generally higher in the UD and in eastern UA wells compared to background and other UA compliance wells.

4.2 Redox/pH Summary

The reduction-oxidation (redox) potential and pH of water are major controls on the speciation of redox-active chemicals such as iron, manganese, and sulfate. The redox potential of a solution is often measured in the field as the oxidation-reduction potential (ORP). ORP measurements represent the average electrical potential of all chemical species an aqueous solution. Eh is the measure of redox potential based on the standard hydrogen electrode and is calculated by converting an ORP measurement using an equation appropriate to the type of electrode used in the ORP sensor (typically silver/silver chloride or calomel). All Eh values presented here were converted from ORP measurements based on the guidance[1] provided by the field meter manufacturer (Horiba).

Figure 4-2 summarizes all available[2] measurements of Eh and pH in boxplots. CCR porewater tends to have more reducing and more basic conditions relative to groundwater wells. Wells in the UD tend to have more oxidizing conditions relative to wells in the UA (including UA background) with the exception of APW10, which has the most oxidizing groundwater in the UA and is comparable to conditions in the UD/PMP. Other UA compliance wells have Eh potentials

[1] https://static.horiba.com/fileadmin/Horiba/Products/Process_and_Environmental/Water_Pollution/Instruction_Manuals/U-50/U-50_Manual.pdf
[2] Data from 2023 Q1 excluded due to a malfunctioning ORP meter.

consistent with background. Wells in the UD/PMP tend to have lower pH relative to UA wells, and UA compliance wells have pH values consistent with background locations.

4.2.1 Pourbaix Diagram

Pourbaix diagrams show the predicted speciation of a constituent across pH values and redox potentials at thermodynamic equilibrium. **Figure 4-3** shows the median of the three most recent groundwater samples (Q2, Q3, and Q4 of 2024) plotted on the Pourbaix diagrams for manganese and iron species. Iron and manganese oxides and hydroxides tend to coat soil particles and carry a surface charge that varies based on pH. Iron and manganese oxides and hydroxides therefore represent possible sorption sites for many ions, including lithium and sulfate. The median metal concentrations (below), groundwater temperature (17 degrees Celsius), and bicarbonate alkalinity concentration (504 mg/L) were used to generate the aqueous and mineral equilibrium phases present on the diagram. Using median results as inputs allows for an evaluation of the prevailing conditions in the groundwater; however, speciation predictions for individual sample points are approximate.

The median dissolved manganese concentration in groundwater (0.083 mg/L) was used in the manganese Pourbaix diagram (**Figure 4-3a**). Manganese oxides (represented by birnessite, a common manganese oxide in soils) are not expected to be stable at any of the Eh and pH values observed in the porewater and groundwater. At lower pH values, manganese is expected to exist as the reduced divalent cation (Mn^{++}). At higher pH values representative of background and UA groundwater conditions, samples plot closer to rhodochrosite ($MnCO_3$) stability. The pH at which rhodochrosite is expected to form depends on the alkalinity. In general, rhodochrosite is closer to saturation in UA samples relative to UD/PMP samples. Although rhodochrosite was not observed in the XRD or TIMA analysis, manganese was associated with the carbonate phase in the SEP analysis and reduced manganese may substitute as a cation in carbonate minerals.

The median dissolved iron concentration in groundwater (1.3 mg/L) was used in the iron Pourbaix diagram (**Figure 4-3b**). Crystalline iron oxide phases (hematite, magnetite, and goethite) are suppressed because these phases were not detected in XRD or TIMA samples. Amorphous solid-phase iron hydroxides ($Fe(OH)_3$(ppd)) are expected to be generally stable at UD/PMP locations and at UA well APW10. The pH and redox signatures of other UA groundwaters approaches the line of equilibrium between iron oxides, dissolved ferrous iron (Fe^{++}), and siderite. Although siderite was not observed in the XRD or TIMA analysis, ankerite with a composition of $CaFe(CO_3)_2$ was detected in XRD and a small amount of iron was associated with the carbonate phase in the SEP analysis. Therefore, a mixed cation carbonate phase may host iron. The position of the UA samples relatively close to the intersection of $Fe(OH)_3$(ppd), ferrous iron, and an iron carbonate suggest that equilibrium reactions between these phases may occur in the groundwater.

4.2.2 Manganese and Iron Concentrations

Figure 4-4 presents boxplots summarizing dissolved ferrous iron, dissolved iron, and dissolved manganese concentrations in groundwater and porewater. Aqueous manganese concentrations are lowest in the porewater, and the median concentration of manganese is higher in the UD/PMP than the UA. The highest UA manganese concentrations were in the eastern UA wells. Dissolved ferrous iron (measured on filtered samples in the field using a colorimetric kit with a range of 0 to 6 mg/L and photometer) and dissolved iron concentrations were highest in both background and downgradient UA samples. APW10 was a low outlier in dissolved iron concentrations in the UA,

which is consistent with the more oxidizing conditions at this well contributing to $Fe(OH)_3$ stability. The UD/PMP groundwater samples had the highest frequency of dissolved ferrous iron and dissolved total iron below the detection limits but had lower median and maximum concentration than in CCR porewater.

Median dissolved manganese and dissolved iron concentrations for each well are shown in **Figure 4-5** with respect to longitude (x axis) and depth below ground surface (y axis), with all wells projected onto the same plane. Dissolved manganese is higher in UD/PMP and shallow eastern UA wells, whereas dissolved iron concentrations are higher in UA wells (with the exception of APW10, which is a low outlier as discussed earlier) relative to UD/PMP wells. Dissolution of manganese-containing carbonate minerals due to lower pH may be the source of elevated manganese in UD/PMP and eastern UA wells. Based on the dissolved iron concentrations and the Pourbaix diagram (**Figure 4-3b**), conditions in the UD/PMP and APW10 groundwater are insufficiently reducing to cause substantial iron reduction, whereas the rest of the UA groundwater is more likely to be iron reducing.

4.3 Major Ion Distribution/Signature

The major ion signature of the porewater and groundwater can be visualized using a Piper diagram. A piper diagram of the three most recent sampling events for each sampling location is shown in **Figure 4-6**. Porewater is consistently characterized by a higher proportion (>65%) of monovalent cations (*i.e.*, Na^+ and K^+) relative to divalent cations (*i.e.*, Ca^{2+} and Mg^{2+}), with monovalent cation contributions at porewater locations XPW01 and XPW04 consistently greater than 95%. Porewater locations show considerable heterogeneity in anion composition by location. Porewater location XPW03 has a relatively even proportion of carbonate species (i.e., HCO_3^- and CO_3^{-2}) versus sulfate and chloride, while XPW04 has over 95% contribution from sulfate and chloride.

Background groundwater at the site has roughly equivalent proportions of monovalent and divalent cations and is dominated by carbonate species over sulfate and chloride. Groundwater in the UD/PMP has a predominantly divalent cation signature and a wide range of anion signatures (from 88% carbonate species at APW03 to 84% sulfate and chloride at APW02). Groundwater in the UA varies from a similar signature as background to having a more prevalent divalent cation signature similar to the UD/PMP, with APW10 representing this extreme in the UA wells.

4.4 Statistical Analyses Supporting Source/Sink Terms

4.4.1 Multivariate Analysis

Groundwater data is frequently defined by many chemical parameters and may therefore be described statistically as "multivariate". Principal components analysis (PCA) is a common multivariate statistical approach that simplifies multivariate data by combining those variables into a smaller number of new variables called principal components. This is possible because in multivariate data sets, there is often some correlation between variables. These correlations represent "redundant" information that may be mathematically removed by PCA. The principal components (PCs) represent linear combinations of the original data which maximize the variance between the samples, and which are uncorrelated with one another. The PCs explain some proportion of the variance in the data, with a robust PCA analysis usually explaining at least 50% of the variance in the first two PCs. PCA thereby allows patterns in the data to be more easily recognized and correlations between input variables to be assessed. The goal of this PCA was to

characterize chemical composition similarities and differences between porewater and groundwater.

The PCA analysis included samples collected since the beginning of 2021 through fourth quarter of 2023 to represent the most recent site conditions. Samples with a turbidity greater than 50 nephelometric turbidity units (NTU) were excluded from the analysis to mitigate the confounding influence of suspended solids. Geochemical parameters were excluded from PCA when greater than 50% of the measurements were either missing or below detectable limits. Individual samples were excluded for those samples missing greater than 50% of measured parameters. Any measurements that were below the reporting limit were assumed to be half the reporting limit. Results for pH were converted to milligrams per liter (mg/L) H^+ ion for consistency with other analytes. Any missing values were imputed (*i.e.,* interpolated based on the available data) using the nearest neighbor method. The final data set (**Attachment 9**) contained 2,352 parameter measurements (145 of which were imputed) from 147 individual groundwater samples at 22 wells in the vicinity of the PAP (four porewater wells, two background wells, and 16 compliance wells). All data were log transformed, scaled, and centered so that parameters with larger concentrations did not have disproportionate influence on the results.

The results of PCA can be understood by evaluating how parameters relate to one another and the relationships between individual samples and the PCs. A PCA biplot is used to show the relationship of parameters and individual samples with the first two PCs. In a PCA biplot, the axes represent the PCs, and arrows originating from the center represent the input parameters. The length of the arrows and alignment with the axes represent how strongly each input parameter contributes to the PCs, and the direction of the arrow along an axis represents the direction of the contribution (positive or negative). Each data point represents a sample plotted according to the PCs.

Figure 4-7 shows a biplot of the first two PCs with the percent of variance explained by each PC indicated in the axis label. Sulfate concentrations are shown in a log scale by point size. CCR porewater samples plot most negatively on PC 1 (the x axis) and mostly in the upper-left quadrant, indicating a correlation with boron and potassium. This is consistent with the elevated boron concentrations (**Figure 4-1**) and the dominance of monovalent cations shown by the Piper diagram (**Figure 4-6**). Groundwater tends to plot positively on PC1 and therefore tends to be more acidic and have higher contributions from divalent cations. UD and eastern UA groundwater tends to plot positively on PC2 (upper right quadrant), in the direction of higher sulfate concentrations. In contrast, background and other UA groundwater plot negatively on PC2 (lower right quadrant) in the direction of higher barium. The inverse relationship between sulfate and barium in the PCA are consistent with barite formation as a control on sulfate and barium concentrations. Manganese and calcium characterize the signature (*i.e.*, point in the direction) of UD groundwater, which is consistent with a mixed calcium manganese carbonate mineral contributing these elements to the groundwater.

The cyan outline (within upper right quadrant) is the 95% confidence ellipse (which encompasses the area where 95% of the sample points fall) for the UD/PMP locations with sulfate exceedances. The darker blue outline represents the 95% confidence ellipse for eastern UA groundwater samples. There is considerable overlap between 95% confidence ellipses for the UD/PMP locations with sulfate exceedances and the eastern UA samples, indicating that these groups of samples have similar chemical compositions. In contrast, background and other UA groundwater samples plot in a distinct group from the UD and eastern UA groundwater.

4.4.2 Correlation Analysis

Figure 4-9a shows a biplot of sodium and sulfate in porewater and UD/PMP groundwater (the hydrostratigraphic unit with the highest sulfate concentrations[3]) with the results of a least squares linear regression. Concentrations in this figure are presented in millimolar (mM) rather than in mg/L to understand potential reaction stoichiometry. The relationship between sulfate and sodium in porewater and UD/PMP samples is strong (coefficient of determination $R^2 = 0.77$) and statistically significant ($p < 0.001$). Sulfate in UD/PMP groundwater is correlated with sodium in a similar ratio as CCR porewater (**Figure 4-8a**). The consistent relationship between sodium and sulfate in the porewater and UD/PMP groundwater suggests a similar source of both elements. In the porewater wells XPW01 and XPW04, which have distinctly elevated sulfate and sodium concentrations, the R^2 is even stronger at 0.89 and the slope of this regression is 0.49 (**Figure 4-8b**). This slope indicating that each atom of sulfate is associated with approximately two atoms of sodium.

One potential attenuation sulfate attenuation mechanism in groundwater is precipitation as barite (**Section 2.2**). **Figure 4-9** show a biplot of barium and sulfate in PAP groundwater. Concentrations in this figure are presented in millimolar (mM) rather than in mg/L to understand potential reaction stoichiometry. Concentrations of lower sulfate correspond to higher barium concentrations in the most of UA wells, indicating that barite may affect concentrations of sulfate and barium in the deeper groundwater. However, the molar concentrations of barium are generally much lower than sulfate, indicating a limited capacity for barite formation to remove sulfate from groundwater.

[3] Sulfate and sodium concentrations in UA wells do not show sufficient variability to contribute to this analysis.

5. LABORATORY TEST RESULTS

In 2021, aquifer solids and groundwater samples were submitted by Golder WSP to SiREM laboratory to test sorption and desorption behavior of sulfate and lithium using batch testing. Batch test studies combine soil and groundwater collected from a site of interest to evaluate the sorption and desorption of chemical constituents (**Attachment 10**).

5.1 Adsorption Batch Tests

For the adsorption tests, soil from APW05 (60.0 to 67.1 ft bgs) was paired with groundwater from well APW-04, representing sorption to UA soils. Soil from APW04 (12 to 18 ft bgs) was paired with groundwater from APW-14, representing sorption to UD/PMP soils. Groundwater was spiked to known concentrations of lithium and sulfate before being combined with soil in soil:water ratios ranging from 2:1 to 1:20. Control samples using only groundwater were also prepared. Samples and controls were prepared under an anoxic atmosphere and incubated in the dark under anoxic conditions at room temperature for 7 days. At the end of the test, concentrations of lithium and sulfate in the water were analyzed. The total amount of lithium and sulfate in the water versus in the solids of each sample were plotted according to three sorption models: linear, Langmuir, and Freundlich (for additional details about these sorption models, see **Attachment 10**). The fit of each sorption model to the data was evaluated using the coefficient of determination (R^2).

The sulfate sorption data for the UD/PMP did not exhibit good fit for any sorption model (see **Attachment 10** for full results). The sulfate data for the UA showed a linear relationship and had a linear sorption coefficient (K_d) of 3.58 L/kg (**Figure 5-1**). These results suggest the potential for some sulfate sorption in the UA, but do not support sorption in the UD/PMP.

The lithium sorption data for both the UD/PMP and UA samples were strongly consistent with the Langmuir sorption model (**Figure 5-1**). The Langmuir sorption coefficients (K_L) were 1.2×10^9 L/kg for the UD/PMP solid sample and 4.2×10^8 L/kg for the UA solid sample. These results suggest the potential for lithium sorption in both the UD/PMP and UA, with somewhat greater sorption in the UA indicated by the higher K_L.

5.2 Desorption Batch Tests

For the desorption tests, APW-05 groundwater (representing UA background) was paired with soil from APW02 (N-SB-02 at 12.5 to 20 ft bgs; UD/PMP) and from APW07 (N-SB-07 at 65 to 71.5 ft bgs; UA) at a 1:10 soil:water ratio. Samples were prepared under an anoxic atmosphere. Three sets of samples were prepared in duplicate and incubated either under ambient conditions, with oxygen sparging (representing oxic groundwater conditions), or with hydrogen sparging (representing anoxic groundwater conditions). Samples were incubated at room temperature for 7 days. The ambient control pH and ORP values on day 7 were more similar to results from hydrogen sparged samples than oxygen sparged samples (**Figure 5-2**).

Desorption of sulfate and lithium from the UD/PMP sample was observed under all redox conditions (**Figure 5-3**). There were no substantial differences in desorption under different redox conditions, which may be due to the variability between duplicates. These results suggest that sulfate and lithium are sorbed to UD/PMP solids and that sorption is to some extent reversible under background groundwater conditions. No sulfate or lithium sorption was observed

from the UA sample under any redox condition (with the exception of lithium in one oxygen-sparged duplicate sample; **Figure 5-3**). This may indicate little sorption of sulfate and lithium to UA solids and/or that existing sorption is not reversible under background groundwater conditions.

6. GEOCHEMICAL CONCEPTUAL SITE MODEL

6.1 Source and Distribution of Sulfate and TDS

Following evaluation of the solids and aqueous geochemical data collected, the primary source of sulfate to the UD/PMP is the CCR porewater. No minerals were identified in aquifer material that would contribute sulfate to groundwater. Heterogeneity in UD/PMP sulfate concentrations may be due to differences in porewater contribution or differences in local porewater contributions.

Sulfates in CCR material are commonly created during desulfurization processes. Commonly, materials such as calcium oxide, calcium carbonates, or sodium carbonates are used. The process by which these materials remove sulfate from flue gas is the formation of solid phase sulfates (*e.g.*, $CaSO_4$ and Na_2SO_4). When sodium carbonates are used as the desulfurization material, other sodium salts (residual sodium chemicals) may also be present in the waste material as combustion by-products (Raclavska et al., 2010; Kalisz et al., 2023). The use of sodium bicarbonates and the presence of residual sodium chemicals in fly ash may drive a higher leaching potential of TDS, sulfates, and metals (Raclavska et al., 2010; Kalisz et al., 2023). The molar ratio between sulfate and sodium in high-sulfate porewater (*i.e.*, from XPW01 and XPW04) is consistent with sodium sulfate dissolution (**Figure 4-9b**), suggesting that the dissolution of sodium sulfates in CCR material within the PAP is the primary driver of high sulfate concentrations in the porewater. The heterogeneity of sodium and sulfate concentrations in the PAP porewater suggests sporadic placement within the PAP of CCR produced when sodium carbonate injection was used in desulfurization processes at the NPP from 1979 to 1996.

Sulfate exceedances in the UA, which occur exclusively on the east side of the PAP, are consistent with water migration from the UD/PMP. The UA is shallower on the eastern side of the PAP, putting the UD/PMP and UA in closer proximity (NPP PMP N&E Report, Figure 2-8). Water in the UD/PMP and eastern UA wells is similar in redox chemistry (**Section 4.2**) and geochemical signature (**Section 4.3** and **Section 4.4.1**), suggesting communication between the UD/PMP and UA in this area.

6.2 Source and Distribution of Lithium

Both naturally occurring soil and CCR porewater sources of lithium were identified (**Section 3.3** and **Section 4.1**). The bedrock underlying the site is shale (NPP PAP N&E Report). Lithium is naturally occurring in shale bedrock and overlying regolith and is released to groundwater during weathering processes (Steinhoefel et al., 2021). SEP analysis indicates lithium in recalcitrant aquifer solid fractions which is consistent with soil native lithium. However, lithium is higher in wells with elevated sulfate concentrations, suggesting a similar source as sulfate (**Figure 4-1**). Additionally, lithium concentrations are not elevated in background wells. It is therefore likely that the PAP is the source of most of the lithium contributing the GWPS exceedance.

6.3 Potential Attenuation Mechanisms

The primary mechanisms of sulfate in the environment are reduction to sulfide followed by mineral precipitation, sorption to positively charged sites on iron oxides, and precipitation as insoluble sulfate minerals (**Section 3.3**). Given the observed redox chemistry of the PAP groundwater, reduction of sulfate to sulfide is unlikely. Concentrations of barium in the groundwater are substantially lower than those of sulfate, suggesting limited capacity for barite precipitation to attenuate sulfate. The presence of iron oxides in the aquifer solids is indicated by

SEP results. Iron oxides may not have appeared in the XRD results due to poor crystallinity. Amorphous (*i.e.*, poorly crystalline) iron oxides tend to provide greater capacity for ion sorption (Trivedi and Axe, 2001). The surface charge on iron oxides is related to groundwater pH, with the surface carrying a more positive charge at more acidic pH values (Stumm and Morgan, 1996). The circumneutral to slightly acidic pH of the UD/PMP and the presence of iron oxides are therefore conducive to sulfate sorption and attenuation. However, the batch test results indicate that the capacity of UD/PMP solid phase materials to sorb sulfate may be saturated.

Lithium in groundwater may be attenuated by sorption to exchangeable sites or incorporation in clay mineral matrices. Lithium is readily displaced by exchangeable sites by other cations which are abundant in the PAP groundwater. However, some proportion of lithium may sorb to clay minerals, particularly aluminum hydroxides, and subsequently become incorporated into the mineral matrix with poor reaction reversibility (Pistiner and Henderson, 2003; Prodromou, 2016). TIMA results identified micas/clays as an abundant solid phase (>20%) at APW04 and APW05S, supported by the identification of clays in boring logs (NPP PAP N&E Report). The abundance of clays/micas was lower in APW02 (<10%) where aqueous lithium concentrations are highest. These results suggest that sequestration to clay minerals may provide a sink for lithium in the UD/PMP.

7. REFERENCES

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TABLES

Table 3-1. Summary of Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Boring Name	Paired Well	Depth Range (ft bgs)	CEC	LOI	SEP	XRD	XRF	TIMA
CCR	N-SB-XPW 01 (10.0-12.7)	XPW01	10-12.7	2021	2021	2021 (Eurofins)	2021 (SGS)		
CCR	N-SB-XPW04 (10.0-15.0)	XPW04	10-15	2021		2021 (Eurofins)	2021 (SGS)		
UD	N-SB-02 (10-13)	APW02	10-13			2023 (SGS)	2023 (SGS)	2023 (SGS)	2023 (SGS)
UD	N-SB-02 (12.5-20.0)	APW02	12.5-20	2021	2021	2021 (Eurofins)	2021 (SGS)		
UD	N-SB-04 (12.0-18.0)	APW04	12-18	2021	2021	2021 (Eurofins) 2023 (SGS)	2021 (SGS) 2023 (SGS)	2023 (SGS)	2023 (SGS)
PMP	N-SB-05 (10.0-16.6)	APW05S	10-16.6			2023 (SGS)	2023 (SGS)	2023 (SGS)	2023 (SGS)
PMP	N-SB-05 (18.0-20.0)	APW05S	18-20	2021	2021	2021 (Eurofins)	2021 (SGS)		
UA	N-SB-05 (60.0-67.0)	APW05	60-67	2021	2021		2021 (SGS)		
UA	N-SB-05 (60.0-67.1)	APW05	60-67.1			2021 (Eurofins)			
UA	N-SB-04 (38.7-45.4)	APW10	38.7-45.4			2021 (Eurofins)			
UA	N-SB-04 (40-45)	APW10	40-45	2021	2021	2023 (SGS)	2021 (SGS) 2023 (SGS)	2023 (SGS)	
UA	N-SB-14 (44.2-52.0)	APW14	44.2-52			2021 (Eurofins)			
UA	N-SB-14 (50-52)	APW14	50-52	2021	2021	2023 (SGS)	2021 (SGS) 2023 (SGS)	2023 (SGS)	
UA	N-SB-02 (65.0-71.5)	APW17	65-71.5	2021	2021	2021 (Eurofins)	2021 (SGS)		
UA	N-SB-18 (77.5-80.0)	APW18	77.5-80	2021	2021	2021 (Eurofins)	2021 (SGS)		

Notes:
CEC = cation exchange capacity
ft bgs = feet below ground surface
LOI = loss on ignition
SEP = sequential extraction procedure
TIMA = TESCAN integrated mineral analysis
XRD = X-ray diffraction
XRF = X-ray fluorescence

Table 3-2. Summary of Sequential Extraction Procedures
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

SEP Step	SEP Fraction	Extractant
		Seven Step Extraction (Eurofins, 2021)
Step 1	Exchangeable	1 M magnesium sulfate
Step 2	Carbonates	1 M sodium acetate/acetic acid at pH 5
Step 3	Non-Crystalline Materials	0.2 M ammonium oxalate at pH 3
Step 4	Metal Hydroxides	1 M hydroxylamine hydrochloride in 25% acetic acid
Step 5	Organics	5% sodium hypochlorite at pH 9.5
Step 6	Acid/Sulfides	3:1:2 v/v HCl:HNO_3:H_2O
Step 7	Residual	HF, HNO_3, HCl, H_3BO_3
		Six Step Extraction (SGS, 2023)
Step 1	Water Soluble	Nanopure water
Step 2	Exchangeable	1 M magnesium chloride
Step 3	Carbonates	1 M sodium acetate/acetic acid at pH 5
Step 4	Fe and Mn Oxides	0.04 M hydroxylamine hydrochloride in 25% acetic acid
Step 5	Organics	3:5:5 v/v 0.02 M HNO_3:30%H_2O_2:1.2 M ammonium acetate in 20% HNO_3
Step 6	Residual	HF, HNO_3, HCl, $HClO_4$

Notes:
M = molar
v/v = volume ratio

Table 3-3. Sequential Extraction Procedure Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

							Iron		Manganese		Lithium	
HSU	**Location**	**Depth Range (ft bgs)**	**Analyst**	**Analysis Year**	**SEP Step**	**SEP Fraction**	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*
CCR	XPW01	10-12.7	Eurofins	2021	Step 1	Exchangeable	<15	0	3.50	0.6	<0.78	0
CCR	XPW01	10-12.7	Eurofins	2021	Step 2	Carbonates	1,600	9.2	190	35.2	<0.58	0
CCR	XPW01	10-12.7	Eurofins	2021	Step 3	Non-Crystalline Materials	2,500	14.4	120	22.2	<0.19	0
CCR	XPW01	10-12.7	Eurofins	2021	Step 4	Metal Hydroxides	5,400	31	140	25.9	2.00	8.5
CCR	XPW01	10-12.7	Eurofins	2021	Step 5	Organics	<57	0	13.0	2.4	8.80	37.3
CCR	XPW01	10-12.7	Eurofins	2021	Step 6	Acid/Sulfides	4,400	25.3	23.0	4.3	3.60	15.3
CCR	XPW01	10-12.7	Eurofins	2021	Step 7	Residual	3,500	20.1	51.0	9.4	9.20	39
CCR	XPW01	10-12.7	Eurofins	2021	Total	Total	15,000	NA	350	NA	13.0	NA
CCR	XPW01	10-12.7	Eurofins	2021	Sum	Sum	17,400	NA	540	NA	23.6	NA
CCR	XPW04	10-15	Eurofins	2021	Step 1	Exchangeable	<21	0	<0.22	0	<1.1	0
CCR	XPW04	10-15	Eurofins	2021	Step 2	Carbonates	2,000	5.8	12.0	5.6	1.40	2.3
CCR	XPW04	10-15	Eurofins	2021	Step 3	Non-Crystalline Materials	2,400	7	2.70	1.3	0.610	1
CCR	XPW04	10-15	Eurofins	2021	Step 4	Metal Hydroxides	12,000	34.9	91.0	42.5	9.90	16.3
CCR	XPW04	10-15	Eurofins	2021	Step 5	Organics	<78	0	9.20	4.3	14.0	23
CCR	XPW04	10-15	Eurofins	2021	Step 6	Acid/Sulfides	12,000	34.9	60.0	28.1	16.0	26.3
CCR	XPW04	10-15	Eurofins	2021	Step 7	Residual	6,000	17.4	39.0	18.2	19.0	31.2
CCR	XPW04	10-15	Eurofins	2021	Total	Total	27,000	NA	160	NA	34.0	NA
CCR	XPW04	10-15	Eurofins	2021	Sum	Sum	34,400	NA	214	NA	60.9	NA
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 1	Exchangeable	<12	0	3.10	0.4	<0.64	0
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 2	Carbonates	19.0	0.1	150	20.8	<0.48	0
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 3	Non-Crystalline Materials	310	1	210	29.1	<0.16	0
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 4	Metal Hydroxides	8,000	24.6	170	23.5	1.40	4.5
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 5	Organics	<47	0	17.0	2.4	10.0	32.3
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 6	Acid/Sulfides	19,000	58.4	120	16.6	6.60	21.3
UD/PMP	APW02	12.5-20	Eurofins	2021	Step 7	Residual	5,200	16	52.0	7.2	13.0	41.9
UD/PMP	APW02	12.5-20	Eurofins	2021	Total	Total	34,000	NA	590	NA	19.0	NA
UD/PMP	APW02	12.5-20	Eurofins	2021	Sum	Sum	32,500	NA	722	NA	31.0	NA
UD/PMP	APW02	10-13	SGS	2023	Step 1	Water Soluble	9.53	0	0.0997	0	0.339	1.7
UD/PMP	APW02	10-13	SGS	2023	Step 2	Exchangeable	8.99	0	7.76	1.5	0.422	2.1
UD/PMP	APW02	10-13	SGS	2023	Step 3	Carbonates	1,460	6	329	63.1	1.05	5.3
UD/PMP	APW02	10-13	SGS	2023	Step 4	Fe and Mn Oxides	2,980	12.3	65.9	12.6	2.65	13.4
UD/PMP	APW02	10-13	SGS	2023	Step 5	Organics	465	1.9	7.28	1.4	1.19	6
UD/PMP	APW02	10-13	SGS	2023	Step 6	Residual	19,300	79.7	111	21.4	14.1	71.4
UD/PMP	APW02	10-13	SGS	2023	Sum	Sum	24,200	NA	522	NA	19.8	NA
UD/PMP	APW04	12-18	Eurofins	2021	Step 1	Exchangeable	<13	0	0.620	0.1	<0.67	0

Table 3-3. Sequential Extraction Procedure Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

							Iron		Manganese		Lithium	
HSU	**Location**	**Depth Range (ft bgs)**	**Analyst**	**Analysis Year**	**SEP Step**	**SEP Fraction**	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*
UD/PMP	APW04	12-18	Eurofins	2021	Step 2	Carbonates	<9.7	0	170	16.5	<0.50	0
UD/PMP	APW04	12-18	Eurofins	2021	Step 3	Non-Crystalline Materials	330	1.3	450	43.8	<0.17	0
UD/PMP	APW04	12-18	Eurofins	2021	Step 4	Metal Hydroxides	6,700	27	220	21.4	1.70	4.9
UD/PMP	APW04	12-18	Eurofins	2021	Step 5	Organics	<49	0	11.0	1.1	8.40	24.3
UD/PMP	APW04	12-18	Eurofins	2021	Step 6	Acid/Sulfides	13,000	52.4	130	12.7	8.50	24.6
UD/PMP	APW04	12-18	Eurofins	2021	Step 7	Residual	4,800	19.3	46.0	4.5	16.0	46.2
UD/PMP	APW04	12-18	Eurofins	2021	Total	Total	23,000	NA	770	NA	28.0	NA
UD/PMP	APW04	12-18	Eurofins	2021	Sum	Sum	24,800	NA	1,030	NA	34.6	NA
UD/PMP	APW04	12-18	SGS	2023	Step 1	Water Soluble	14.6	0	0.111	0	0.319	1.1
UD/PMP	APW04	12-18	SGS	2023	Step 2	Exchangeable	17.8	0.1	4.75	0.6	0.467	1.6
UD/PMP	APW04	12-18	SGS	2023	Step 3	Carbonates	747	2.1	583	72	1.10	3.8
UD/PMP	APW04	12-18	SGS	2023	Step 4	Fe and Mn Oxides	2,770	8	54.8	6.8	3.28	11.3
UD/PMP	APW04	12-18	SGS	2023	Step 5	Organics	394	1.1	8.95	1.1	1.36	4.7
UD/PMP	APW04	12-18	SGS	2023	Step 6	Residual	30,900	88.7	158	19.5	22.6	77.6
UD/PMP	APW04	12-18	SGS	2023	Sum	Sum	34,800	NA	810	NA	29.1	NA
UD/PMP	APW05S	18-20	Eurofins	2021	Step 1	Exchangeable	<13	0	2.80	0.8	<0.66	0
UD/PMP	APW05S	18-20	Eurofins	2021	Step 2	Carbonates	36.0	0.3	84.0	24	<0.50	0
UD/PMP	APW05S	18-20	Eurofins	2021	Step 3	Non-Crystalline Materials	240	2.1	51.0	14.6	<0.17	0
UD/PMP	APW05S	18-20	Eurofins	2021	Step 4	Metal Hydroxides	3,900	34	93.0	26.6	0.990	3.8
UD/PMP	APW05S	18-20	Eurofins	2021	Step 5	Organics	<49	0	5.20	1.5	14.0	54.3
UD/PMP	APW05S	18-20	Eurofins	2021	Step 6	Acid/Sulfides	4,500	39.2	61.0	17.4	3.90	15.1
UD/PMP	APW05S	18-20	Eurofins	2021	Step 7	Residual	2,800	24.4	53.0	15.1	6.90	26.8
UD/PMP	APW05S	18-20	Eurofins	2021	Total	Total	10,000	NA	280	NA	12.0	NA
UD/PMP	APW05S	18-20	Eurofins	2021	Sum	Sum	11,500	NA	350	NA	25.8	NA
UD/PMP	APW05S	10-16.6	SGS	2023	Step 1	Water Soluble	73.5	0.3	0.616	0.3	0.211	1
UD/PMP	APW05S	10-16.6	SGS	2023	Step 2	Exchangeable	13.6	0.1	13.2	6.6	0.354	1.6
UD/PMP	APW05S	10-16.6	SGS	2023	Step 3	Carbonates	1,030	4.4	71.9	35.6	0.615	2.8
UD/PMP	APW05S	10-16.6	SGS	2023	Step 4	Fe and Mn Oxides	3,230	13.8	23.9	11.8	2.41	11.1
UD/PMP	APW05S	10-16.6	SGS	2023	Step 5	Organics	679	2.9	7.0	3.5	0.762	3.5
UD/PMP	APW05S	10-16.6	SGS	2023	Step 6	Residual	18,300	78.5	85.3	42.2	17.4	80
UD/PMP	APW05S	10-16.6	SGS	2023	Sum	Sum	23,400	NA	202	NA	21.8	NA
UA	APW05	60-67.1	Eurofins	2021	Step 1	Exchangeable	<14	0	2.70	0.4	<0.74	0
UA	APW05	60-67.1	Eurofins	2021	Step 2	Carbonates	380	2.2	85.0	13.9	<0.55	0
UA	APW05	60-67.1	Eurofins	2021	Step 3	Non-Crystalline Materials	4,100	23.9	42.0	6.9	<0.18	0
UA	APW05	60-67.1	Eurofins	2021	Step 4	Metal Hydroxides	3,000	17.5	350	57.1	0.950	3.9
UA	APW05	60-67.1	Eurofins	2021	Step 5	Organics	<54	0	5.40	0.9	14.0	57
UA	APW05	60-67.1	Eurofins	2021	Step 6	Acid/Sulfides	6,300	36.7	69.0	11.3	3.60	14.7
UA	APW05	60-67.1	Eurofins	2021	Step 7	Residual	3,400	19.8	59.0	9.6	6.00	24.4
UA	APW05	60-67.1	Eurofins	2021	Total	Total	14,000	NA	380	NA	9.60	NA
UA	APW05	60-67.1	Eurofins	2021	Sum	Sum	17,200	NA	613	NA	24.6	NA
UA	APW10	38.7-45.4	Eurofins	2021	Step 1	Exchangeable	<13	0	9.10	2.1	<0.69	0
UA	APW10	38.7-45.4	Eurofins	2021	Step 2	Carbonates	40.0	0.2	120	27.2	<0.52	0
UA	APW10	38.7-45.4	Eurofins	2021	Step 3	Non-Crystalline Materials	180	0.8	23.0	5.2	<0.17	0

Table 3-3. Sequential Extraction Procedure Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

							Iron		Manganese		Lithium	
HSU	**Location**	**Depth Range (ft bgs)**	**Analyst**	**Analysis Year**	**SEP Step**	**SEP Fraction**	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*
UA	APW10	38.7-45.4	Eurofins	2021	Step 4	Metal Hydroxides	5,600	23.7	100	22.7	1.10	5.2
UA	APW10	38.7-45.4	Eurofins	2021	Step 5	Organics	<51	0	3.40	0.8	8.00	37.9
UA	APW10	38.7-45.4	Eurofins	2021	Step 6	Acid/Sulfides	12,000	50.8	94.0	21.3	4.50	21.3
UA	APW10	38.7-45.4	Eurofins	2021	Step 7	Residual	5,800	24.6	91.0	20.7	7.50	35.5
UA	APW10	38.7-45.4	Eurofins	2021	Total	Total	15,000	NA	330	NA	10.0	NA
UA	APW10	38.7-45.4	Eurofins	2021	Sum	Sum	23,600	NA	440	NA	21.1	NA
UA	APW10	40-45	SGS	2023	Step 1	Water Soluble	11.3	0	0.108	0	0.155	1.1
UA	APW10	40-45	SGS	2023	Step 2	Exchangeable	13.7	0.1	11.6	2.2	0.251	1.8
UA	APW10	40-45	SGS	2023	Step 3	Carbonates	1,710	7.4	282	53.5	0.773	5.4
UA	APW10	40-45	SGS	2023	Step 4	Fe and Mn Oxides	2,300	10	49.0	9.3	1.94	13.6
UA	APW10	40-45	SGS	2023	Step 5	Organics	513	2.2	7.82	1.5	1.13	8
UA	APW10	40-45	SGS	2023	Step 6	Residual	18,400	80.2	177	33.5	9.98	70.1
UA	APW10	40-45	SGS	2023	Sum	Sum	23,000	NA	527	NA	14.2	NA
UA	APW14	44.2-52	Eurofins	2021	Step 1	Exchangeable	<13	0	10.0	1.5	<0.66	0
UA	APW14	44.2-52	Eurofins	2021	Step 2	Carbonates	160	1	130	19.5	<0.50	0
UA	APW14	44.2-52	Eurofins	2021	Step 3	Non-Crystalline Materials	1,700	10.5	61.0	9.1	<0.17	0
UA	APW14	44.2-52	Eurofins	2021	Step 4	Metal Hydroxides	2,200	13.6	300	45	1.60	6.7
UA	APW14	44.2-52	Eurofins	2021	Step 5	Organics	<49	0	4.20	0.6	8.20	34.2
UA	APW14	44.2-52	Eurofins	2021	Step 6	Acid/Sulfides	8,100	50.1	100	15	5.40	22.5
UA	APW14	44.2-52	Eurofins	2021	Step 7	Residual	4,000	24.8	62.0	9.3	8.80	36.7
UA	APW14	44.2-52	Eurofins	2021	Total	Total	19,000	NA	420	NA	15.0	NA
UA	APW14	44.2-52	Eurofins	2021	Sum	Sum	16,200	NA	667	NA	24.0	NA
UA	APW14	50-52	SGS	2023	Step 1	Water Soluble	64.2	0.3	0.856	0.1	0.240	1.3
UA	APW14	50-52	SGS	2023	Step 2	Exchangeable	10.3	0	15.2	2.6	0.326	1.8
UA	APW14	50-52	SGS	2023	Step 3	Carbonates	2,300	9.9	345	58.3	0.991	5.4
UA	APW14	50-52	SGS	2023	Step 4	Fe and Mn Oxides	4,500	19.3	84.4	14.3	2.31	12.6
UA	APW14	50-52	SGS	2023	Step 5	Organics	1,300	5.6	9.33	1.6	1.42	7.8
UA	APW14	50-52	SGS	2023	Step 6	Residual	15,200	65	137	23.2	13	71.1
UA	APW14	50-52	SGS	2023	Sum	Sum	23,300	NA	592	NA	18.3	NA
UA	APW17	65-71.5	Eurofins	2021	Step 1	Exchangeable	<13	0	3.50	0.9	<0.67	0
UA	APW17	65-71.5	Eurofins	2021	Step 2	Carbonates	270	2.4	68.0	17.7	<0.50	0
UA	APW17	65-71.5	Eurofins	2021	Step 3	Non-Crystalline Materials	3,100	27	54.0	14.1	<0.17	0
UA	APW17	65-71.5	Eurofins	2021	Step 4	Metal Hydroxides	2,200	19.2	150	39.1	0.960	4.1
UA	APW17	65-71.5	Eurofins	2021	Step 5	Organics	<49	0	14.0	3.7	7.60	32.8
UA	APW17	65-71.5	Eurofins	2021	Step 6	Acid/Sulfides	3,400	29.6	49.0	12.8	3.60	15.5
UA	APW17	65-71.5	Eurofins	2021	Step 7	Residual	2,500	21.8	45.0	11.7	11.0	47.5
UA	APW17	65-71.5	Eurofins	2021	Total	Total	14,000	NA	440	NA	7.60	NA
UA	APW17	65-71.5	Eurofins	2021	Sum	Sum	11,500	NA	384	NA	23.2	NA
UA	APW18	77.5-80	Eurofins	2021	Step 1	Exchangeable	<13	0	4.00	0.4	<0.66	0
UA	APW18	77.5-80	Eurofins	2021	Step 2	Carbonates	440	2.4	82.0	9.1	<0.49	0
UA	APW18	77.5-80	Eurofins	2021	Step 3	Non-Crystalline Materials	2,500	13.5	69.0	7.6	<0.16	0
UA	APW18	77.5-80	Eurofins	2021	Step 4	Metal Hydroxides	3,800	20.5	360	39.7	0.830	3.5
UA	APW18	77.5-80	Eurofins	2021	Step 5	Organics	<48	0	39.0	4.3	12.0	50.8

Table 3-3. Sequential Extraction Procedure Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Depth Range (ft bgs)	Analyst	Analysis Year	SEP Step	SEP Fraction	Iron		Manganese		Lithium	
							Concentration (mg/kg)	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*	*Concentration (mg/kg)*	*Percent of Sum (%)*
UA	APW18	77.5-80	Eurofins	2021	Step 6	Acid/Sulfides	8,500	45.8	300	33.1	4.90	20.7
UA	APW18	77.5-80	Eurofins	2021	Step 7	Residual	3,300	17.8	52.0	5.7	5.90	25
UA	APW18	77.5-80	Eurofins	2021	Total	Total	13,000	NA	600	NA	10.0	NA
UA	APW18	77.5-80	Eurofins	2021	Sum	Sum	18,500	NA	906	NA	23.6	NA

Notes:
ft bgs = feet below ground surface
HSU = hydrostratigraphic unit
  CCR = coal combustion residual
  UA = uppermost aquifer
  UD = uppermost drift
mg/kg = milligrams per kilogram
NA = not applicable
SEP = sequential extraction procedure

Table 3-4. XRD Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Mineral	Formula	XPW01 (10-12.7 ft) - 2021	XPW04 (10-15 ft) - 2021	APW02 (12.5-20 ft) - 2021	APW02 (10-13 ft) - 2023	APW04 (12-18 ft) - 2021	APW04 (12-18 ft) - 2023	APW05S (18-20 ft) - 2021	APW05S (10-16.6 ft) - 2023	APW05 (60-67 ft) - 2021	APW10 (40-45 ft) - 2021	APW10 (40-45 ft) - 2023
Quartz	SiO_2	68.7	22.6	48.9	53.9	47.3	46.1	46.0	72.8	41.3	51.7	53.0
Albite	$NaAlSi_3O_8$	10.0	14.5	8.40	9.00	9.10	9.70	8.20	7.70	8.80	12.7	14.3
Microcline	$KAlSi_3O_8$	8.80	0	7.60	--	5.40	--	4.50	--	4.50	4.20	--
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$	8.50	0	8.70	10.4	10.5	16.0	5.00	0	1.60	3.10	8.70
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	2.50	0	3.50	1.60	2.40	2.00	1.80	0	1.80	2.10	0.800
Diopside	$CaMgSi_2O_6$	1.40	15.2	1.70		1.00	--	0.900	--	2.90	1.40	--
Calcite	$CaCO_3$	0.100	13.2	3.60	7.00	11.1	12.9	20.7	0	12.9	9.70	7.70
Dolomite	$CaMg(CO_3)_2$	0.100	0	12.7	11.9	5.00	7.00	9.50	0.900	18.5	6.00	9.90
Ankerite	$CaFe(CO_3)_2$	0	0	2.20	1.10	4.10	1.10	3.30	0	2.30	4.40	0
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	0	0	0	0.500	0	0	0	0	2.90	2.30	0.800
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$	0	0	2.80	1.50	4.20	2.90	0	0	2.60	2.30	2.50
Fluorapatite	$Ca_5(PO_4)_3F$	0	0	0	--	0	--	0	--	0	0	--
Perovskite	$CaTiO_3$	0	8.70	0	--	0	--	0	--	0	0	--
Periclase	MgO	0	1.60	0	--	0	--	0	--	0	0	--
Hematite	Fe_2O_3	0	3.40	0	--	0	--	0	--	0	0	--
Magnetite	Fe_3O_4	0	0.100	0	--	0	--	0	--	0	0	--
Gehlenite	$Ca_2(Mg_{0.25}Al_{0.75})(Si_{1.25}Al_{0.75}O_7)$	0	13.9	0	--	0	--	0	--	0	0	--
Mullite	$Al_6Si_3O_{15}$	0	3.70	0	--	0	--	0	--	0	0	--
Ganophyllite	$K_{2.16}Mn_{16}Si_{26.9}O_{67.8}(OH)_8$	0	3.10	0	--	0	--	0	--	0	0	--
Orthoclase	$KAlSi_3O_8$	--	--	--	3.10	--	2.30	--	6.60	--	--	2.40
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot 10H_2O$	--	--	--	0	--	0	--	12.0	--	--	0

Table 3-4. XRD Results
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Mineral	Formula	APW14 (50-52 ft) - 2021	APW14 (50-52 ft) - 2023	APW17 (65-71.5 ft) - 2021	APW18 (77.5-80 ft) - 2021
Quartz	SiO_2	48.0	50.4	47.6	32.7
Albite	$NaAlSi_3O_8$	13.6	10.0	5.20	4.10
Microcline	$KAlSi_3O_8$	6.20	--	5.10	4.20
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$	5.50	11.1	1.00	1.20
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	1.80	0.300	1.50	0.800
Diopside	$CaMgSi_2O_6$	2.50	--	1.50	2.00
Calcite	$CaCO_3$	9.30	9.90	4.90	13.3
Dolomite	$CaMg(CO_3)_2$	6.80	12.1	26.1	27.3
Ankerite	$CaFe(CO_3)_2$	2.60	0	2.60	8.30
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	0	0	0	2.10
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$	3.80	3.70	2.70	1.90
Fluorapatite	$Ca_5(PO_4)_3F$	0	--	1.80	2.00
Perovskite	$CaTiO_3$	0	--	0	0
Periclase	MgO	0	--	0	0
Hematite	Fe_2O_3	0	--	0	0
Magnetite	Fe_3O_4	0	--	0	0
Gehlenite	$Ca_2(Mg_{0.25}Al_{0.75})(Si_{1.25}Al_{0.75}O_7)$	0	--	0	0
Mullite	$Al_6Si_3O_{15}$	0	--	0	0
Ganophyllite	$K_{2.16}Mn_{16}Si_{26.9}O_{67.8}(OH)_8$	0	--	0	0
Orthoclase	$KAlSi_3O_8$	--	2.60	--	--
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot 10H_2O$	--	0	--	--

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
CCR	XPW01	Porewater	pH (field)	SU	12	0	0	2021/02/17	2023/10/10	12.1	12	12	12.7
CCR	XPW01	Porewater	Oxidation Reduction Potential	mV	12	0	0	2021/02/17	2023/10/10	-379	-330	-330	-265
CCR	XPW01	Porewater	Eh	V	12	0	0	2021/02/17	2023/10/10	-0.19	-0.14	-0.13	-0.070
CCR	XPW01	Porewater	Alkalinity, bicarbonate	mg/L CaCO3	12	12	100	2021/02/17	2023/10/10	0	<10	8.3	<10
CCR	XPW01	Porewater	Alkalinity, carbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/10	260	500	530	799
CCR	XPW01	Porewater	Barium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0350	0.064	0.12	0.460
CCR	XPW01	Porewater	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/10	10.3	32	36	63.0
CCR	XPW01	Porewater	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/10	8.10	30	28	50.0
CCR	XPW01	Porewater	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.510	0.54	0.54	0.571
CCR	XPW01	Porewater	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.0420	0.056	0.056	0.0699
CCR	XPW01	Porewater	Lithium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0545	0.11	0.10	0.150
CCR	XPW01	Porewater	Magnesium, total	mg/L	12	0	0	2021/02/17	2023/10/10	0.160	0.90	2.0	8.70
CCR	XPW01	Porewater	Manganese, dissolved	mg/L	2	2	100	2023/04/27	2023/07/24	<0.00023	<0.00023	0.00052	<0.0008
CCR	XPW01	Porewater	Phosphate, dissolved	mg/L	1	0	0	2023/07/24	2023/07/24	0.301	0.301	0.30	0.301
CCR	XPW01	Porewater	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/10	42.4	85	91	160
CCR	XPW01	Porewater	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	74.0	75	75	75.1
CCR	XPW01	Porewater	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/10	2,050	4400	4900	9,600
CCR	XPW01	Porewater	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	2,530	7700	9100	19,000
CCR	XPW01	Porewater	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/10	3,400	12000	14000	27,000
CCR	XPW02	Porewater	pH (field)	SU	12	0	0	2021/02/17	2023/10/10	8.6	9.7	9.6	10.1
CCR	XPW02	Porewater	Oxidation Reduction Potential	mV	12	0	0	2021/02/17	2023/10/10	-266	-220	-190	-79.0
CCR	XPW02	Porewater	Eh	V	12	0	0	2021/02/17	2023/10/10	-0.073	-0.024	0.0037	0.12
CCR	XPW02	Porewater	Alkalinity, bicarbonate	mg/L CaCO3	12	2	17	2021/02/17	2023/10/10	2.00	14	16	42.0
CCR	XPW02	Porewater	Alkalinity, carbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/10	20.0	28	31	45.0
CCR	XPW02	Porewater	Barium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0138	0.025	0.036	0.0781
CCR	XPW02	Porewater	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/10	15.0	26	27	40.0
CCR	XPW02	Porewater	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/10	8.40	9.8	11	16.0
CCR	XPW02	Porewater	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/27	2023/07/24	<0.02	0.11	0.11	0.193
CCR	XPW02	Porewater	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.000910	0.018	0.018	0.0348
CCR	XPW02	Porewater	Lithium, total	mg/L	7	2	29	2021/02/17	2023/10/10	<0.0099	0.023	0.021	0.0308
CCR	XPW02	Porewater	Magnesium, total	mg/L	12	1	8	2021/02/17	2023/10/10	<0.011	0.35	0.51	1.40
CCR	XPW02	Porewater	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.000520	0.0010	0.0010	0.00150
CCR	XPW02	Porewater	Phosphate, dissolved	mg/L	1	0	0	2023/07/24	2023/07/24	0.316	0.316	0.32	0.316
CCR	XPW02	Porewater	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/10	14.0	16	16	19.4
CCR	XPW02	Porewater	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	3.90	4.2	4.2	4.40
CCR	XPW02	Porewater	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/10	61.0	70	70	77.0
CCR	XPW02	Porewater	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	150	160	180	239
CCR	XPW02	Porewater	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/10	290	360	350	404
CCR	XPW03	Porewater	pH (field)	SU	12	0	0	2021/02/17	2023/10/10	10.2	11	11	11.8

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
CCR	XPW03	Porewater	Oxidation Reduction Potential	mV	12	0	0	2021/02/17	2023/10/10	-273	-220	-210	-75.0
CCR	XPW03	Porewater	Eh	V	12	0	0	2021/02/17	2023/10/10	-0.079	-0.022	-0.012	0.12
CCR	XPW03	Porewater	Alkalinity, bicarbonate	mg/L CaCO3	12	12	100	2021/02/17	2023/10/10	0	<10	8.3	<10
CCR	XPW03	Porewater	Alkalinity, carbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/10	50.0	80	110	200
CCR	XPW03	Porewater	Barium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0603	0.088	0.17	0.440
CCR	XPW03	Porewater	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/10	22.8	36	39	72.0
CCR	XPW03	Porewater	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/10	9.20	11	13	21.0
CCR	XPW03	Porewater	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/27	2023/07/26	<0.02	1.6	1.6	3.24
CCR	XPW03	Porewater	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/26	0.00670	0.0094	0.0094	0.0120
CCR	XPW03	Porewater	Lithium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0240	0.032	0.043	0.121
CCR	XPW03	Porewater	Magnesium, total	mg/L	12	2	17	2021/02/17	2023/10/10	<0.011	0.32	0.78	2.70
CCR	XPW03	Porewater	Manganese, dissolved	mg/L	2	2	100	2023/04/27	2023/07/26	<0.00023	<0.00023	0.00052	<0.0008
CCR	XPW03	Porewater	Phosphate, dissolved	mg/L	1	1	100	2023/07/26	2023/07/26	<0.005	<0.005	0.0050	<0.005
CCR	XPW03	Porewater	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/10	11.0	18	17	23.2
CCR	XPW03	Porewater	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/26	10.8	12	12	14.0
CCR	XPW03	Porewater	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/10	38.0	100	120	230
CCR	XPW03	Porewater	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	92.0	120	120	180
CCR	XPW03	Porewater	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/10	270	460	490	780
CCR	XPW04	Porewater	pH (field)	SU	12	0	0	2021/02/17	2023/10/10	9.1	11	11	12.5
CCR	XPW04	Porewater	Oxidation Reduction Potential	mV	12	0	0	2021/02/17	2023/10/10	-336	-300	-280	-165
CCR	XPW04	Porewater	Eh	V	12	0	0	2021/02/17	2023/10/10	-0.14	-0.10	-0.085	0.031
CCR	XPW04	Porewater	Alkalinity, bicarbonate	mg/L CaCO3	12	9	75	2021/02/17	2023/10/10	0	10	20	80.0
CCR	XPW04	Porewater	Alkalinity, carbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/10	60.0	150	150	296
CCR	XPW04	Porewater	Barium, total	mg/L	7	0	0	2021/02/17	2023/10/10	0.0749	0.13	0.15	0.300
CCR	XPW04	Porewater	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/10	53.0	90	93	130
CCR	XPW04	Porewater	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/10	30.0	48	64	186
CCR	XPW04	Porewater	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/28	2023/07/24	0.127	0.25	0.25	0.370
CCR	XPW04	Porewater	Iron, dissolved	mg/L	2	2	100	2023/04/28	2023/07/24	<0.014	<0.014	0.027	<0.04
CCR	XPW04	Porewater	Lithium, total	mg/L	7	3	43	2021/02/17	2023/10/10	<0.0099	0.020	0.018	0.0324
CCR	XPW04	Porewater	Magnesium, total	mg/L	12	0	0	2021/02/17	2023/10/10	0.140	0.64	0.84	2.40
CCR	XPW04	Porewater	Manganese, dissolved	mg/L	2	1	50	2023/04/28	2023/07/24	0.00320	0.0039	0.0039	<0.0046
CCR	XPW04	Porewater	Phosphate, dissolved	mg/L	1	0	0	2023/07/24	2023/07/24	0.169	0.169	0.17	0.169
CCR	XPW04	Porewater	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/10	24.0	73	64	93.7
CCR	XPW04	Porewater	Silicon, dissolved	mg/L	2	0	0	2023/04/28	2023/07/24	24.0	31	31	37.7
CCR	XPW04	Porewater	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/10	260	2600	2500	4,700
CCR	XPW04	Porewater	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	600	3900	4800	9,500
CCR	XPW04	Porewater	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/10	1,100	7800	7900	16,600
UA	APW05	B	pH (field)	SU	34	0	0	2015/12/15	2023/10/10	6.9	7.5	7.4	8.0
UA	APW05	B	Oxidation Reduction Potential	mV	33	0	0	2015/12/15	2023/10/10	-160	-88	-81	192

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW05	B	Eh	V	33	0	0	2015/12/15	2023/10/10	0.033	0.11	0.11	0.39
UA	APW05	B	Alkalinity, bicarbonate	mg/L CaCO3	21	0	0	2017/06/13	2023/10/10	390	460	460	520
UA	APW05	B	Alkalinity, carbonate	mg/L CaCO3	21	21	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW05	B	Barium, total	mg/L	22	0	0	2015/12/15	2023/10/10	0.190	0.24	0.24	0.333
UA	APW05	B	Calcium, total	mg/L	33	0	0	2015/12/15	2023/10/10	44.0	51	52	71.0
UA	APW05	B	Chloride, total	mg/L	33	0	0	2015/12/15	2023/10/10	43.0	50	50	62.0
UA	APW05	B	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.999	1.1	1.1	1.20
UA	APW05	B	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	1.10	1.2	1.2	1.31
UA	APW05	B	Lithium, total	mg/L	22	9	41	2015/12/15	2023/10/10	<0.005	0.0099	0.012	0.0230
UA	APW05	B	Magnesium, total	mg/L	21	0	0	2017/06/13	2023/10/10	23.0	28	28	33.0
UA	APW05	B	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	0.0275	0.034	0.034	0.0400
UA	APW05	B	Phosphate, dissolved	mg/L	1	0	0	2023/07/24	2023/07/24	0.414	0.414	0.41	0.414
UA	APW05	B	Potassium, total	mg/L	21	0	0	2017/06/13	2023/10/10	1.40	1.6	1.7	2.80
UA	APW05	B	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/24	5.63	5.9	5.9	6.20
UA	APW05	B	Sodium, total	mg/L	21	0	0	2017/06/13	2023/10/10	120	130	130	160
UA	APW05	B	Sulfate, total	mg/L	33	8	24	2015/12/15	2023/10/10	<0.12	1.3	3.0	15.0
UA	APW05	B	Total Dissolved Solids	mg/L	32	0	0	2015/12/15	2023/10/10	470	550	550	1,000
UA	APW06	B	pH (field)	SU	34	0	0	2015/12/15	2023/10/10	6.4	7.4	7.4	7.8
UA	APW06	B	Oxidation Reduction Potential	mV	33	0	0	2015/12/15	2023/10/10	-164	-94	-88	58.0
UA	APW06	B	Eh	V	33	0	0	2015/12/15	2023/10/10	0.029	0.100	0.11	0.26
UA	APW06	B	Alkalinity, bicarbonate	mg/L CaCO3	21	0	0	2017/06/13	2023/10/10	370	450	470	880
UA	APW06	B	Alkalinity, carbonate	mg/L CaCO3	21	21	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW06	B	Barium, total	mg/L	22	0	0	2015/12/15	2023/10/10	0.160	0.22	0.23	0.304
UA	APW06	B	Calcium, total	mg/L	33	0	0	2015/12/15	2023/10/10	43.0	55	57	120
UA	APW06	B	Chloride, total	mg/L	33	0	0	2015/12/15	2023/10/10	21.0	25	26	50.0
UA	APW06	B	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.678	0.79	0.79	0.900
UA	APW06	B	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.683	0.78	0.78	0.880
UA	APW06	B	Lithium, total	mg/L	22	8	36	2015/12/15	2023/10/10	<0.005	0.011	0.013	0.0300
UA	APW06	B	Magnesium, total	mg/L	21	0	0	2017/06/13	2023/10/10	24.0	27	28	47.0
UA	APW06	B	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.0390	0.044	0.044	0.0486
UA	APW06	B	Phosphate, dissolved	mg/L	1	0	0	2023/07/25	2023/07/25	0.249	0.249	0.25	0.249
UA	APW06	B	Potassium, total	mg/L	21	0	0	2017/06/13	2023/10/10	1.30	1.5	1.7	2.90
UA	APW06	B	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	6.67	7.1	7.1	7.50
UA	APW06	B	Sodium, total	mg/L	21	0	0	2017/06/13	2023/10/10	110	120	120	140
UA	APW06	B	Sulfate, total	mg/L	33	4	12	2015/12/15	2023/10/10	<0.062	6.1	5.4	17.0
UA	APW06	B	Total Dissolved Solids	mg/L	32	0	0	2015/12/15	2023/10/10	420	500	500	640
UA	APW07	C	pH (field)	SU	26	0	0	2015/12/15	2023/10/10	6.8	7.3	7.3	7.6
UA	APW07	C	Oxidation Reduction Potential	mV	26	0	0	2015/12/15	2023/10/10	-164	-92	-78	106
UA	APW07	C	Eh	V	26	0	0	2015/12/15	2023/10/10	0.031	0.10	0.12	0.31

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW07	C	Alkalinity, bicarbonate	mg/L CaCO3	13	0	0	2017/06/13	2023/10/10	300	490	450	512
UA	APW07	C	Alkalinity, carbonate	mg/L CaCO3	13	13	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW07	C	Barium, total	mg/L	14	0	0	2015/12/15	2023/10/10	0.350	0.49	0.49	0.808
UA	APW07	C	Calcium, total	mg/L	25	0	0	2015/12/15	2023/10/10	45.0	93	88	110
UA	APW07	C	Chloride, total	mg/L	26	0	0	2015/12/15	2023/10/10	43.0	69	69	79.0
UA	APW07	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/25	1.10	1.7	1.7	2.29
UA	APW07	C	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/25	2.30	2.3	2.3	2.36
UA	APW07	C	Lithium, total	mg/L	14	11	79	2015/12/15	2023/10/10	<0.0001	<0.0001	0.0020	0.00580
UA	APW07	C	Magnesium, total	mg/L	13	0	0	2017/06/13	2023/10/10	34.8	39	39	42.0
UA	APW07	C	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/25	0.0210	0.022	0.022	0.0224
UA	APW07	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/25	2023/07/25	1.11	1.11	1.1	1.11
UA	APW07	C	Potassium, total	mg/L	13	0	0	2017/06/13	2023/10/10	1.40	1.9	2.0	2.90
UA	APW07	C	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/25	7.29	7.7	7.7	8.10
UA	APW07	C	Sodium, total	mg/L	13	0	0	2017/06/13	2023/10/10	84.0	97	96	110
UA	APW07	C	Sulfate, total	mg/L	25	4	16	2015/12/15	2023/10/10	<0.12	7.5	12	66.0
UA	APW07	C	Total Dissolved Solids	mg/L	24	0	0	2015/12/15	2023/10/10	340	540	530	640
UA	APW08	C	pH (field)	SU	27	0	0	2015/12/15	2023/10/10	7.1	7.3	7.3	7.5
UA	APW08	C	Oxidation Reduction Potential	mV	27	0	0	2015/12/15	2023/10/10	-139	-100	-91	94.0
UA	APW08	C	Eh	V	27	0	0	2015/12/15	2023/10/10	0.055	0.096	0.10	0.29
UA	APW08	C	Alkalinity, bicarbonate	mg/L CaCO3	13	0	0	2017/06/13	2023/10/10	340	490	470	532
UA	APW08	C	Alkalinity, carbonate	mg/L CaCO3	13	13	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW08	C	Barium, total	mg/L	14	0	0	2015/12/15	2023/10/10	0.240	0.38	0.43	0.777
UA	APW08	C	Calcium, total	mg/L	25	0	0	2015/12/15	2023/10/10	80.0	100	99	120
UA	APW08	C	Chloride, total	mg/L	26	0	0	2015/12/15	2023/10/10	50.0	56	56	62.0
UA	APW08	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/31	2.60	4.2	4.2	5.76
UA	APW08	C	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/31	2.20	2.7	2.7	3.24
UA	APW08	C	Lithium, total	mg/L	14	7	50	2015/12/15	2023/10/10	<0.0001	0.0050	0.0057	0.0170
UA	APW08	C	Magnesium, total	mg/L	13	0	0	2017/06/13	2023/10/10	41.1	45	45	52.0
UA	APW08	C	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/07/31	0.0585	0.060	0.060	0.0610
UA	APW08	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/31	2023/07/31	1.24	1.24	1.2	1.24
UA	APW08	C	Potassium, total	mg/L	13	0	0	2017/06/13	2023/10/10	1.60	2.0	2.2	3.50
UA	APW08	C	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/07/31	6.06	7.2	7.2	8.30
UA	APW08	C	Sodium, total	mg/L	13	0	0	2017/06/13	2023/10/10	79.0	87	88	93.0
UA	APW08	C	Sulfate, total	mg/L	25	0	0	2015/12/15	2023/10/10	30.0	42	42	57.0
UA	APW08	C	Total Dissolved Solids	mg/L	24	0	0	2015/12/15	2023/10/10	490	600	590	700
UA	APW09	C	pH (field)	SU	26	0	0	2015/12/15	2023/10/10	6.7	7.5	7.4	7.7
UA	APW09	C	Oxidation Reduction Potential	mV	26	0	0	2015/12/15	2023/10/10	-161	-72	-58	103
UA	APW09	C	Eh	V	26	0	0	2015/12/15	2023/10/10	0.032	0.12	0.14	0.30
UA	APW09	C	Alkalinity, bicarbonate	mg/L CaCO3	13	0	0	2017/06/13	2023/10/10	240	580	530	617

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW09	C	Alkalinity, carbonate	mg/L CaCO3	13	13	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW09	C	Barium, total	mg/L	14	0	0	2015/12/15	2023/10/10	0.110	0.42	0.38	0.564
UA	APW09	C	Calcium, total	mg/L	25	0	0	2015/12/15	2023/10/10	38.0	77	97	730
UA	APW09	C	Chloride, total	mg/L	26	0	0	2015/12/15	2023/10/10	44.0	130	110	140
UA	APW09	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	2.30	4.3	4.3	6.37
UA	APW09	C	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	2.50	2.8	2.8	3.20
UA	APW09	C	Lithium, total	mg/L	14	9	64	2015/12/15	2023/10/10	<0.0001	<0.0001	0.0032	0.0100
UA	APW09	C	Magnesium, total	mg/L	13	0	0	2017/06/13	2023/10/10	22.0	41	50	180
UA	APW09	C	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	0.0260	0.028	0.028	0.0294
UA	APW09	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/31	2023/07/31	2.27	2.27	2.3	2.27
UA	APW09	C	Potassium, total	mg/L	13	0	0	2017/06/13	2023/10/10	1.70	1.9	2.5	7.10
UA	APW09	C	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	5.95	7.0	7.0	8.00
UA	APW09	C	Sodium, total	mg/L	13	0	0	2017/06/13	2023/10/10	70.0	190	180	210
UA	APW09	C	Sulfate, total	mg/L	25	2	8	2015/12/15	2023/10/10	<0.12	9.7	77	1,500
UA	APW09	C	Total Dissolved Solids	mg/L	25	0	0	2015/12/15	2023/10/10	300	760	780	3,200
UA	APW10	C	pH (field)	SU	29	0	0	2015/12/16	2023/10/10	6.9	7.1	7.2	7.5
UA	APW10	C	Oxidation Reduction Potential	mV	28	0	0	2015/12/16	2023/10/10	-207	36	27	142
UA	APW10	C	Eh	V	28	0	0	2015/12/16	2023/10/10	-0.012	0.23	0.22	0.34
UA	APW10	C	Alkalinity, bicarbonate	mg/L CaCO3	15	0	0	2017/06/13	2023/10/10	300	400	400	452
UA	APW10	C	Alkalinity, carbonate	mg/L CaCO3	15	15	100	2017/06/13	2023/10/10	0	0	0	0
UA	APW10	C	Barium, total	mg/L	16	0	0	2015/12/16	2023/10/10	0.0260	0.036	0.035	0.0590
UA	APW10	C	Calcium, total	mg/L	27	0	0	2015/12/16	2023/10/10	110	140	140	160
UA	APW10	C	Chloride, total	mg/L	27	0	0	2015/12/16	2023/10/10	41.0	46	47	53.0
UA	APW10	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/27	2023/07/31	<0.02	1.8	1.8	3.61
UA	APW10	C	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	0.0780	0.086	0.086	0.0949
UA	APW10	C	Lithium, total	mg/L	16	0	0	2015/12/16	2023/10/10	0.0180	0.022	0.023	0.0300
UA	APW10	C	Magnesium, total	mg/L	15	0	0	2017/06/13	2023/10/10	64.0	70	69	73.0
UA	APW10	C	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	0.290	0.32	0.32	0.350
UA	APW10	C	Phosphate, dissolved	mg/L	1	1	100	2023/07/31	2023/07/31	<0.005	<0.005	0.0050	<0.005
UA	APW10	C	Potassium, total	mg/L	15	0	0	2017/06/13	2023/10/10	1.30	1.5	1.7	2.90
UA	APW10	C	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	7.41	8.6	8.6	9.70
UA	APW10	C	Sodium, total	mg/L	15	0	0	2017/06/13	2023/10/10	110	120	120	130
UA	APW10	C	Sulfate, total	mg/L	27	0	0	2015/12/16	2023/10/10	390	410	420	540
UA	APW10	C	Total Dissolved Solids	mg/L	28	0	0	2015/12/16	2023/10/10	840	1000	1000	1,200
UA	APW11	C	pH (field)	SU	12	0	0	2021/02/18	2023/10/10	6.1	7.2	7.1	7.5
UA	APW11	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/18	2023/10/10	-117	-41	-32	125
UA	APW11	C	Eh	V	11	0	0	2021/02/18	2023/10/10	0.078	0.15	0.16	0.32
UA	APW11	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/18	2023/10/10	320	420	440	820
UA	APW11	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/18	2023/10/10	0	0	0	0

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW11	C	Barium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.0420	0.048	0.060	0.160
UA	APW11	C	Calcium, total	mg/L	12	0	0	2021/02/18	2023/10/10	96.0	120	120	130
UA	APW11	C	Chloride, total	mg/L	12	0	0	2021/02/18	2023/10/10	23.0	26	28	47.0
UA	APW11	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	0.920	0.98	0.98	1.04
UA	APW11	C	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	0.940	1.0	1.0	1.08
UA	APW11	C	Lithium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.0190	0.022	0.024	0.0380
UA	APW11	C	Magnesium, total	mg/L	12	0	0	2021/02/18	2023/10/10	50.0	55	55	58.0
UA	APW11	C	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	0.840	0.89	0.89	0.947
UA	APW11	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/24	2023/07/24	0.0210	0.0210	0.021	0.0210
UA	APW11	C	Potassium, total	mg/L	12	0	0	2021/02/18	2023/10/10	1.40	1.8	2.0	4.10
UA	APW11	C	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	9.54	9.8	9.8	10.0
UA	APW11	C	Sodium, total	mg/L	12	0	0	2021/02/18	2023/10/10	89.5	98	99	110
UA	APW11	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	140	280	270	300
UA	APW11	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/18	2023/10/10	780	840	850	940
UA	APW13	C	pH (field)	SU	12	0	0	2021/02/22	2023/10/10	6.4	7.2	7.1	7.3
UA	APW13	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/22	2023/10/10	-102	-79	-52	109
UA	APW13	C	Eh	V	11	0	0	2021/02/22	2023/10/10	0.095	0.12	0.14	0.30
UA	APW13	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/22	2023/10/10	450	500	490	522
UA	APW13	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/22	2023/10/10	0	0	0	0
UA	APW13	C	Barium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0500	0.053	0.055	0.0720
UA	APW13	C	Calcium, total	mg/L	12	0	0	2021/02/22	2023/10/10	110	120	120	130
UA	APW13	C	Chloride, total	mg/L	12	0	0	2021/02/22	2023/10/10	45.0	52	53	71.0
UA	APW13	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	1.30	3.1	3.1	4.84
UA	APW13	C	Iron, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	1.30	1.4	1.4	1.44
UA	APW13	C	Lithium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0210	0.031	0.033	0.0540
UA	APW13	C	Magnesium, total	mg/L	12	0	0	2021/02/22	2023/10/10	56.0	61	61	68.0
UA	APW13	C	Manganese, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	0.580	0.59	0.59	0.598
UA	APW13	C	Phosphate, dissolved	mg/L	1	1	100	2023/07/31	2023/07/31	<0.005	<0.005	0.0050	<0.005
UA	APW13	C	Potassium, total	mg/L	12	0	0	2021/02/22	2023/10/10	1.70	1.9	1.9	2.20
UA	APW13	C	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/07/31	8.15	9.6	9.6	11.0
UA	APW13	C	Sodium, total	mg/L	12	0	0	2021/02/22	2023/10/10	110	120	120	140
UA	APW13	C	Sulfate, total	mg/L	12	0	0	2021/02/22	2023/10/10	210	220	220	250
UA	APW13	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/22	2023/10/10	760	860	860	940
UA	APW14	C	pH (field)	SU	12	0	0	2021/02/22	2023/10/10	6.5	7.4	7.3	7.5
UA	APW14	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/22	2023/10/10	-145	-100	-85	117
UA	APW14	C	Eh	V	11	0	0	2021/02/22	2023/10/10	0.047	0.092	0.11	0.31
UA	APW14	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/22	2023/10/10	410	460	500	920
UA	APW14	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/22	2023/10/10	0	0	0	0
UA	APW14	C	Barium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0649	0.089	0.090	0.140

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW14	C	Calcium, total	mg/L	12	0	0	2021/02/22	2023/10/10	120	130	130	150
UA	APW14	C	Chloride, total	mg/L	12	0	0	2021/02/22	2023/10/10	39.0	46	47	65.0
UA	APW14	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/28	2023/07/31	<0.1	1.9	1.9	3.80
UA	APW14	C	Iron, dissolved	mg/L	2	0	0	2023/04/28	2023/07/31	3.13	3.4	3.4	3.60
UA	APW14	C	Lithium, total	mg/L	12	0	0	2021/02/22	2023/10/10	0.0160	0.030	0.031	0.0510
UA	APW14	C	Magnesium, total	mg/L	12	0	0	2021/02/22	2023/10/10	58.0	66	66	76.0
UA	APW14	C	Manganese, dissolved	mg/L	2	0	0	2023/04/28	2023/07/31	0.207	0.21	0.21	0.220
UA	APW14	C	Phosphate, dissolved	mg/L	1	1	100	2023/07/31	2023/07/31	<0.005	<0.005	0.0050	<0.005
UA	APW14	C	Potassium, total	mg/L	12	0	0	2021/02/22	2023/10/10	1.60	2.9	2.9	5.30
UA	APW14	C	Silicon, dissolved	mg/L	2	0	0	2023/04/28	2023/07/31	7.08	8.1	8.1	9.20
UA	APW14	C	Sodium, total	mg/L	12	0	0	2021/02/22	2023/10/10	126	130	130	150
UA	APW14	C	Sulfate, total	mg/L	12	0	0	2021/02/22	2023/10/10	310	330	340	380
UA	APW14	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/22	2023/10/10	830	970	950	1,000
UA	APW15	C	pH (field)	SU	12	0	0	2021/02/23	2023/10/10	6.5	7.2	7.1	7.3
UA	APW15	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/23	2023/10/10	-142	-120	-110	-61.8
UA	APW15	C	Eh	V	11	0	0	2021/02/23	2023/10/10	0.050	0.073	0.084	0.13
UA	APW15	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/23	2023/10/10	590	710	760	1,400
UA	APW15	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/23	2023/10/10	0	0	0	0
UA	APW15	C	Barium, total	mg/L	12	0	0	2021/02/23	2023/10/10	0.530	0.60	0.60	0.708
UA	APW15	C	Calcium, total	mg/L	12	0	0	2021/02/23	2023/10/10	91.0	97	97	100
UA	APW15	C	Chloride, total	mg/L	12	0	0	2021/02/23	2023/10/10	130	230	230	270
UA	APW15	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/26	2023/08/01	<0.1	3.0	3.0	6.00
UA	APW15	C	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/08/01	9.00	9.8	9.8	10.5
UA	APW15	C	Lithium, total	mg/L	12	6	50	2021/02/23	2023/10/10	0.00610	0.0099	0.011	0.0220
UA	APW15	C	Magnesium, total	mg/L	12	0	0	2021/02/23	2023/10/10	37.0	41	41	46.0
UA	APW15	C	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/08/01	0.0830	0.085	0.085	0.0865
UA	APW15	C	Phosphate, dissolved	mg/L	1	0	0	2023/08/01	2023/08/01	1.44	1.44	1.4	1.44
UA	APW15	C	Potassium, total	mg/L	12	0	0	2021/02/23	2023/10/10	2.80	3.2	3.2	3.67
UA	APW15	C	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/08/01	7.02	7.4	7.4	7.80
UA	APW15	C	Sodium, total	mg/L	12	0	0	2021/02/23	2023/10/10	260	280	290	320
UA	APW15	C	Sulfate, total	mg/L	12	8	67	2021/02/23	2023/10/10	<0.18	<0.18	2.5	16.0
UA	APW15	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	1,000	1100	1100	1,200
UA	APW16	C	pH (field)	SU	12	0	0	2021/02/23	2023/10/10	7.0	7.4	7.4	7.7
UA	APW16	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/23	2023/10/10	-143	-120	-92	108
UA	APW16	C	Eh	V	11	0	0	2021/02/23	2023/10/10	0.049	0.075	0.10	0.30
UA	APW16	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/23	2023/10/10	510	640	670	1,300
UA	APW16	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/23	2023/10/10	0	0	0	0
UA	APW16	C	Barium, total	mg/L	12	0	0	2021/02/23	2023/10/10	0.520	0.60	0.60	0.660
UA	APW16	C	Calcium, total	mg/L	12	0	0	2021/02/23	2023/10/10	92.0	96	96	100

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW16	C	Chloride, total	mg/L	12	0	0	2021/02/23	2023/10/10	59.0	71	70	77.0
UA	APW16	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	2.30	3.9	3.9	5.59
UA	APW16	C	Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	2.00	2.4	2.4	2.89
UA	APW16	C	Lithium, total	mg/L	12	10	83	2021/02/23	2023/10/10	0.00250	0.0099	0.0079	<0.0099
UA	APW16	C	Magnesium, total	mg/L	12	0	0	2021/02/23	2023/10/10	39.6	44	44	48.0
UA	APW16	C	Manganese, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	0.0190	0.023	0.023	0.0270
UA	APW16	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/31	2023/07/31	1.47	1.47	1.5	1.47
UA	APW16	C	Potassium, total	mg/L	12	0	0	2021/02/23	2023/10/10	1.80	2.0	2.0	2.50
UA	APW16	C	Silicon, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	5.21	6.0	6.0	6.70
UA	APW16	C	Sodium, total	mg/L	12	0	0	2021/02/23	2023/10/10	130	140	140	160
UA	APW16	C	Sulfate, total	mg/L	12	7	58	2021/02/23	2023/10/10	<0.18	1.90	2.2	14.0
UA	APW16	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	610	750	780	1,300
UA	APW17	C	pH (field)	SU	12	0	0	2021/02/23	2023/10/10	6.9	7.4	7.4	7.7
UA	APW17	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/23	2023/10/10	-138	-97	-61	197
UA	APW17	C	Eh	V	11	0	0	2021/02/23	2023/10/10	0.054	0.098	0.13	0.39
UA	APW17	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/23	2023/10/10	450	540	570	1,000
UA	APW17	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/23	2023/10/10	0	0	0	0
UA	APW17	C	Barium, total	mg/L	12	0	0	2021/02/23	2023/10/10	0.540	0.60	0.61	0.741
UA	APW17	C	Calcium, total	mg/L	12	0	0	2021/02/23	2023/10/10	100	110	110	120
UA	APW17	C	Chloride, total	mg/L	12	0	0	2021/02/23	2023/10/10	31.0	56	56	88.0
UA	APW17	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	1.90	2.5	2.5	3.20
UA	APW17	C	Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	1.90	2.0	2.0	2.18
UA	APW17	C	Lithium, total	mg/L	12	10	83	2021/02/23	2023/10/10	0.00240	0.0099	0.0078	<0.0099
UA	APW17	C	Magnesium, total	mg/L	12	0	0	2021/02/23	2023/10/10	42.0	48	47	53.0
UA	APW17	C	Manganese, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	0.0191	0.022	0.022	0.0250
UA	APW17	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/25	2023/07/25	1.60	1.60	1.6	1.60
UA	APW17	C	Potassium, total	mg/L	12	0	0	2021/02/23	2023/10/10	1.60	1.8	1.9	2.20
UA	APW17	C	Silicon, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	6.71	7.2	7.2	7.70
UA	APW17	C	Sodium, total	mg/L	12	0	0	2021/02/23	2023/10/10	82.0	92	92	100
UA	APW17	C	Sulfate, total	mg/L	12	1	8	2021/02/23	2023/10/10	<4.6	40	40	64.0
UA	APW17	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	620	660	660	700
UA	APW18	C	pH (field)	SU	12	0	0	2021/02/23	2023/10/10	7.2	7.6	7.6	8.1
UA	APW18	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/23	2023/10/10	-182	-140	-100	120
UA	APW18	C	Eh	V	11	0	0	2021/02/23	2023/10/10	0.0089	0.055	0.091	0.31
UA	APW18	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/23	2023/10/10	380	490	510	950
UA	APW18	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/23	2023/10/10	0	0	0	0
UA	APW18	C	Barium, total	mg/L	12	0	0	2021/02/23	2023/10/10	0.180	0.35	0.35	0.443
UA	APW18	C	Calcium, total	mg/L	12	0	0	2021/02/23	2023/10/10	49.0	63	65	75.5
UA	APW18	C	Chloride, total	mg/L	12	0	0	2021/02/23	2023/10/10	23.0	30	35	79.0

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UA	APW18	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	1.30	1.4	1.4	1.42
UA	APW18	C	Iron, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	1.40	1.40	1.4	1.40
UA	APW18	C	Lithium, total	mg/L	12	9	75	2021/02/23	2023/10/10	<0.005	0.0099	0.0083	<0.0099
UA	APW18	C	Magnesium, total	mg/L	12	0	0	2021/02/23	2023/10/10	25.0	37	36	44.0
UA	APW18	C	Manganese, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	0.0453	0.047	0.047	0.0480
UA	APW18	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/25	2023/07/25	0.860	0.860	0.86	0.860
UA	APW18	C	Potassium, total	mg/L	12	0	0	2021/02/23	2023/10/10	2.34	8.4	7.6	14.0
UA	APW18	C	Silicon, dissolved	mg/L	2	0	0	2023/04/25	2023/07/25	6.08	6.4	6.4	6.70
UA	APW18	C	Sodium, total	mg/L	12	0	0	2021/02/23	2023/10/10	104	120	120	140
UA	APW18	C	Sulfate, total	mg/L	12	2	17	2021/02/23	2023/10/10	<0.18	11	21	52.0
UA	APW18	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/23	2023/10/10	450	570	570	660
UD/PMP	APW02	C	pH (field)	SU	36	0	0	2010/11/30	2023/10/10	5.4	6.8	6.8	7.1
UD/PMP	APW02	C	Oxidation Reduction Potential	mV	16	0	0	2021/02/17	2023/10/10	-5.10	72	66	164
UD/PMP	APW02	C	Eh	V	16	0	0	2021/02/17	2023/10/10	0.19	0.27	0.26	0.36
UD/PMP	APW02	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/10	450	640	670	1,300
UD/PMP	APW02	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/17	2023/10/10	0	0	0	0
UD/PMP	APW02	C	Barium, total	mg/L	12	0	0	2021/02/17	2023/10/10	0.00750	0.014	0.017	0.0360
UD/PMP	APW02	C	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/10	430	490	490	540
UD/PMP	APW02	C	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/10	84.0	110	110	130
UD/PMP	APW02	C	Ferrous Iron, dissolved	mg/L	2	2	100	2023/04/27	2023/08/17	<0.02	<0.02	0.060	<0.1
UD/PMP	APW02	C	Iron, dissolved	mg/L	10	3	30	2010/11/30	2023/08/17	<0.01	0.020	0.061	0.140
UD/PMP	APW02	C	Lithium, total	mg/L	12	0	0	2021/02/17	2023/10/10	0.0790	0.11	0.14	0.300
UD/PMP	APW02	C	Magnesium, total	mg/L	12	0	0	2021/02/17	2023/10/10	380	450	450	490
UD/PMP	APW02	C	Manganese, dissolved	mg/L	47	0	0	2010/11/30	2023/10/10	0.00440	0.24	0.36	1.40
UD/PMP	APW02	C	Phosphate, dissolved	mg/L	1	1	100	2023/08/17	2023/08/17	<0.005	<0.005	0.0050	<0.005
UD/PMP	APW02	C	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/10	3.90	6.3	6.1	7.07
UD/PMP	APW02	C	Silicon, dissolved	mg/L	2	0	0	2023/04/27	2023/08/17	7.86	8.0	8.0	8.20
UD/PMP	APW02	C	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/10	350	380	380	441
UD/PMP	APW02	C	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/10	1,500	3100	2900	3,200
UD/PMP	APW02	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	1,910	5100	5000	5,500
UD/PMP	APW03	C	pH (field)	SU	36	0	0	2010/11/30	2023/10/10	6.1	7.2	7.1	7.8
UD/PMP	APW03	C	Oxidation Reduction Potential	mV	16	0	0	2021/02/18	2023/10/10	-31.0	37	66	225
UD/PMP	APW03	C	Eh	V	16	0	0	2021/02/18	2023/10/10	0.15	0.23	0.26	0.43
UD/PMP	APW03	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/18	2023/10/10	390	430	460	820
UD/PMP	APW03	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/18	2023/10/10	0	0	0	0
UD/PMP	APW03	C	Barium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.0590	0.073	0.076	0.110
UD/PMP	APW03	C	Calcium, total	mg/L	12	0	0	2021/02/18	2023/10/10	92.5	110	110	120
UD/PMP	APW03	C	Chloride, total	mg/L	12	0	0	2021/02/18	2023/10/10	6.90	8.2	8.4	11.0
UD/PMP	APW03	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/25	2023/07/31	<0.02	1.9	1.9	3.80

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UD/PMP	APW03	C	Iron, dissolved	mg/L	10	6	60	2010/11/30	2023/07/31	0	0.010	0.017	0.0460
UD/PMP	APW03	C	Lithium, total	mg/L	12	2	17	2021/02/18	2023/10/10	0.00960	0.017	0.018	0.0350
UD/PMP	APW03	C	Magnesium, total	mg/L	12	0	0	2021/02/18	2023/10/10	52.7	62	61	65.0
UD/PMP	APW03	C	Manganese, dissolved	mg/L	47	0	0	2010/11/30	2023/10/10	0.00540	0.025	0.041	0.410
UD/PMP	APW03	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/31	2023/07/31	0.157	0.157	0.16	0.157
UD/PMP	APW03	C	Potassium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.310	0.77	0.70	0.980
UD/PMP	APW03	C	Silicon, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	11.8	13	13	14.0
UD/PMP	APW03	C	Sodium, total	mg/L	12	0	0	2021/02/18	2023/10/10	49.0	54	55	67.0
UD/PMP	APW03	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	110	170	150	190
UD/PMP	APW03	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	520	640	710	3,000
UD/PMP	APW04	C	pH (field)	SU	36	0	0	2010/11/30	2023/10/10	5.7	7.0	6.9	8.4
UD/PMP	APW04	C	Oxidation Reduction Potential	mV	16	0	0	2021/02/18	2023/10/10	19.0	110	110	224
UD/PMP	APW04	C	Eh	V	16	0	0	2021/02/18	2023/10/10	0.21	0.31	0.31	0.42
UD/PMP	APW04	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/18	2023/10/10	440	470	510	920
UD/PMP	APW04	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/18	2023/10/10	0	0	0	0
UD/PMP	APW04	C	Barium, total	mg/L	12	0	0	2021/02/18	2023/10/10	0.0130	0.023	0.024	0.0370
UD/PMP	APW04	C	Calcium, total	mg/L	12	0	0	2021/02/18	2023/10/10	206	220	220	240
UD/PMP	APW04	C	Chloride, total	mg/L	12	0	0	2021/02/18	2023/10/10	27.0	34	33	37.0
UD/PMP	APW04	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/25	2023/07/31	<0.02	1.8	1.8	3.54
UD/PMP	APW04	C	Iron, dissolved	mg/L	10	6	60	2010/11/30	2023/07/31	0	0.010	0.018	0.0610
UD/PMP	APW04	C	Lithium, total	mg/L	12	1	8	2021/02/18	2023/10/10	<0.0099	0.021	0.023	0.0450
UD/PMP	APW04	C	Magnesium, total	mg/L	12	0	0	2021/02/18	2023/10/10	167	170	180	200
UD/PMP	APW04	C	Manganese, dissolved	mg/L	47	0	0	2010/11/30	2023/10/10	0.0570	0.26	0.34	1.30
UD/PMP	APW04	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/31	2023/07/31	0.0150	0.0150	0.015	0.0150
UD/PMP	APW04	C	Potassium, total	mg/L	12	0	0	2021/02/18	2023/10/10	1.20	1.5	1.5	1.80
UD/PMP	APW04	C	Silicon, dissolved	mg/L	2	0	0	2023/04/25	2023/07/31	7.61	8.3	8.3	8.90
UD/PMP	APW04	C	Sodium, total	mg/L	12	0	0	2021/02/18	2023/10/10	90.0	93	94	110
UD/PMP	APW04	C	Sulfate, total	mg/L	12	0	0	2021/02/18	2023/10/10	760	900	890	990
UD/PMP	APW04	C	Total Dissolved Solids	mg/L	36	0	0	2010/11/30	2023/10/10	1,600	1900	2000	3,100
UD/PMP	APW05S	C	pH (field)	SU	11	0	0	2021/02/17	2023/10/10	6.6	6.8	6.8	7.1
UD/PMP	APW05S	C	Oxidation Reduction Potential	mV	10	0	0	2021/02/17	2023/10/10	-37.0	3.8	28	202
UD/PMP	APW05S	C	Eh	V	10	0	0	2021/02/17	2023/10/10	0.15	0.20	0.22	0.40
UD/PMP	APW05S	C	Alkalinity, bicarbonate	mg/L CaCO3	11	0	0	2021/02/17	2023/10/10	490	540	580	1,100
UD/PMP	APW05S	C	Alkalinity, carbonate	mg/L CaCO3	11	11	100	2021/02/17	2023/10/10	0	0	0	0
UD/PMP	APW05S	C	Barium, total	mg/L	11	0	0	2021/02/17	2023/10/10	0.0328	0.050	0.051	0.0920
UD/PMP	APW05S	C	Calcium, total	mg/L	11	0	0	2021/02/17	2023/10/10	355	390	400	430
UD/PMP	APW05S	C	Chloride, total	mg/L	11	0	0	2021/02/17	2023/10/10	112	200	220	550
UD/PMP	APW05S	C	Ferrous Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.164	0.21	0.21	0.260
UD/PMP	APW05S	C	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.0562	0.083	0.083	0.110

Table 4-1. Summary of Porewater and Groundwater Data
Nature and Extent Report
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Parameter	Unit	Sample Count	Non-Detect Results	Percent Non-Detect Results	First Sample	Last Sample	Minimum	Median	Mean	Maximum
UD/PMP	APW05S	C	Lithium, total	mg/L	11	0	0	2021/02/17	2023/10/10	0.0328	0.039	0.045	0.0910
UD/PMP	APW05S	C	Magnesium, total	mg/L	11	0	0	2021/02/17	2023/10/10	282	300	300	350
UD/PMP	APW05S	C	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	0.418	0.45	0.45	0.480
UD/PMP	APW05S	C	Phosphate, dissolved	mg/L	1	0	0	2023/07/25	2023/07/25	0.0210	0.0210	0.021	0.0210
UD/PMP	APW05S	C	Potassium, total	mg/L	11	0	0	2021/02/17	2023/10/10	1.80	2.0	2.1	2.50
UD/PMP	APW05S	C	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/07/25	10.3	11	11	11.0
UD/PMP	APW05S	C	Sodium, total	mg/L	11	0	0	2021/02/17	2023/10/10	240	250	260	310
UD/PMP	APW05S	C	Sulfate, total	mg/L	11	0	0	2021/02/17	2023/10/10	200	1900	1700	2,100
UD/PMP	APW05S	C	Total Dissolved Solids	mg/L	11	0	0	2021/02/17	2023/10/10	3,200	3600	3600	4,000
UD/PMP	APW12	C	pH (field)	SU	12	0	0	2021/02/17	2023/10/11	6.0	6.4	6.4	6.5
UD/PMP	APW12	C	Oxidation Reduction Potential	mV	11	0	0	2021/02/17	2023/10/11	6.00	46	51	117
UD/PMP	APW12	C	Eh	V	11	0	0	2021/02/17	2023/10/11	0.20	0.24	0.25	0.31
UD/PMP	APW12	C	Alkalinity, bicarbonate	mg/L CaCO3	12	0	0	2021/02/17	2023/10/11	520	670	650	700
UD/PMP	APW12	C	Alkalinity, carbonate	mg/L CaCO3	12	12	100	2021/02/17	2023/10/11	0	0	0	0
UD/PMP	APW12	C	Barium, total	mg/L	12	0	0	2021/02/17	2023/10/11	0.0280	0.038	0.040	0.0580
UD/PMP	APW12	C	Calcium, total	mg/L	12	0	0	2021/02/17	2023/10/11	190	220	220	275
UD/PMP	APW12	C	Chloride, total	mg/L	12	0	0	2021/02/17	2023/10/11	20.0	24	25	31.0
UD/PMP	APW12	C	Ferrous Iron, dissolved	mg/L	2	1	50	2023/04/26	2023/07/24	<0.02	0.19	0.19	0.362
UD/PMP	APW12	C	Iron, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	0.160	0.19	0.19	0.211
UD/PMP	APW12	C	Lithium, total	mg/L	12	0	0	2021/02/17	2023/10/11	0.0240	0.028	0.031	0.0460
UD/PMP	APW12	C	Magnesium, total	mg/L	12	0	0	2021/02/17	2023/10/11	84.0	96	100	127
UD/PMP	APW12	C	Manganese, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	1.30	1.4	1.4	1.40
UD/PMP	APW12	C	Phosphate, dissolved	mg/L	1	1	100	2023/07/24	2023/07/24	<0.005	<0.005	0.0050	<0.005
UD/PMP	APW12	C	Potassium, total	mg/L	12	0	0	2021/02/17	2023/10/11	0.940	1.1	1.8	6.00
UD/PMP	APW12	C	Silicon, dissolved	mg/L	2	0	0	2023/04/26	2023/07/24	15.8	17	17	18.0
UD/PMP	APW12	C	Sodium, total	mg/L	12	0	0	2021/02/17	2023/10/11	77.0	110	110	151
UD/PMP	APW12	C	Sulfate, total	mg/L	12	0	0	2021/02/17	2023/10/11	56.0	420	420	712
UD/PMP	APW12	C	Total Dissolved Solids	mg/L	12	0	0	2021/02/17	2023/10/11	990	1300	1400	1,740

Notes:
< = result is less than the detection limit
B = background well
C = compliance well
HSU = hydrostratigraphic unit
  CCR = coal combustion residual
  UA = uppermost aquifer
  UD = uppermost drift
mg/L = milligrams per liter
V = volts

FIGURES



- COMPLIANCE MONITORING WELL
- BACKGROUND MONITORING WELL
- MONITORING WELL
- PORE WATER WELL
- LEACHATE WELL
- STAFF GAGE, CCR UNIT
- STAFF GAGE, LAKE
- GROUNDWATER ELEVATION CONTOUR (5-FT CONTOUR INTERVAL, NAVD88)
- INFERRED GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- REGULATED UNIT (SUBJECT UNIT)
- SITE FEATURE

NOTES:

1.ELEVATIONS IN PARENTHESES WERE NOT USED FOR CONTOURING.

2. ELEVATIONS IN BRACKETS WERE OBTAINED OUTSIDE OF THE 24 HOUR PERIOD FROM INITIATION OF DEPTH TO GROUNDWATER MEASUREMENTS BUT WITHIN THE SAME SAMPLING EVENT.

3. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 400 800 Feet

FIGURE 2-1
POTENTIOMETRIC SURFACE MAP
OCTOBER 9, 2023

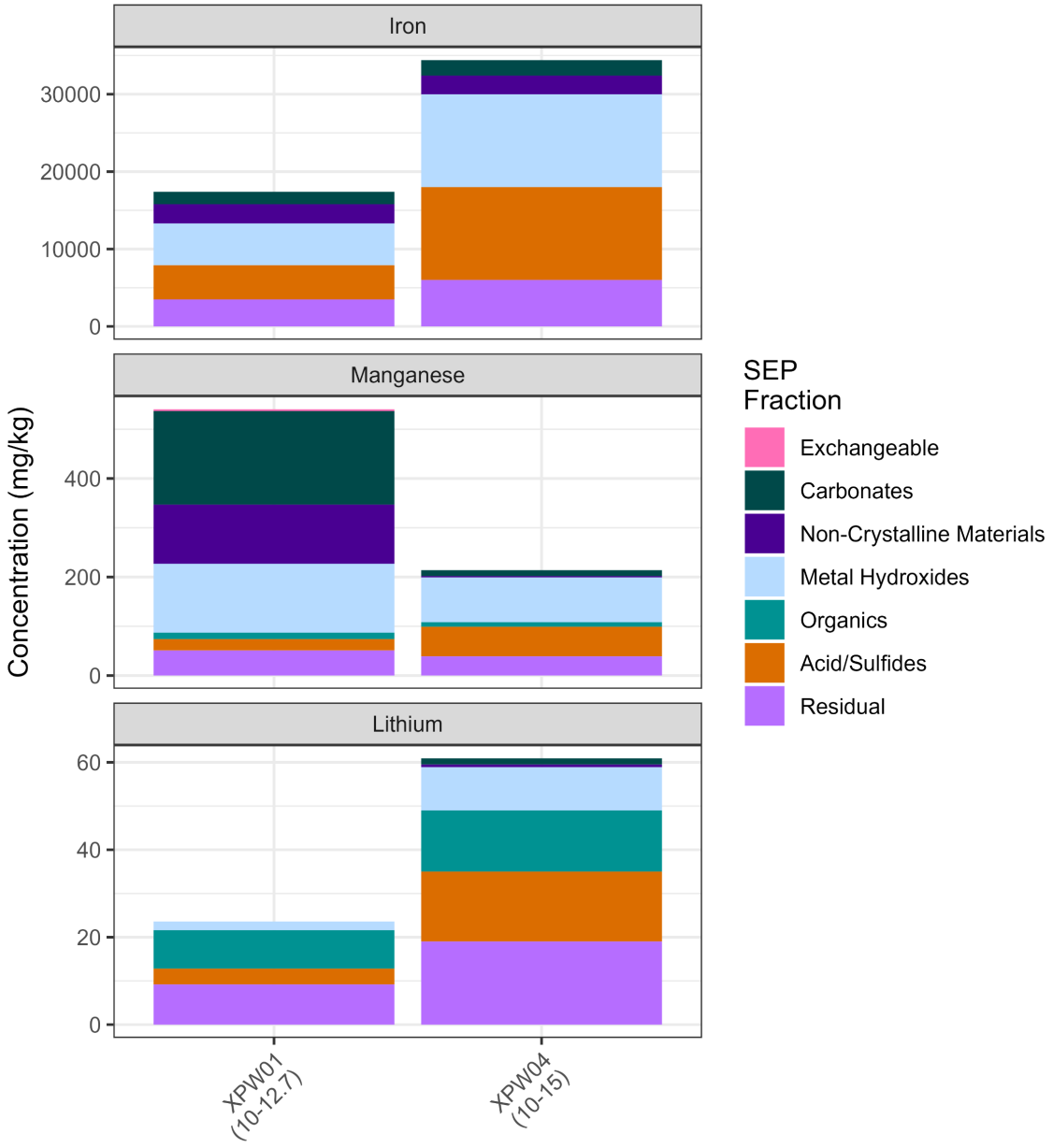
GEOCHEMICAL CONCEPTUATL SITE MODEL
PRIMARY ASH POND
NEWTON POWER PLANT
NEWTON, ILLINOIS

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22851\MXD\GW_Contours\Round_2023\Newton\PAP_501\NEW 501 PAP Pot Surface 20231009.mxd

PROJECT: 169000XXXX | DATED: 12/11/2023 | DESIGNER: GALARNMC

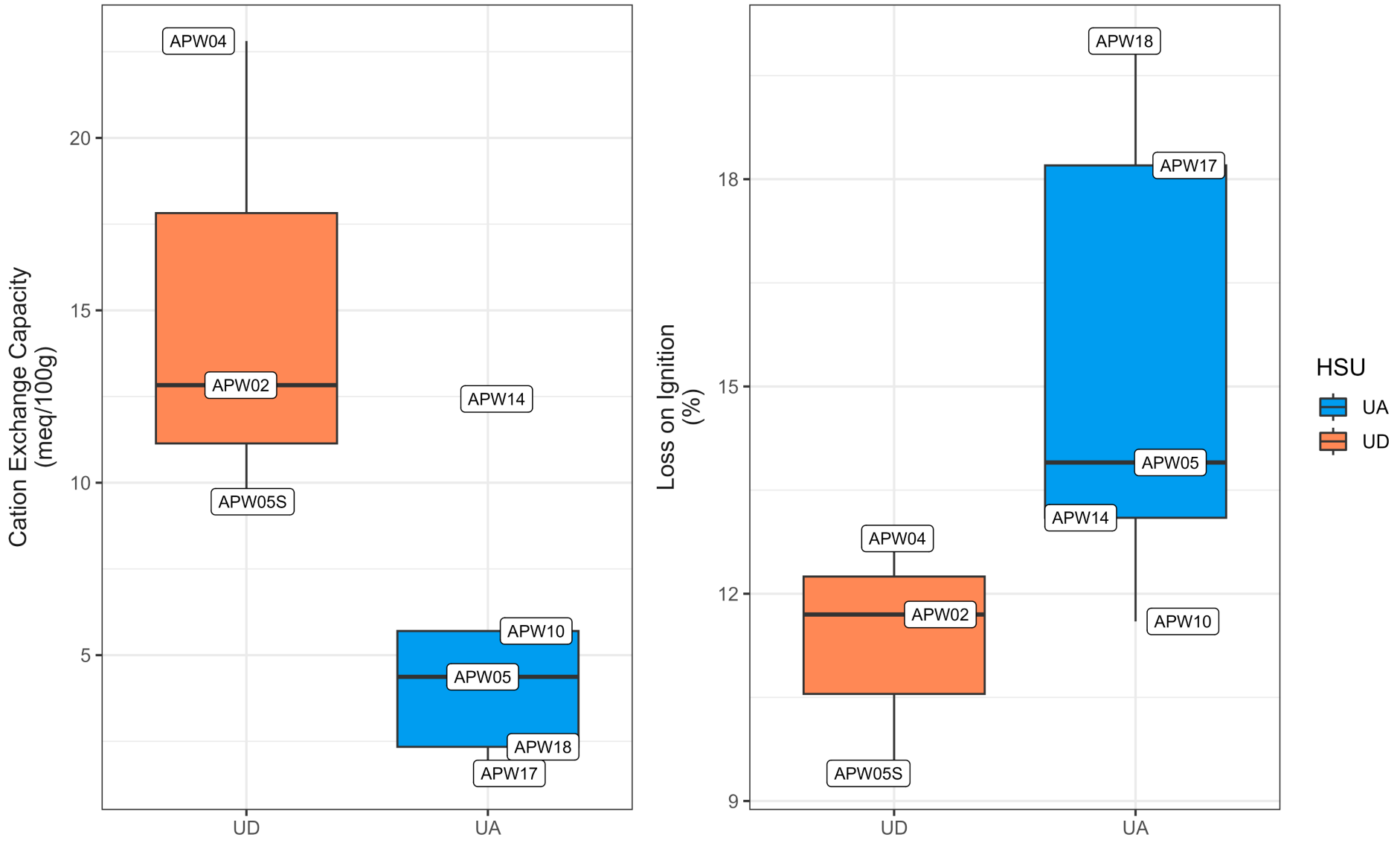


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SEP Results From CCR Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-1

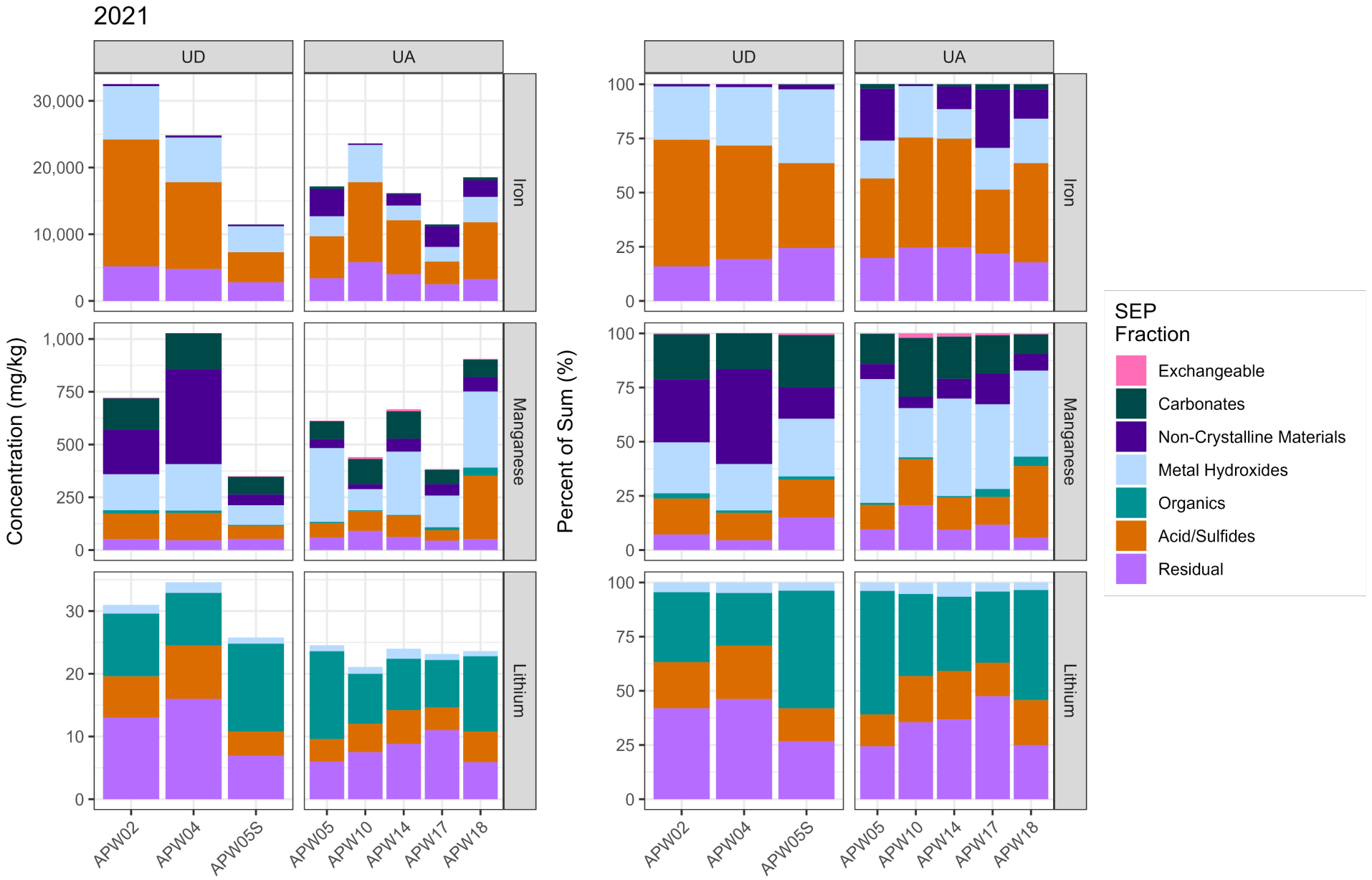


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CEC and LOI Results from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-2

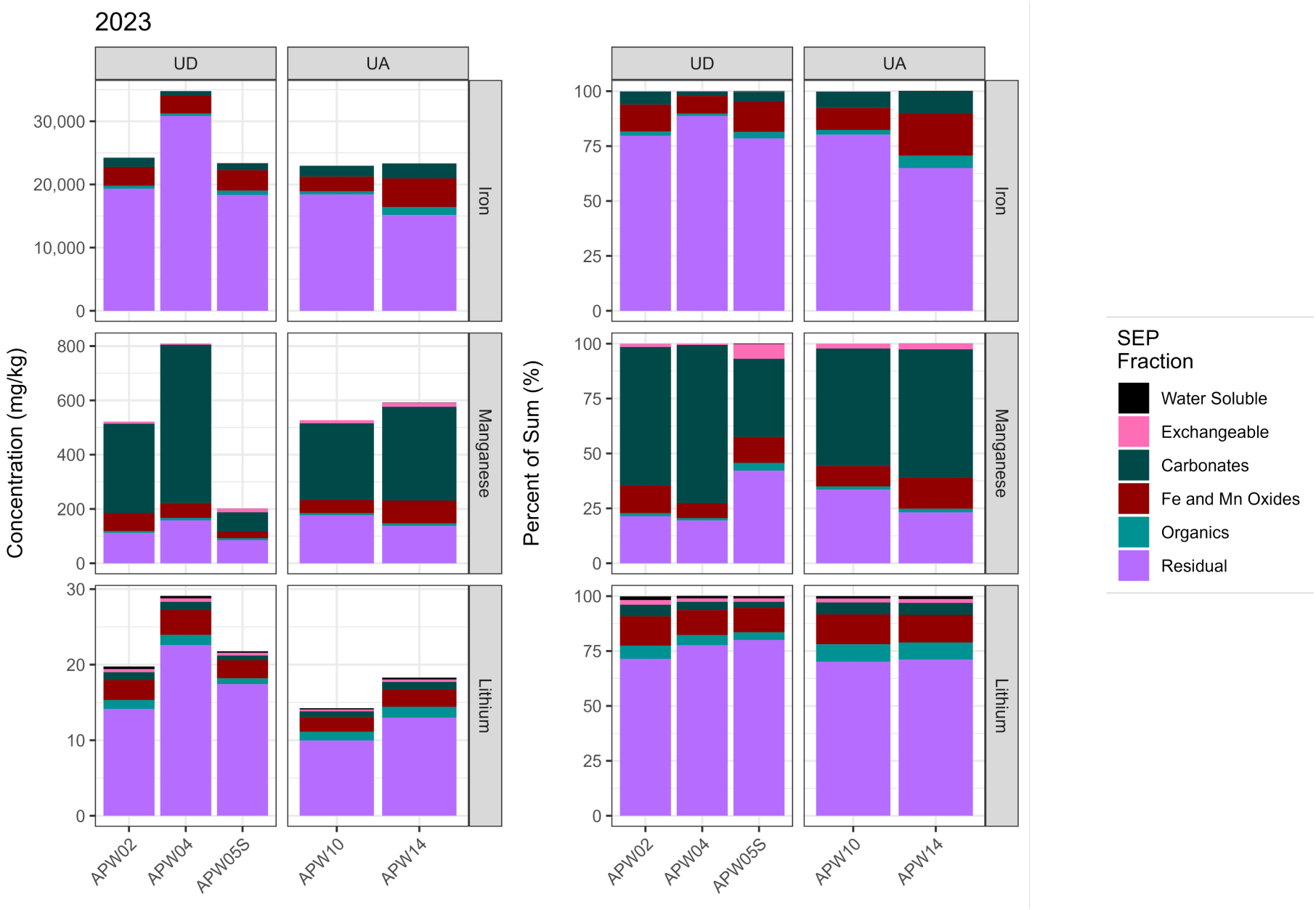


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SEP Results from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-3a

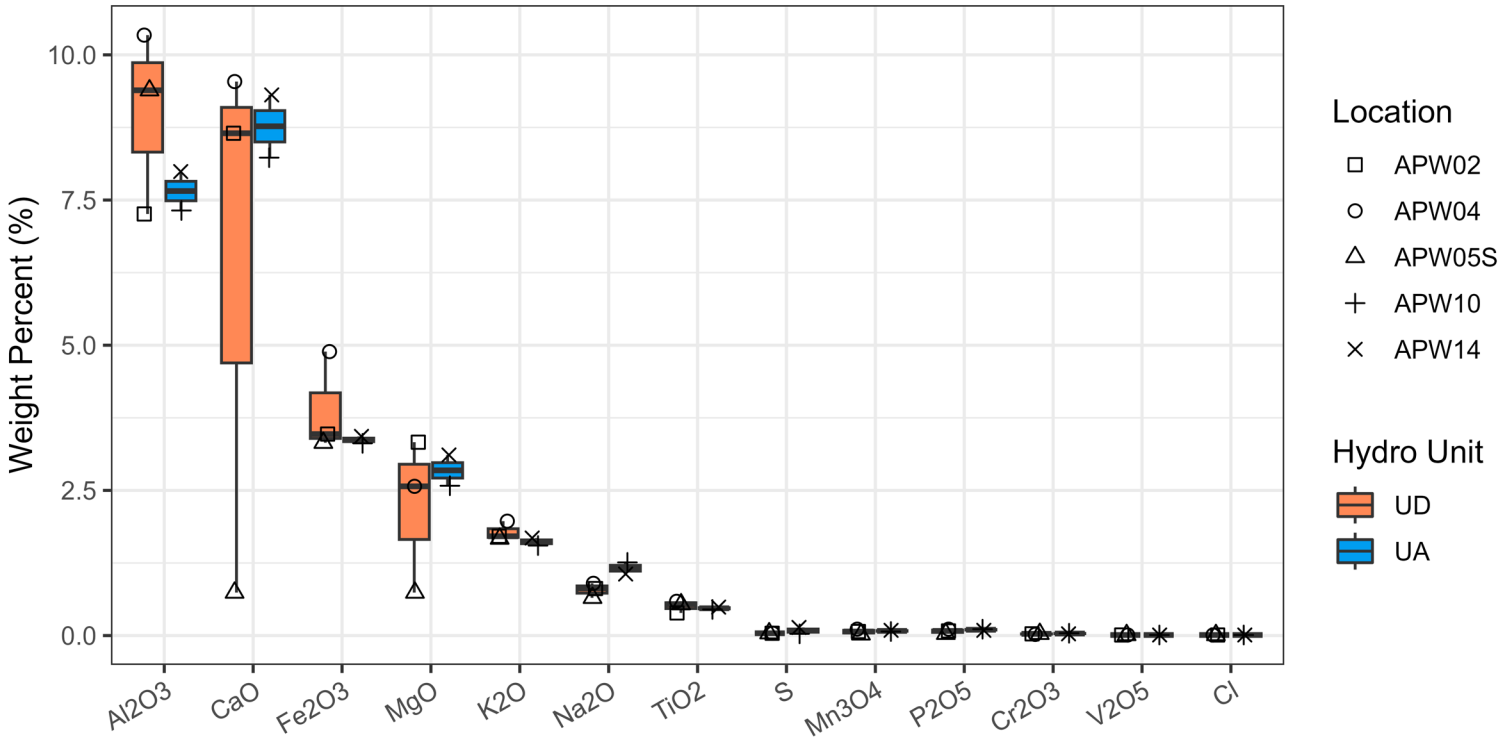


RAMBOLL

SEP Results from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-3b

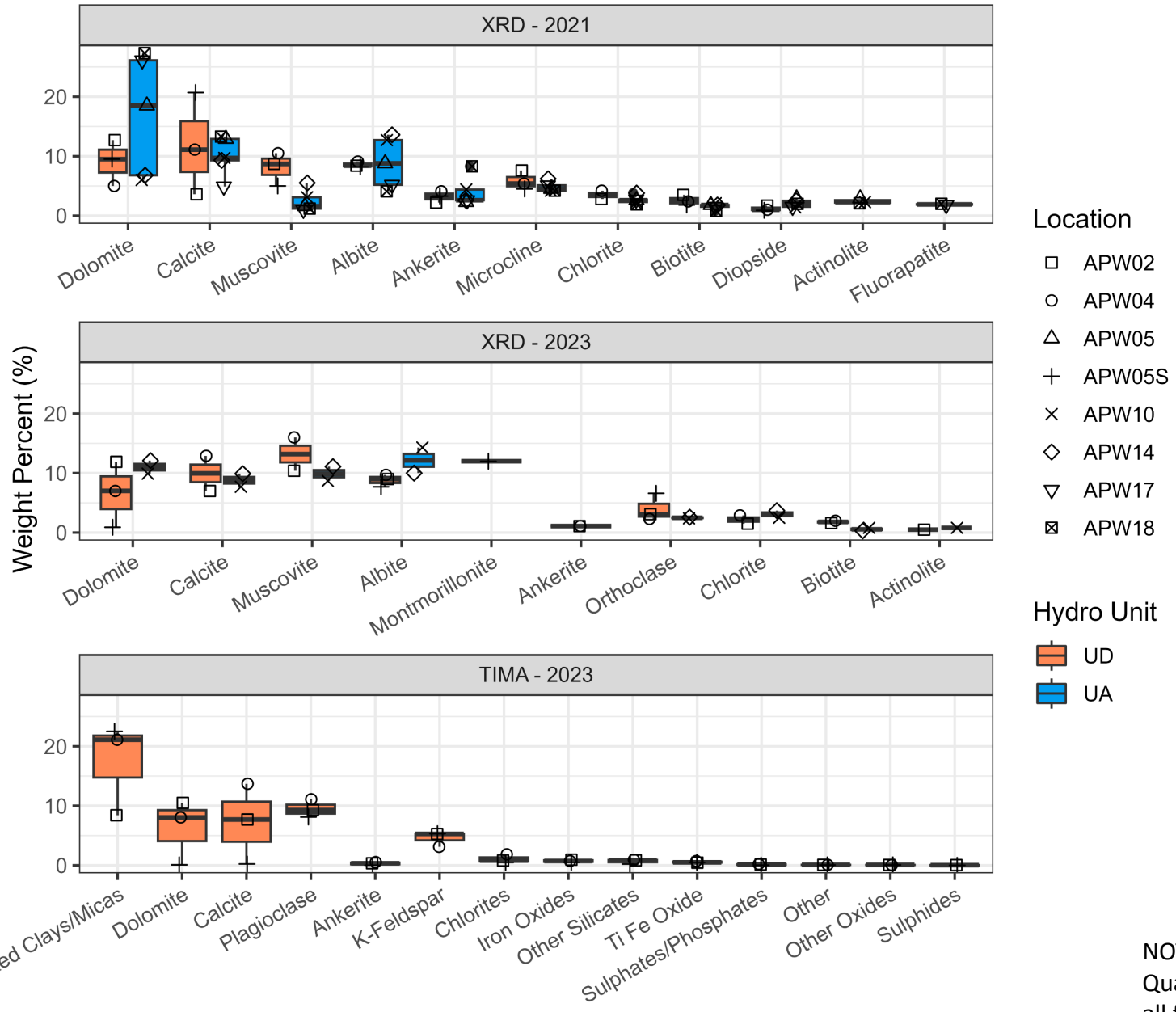
DRAFTED BY: AO | 3/26/2024



XRF Results from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-4

DRAFTED BY: AO | 3/26/2024



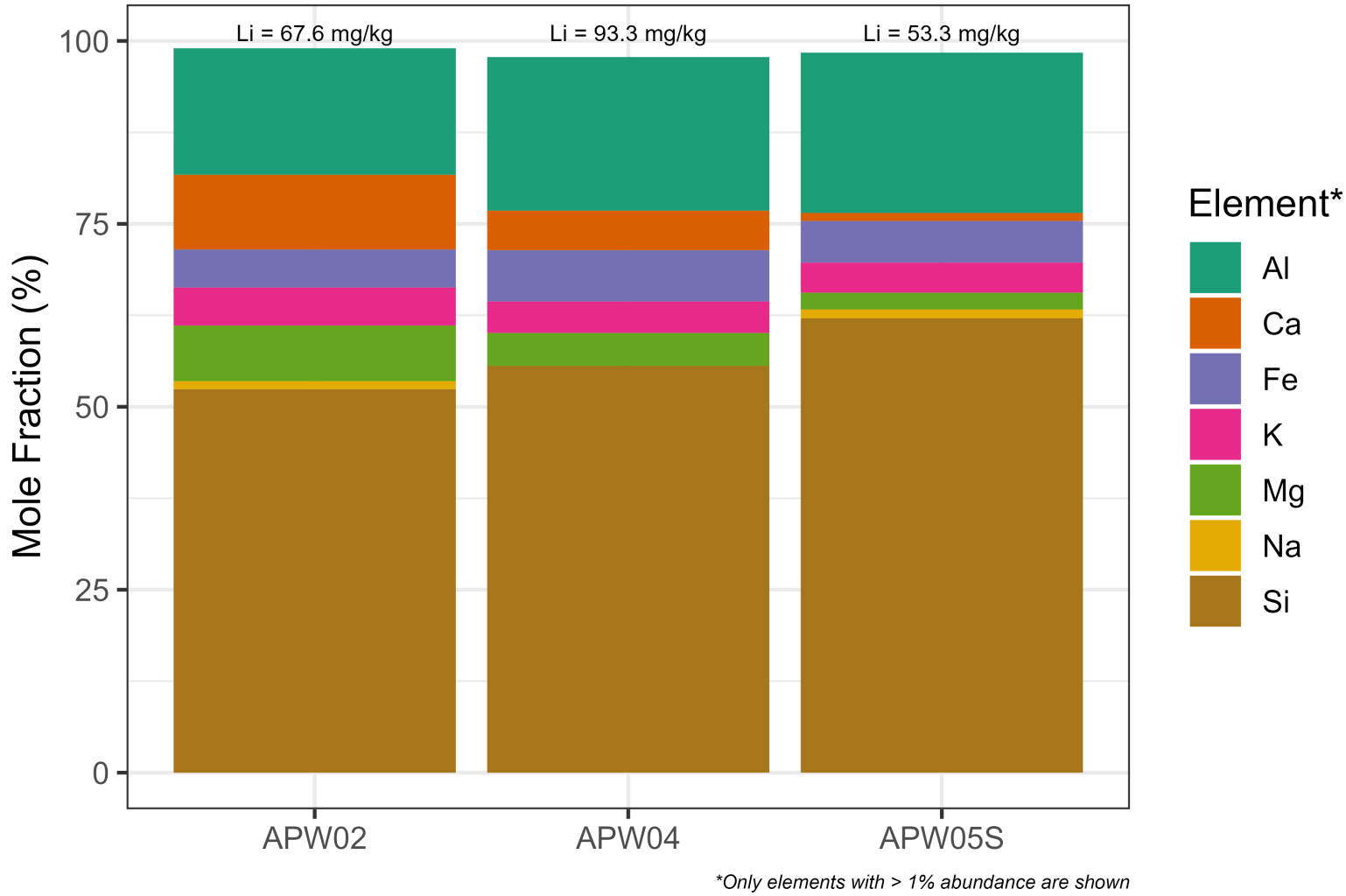
NOTES:
Quartz omitted from all figures due to scale.

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XRD and TIMA Results from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-5

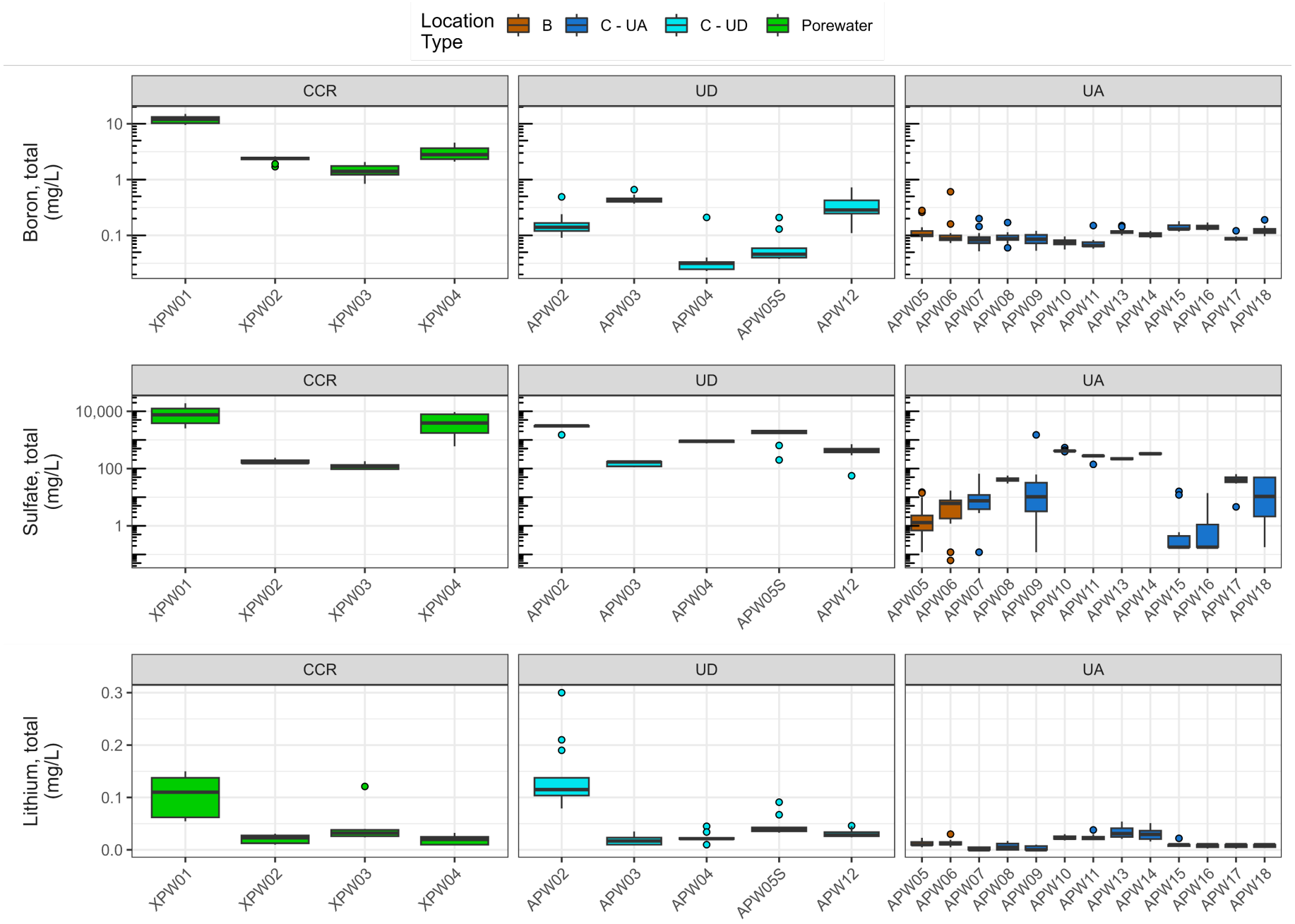


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EMPA Results for Mixed Micas/Clays from Aquifer Solids Samples
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 3-6

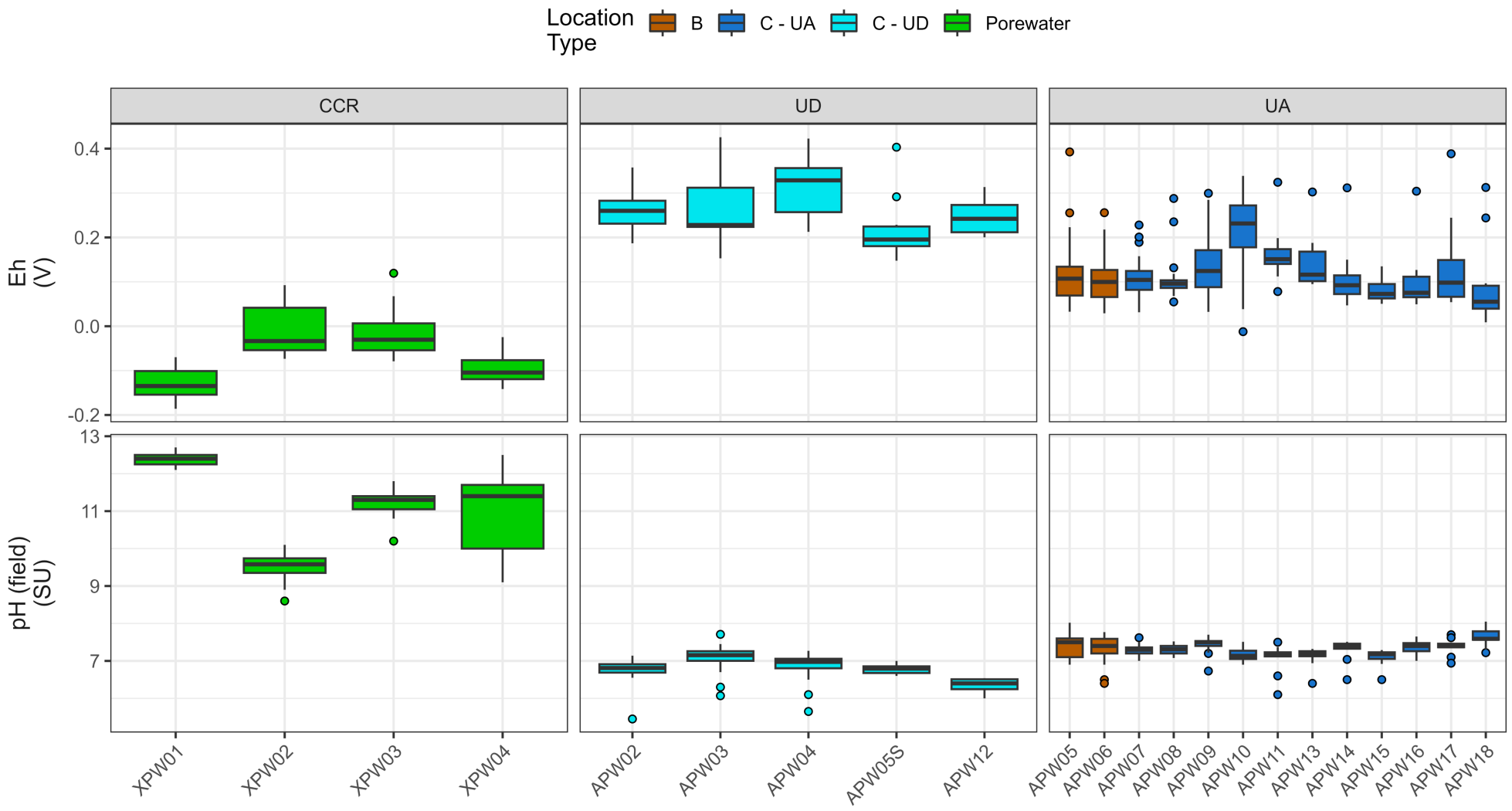


RAMBOLL

Summary of Boron, Sulfate, and Lithium Concentrations in Porewater and Groundwater
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-1

DRAFTED BY: AO | 3/26/2024

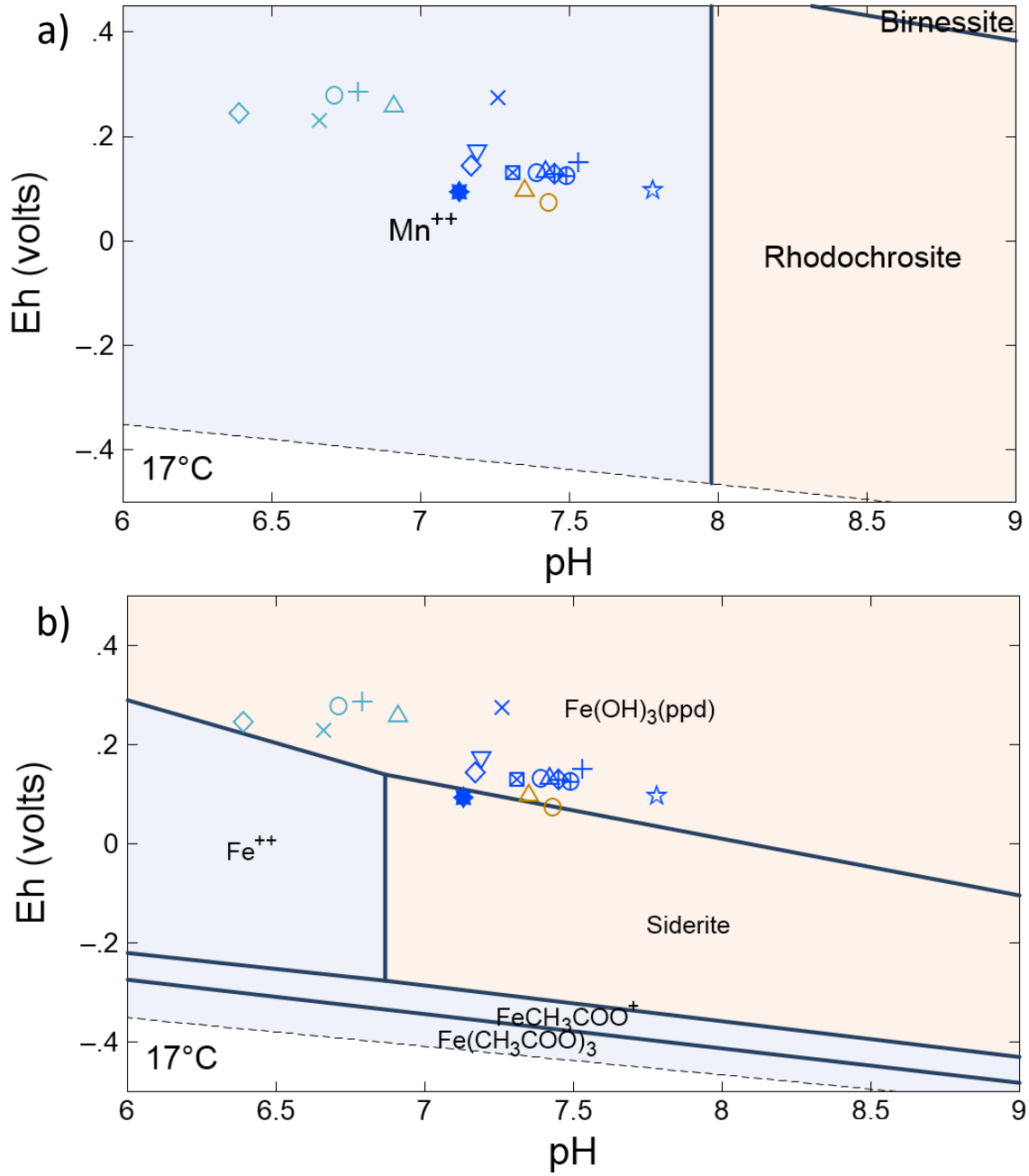


RAMBOLL

Summary of Eh and pH in Porewater and Groundwater
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-2

DRAFTED BY: AO | 3/26/2024



Phase

Mineral

Aqueous

Location Type

B

C - UA

C - UD

Location

APW02	APW09	APW17
APW03	APW10	APW18
APW04	APW11	
APW05	APW12	
APW05S	APW13	
APW06	APW14	
APW07	APW15	
APW08	APW16	

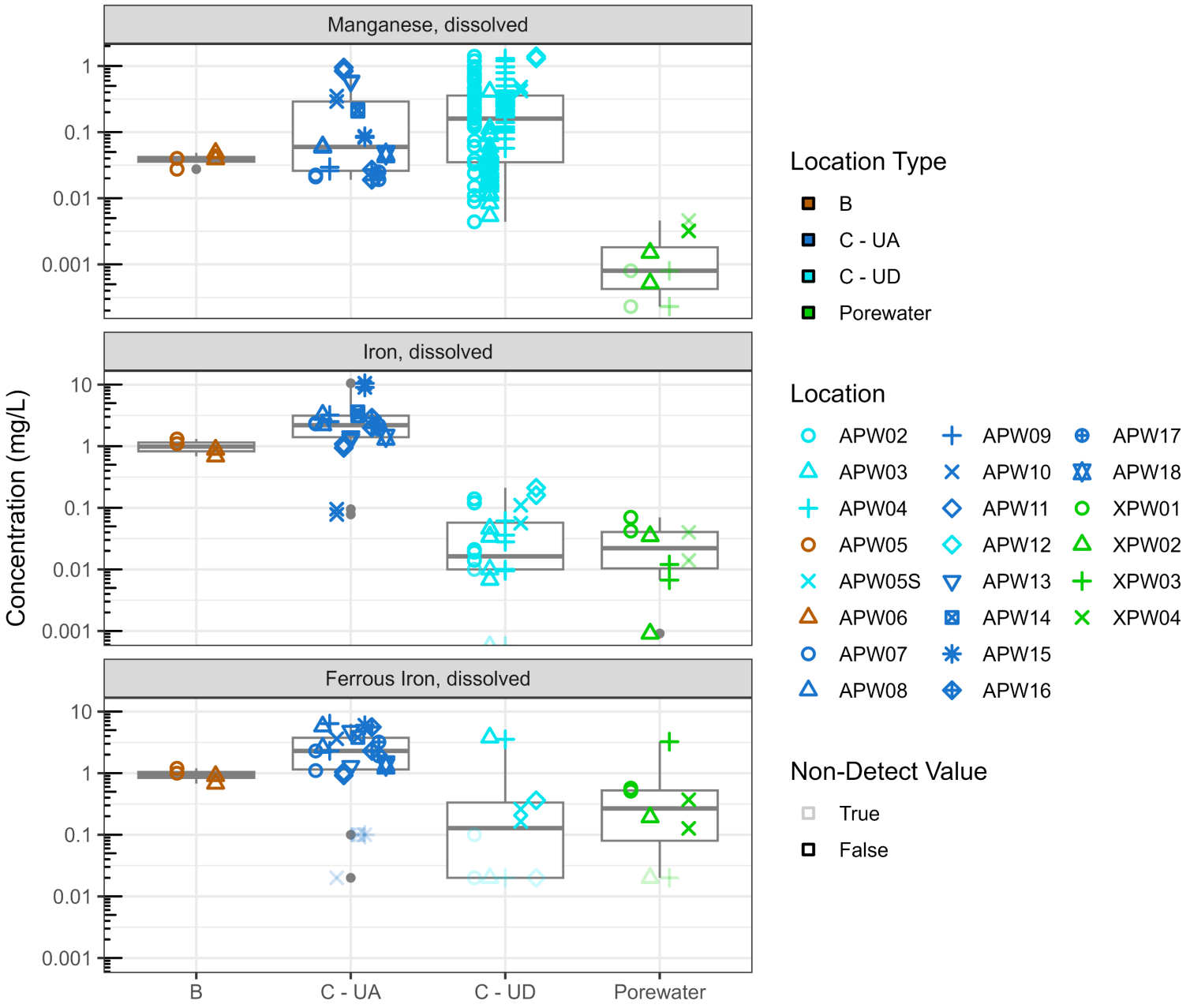
Abbreviations:
ppd = precipitated
c = crystalline

RAMBOLL

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Pourbaix Diagrams for Manganese and Iron Species
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-3

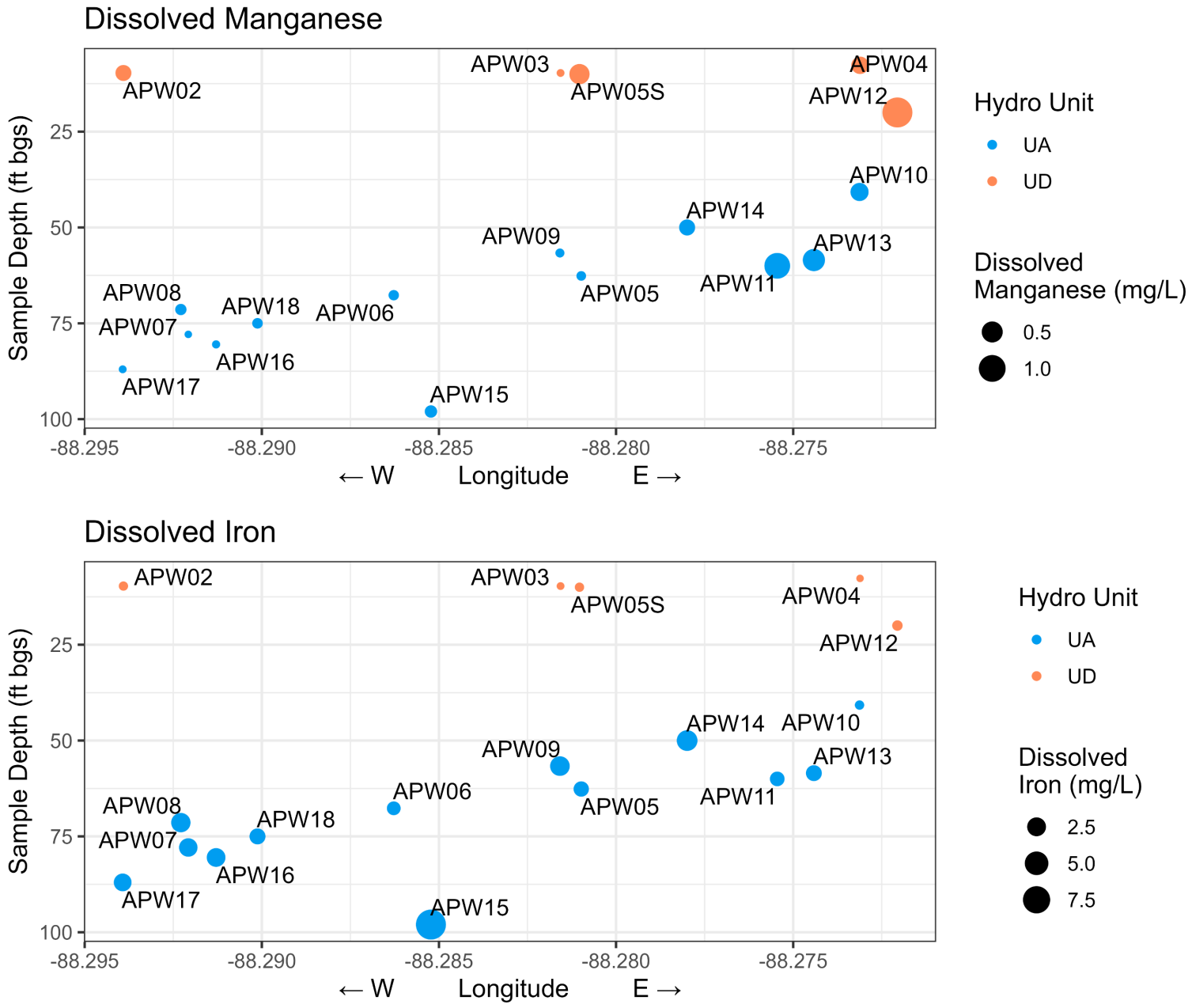


RAMBOLL

Summary of Manganese and Iron Species Concentrations in Porewater and Groundwater
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-4

DRAFTED BY: AO | 3/26/2024

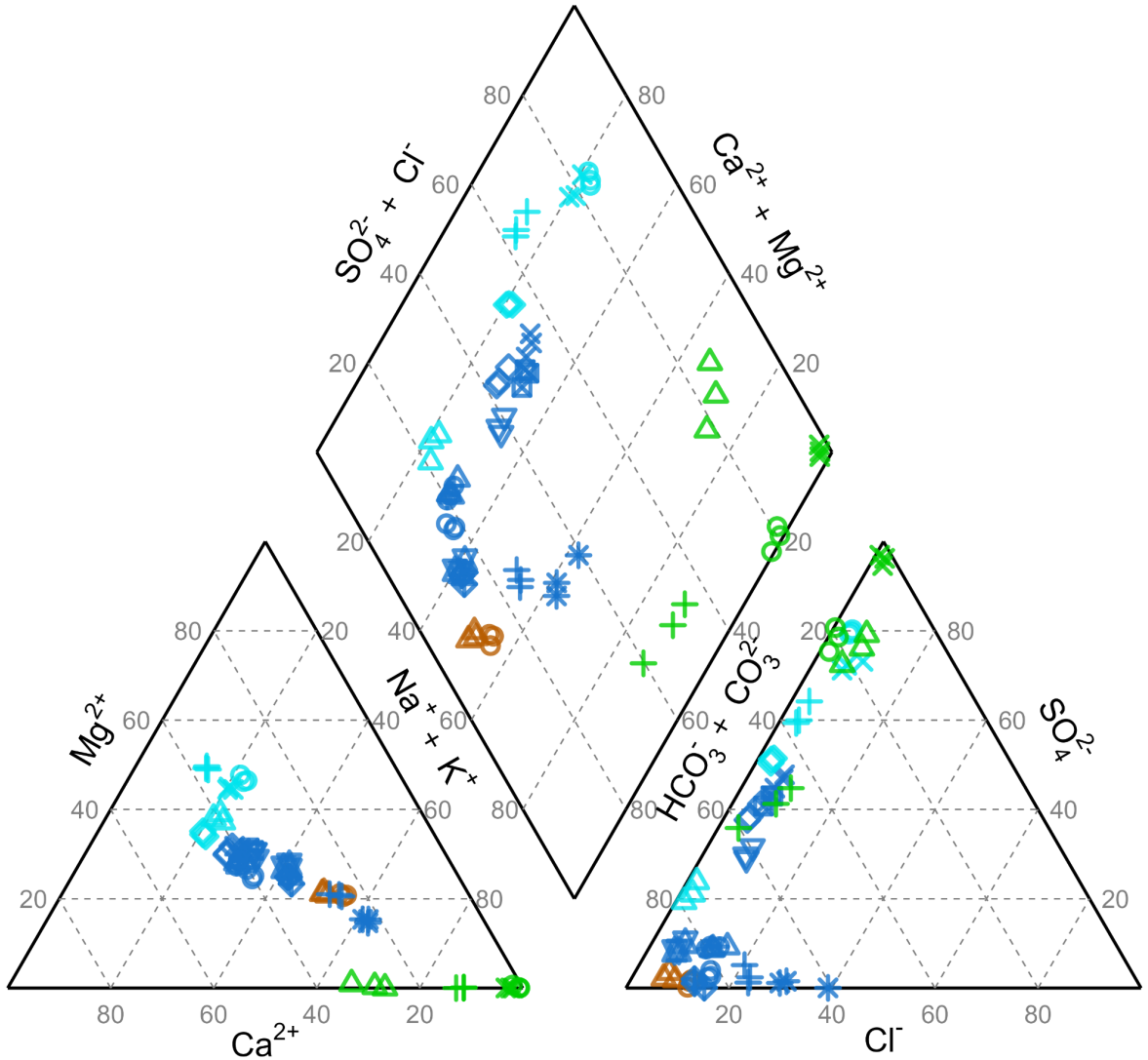


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Median Manganese and Iron Concentrations With Depth, West to East
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-5



Location Type

- B
- C - UA
- C - UD
- Porewater

Location

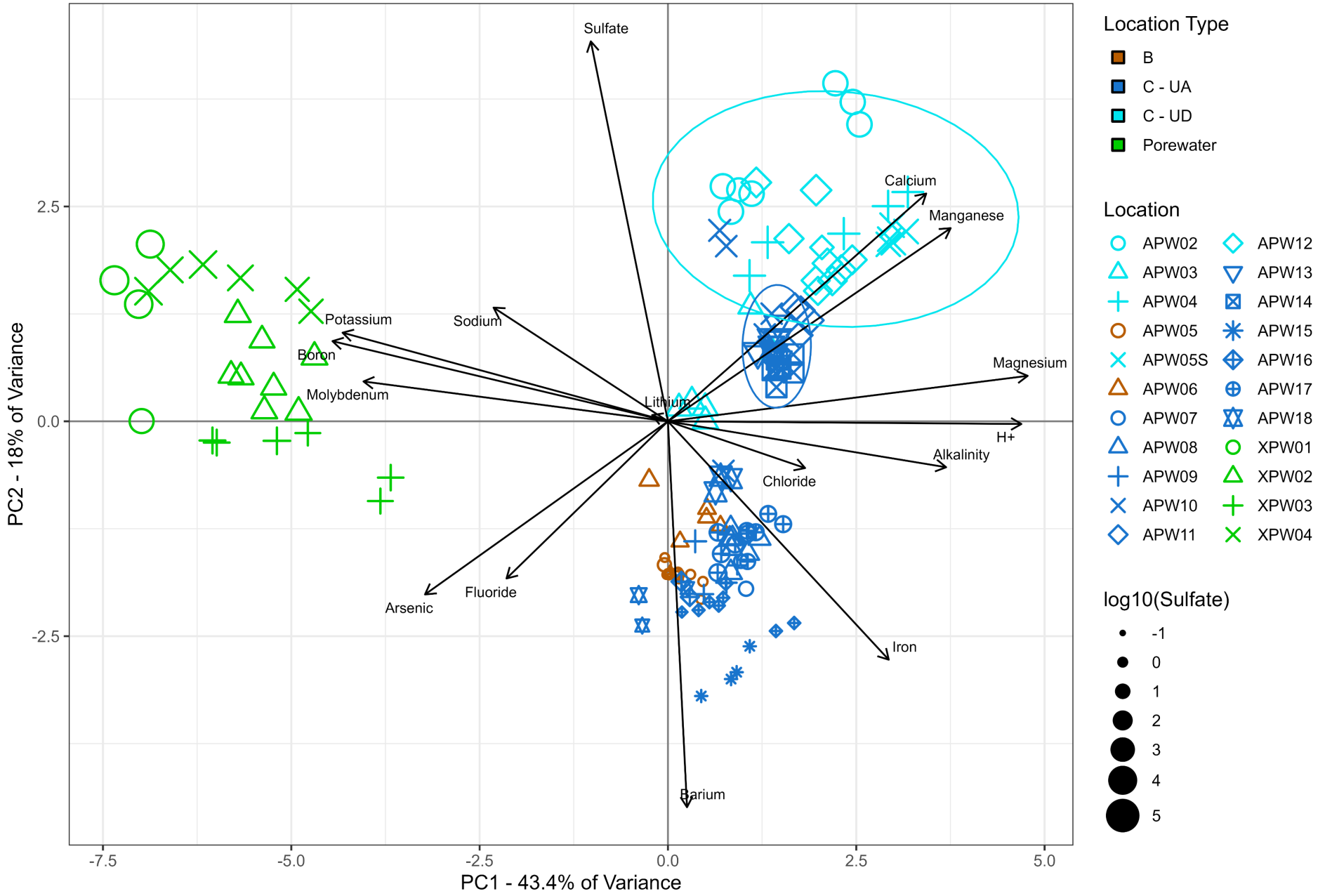
APW02	APW12
APW03	APW13
APW04	APW14
APW05	APW15
APW05S	APW16
APW06	APW17
APW07	APW18
APW08	XPW01
APW09	XPW02
APW10	XPW03
APW11	XPW04

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Piper Diagram of Three Most Recent Data Points
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-6

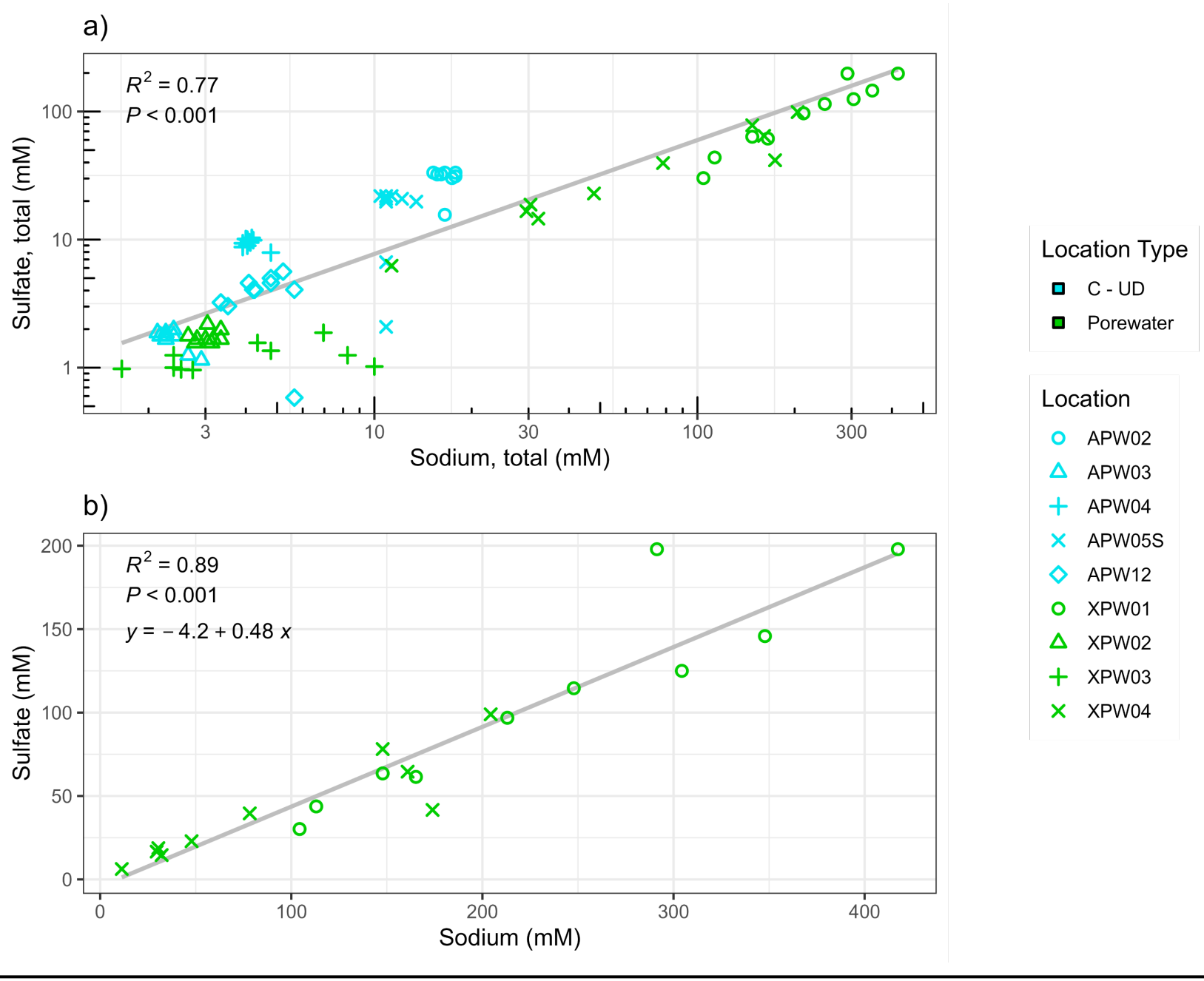


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PCA Biplot
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-7

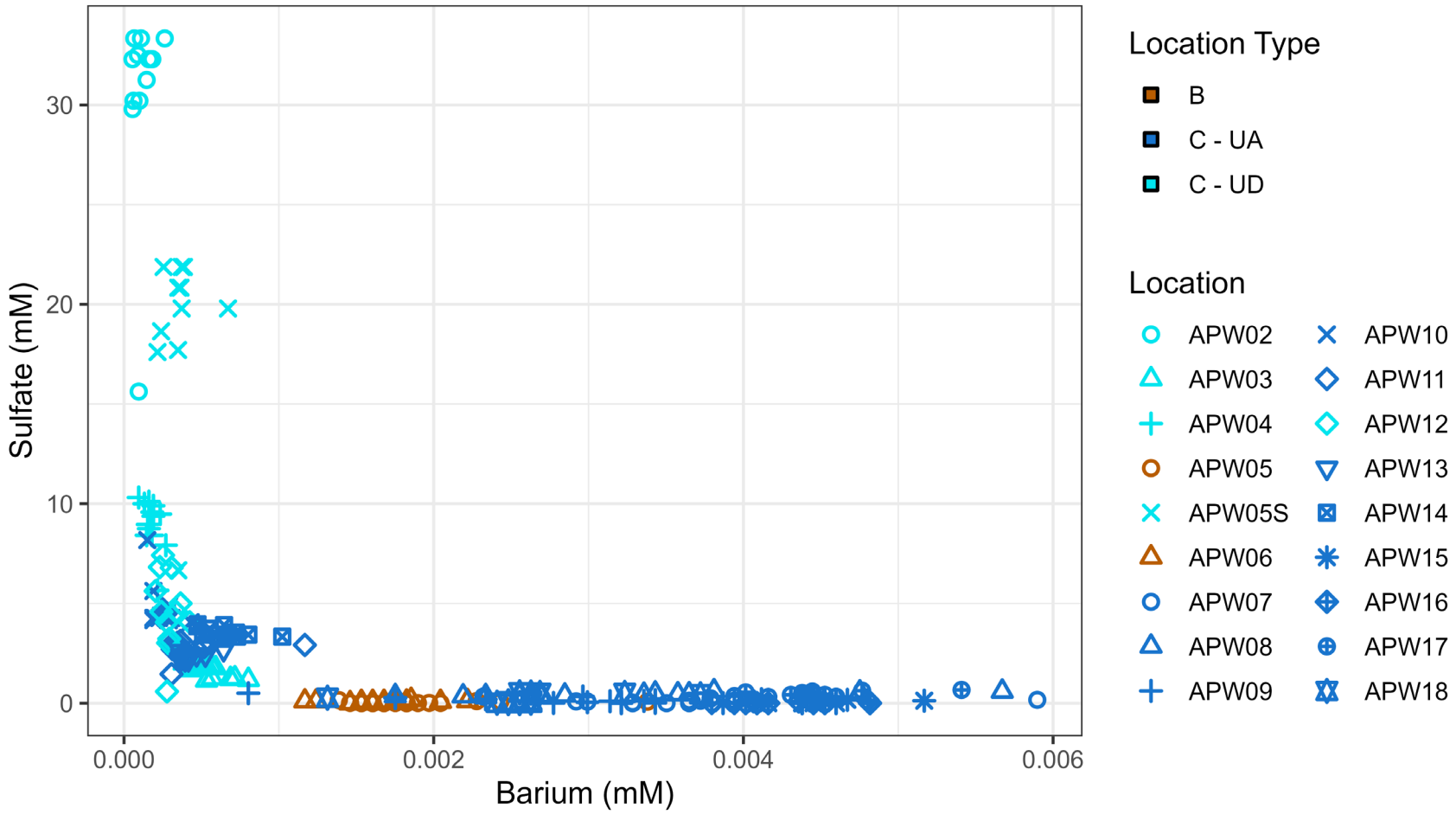


RAMBOLL

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Sodium and Sulfate Correlations in Porewater and Upper Drift Groundwater
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-8

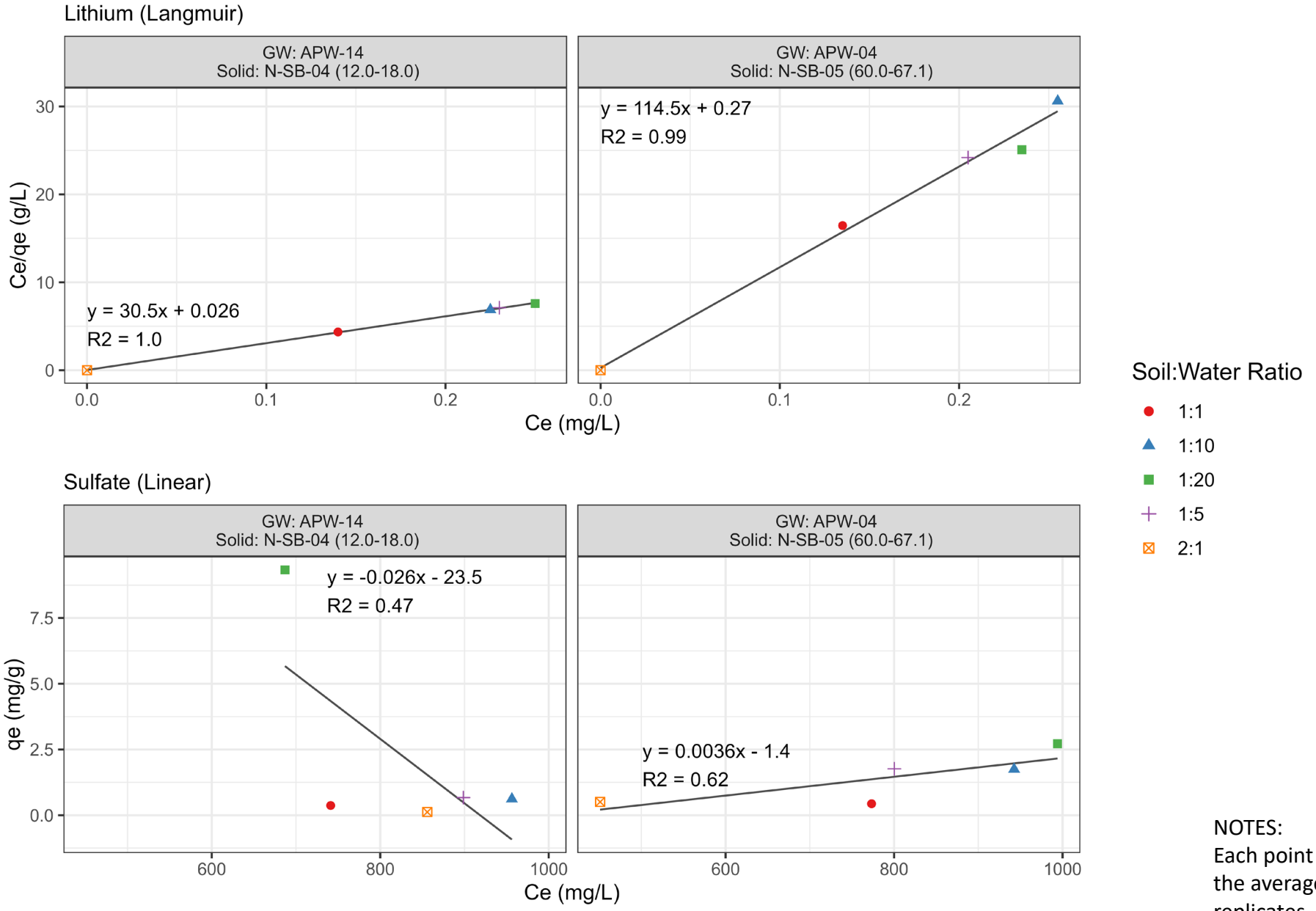


RAMBOLL

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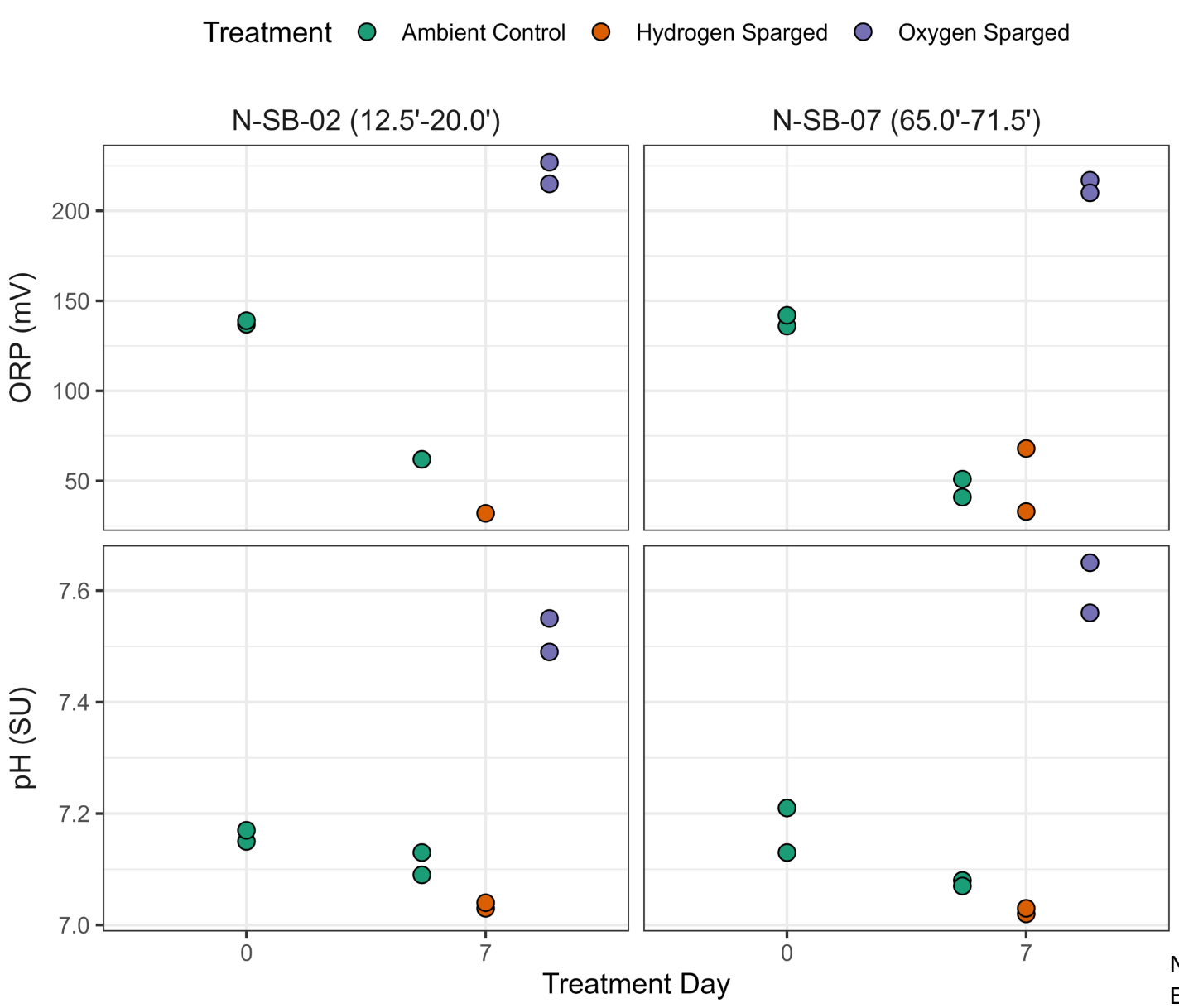
Barium and Sulfate Correlation in Groundwater
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 4-9



NOTES:
Each point represents the average of two replicates.

RAMBOLL	**Adsorption Test Results** Geochemical Conceptual Site Model Newton Primary Ash Pond Newton Power Plant Newton, IL		**Figure 5-1**
DRAFTED BY: AO	3/26/2024		



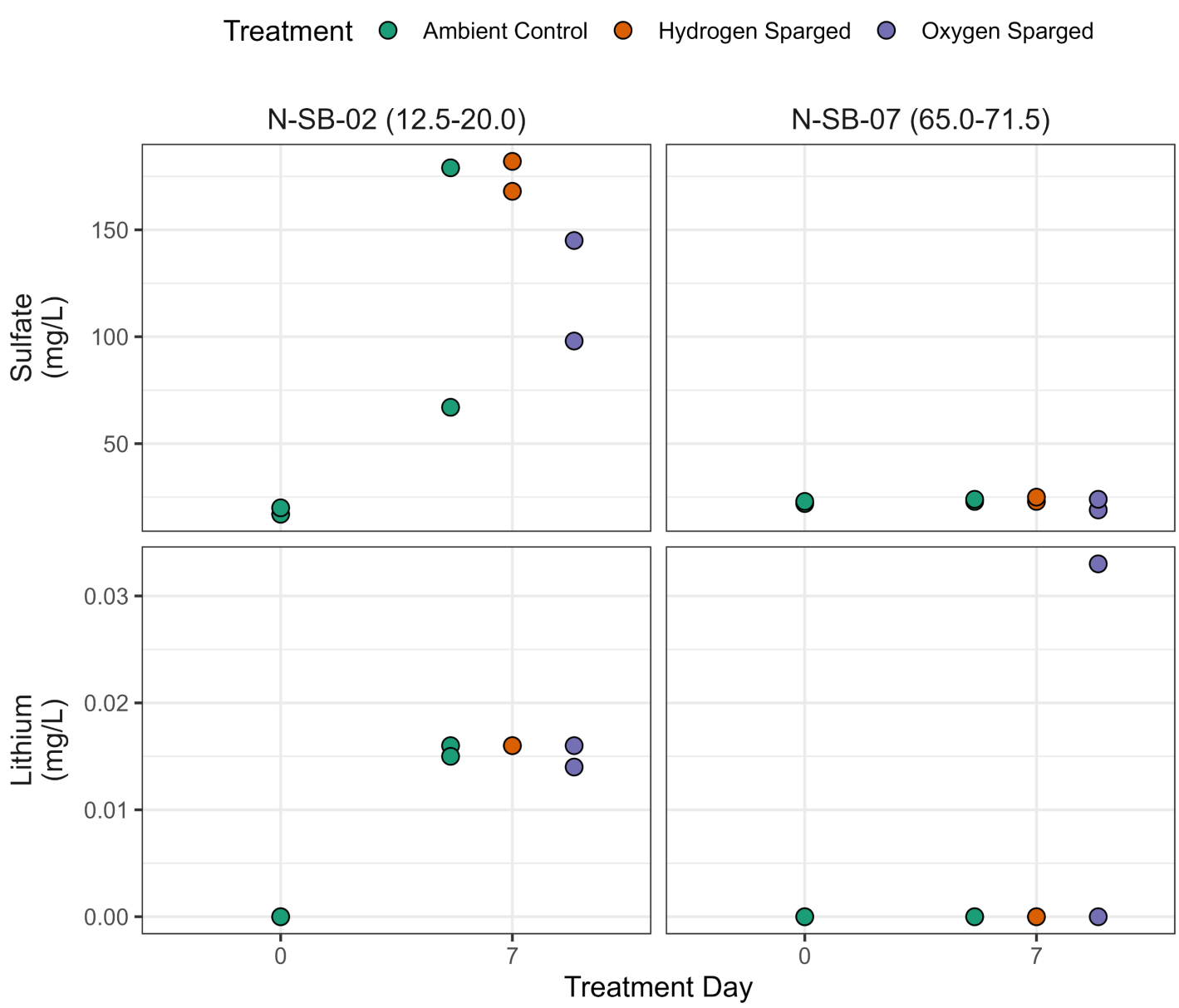
NOTES:
Each point represents a replicate sample.

RAMBOLL

Desorption Test Results: ORP and pH
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 5-2

DRAFTED BY: AO | 3/26/2024



NOTES:
Each point represents a replicate sample.

RAMBOLL

Desorption Test Results: Sulfate and Lithium
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Figure 5-3

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ATTACHMENTS

ATTACHMENT 1
GOLDER SAMPLING TECHNICAL MEMORANDUM

GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE December 15, 2021 **Project No.** 21454831

TO David Mitchell, Stu Cravens, Vic Modeer
Illinois Power Generating Company (IPGC)

CC Brian Hennings - Ramboll

FROM Pat Behling, Jeffrey Ingram - Golder **EMAIL Jingram@golder.com**

MONITORED NATURAL ATTENUATION FIELD INVESTIGATION STATUS UPDATE, PRIMARY ASH POND (CCR UNIT 501) NEWTON POWER PLANT, JASPER COUNTY, ILLINOIS

1.0 INTRODUCTION AND BACKGROUND

The following Technical Memorandum summarizes the results received to date from the Monitored Natural Attenuation (MNA) Field Investigation completed by Golder Associates USA Inc. (Golder) for the Primary Ash Pond (PAP, CCR Unit 501) located at the Newton Power Plant (NPP or Site) operated by Illinois Power Generating Company (IPGC) in Jasper County, Illinois. Data collected as a part of this investigation will be an integral part of the MNA Feasibility Demonstration for the PAP and will be used for IPGC's Illinois Part 845 Coal Combustion Residual (CCR) compliance program. A Site plan showing the PAP, existing Part 845 monitoring wells, and the MNA boring locations is provided in **Figure 1**.

This memorandum only includes laboratory analytical data that has been received to date. Golder will update this memorandum when the remaining data has been received and reviewed.

2.0 PROJECT SCOPE OF WORK

As part of the MNA Feasibility Demonstration, and ongoing discussions with IPGC, Golder completed the following activities as part of this Field Investigation:

- Screened for potential underground utilities in the vicinity of the proposed borings prior to completing any drilling or ground disturbance activities.
- Advanced a total of seven (7) soil borings ranging in depth from 15 to 90 feet below ground surface (ft bgs).
- Collected ten (10) soil samples from seven (7) soil borings for laboratory analysis.
- Collected groundwater samples from five (5) existing monitoring wells for laboratory analysis.

3.0 FIELD INVESTIGAITON

3.1 Private Utility Locate

Prior to conducting any work onsite, Golder reviewed Site plans/drawings provided by IPGC and/or Site representatives and met with Site representatives to assist in identifying underground utility locations in the vicinity

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13515 Barrett Parkway Drive, Suite 260, Ballwin, Missouri, USA 63021 T: +1 314 984-8800 F: +1 314 984-8770

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of the proposed borings. Golder also sub-contracted with GPRS to provide ground penetrating radar (GPR) and electromagnetic (EM) tracing services to screen the proposed boring locations in the field. All boring locations were cleared by GPRS personnel before drilling commenced.

3.2 Drilling and Aquifer Solids Sampling

Drilling was completed by Cascade Environmental Drilling (Cascade) using a roto-sonic drill rig under direct supervision of a Golder Geologist from August 17 – 21, 2021. Continuous soil core samples were obtained at each borehole location and were logged in the field by Golder personnel. Soils were classified according to the Unified Soil Classification System (USCS) and in accordance with the standard Golder Soil Logging Technical Procedure.

During the field investigation, seven (7) soil borings were advanced at the locations shown on **Figure 1**. Soil boring logs are provided in **Attachment A**. The following units were encountered during the field investigation (unit names are consistent with the Groundwater Monitoring Plan (Ramboll, 2021) in the Newton Part 845 Operating Permit):

- Shallow Saturated Zone – This zone is made up of the Upper Drift and the Upper Confining Units. The Upper Drift consists of low permeability silts and clays of the Peoria Silt and Sangamon Soil and the Hagarstown Member (Potential Migration Pathway) which consists of discontinuous sandier deposits. Below the Upper Drift is the Upper Confining unit, which consists of low permeability clay and silt of the Vandalia Till. The contact between the Upper Confining Unit and the underlying Uppermost aquifer ranges from approximately 467 feet above mean sea level (FT MSL) to 483 FT MSL in the borings completed for this investigation. Samples from the shallow saturated zone are shown in **Table 1**.
- Uppermost Aquifer – This zone consists of the Mulberry Grove Formation and is generally made up of fine to coarse, poorly to well graded sands, with occasional clayey sand layers and gravels. The formation is present between approximately 449 and 483 FT MSL. Samples collected from the uppermost aquifer are shown in **Table 1**.
- Lower Confining Unit – This unit consists of the Smithboro Till and is generally made up of compact glacial till consisting of low permeability silty clays and clayey silts with trace sand and gravel. The Till was present directly below the Uppermost Aquifer and the contact between these two units ranges from approximately 449 FT MSL to 474 FT MSL. Drilling was terminated in the Lower Confining Unit in most boreholes, therefore, evaluation of the full thickness of the unit was not completed as a part of this investigation. There were no samples collected from the lower confining unit.

Methane was encountered in soil boring SB-02, on August 18, 2021, while retrieving the soil from 60 to 80 feet below ground surface (FT BGS) within the bottom of the Shallow Saturated Zone and the top of the Uppermost Aquifer unit. Drilling was stopped until methane levels dropped below safe working levels and continued on August 19, 2021. Methane was only detected in this borehole during this investigation.

Ten (10) soil samples were collected for laboratory analysis from the soil borings (see **Figure 1** for sample location). Details regarding collected samples are included in **Table 1**.

Table 1: Laboratory Soil Sample Locations and Intervals Used for Laboratory Analysis

Borehole ID	Sample ID	Sample Depth (FT BGS)	Soil Type / Geologic Unit Sampled
N-SB-02	N-SB-02 (12.5 – 20.0)	12.5 - 20.0	Clayey Silt / Shallow Saturated Zone
	N-SB-02 (65.0 – 71.5)	65.0 – 71.5	Well Graded Sand /Uppermost Aquifer
N-SB-04	N-SB-04 (12.0 – 18.0)	12.0 – 18.0	Sandy Silty Clay / Shallow Saturated Zone
	N-SB-04 (38.8 – 45.4)	38.8 – 45.4	Clayey Sand / Uppermost Aquifer
N-SB-05	N-SB-05 (18.0 – 20.0)	18.0 – 20.0	Poorly Graded Sand / Shallow Saturated Zone
	N-SB-05 (60.0 – 67.1)	60.0 – 67.1	Poorly Graded Sand / Uppermost Aquifer
N-SB-14	N-SB-14 (44.2 – 52.0)	44.2 – 52.0	Sandy Clay / Uppermost Aquifer
N-SB-18	N-SB-18 (77.5 – 80.0)	77.5 – 80.0	Well Graded Sand / Uppermost Aquifer
N-SB-XPW01	N-SB-XPW01 (10.0 – 12.7)	10.0 – 12.7	CCR
N-SB-XPW04	N-SB-XPW04 (10.0 – 15.0)	10.0 – 15.0	CCR

Notes

1) FT BGS – Feet Below Ground Surface.

3.2.1 Soil Laboratory Analysis

Soil samples collected during the field investigation were placed in clean containers and properly labeled with sample location, depth, project name, sampler initials, analyses to be performed, date, and time of collection. Sample information was logged on a chain of custody (COC) and shipped to the following laboratories for analysis:

- Eurofins TestAmerica for 7-Step Sequential Extraction; and
- SiREM for the Batch Testing, Total Metals, Reitveld X-Ray Diffraction (XRD), leachability, Cation Exchange Capacity (CEC), and Total Organic Carbon (TOC) analyses.

The following laboratory analyses were conducted for each soil sample:

- 6010B for 7-step sequential extraction (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- EPA 6010B for Total Metals (Iron, Aluminum, Arsenic, Manganese, Lead, Lithium, Molybdenum, Cobalt, Calcium, Beryllium, Selenium, and Chromium);
- Bulk Mineralogy by Reitveld XRD Analysis;
- Cation Exchange Capacity (CEC) Analysis;
- Total Organic Carbon Analysis; and,
- SPLP Method 1312 Leachability Test (for CCR source samples only).

Currently, only the results from Test America have been received, and are included in **Attachment B**. A separate Technical Memorandum will be provided when results from SiREM are completed.

3.2.2 Borehole Survey

On September 1, 2021, IngenAE completed a survey of the boring locations including the longitude/latitude of and elevation of each borehole location. Survey information is included in the boring logs in **Appendix A**.

3.3 Groundwater Sampling

Groundwater sampling was completed by Golder personnel on August 31, 2021. Five (5) existing monitoring wells were sampled, provided in **Figure 1**. Groundwater sample locations and adjacent borehole sample intervals for the MNA evaluation are included in **Table 2**.

Table 2: Groundwater Sample Locations

Well ID	Adjacent Borehole Sample
APW-02	N-SB-02 (12.5 – 20.0)
APW-04	N-SB-04 (12.0 – 18.0)
APW-05S (background)	N-SB-05 (18.0 – 20.0)
APW-05 (background)	N-SB-05 (60.0 – 67.1)
APW-14	N-SB-14 (44.2 – 52.0)

3.3.1 Groundwater Sample Laboratory Analysis

Groundwater samples collected during the field investigation were placed in clean containers and properly labeled with well ID, project name, sampler initials, analyses to be performed, date, and time of collection. Sample information was logged on a chain of custody (COC) and shipped to SiREM Laboratories to be included in batch testing analysis along with soil samples collected at adjacent boreholes. Results for the batch testing has not yet been completed and will be provided in a separate Technical Memorandum.

4.0 CLOSING

Golder appreciates the opportunity to serve as your consultant on this project. If you have any questions concerning this technical memorandum or need additional information, please contact the undersigned

Golder Associates Inc.



Jeffrey Ingram, R.G.
Senior Project Geologist

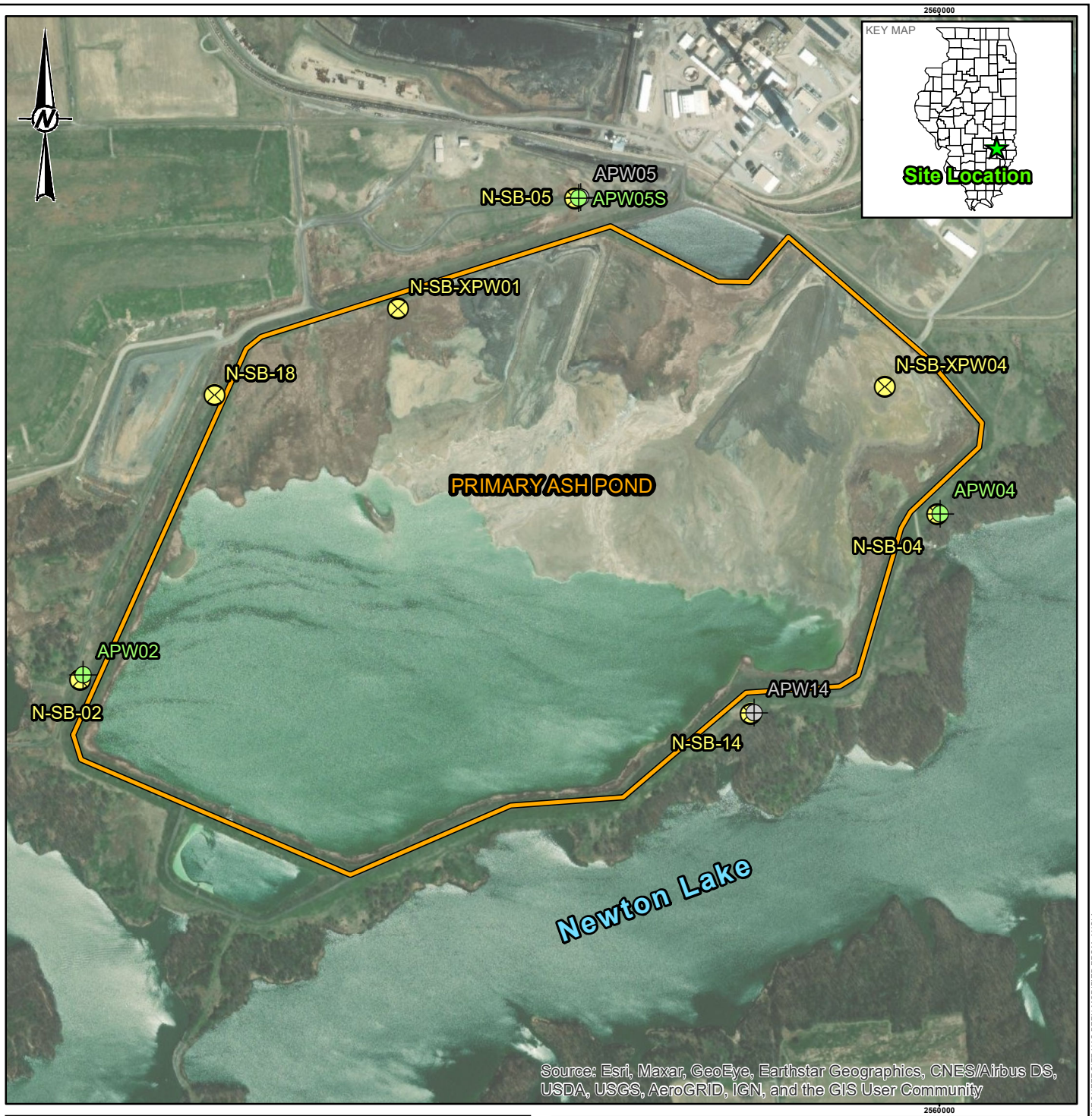


Pat Behlings, P.E.
Principal and Practice Leader

JSI/PJB

Attachments: Figure 1 – Newton Power Plant Monitored Natural Attenuation Boring and Groundwater Sample Locations
Appendix A – Soil Boring Logs
Appendix B – Eurofins TestAmerica Laboratory Data

Figures



LEGEND

- Primary Ash Pond - CCR Unit ID 501
- MNA Soil Boring Location
- Groundwater Sample Location - Part 845 Wells With No Potential Exceedances
- Groundwater Sample Location - Part 845 Wells With Potential Exceedances

0 3,000 Feet

NOTE(S)

1. SOIL BORING LOCATIONS SURVEYED BY INGENAE ON SEPTEMBER 1, 2021.

REFERENCE(S)

1. RAMBOLL 2021, TABLE 2 SUMMARY OF POTENTIAL EXCEEDANCES.
2. RAMBOLL 2021. GROUNDWATER MONITORING PLAN, PRIMARY ASH POND, NEWTON POWER PLANT, NEWTON ILLINOIS.

CLIENT
ILLINOIS POWER GENERATING COMPANY

PROJECT
NEWTON POWER PLANT MNA FEASABILITY STUDY

TITLE
MONITORED NATURAL ATTENUATION INVESTIGATION BORING AND GROUNDWATER SAMPLE LOCATIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2021-11-23
DESIGNED	BTT
PREPARED	ETF
REVIEWED	EMS
APPROVED	PJB

PROJECT NO. 21454831 PHASE 0004 FIGURE 1

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

1 in 0

PATH: C:\Users\ETVFornay\Golder Associates\21454831 Vistra IL MNA Part 845 Support - 5 Technical Work\Phase4 - Newton\4.11-Figures\MNA-Figures\Newton - Borehole Locations.mxd PRINTED ON: 2021-11-23 AT: 4:14:33 PM

APPENDIX A

Soil Boring Logs

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67

ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-3.0) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand; dark yellowish orange (10YR 6/6); cohesive, w~PL, stiff.	CL		518.3				
		(3.0-10.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine to course sub-rounded well graded- grained sand, trace sub-rounded gravel; moderate brown (5YR 4/4); cohesive, w<PL, hard.	ML		3.0	1	SO	10.0 / 10.0	
10					511.3				
	6" Sonic	(10.0-12.5) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded poorly-graded sand; moderate yellowish brown (10YR 5/4); cohesive, w<PL, hard.	ML		10.0				
					508.8				
		(12.5-30.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand, trace coarse sub-rounded gravel; grayish orange (10YR 7/4) with dark yellowish orange (10YR 6/6) mottling; cohesive, w<PL, hard.			12.5				(12.5-20.0) Clayey Silt sample collected at 14:10 - 8/18/2021.
15						2	SO	10.0 / 10.0	
20					501.3				
		(20.0) Same As Above (SAA) except, light bluish gray (5B 7/1) with white (N9) mottling.	ML		20.0				
	6" Sonic					3	SO	10.0 / 10.0	
25									
30					491.3				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67
ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(30.0-32.5) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; medium gray (N5); non-cohesive, moist, compact.	SW		30.0 / 488.8				
35	6" Sonic	(32.5-60.0) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine to coarse sub-rounded gravel; medium gray (N5) with light bluish gray (5B 7/1) and white (N9) mottling; cohesive, w<PL, hard.	CL		32.5 / 481.3	4	SO	10.0 / 10.0	
40	6" Sonic	(40.0) SAA except, very stiff.	CL		40.0 / 471.3	5	SO	10.0 / 10.0	
45	6" Sonic		CL						
50	6" Sonic	(50.0) SAA except, with light olive brown (5Y 5/6) mottling.	CL		50.0 / 465.1	6	SO	10.0 / 10.0	
55	6" Sonic	(56.2) SAA except, with light brown (5YR 6/4) mottling.	CL		56.2 / 461.3				
60		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-02

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,655.44 E: 995,443.67

ELEVATION: 521.30
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(60.0-71.5) (SW) SAND, fine to coarse sub-angular well-graded sand, some fine sub-rounded gravel, trace non-plastic fines, light gray (N7) to medium light gray (N6); non-cohesive, moist, compact.	SW		60.0	7	SO	10.0 / 20.0	(65.0-71.5) Sand sample collected at 12:00 - 8/19/2021.
65									
70									(60.0-80.0) Methane meter alarm is triggered with an LEL of 181 at 15:30 on August 18, 2021. Drilling stopped until methane dissipated. Drilling commenced on August 19, 2021 at 11:45. Following completion of drilling the hole was abandoned.
					449.8				
		(71.5-80.0) (SW&GW) SAND and GRAVEL, fine to coarse sub-angular to sub-rounded well-graded sand and gravel, trace non-plastic fines; medium dark gray (N4) to grayish brown (N2); non-cohesive, moist, compact.			71.5				
75			SW						
80					441.3				
		END OF BORING AT 80.0 FEET BELOW GROUND SURFACE.			80.0				
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51

ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-10.0) (CL) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w>PL, soft.	CH		511.9 / 10.0	1	SO	10.0 / 10.0	
10	6" Sonic	(10.0-20.0) (CL) sandy SILTY CLAY, low to medium plasticity fines, fine sub-rounded poorly graded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w~PL, stiff.	CL		501.9 / 20.0	2	SO	10.0 / 10.0	(10.0) Drilling paused at 16:10 on August 20, 2021 due to drill rig breaking. Drilling resumed following repair of rig at 07:20 on August 21, 2021. (12.0-18.0) Silty clay sample collected at 07:35 - 8/21/2021.
20	6" Sonic	(20.0-38.7) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 6/6) with light brown (5YR 6/4) and light bluish gray (5B 7/1) mottling; cohesive, w<PL, hard.	ML			3	SO	10.0 / 10.0	
30		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51

ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(20.0-38.7) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 6/6) with light brown (5YR 6/4) and light bluish gray (5B 7/1) mottling; cohesive, w<PL, hard. *(Continued)*	ML		483.2	4	SO	10.0 / 10.0	
		(38.7-41.0) (SP) SAND, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, moist, compact.	SP		38.7 480.9				(38.7-45.4) Clayey sand sample collected at 08:10 - 8/21/2021.
40		(41.0-45.4) (SC) CLAYEY SAND, fine poorly-graded sub-rounded sand, low to medium plasticity fines, trace sub-rounded gravel; light brown (5YR 5/6); non-cohesive, moist, compact.	SC		41.0 476.5	5	SO	7.0 / 10.0	
45		(45.4-50.0) (CL) sandy SILTY CLAY, low to medium plasticity fines, fine sub-rounded poorly graded sand, trace sub-rounded gravel; dusky brown (5YR 2/2); cohesive, w~PL, very stiff.	CL		45.4 471.9				
50		(50.0-56.8) (ML) CLAYEY SILT, non-plastic to low plasticity fines, some fine sub-rounded poorly-graded sand, trace fine gravel; light gray (N6); cohesive, w~PL, very stiff.	ML		50.0 465.1	6	SO	10.0 / 10.0	
55		(56.8-60.0) (SC) CLAYEY SAND, fine sub-rounded poorly-graded sand, medium plasticity fines; light gray (N6); non-cohesive, moist, compact.	SC		56.8 461.9				
60		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-04

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 823,240.42 E: 1,001,362.51
ELEVATION: 521.91
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60		END OF BORING AT 60.0 FEET BELOW GROUND SURFACE.			60.0				
65									
70									
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon
LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22

ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-1.5) FILL - (ML) gravelly SILT, non-plastic fines, fine to coarse sub-angular well-graded gravel, trace fine sub-rounded sand, trace organics (roots); dusky yellowish brown (10YR 5/4) TOPSOIL; non-cohesive, wet, loose,.	ML		527.9 1.5				
		(1.5-8.5) (ML) CLAYEY SILT, non-plastic fines, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel, trace low plasticity fines; dark yellowish brown (10YR 4/2); non-cohesive, dry, compact.	ML			1	SO	8.0 10.0	
		(8.5-9.5) (SP) SAND, fine to medium sub-rounded poorly-graded sand, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, dry, loose.	SP		520.9 8.5				
		(9.5-10.0) (CH) CLAY, high plasticity fines; medium dark gray (N4); cohesive, w<PL, very stiff.	CH		519.9 9.5				
		(10.0-18.0) (CL) SILTY CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4); cohesive, w~PL, firm.	CL		519.4 10.0				
		(16.6) Same As Above (SAA) except, w<PL, some fine sand.			512.8 16.6	2	SO	10.0 10.0	
		(18.0-22.0) (SP) SAND, fine sub-rounded poorly-graded sand, trace non-plastic fines, trace native coal; moderate yellowish brown (10YR 5/4) with black (N1) coal pieces; non-cohesive, dry, loose.	SP		511.4 18.0				(18.0-20.0) Sand sample collected at 12:40 - 8/17/2021.
		(22.0-26.8) (CH) sandy CLAY, medium plasticity fines, fine sub-rounded poorly-graded sand; grayish orange (10YR 7/4); cohesive, w~PL, stiff.	CH		507.4 22.0	3	SO	10.0 10.0	(10.0-20.0) Over recovery due to expansion of clay material in sample bags (10.5 ft/10.0 ft).
		(26.8-59.3) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; medium dark gray (N4); cohesive, w<PL, very stiff.	ML		502.6 26.8				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22
ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(26.8-59.3) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; medium dark gray (N4); cohesive, w<PL, very stiff. *(Continued)*							(20.0-30.0) Over recovery due to expansion of clay material in sample bags (12.0 ft/10.0 ft).
35		(34.9) SAA except, light gray (N6) to light bluish gray (5B 7/1) mottling.			494.5 34.9	4	SO	10.0 10.0	
40		(40.0) SAA except, trace sub-angular to sub-rounded fine gravel.			489.4 40.0				
45	6" Sonic		ML			5	SO	10.0 10.0	
50									
55	6" Sonic					6	SO	10.0 10.0	
60			SP		470.1 59.3				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon
LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-05

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/17/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 825,611.85 E: 997,833.22
ELEVATION: 529.39
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(59.3-67.1) (SP) SAND, fine sub-rounded poorly-graded sand, trace angular gravel, trace non-plastic fines; dark gray (N3); non-cohesive, moist, compact. *(Continued)*	SP			7	SO	10.0 / 10.0	(60.0-67.1) Sand sample collected at 15:40 - 8/17/2021.
65					462.3 / 67.1				
		(67.1-70.0) (ML) SILT, non-plastic fines, trace coarse sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense.	ML						
70		END OF BORING AT 70.0 FEET BELOW GROUND SURFACE.			459.4 / 70.0				
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76

ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-8.5) (CH) sandy CLAY, high plasticity fines, some fine sub-rounded poorly-graded sand; moderate yellowish brown (10YR 5/4) with yellowish gray (5Y 7/2) mottling; cohesive, w>PL, stiff.	CH		532.0 / 8.5	1	SO	8.0 / 10.0	
		(8.5-10.0) (SM) SILTY SAND, fine sub-rounded poorly-graded sand, non-plastic fines; moderate yellowish brown (10YR 5/4); non-cohesive, dry, dense.	SP		530.5 / 10.0				
10	6" Sonic	(10.0-20.0) (CL) SILTY CLAY, non-plastic to low plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel, trace roots; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w<PL, hard.	CL			2	SO	10.0 / 10.0	(18.7) Fine grained sand seam approximately 0.4' thick.
20	6" Sonic	(20.0-44.2) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w~PL, stiff. (21.1) Same As Above (SAA) except, moderate yellowish gray (5GY 7/4).	CL		520.5 / 20.0 519.4 / 21.1	3	SO	10.0 / 10.0	(20.4) Fine grained sand seam approximately 0.2' thick.
30		Log continued on next page							

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76

ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(20.0-44.2) (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 6/4) mottling; cohesive, w~PL, stiff. *(Continued)*	CL		509.9 30.6	4	SO	10.0 10.0	
		(30.6) SAA except, light gray (N7) mottling.							
40									(40.0-60.0) Driller pushed a 20 foot run due to material falling in on the run to 50 feet below ground surface.
					496.3				
		(44.2-52.0) (CL) sandy CLAY, medium to high plasticity fines, fine sub-rounded poorly-graded sand, trace fine sub-rounded gravel; dusky yellowish brown (10YR 4/2) with light brown (5YR 6/4) sand; cohesive w>PL, soft.	CH		44.2				(44.2-52.0) Sandy clay sample collected at 14:45 - 8/19/2021.
45									
		(48.1) SAA except, stiff.			492.4 48.1				
50	6" Sonic					5	SO	20.0 20.0	
					488.5				
		(52.0-60.0) (CL) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2) with light gray (N7) to light blue (5B 7/6) mottling; cohesive, w~PL, hard.			52.0				
55			CH						
60					480.5				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-14

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/19/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 822,002.94 E: 999,969.76
ELEVATION: 540.51
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60		END OF BORING AT 60.0 FEET BELOW GROUND SURFACE.			60.0				
65									
70									
75									
80									
85									
90									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

SHEET 1 of 4

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19

ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-0.9) FILL - (CL) SILTY CLAY, low to medium plasticity fines, trace fine sub-rounded sand; dark yellowish orange (10YR 6/6) TOPSOIL; cohesive, w~PL, soft.	CL		540.1 / 0.9				
		(0.9-12.2) (CL-ML) SILTY CLAY, low to medium plasticity fines, some fine sub-rounded poorly-graded sand; dark yellowish orange (10YR 6/6) with light gray (N5) mottling; cohesive, w~PL, soft.	CL			1	SO	10.0 / 10.0	
10		(10.0) Same As Above (SAA) except, very stiff.			531.0 / 10.0				
	6" Sonic	(12.2-20.0) (ML) SILT, non-plastic fines, trace fine sub-rounded sand, trace coarse sub-rounded gravel; dusky yellowish brown (10YR 2/2) with light brown (5YR 5/6) mottling; non-cohesive, moist, compact.	ML		528.8 / 12.2	2	SO	10.0 / 10.0	
15		(18.1) SAA except, no mottling.			522.9 / 18.1				
20	6" Sonic	(20.0-23.1) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace non-plastic fines; dark yellowish orange (10YR 6/6); non-cohesive, moist, compact.	SW		521.0 / 20.0	3	SO	10.0 / 10.0	
		(23.1-27.4) (ML) SILT, non-plastic fines, some sub-rounded poorly-graded sand; dusky yellowish brown (10YR 2/2) to dark yellowish brown (10YR 6/6); non-cohesive,moist, compact.	ML		517.9 / 23.1				
25		(27.4-30.0) (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; dark yellowish brown (10YR 4/2); cohesive, w~PL, stiff.	ML		513.6 / 27.4				
30					511.0				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19

ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
30	6" Sonic	(30.0-73.0) (ML) SILT, non-plastic fines, some fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense.			30.0				
35						4	SO	10.0 / 10.0	
40		(40.0) SAA except, light gray (N7).			501.0 40.0				
45	6" Sonic		ML			5	SO	10.0 / 10.0	
50		(50.0) SAA except, trace coarse gravel; moderate reddish orange (10R 6/6) mottling; very stiff.	ML		491.0 50.0				
55	6" Sonic					6	SO	10.0 / 10.0	
60		Log continued on next page			481.0				

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19
ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
60	6" Sonic	(30.0-73.0) (ML) SILT, non-plastic fines, some fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel; dark yellowish brown (10YR 4/2); non-cohesive, moist, dense. *(Continued)* (60.0) SAA except, light gray (N7) to light bluish gray (5B 7/1).	ML		60.0	7	SO	9.0 / 10.0	(65.0) Approximately 1 foot of material fell on ground upon recovery.
65									
70					468.0				
75	6" Sonic	(73.0-77.5) (SC) CLAYEY SAND, fine sub-rounded poorly-graded sand, low to medium plasticity fines, trace fine sub-rounded gravel; light olive gray (5Y 5/2); non-cohesive, moist, compact.	SC		73.0	8	SO	10.0 / 10.0	
					463.5				
		(77.5-81.5) (SW) SAND, fine to coarse sub-rounded well-graded sand, trace fine sub-rounded gravel, trace non-plastic fines; yellowish gray (5Y 7/2); non-cohesive, moist, compact.	SW		77.5				(77.5-80.0) Sand sample collected at 10:00 - 8/18/2021.
80					459.5				
85	6" Sonic	(81.5-90.0) (CL) SILTY CLAY, medium to high plasticity fines, trace fine sub-rounded sand; light gray (N7) with dusky yellow green (5GY 5/2) mottling; cohesive, w<PL, very stiff.	CL		81.5	9	SO	10.0 / 10.0	
90					451.0				

Log continued on next page

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-18

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant
DRILLING METHOD: Sonic
DRILLING DATE: 8/18/2021
DRILL RIG: Mini Sonic CC 150
DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,503.66 E: 996,531.19
ELEVATION: 540.96
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
90		END OF BORING AT 90.0 FEET BELOW GROUND SURFACE.			90.0				
95									
100									
105									
110									
115									
120									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-XPW01

SHEET 1 of 1

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/21/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,974.85 E: 997,833.22

ELEVATION: 548.42
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-10.0) CCR - (SM) gravelly SILTY SAND, fine sub-rounded poorly-graded sand, non-plastic fines, fine sub-rounded poorly-graded gravel; light brown (5YR 6/6) ASH; non-cohesive, dry, loose.	SM		538.4	1	SO	10.0 / 10.0	
10	6" Sonic	(10.0-12.7) CCR - (ML) CLAYEY SILT, non-plastic to low plasticity fines, trace fine sub-rounded sand; light gray (N7) to black (N1) ASH; cohesive, w<PL, very soft. (11.0) Same As Above (SAA) except, color change to medium light gray (N6) to black (N1).	ML		10.0 537.4 11.0 535.7				(10.0-12.7) CCR material sample collected at 10:10 - 8/21/2021.
15	6" Sonic	(12.7-20.0) (CH) CLAY, medium to high plasticity fines, trace fine sub-rounded sand, trace fine sub-rounded gravel; moderate yellowish brown (10YR 5/4) with light brown (5YR 5/6) and light gray (N7) mottling; cohesive, w~PL, firm. (17.8) SAA except, light gray (N7).	CH		12.7 530.6 17.8	2	SO	10.0 / 10.0	
20		END OF BORING AT 20.0 FEET BELOW GROUND SURFACE.			528.4 20.0				
25									
30									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

RECORD OF BOREHOLE N-SB-XPW04

SHEET 1 of 1

PROJECT: Part 845 MNA Evaluation
PROJECT NUMBER: 21454831.0004
LOCATION: Newton Power Plant

DRILLING METHOD: Sonic
DRILLING DATE: 8/21/2021
DRILL RIG: Mini Sonic CC 150

DATUM: NAVD88
AZIMUTH: N/A
COORDINATES: N: 824,141.21 E: 1,001,087.48

ELEVATION: 551.70
INCLINATION: -90

DEPTH (feet)	BORING METHOD	SOIL/ROCK PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEVATION / DEPTH (ft)	SAMPLES: NUMBER	TYPE	REC / ATT	REMARKS
0	6" Sonic	(0.0-11.0) CCR - (SW) gravelly SAND, fine to coarse sub-rounded well-graded sand, some fine sub-rounded gravel, trace non-plastic fines; dusky brown (5Y 2/2) ASH; non-cohesive, dry, loose.	SW			1	SO	10.0 / 10.0	(3.0) Clay seam 0.3' thick.
5									
		(8.0) Same As Above (SAA) except, gray (N6).			543.7 / 8.0				
10	6" Sonic	(11.0-15.0) CCR - (ML) sandy SILT, non-plastic fines, fine sub-rounded poorly-graded sand, trace sub-rounded gravel; medium light gray (N6) to black (N1) ASH; non-cohesive, wet, very loose.	ML		540.7 / 11.0	2	SO	5.0 / 5.0	(10.0-15.0) CCR material sample collected at 09:20 - 8/21/2021.
15		END OF BORING AT 15.0 FEET BELOW GROUND SURFACE.			536.7 / 15.0				
20									
25									
30									

SCALE: 1 in = 3.8 ft
DRILLING CONTRACTOR: Cascade Environmental
DRILLER: D. Gordon

LOGGED: BTT
CHECKED: EMS
REVIEWED: PJB

GOLDER

GOLDER STL RECORD OF BOREHOLE MWD NEWTON.GPJ GLDR_CO.GDT 11/29/21

APPENDIX B

Eurofins TestAmerica Laboratory Data

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-24350-1
Client Project/Site: Newton Power Station - Illinois

For:
Golder Associates Inc.
13515 Barrett Parkway Drive
Suite 260
Ballwin, Missouri 63021

Attn: Jeffrey Ingram

Ryan Henry

Authorized for release by:
11/2/2021 4:41:43 PM

Ryan Henry, Project Manager I
(865)291-3000
williamr.henry@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Qualifiers

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F3	Duplicate RPD exceeds the control limit
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.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
L	A negative instrument reading had an absolute value greater than the reporting limit

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: 140-24350-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-24350-1

Receipt
The samples were received on 8/24/2021 at 9:40am and arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4º C.

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
S = Percent solids/100

A method blank, laboratory control sample and laboratory control sample duplicate were prepared and analyzed with each SEP step in

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

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.

SEP Report Notes:

The final report lists the results for each step, the result for the total digestion of the sample, and a sum of the results of steps 1 through 7 by element.

Magnesium was not reported for step 1 because the extraction solution for this step (magnesium sulfate) contains high levels of magnesium. Sodium was not reported for steps 2 and 5 since the extraction solutions for these steps contain high levels of sodium. The sum of steps 1 through 7 is much higher than the total result for sodium and magnesium due to the magnesium and sodium introduced by the extraction solutions.

The digestates for steps 1, 2 and 5 were analyzed at a dilution due to instrument problems caused by the high solids content of the digestates. The reporting limits were adjusted accordingly.

Method 6010B: The sample duplicate (DUP) precision for preparation batch 140-54251 and analytical batch 140-55243 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.

Method 6010B: The serial dilution performed for the following samples associated with batch 140-55243 was outside control limits: (140-24350-A-1-A SD ^5) and (140-24350-A-1-A SD ^50)

Method 6010B: The following samples were diluted due to the presence of titanium which interferes with Cobalt and Lead: N-SB-04 (12.0-18.0) (140-24350-7), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-02 (65.0-71.5) (140-24350-5). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of iron which interferes with Arsenic and Selenium: N-SB-02 (12.5-20.0) (140-24350-4). Elevated reporting limits (RLs) are provided.

Method 6010B: The following samples were diluted due to the nature of the sample matrix: N-SB-05 (18.0-20.0) (140-24350-1), N-SB-05 (60.0-67.1) (140-24350-2), N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (12.5-20.0) (140-24350-4), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-14 (44.2-52.0) (140-24350-6), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided for aluminum and calcium.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54371 and 140-54400 and analytical batch 140-55087 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.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54401, 140-54485, 140-54486 and 140-54566 and analytical batch 140-55146 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.

Method 6010B SEP: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-54486 and 140-54566 and analytical batch 140-55146 recovered outside control limits for the following analyte: Lithium. This analyte was biased high in the LCS/LCSD and was detected in the associated samples as an estimated value; therefore, the data have been

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

reported.

Method 6010B SEP: The following sample was diluted to bring the concentration of target analyte, calcium, within the calibration range: N-SB-05 (60.0-67.1) (140-24350-2). Elevated reporting limits (RLs) are provided.

Method 6010B SEP: The following samples were diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

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: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-24350-1	N-SB-05 (18.0-20.0)	Solid	08/17/21 12:40	08/24/21 09:40
140-24350-2	N-SB-05 (60.0-67.1)	Solid	08/17/21 15:40	08/24/21 09:40
140-24350-3	N-SB-18 (77.5-80.0)	Solid	08/18/21 10:00	08/24/21 09:40
140-24350-4	N-SB-02 (12.5-20.0)	Solid	08/18/21 14:10	08/24/21 09:40
140-24350-5	N-SB-02 (65.0-71.5)	Solid	08/19/21 12:00	08/24/21 09:40
140-24350-6	N-SB-14 (44.2-52.0)	Solid	08/19/21 14:45	08/24/21 09:40
140-24350-7	N-SB-04 (12.0-18.0)	Solid	08/21/21 07:35	08/24/21 09:40
140-24350-8	N-SB-04 (38.7-45.4)	Solid	08/21/21 08:30	08/24/21 09:40
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Solid	08/21/21 09:20	08/24/21 09:40
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Solid	08/21/21 10:10	08/24/21 09:40

Client Sample ID: N-SB-05 (18.0-20.0)
Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Calcium	**880**	**J B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Manganese	**2.8**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**16**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Calcium	**16000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Chromium	ND		1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Cobalt	**0.57**	**J**	8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Iron	**36**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lead	**0.77**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Manganese	**84**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Arsenic	**0.26**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Beryllium	ND		0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Calcium	**9.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Chromium	**0.31**	**J**	0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Cobalt	**0.62**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Iron	**240**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Manganese	**51**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**370**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Arsenic	**1.2**		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Beryllium	**0.077**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Calcium	**16000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

Client Sample ID: N-SB-05 (18.0-20.0)
Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.2	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Iron	3900		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lithium	0.99	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Manganese	93		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Molybdenum	0.45	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	210	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Calcium	11000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Chromium	2.1	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lithium	14	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Manganese	5.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2300		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Arsenic	2.2		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Beryllium	0.095	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Calcium	4500		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Chromium	3.9		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Cobalt	1.6	J	2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Iron	4500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lithium	3.9		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Manganese	61		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Molybdenum	0.24	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	25000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Arsenic	0.70		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Beryllium	0.37		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Calcium	3100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Chromium	9.3		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Cobalt	0.15	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Iron	2800		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lead	4.3		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lithium	6.9		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Manganese	53		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

Client Sample ID: N-SB-05 (18.0-20.0)

Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**28000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**4.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.55**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**52000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**11000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**9.8**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**26**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**350**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.69**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**26000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Arsenic	**5.3**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Beryllium	**0.55**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Calcium	**51000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Chromium	**17**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Cobalt	**3.2**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Iron	**10000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lead	**8.4**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lithium	**12**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Manganese	**280**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Molybdenum	**0.78**	**J**	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Selenium	ND		0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		49	7.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Arsenic	ND		2.5	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Beryllium	ND		1.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Calcium	**560**	**J B**	1200	9.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Chromium	ND		2.5	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Cobalt	ND		12	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Iron	ND		25	14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lead	ND		2.5	0.54	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lithium	ND		12	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Manganese	**2.7**	**J**	3.7	0.15	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Molybdenum	ND		9.8	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Selenium	ND		2.5	0.84	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33**	**J**	37	5.9	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Arsenic	ND		1.8	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Beryllium	ND		0.92	0.059	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Calcium	**25000**		920	8.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Chromium	ND		1.8	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Cobalt	ND		9.2	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Iron	**380**		18	11	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lead	**1.2**	**J**	1.8	0.41	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lithium	ND		9.2	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Manganese	**85**		2.8	1.0	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Molybdenum	ND		7.4	0.30	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Selenium	ND		1.8	0.63	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**340**		12	2.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Arsenic	**0.31**	**J**	0.62	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Beryllium	**0.054**	**J**	0.31	0.018	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Calcium	**6.9**	**J**	310	1.8	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Chromium	**0.77**		0.62	0.086	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Cobalt	**0.67**	**J**	3.1	0.055	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Iron	**4100**		6.2	3.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lead	**0.15**	**J**	0.62	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lithium	ND		3.1	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Manganese	**42**	**B**	0.92	0.033	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		12	2.0	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Arsenic	ND		0.62	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Beryllium	**0.026**	**J**	0.31	0.020	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Calcium	**59000**		620	5.4	mg/Kg	☼	10/05/21 08:00	10/25/21 17:56	2
Chromium	**0.80**		0.62	0.086	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.70	J	3.1	0.065	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Iron	3000		6.2	3.6	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lead	4.5		0.62	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lithium	0.95	J	3.1	0.18	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Manganese	350		0.92	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Selenium	ND		0.62	0.58	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	180	29	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Arsenic	ND		9.2	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Beryllium	ND		4.6	0.39	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Calcium	8700		4600	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Chromium	1.5	J	9.2	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Cobalt	ND		46	0.74	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Iron	ND		92	54	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lead	ND		9.2	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lithium	14	J B *+	46	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Manganese	5.4	J	14	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Molybdenum	ND		37	1.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Selenium	ND		9.2	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1800		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Arsenic	2.3		0.62	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Beryllium	0.076	J	0.31	0.015	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Calcium	7000		310	2.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Chromium	4.0		0.62	0.086	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Cobalt	2.0	J	3.1	0.057	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Iron	6300		6.2	3.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lead	2.1		0.62	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lithium	3.6		3.1	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Manganese	69		0.92	0.31	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Molybdenum	0.29	J	2.5	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	20	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Arsenic	0.61	J	0.62	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Beryllium	0.52		0.31	0.020	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Calcium	4800		3100	32	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Chromium	10		0.62	0.086	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Cobalt	0.34	J	3.1	0.032	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Iron	3400		6.2	5.0	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lead	4.4		0.62	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lithium	6.0		3.1	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Manganese	59		0.92	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**29000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.2**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.67**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**110000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**3.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**17000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**12**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**610**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.29**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		120	20	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Arsenic	**2.5**		0.62	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Beryllium	**0.54**		0.31	0.020	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Calcium	**84000**		3100	32	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Chromium	**13**		0.62	0.086	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Cobalt	**3.2**		3.1	0.032	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Iron	**14000**		6.2	5.0	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lead	**9.9**		0.62	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lithium	**9.6**		3.1	0.18	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Manganese	**380**		0.92	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Molybdenum	**0.31**	**J**	2.5	0.10	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Selenium	ND		0.62	0.21	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1

Client Sample ID: N-SB-18 (77.5-80.0)
Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3
Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.0	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Arsenic	ND		2.2	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Calcium	**500**	**J B**	1100	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lead	ND		2.2	0.48	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Manganese	**4.0**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Molybdenum	ND		8.8	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Selenium	ND		2.2	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Arsenic	ND		1.6	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Beryllium	ND		0.82	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Calcium	**12000**		820	7.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Cobalt	**0.91**	**J**	8.2	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Iron	**440**		16	9.5	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lead	**1.7**		1.6	0.36	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lithium	ND		8.2	0.49	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Manganese	**82**		2.5	0.92	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Selenium	ND		1.6	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**82**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Arsenic	**0.91**		0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Beryllium	**0.035**	**J**	0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Calcium	**6.5**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Chromium	**0.62**		0.55	0.077	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Cobalt	**0.53**	**J**	2.7	0.049	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Iron	**2500**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lead	**0.12**	**J**	0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Manganese	**69**	**B**	0.82	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Molybdenum	**0.13**	**J**	2.2	0.090	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**77**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Beryllium	**0.030**	**J**	0.27	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Calcium	**39000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Chromium	**0.87**		0.55	0.077	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

Client Sample ID: N-SB-18 (77.5-80.0)

Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3

Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.48	J	2.7	0.058	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Iron	3800		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lead	2.4		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lithium	0.83	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Manganese	360		0.82	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Molybdenum	0.11	J	2.2	0.090	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Selenium	ND		0.55	0.51	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	63	J B	160	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Arsenic	ND		8.2	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Beryllium	ND		4.1	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Calcium	7700		4100	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Chromium	1.4	J	8.2	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Cobalt	ND		41	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Iron	ND		82	48	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lead	ND		8.2	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lithium	12	J B *+	41	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Manganese	39		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Selenium	ND		8.2	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Arsenic	2.2		0.55	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Beryllium	0.084	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Calcium	25000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Chromium	2.9		0.55	0.077	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Cobalt	1.5	J	2.7	0.050	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Iron	8500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lithium	4.9		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Manganese	300		0.82	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Molybdenum	0.28	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Arsenic	0.66	J	1.1	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Beryllium	0.29		0.27	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Calcium	4200		2700	28	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Chromium	9.7		0.55	0.077	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Cobalt	0.71	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Iron	3300		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Lead	2.8		1.1	0.24	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Lithium	5.9		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Manganese	52		0.82	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-18 (77.5-80.0)
Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3
Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.090	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Selenium	ND		1.1	0.37	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.8**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.44**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**89000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**16**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**19000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.9**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**910**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.52**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**19000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Arsenic	**5.8**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Beryllium	**0.38**		0.27	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Calcium	**83000**		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Chromium	**17**		0.55	0.077	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Cobalt	**5.0**		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Iron	**13000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lead	**9.0**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lithium	**10**		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Manganese	**600**		0.82	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Molybdenum	**1.0**	**J**	2.2	0.090	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1

Client Sample ID: N-SB-02 (12.5-20.0)
Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		43	6.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Arsenic	ND		2.1	0.56	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Beryllium	ND		1.1	0.33	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Calcium	**1200**	**B**	1100	8.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Chromium	ND		2.1	0.30	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Cobalt	ND		11	0.19	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Iron	ND		21	12	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lead	ND		2.1	0.47	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lithium	ND		11	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Manganese	**3.1**	**J**	3.2	0.13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Molybdenum	ND		8.6	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Selenium	ND		2.1	0.73	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**12**	**J**	32	5.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Arsenic	ND		1.6	0.42	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Beryllium	ND		0.81	0.052	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Calcium	**18000**		810	7.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Cobalt	**0.31**	**J**	8.1	0.20	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Iron	**19**		16	9.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lead	**0.61**	**J**	1.6	0.35	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lithium	ND		8.1	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Manganese	**150**		2.4	0.90	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Molybdenum	ND		6.4	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Selenium	ND		1.6	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**58**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Arsenic	**0.24**	**J**	0.54	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Beryllium	ND		0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Calcium	**9.7**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Chromium	**0.25**	**J**	0.54	0.075	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Cobalt	**2.3**	**J**	2.7	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Iron	**310**		5.4	3.1	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lead	ND		0.54	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Manganese	**210**	**B**	0.81	0.029	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Molybdenum	**0.13**	**J**	2.1	0.088	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**510**		11	1.7	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Arsenic	ND		0.54	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Beryllium	**0.17**	**J**	0.27	0.017	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Calcium	**19000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Chromium	**1.6**		0.54	0.075	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.1	J	2.7	0.057	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Iron	8000		5.4	3.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lead	3.7		0.54	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lithium	1.4	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Manganese	170		0.81	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Molybdenum	0.75	J	2.1	0.088	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Selenium	ND		0.54	0.50	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	140	J B	160	25	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Arsenic	3.4	J	8.1	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Beryllium	ND		4.0	0.34	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Calcium	12000		4000	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Chromium	2.6	J	8.1	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Cobalt	ND		40	0.64	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Iron	ND		81	47	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lead	ND		8.1	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lithium	10	J B *+	40	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Manganese	17		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Molybdenum	ND		32	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Selenium	ND		8.1	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4000		11	1.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Arsenic	31		0.54	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Beryllium	0.23	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Calcium	5000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Chromium	6.9		0.54	0.075	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Cobalt	3.3		2.7	0.049	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Iron	19000		5.4	3.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lithium	6.6		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Manganese	120		0.81	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Molybdenum	2.8		2.1	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		110	17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:02	10
Arsenic	4.1		0.54	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Beryllium	0.57		0.27	0.017	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Calcium	2300		270	2.8	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Chromium	17		0.54	0.075	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Cobalt	0.44	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Iron	5200		5.4	4.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lithium	13		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Manganese	52		0.81	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.31	J	2.1	0.088	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Method: 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			11/02/21 15:59	1
Arsenic	38		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.97		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	57000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	28		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	7.4		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	33000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	31		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	720		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	4.0		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		110	17	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Arsenic	51		1.1	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Beryllium	0.76		0.27	0.017	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Calcium	54000		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Chromium	22		0.54	0.075	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Cobalt	6.2		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Iron	34000		11	8.8	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Lead	11		0.54	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Lithium	19		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Manganese	590		0.81	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Molybdenum	5.5		2.1	0.088	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Selenium	ND		1.1	0.37	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2

Client Sample ID: N-SB-02 (65.0-71.5)
Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Beryllium	ND		1.1	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Calcium	**300**	**J B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Manganese	**3.5**		3.4	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Molybdenum	ND		9.0	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J**	34	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Arsenic	ND		1.7	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Calcium	**11000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Cobalt	**0.29**	**J**	8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Iron	**270**		17	9.8	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Manganese	**68**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Molybdenum	ND		6.7	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**45**		11	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Arsenic	**0.62**		0.56	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Beryllium	**0.034**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Calcium	**6.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Chromium	**0.44**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Cobalt	**0.36**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Iron	**3100**		5.6	3.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lead	**0.16**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Manganese	**54**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**79**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Beryllium	ND		0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Calcium	**40000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Chromium	**0.87**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

Client Sample ID: N-SB-02 (65.0-71.5)
Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5
Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.30	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Iron	2200		5.6	3.3	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lead	1.7		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lithium	0.96	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Manganese	150		0.84	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Selenium	ND		0.56	0.53	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	46	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Calcium	7200		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Chromium	ND		8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lithium	7.6	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Manganese	14		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Molybdenum	ND		34	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Arsenic	2.0		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Beryllium	0.040	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Calcium	25000		280	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Chromium	4.3		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Cobalt	1.3	J	2.8	0.052	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Iron	3400		5.6	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lead	1.2		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lithium	3.6		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Manganese	49		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Molybdenum	ND		2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Arsenic	0.72	J	1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Beryllium	0.25	J	0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Calcium	4100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Chromium	7.4		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Cobalt	0.078	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Iron	2500		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Lead	3.7		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Lithium	11		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Manganese	45		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1

Client Sample ID: N-SB-02 (65.0-71.5)

Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5

Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.32**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**88000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**13**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**2.3**	**J**	2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**12000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.1**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**23**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**390**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	ND		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Arsenic	**3.0**		1.1	0.29	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Beryllium	**0.26**	**J**	0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Calcium	**95000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Chromium	**10**		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Cobalt	**2.6**	**J**	2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Iron	**14000**		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Lead	**6.8**		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Lithium	**7.6**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Manganese	**440**		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Molybdenum	**0.26**	**J**	2.2	0.092	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Selenium	ND		1.1	0.38	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Calcium	**1100**	**B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Manganese	**10**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**31**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Calcium	**25000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Chromium	**0.41**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Cobalt	ND		8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Iron	**160**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Manganese	**130**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**200**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Arsenic	**0.32**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Beryllium	**0.028**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Calcium	**8.5**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Chromium	**1.7**		0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Cobalt	**0.39**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Iron	**1700**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Manganese	**61**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Molybdenum	**0.29**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**300**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Beryllium	**0.064**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Calcium	**46000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

Client Sample ID: N-SB-14 (44.2-52.0)

Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Iron	2200		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lead	2.8		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lithium	1.6	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Manganese	300		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Molybdenum	0.28	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	130	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Calcium	14000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Chromium	2.0	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lithium	8.2	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Manganese	4.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3000		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Arsenic	2.4		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Beryllium	0.13	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Calcium	5900		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Chromium	5.5		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Cobalt	2.8		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Iron	8100		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lithium	5.4		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Manganese	100		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Molybdenum	0.38	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Arsenic	0.88		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Beryllium	0.49		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Calcium	3600		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Chromium	14		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Cobalt	0.22	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Iron	4000		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lead	3.8		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lithium	8.8		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Manganese	62		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.6**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.71**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**96000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**25**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**16000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**11**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**670**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.94**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**30000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Arsenic	**30**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Beryllium	**0.61**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Calcium	**81000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Chromium	**21**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Cobalt	**7.9**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Iron	**19000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lead	**9.2**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lithium	**15**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Manganese	**420**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Molybdenum	**8.3**		2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1

Client Sample ID: N-SB-04 (12.0-18.0)
Lab Sample ID: 140-24350-7

Date Collected: 08/21/21 07:35
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Calcium	**1400**	**B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Manganese	**0.62**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Molybdenum	ND		8.9	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**10**	**J**	33	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Calcium	**31000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Chromium	**0.32**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Cobalt	ND		8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Iron	ND		17	9.7	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lead	**0.82**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Manganese	**170**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Molybdenum	ND		6.7	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Arsenic	**0.42**	**J**	0.56	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Beryllium	**0.039**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Calcium	**7.8**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Chromium	**0.50**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Cobalt	**2.6**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Iron	**330**		5.6	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lead	**0.13**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Manganese	**450**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Molybdenum	**0.31**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**600**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Beryllium	**0.16**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Calcium	**28000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Chromium	**2.4**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.9	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Iron	6700		5.6	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lead	5.1		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lithium	1.7	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Manganese	220		0.84	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Molybdenum	0.60	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Selenium	0.52	J	0.56	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	200	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Calcium	13000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Chromium	2.5	J	8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lithium	8.4	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Manganese	11	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5400		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Arsenic	4.5		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Beryllium	0.24	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Calcium	5300		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Chromium	8.7		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Cobalt	4.0		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Iron	13000		5.6	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lead	3.8		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lithium	8.5		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Manganese	130		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Molybdenum	0.57	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	34000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:31	10
Arsenic	1.4		1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Beryllium	0.58		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Calcium	1700		280	2.9	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Chromium	21		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Cobalt	0.36	J	5.6	0.058	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Iron	4800		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Lead	3.1		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Lithium	16		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Manganese	46		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1

Client Sample ID: N-SB-04 (12.0-18.0)

Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7

Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.13	J	2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	40000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	6.4		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	1.0		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	80000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	35		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	8.8		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	25000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	35		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	1000		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	1.6	J	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	0.52		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	48000		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Arsenic	8.3		0.56	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Beryllium	0.98		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Calcium	67000		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Chromium	36		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Cobalt	10		5.6	0.058	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Iron	23000		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Lead	13		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Lithium	28		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Manganese	770		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Molybdenum	1.7	J	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Selenium	ND	L	0.56	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)

Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8

Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		46	7.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Arsenic	ND		2.3	0.60	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Beryllium	ND		1.2	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Calcium	**800**	**J B**	1200	8.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Chromium	ND		2.3	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Cobalt	ND		12	0.21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Iron	ND		23	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lead	ND		2.3	0.51	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lithium	ND		12	0.69	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Manganese	**9.1**		3.5	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Molybdenum	ND		9.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Selenium	ND		2.3	0.79	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13**	**J**	35	5.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Arsenic	ND		1.7	0.45	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Beryllium	ND		0.87	0.055	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Calcium	**19000**		870	7.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Cobalt	ND		8.7	0.22	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Iron	**40**		17	10	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lead	**0.97**	**J**	1.7	0.38	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lithium	ND		8.7	0.52	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Manganese	**120**		2.6	0.97	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Molybdenum	ND		6.9	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Selenium	ND		1.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		12	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Arsenic	ND		0.58	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Beryllium	**0.026**	**J**	0.29	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Calcium	**8.5**	**J**	290	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Chromium	**0.22**	**J**	0.58	0.081	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Cobalt	**0.069**	**J**	2.9	0.052	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Iron	**180**		5.8	3.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lead	ND		0.58	0.13	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lithium	ND		2.9	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Manganese	**23**	**B**	0.87	0.031	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Molybdenum	ND		2.3	0.095	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**470**		12	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Arsenic	ND		0.58	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Beryllium	**0.10**	**J**	0.29	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Calcium	**15000**		290	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Chromium	**1.8**		0.58	0.081	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.9	0.061	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Iron	5600		5.8	3.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lithium	1.1	J	2.9	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Manganese	100		0.87	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Molybdenum	1.6	J	2.3	0.095	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Selenium	ND		0.58	0.54	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	160	J B	170	27	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Arsenic	ND		8.7	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Beryllium	ND		4.3	0.36	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Calcium	8800		4300	13	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Chromium	1.9	J	8.7	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Cobalt	ND		43	0.69	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Iron	ND		87	51	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lead	ND		8.7	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lithium	8.0	J B *+	43	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Manganese	3.4	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Molybdenum	ND		35	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Selenium	ND		8.7	3.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2700		12	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Arsenic	4.0		0.58	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Beryllium	0.12	J	0.29	0.014	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Calcium	5300		290	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Chromium	5.2		0.58	0.081	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Cobalt	2.6	J	2.9	0.053	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Iron	12000		5.8	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lithium	4.5		2.9	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Manganese	94		0.87	0.29	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Molybdenum	3.5		2.3	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		120	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Arsenic	1.2		1.2	0.30	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Beryllium	0.54		0.29	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Calcium	5700		2900	30	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Chromium	17		0.58	0.081	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Cobalt	0.96	J	2.9	0.030	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Iron	5800		5.8	4.7	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Lead	4.9		1.2	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Lithium	7.5		2.9	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Manganese	91		0.87	0.13	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.28	J	2.3	0.095	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Selenium	ND		1.2	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2

Method: 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			11/02/21 15:59	1
Arsenic	5.2		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.79		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	54000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	27		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	24000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	12		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	21		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	440		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	5.4		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Arsenic	4.1		0.58	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Beryllium	0.55		0.29	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Calcium	61000		2900	30	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Chromium	15		0.58	0.081	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Cobalt	3.3		2.9	0.030	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Iron	15000		5.8	4.7	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lead	8.5		0.58	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lithium	10		2.9	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Manganese	330		0.87	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Molybdenum	2.6		2.3	0.095	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Selenium	ND		0.58	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		71	11	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Arsenic	ND		3.6	0.93	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Beryllium	ND		1.8	0.55	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Calcium	**3700**	**B**	1800	14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Chromium	**0.52**	**J**	3.6	0.50	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Cobalt	ND		18	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Iron	ND		36	21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lead	ND		3.6	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lithium	ND		18	1.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Manganese	ND		5.3	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Molybdenum	**1.8**	**J**	14	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Selenium	ND		3.6	1.2	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**9000**		53	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Arsenic	**3.5**		2.7	0.69	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Beryllium	**0.30**	**J**	1.3	0.085	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Calcium	**32000**		1300	12	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Chromium	**6.9**		2.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Cobalt	**0.49**	**J**	13	0.34	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Iron	**2000**		27	15	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lead	**1.2**	**J**	2.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lithium	**1.4**	**J**	13	0.80	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Manganese	**12**		4.0	1.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Molybdenum	**0.75**	**J**	11	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Selenium	**0.99**	**J**	2.7	0.91	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**6200**		18	3.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Arsenic	**0.87**	**J**	0.89	0.23	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Beryllium	**0.027**	**J**	0.44	0.027	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Calcium	**42**	**J**	440	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Chromium	**8.4**		0.89	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Cobalt	**0.91**	**J**	4.4	0.080	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Iron	**2400**		8.9	5.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lead	ND		0.89	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lithium	**0.61**	**J**	4.4	0.27	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Manganese	**2.7**	**B**	1.3	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Molybdenum	**1.2**	**J**	3.6	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Selenium	**0.98**		0.89	0.30	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**21000**		18	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Arsenic	**1.5**		0.89	0.39	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Beryllium	**1.7**		0.44	0.028	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Calcium	**42000**		440	3.9	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Chromium	**26**		0.89	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	8.0		4.4	0.094	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Iron	12000		8.9	5.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lead	13		0.89	0.20	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lithium	9.9		4.4	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Manganese	91		1.3	0.23	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Molybdenum	3.7		3.6	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Selenium	ND		0.89	0.84	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	330	B	270	42	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Arsenic	ND		13	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Beryllium	ND		6.7	0.56	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Calcium	26000		6700	20	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Chromium	11	J	13	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Cobalt	ND		67	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Iron	ND		130	78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lead	ND		13	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lithium	14	J B *+	67	3.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Manganese	9.2	J	20	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Molybdenum	ND		53	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Selenium	6.4	J	13	4.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		18	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Arsenic	10		0.89	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Beryllium	0.52		0.44	0.021	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Calcium	17000		440	3.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Chromium	8.4		0.89	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Cobalt	8.0	J	22	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Iron	12000		8.9	5.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Lead	24		4.4	0.98	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Lithium	16		4.4	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Manganese	60		1.3	0.44	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Molybdenum	0.65	J	3.6	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Selenium	ND		0.89	0.30	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		180	28	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Arsenic	1.8		1.8	0.46	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Beryllium	0.25	J	0.44	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Calcium	10000		4400	46	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Chromium	11		0.89	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Cobalt	3.3	J	8.9	0.093	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Iron	6000		8.9	7.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Lead	12		1.8	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Lithium	19		4.4	0.27	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Manganese	39		1.3	0.20	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.16	J	3.6	0.15	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Selenium	ND		1.8	0.61	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	93000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	18		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	2.8		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	130000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	72		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	21		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	35000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	51		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	61		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	210		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	8.2		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	8.3		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	73000		180	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Arsenic	16		0.89	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Beryllium	1.9		0.44	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Calcium	130000		4400	46	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Chromium	54		0.89	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Cobalt	20	J	22	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Iron	27000		8.9	7.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Lead	43		4.4	0.98	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Lithium	34		4.4	0.27	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Manganese	160		1.3	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Molybdenum	6.7		3.6	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Selenium	4.9		0.89	0.30	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10

Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		52	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Arsenic	ND		2.6	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Beryllium	ND		1.3	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Calcium	**520**	**J B**	1300	9.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Chromium	ND		2.6	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Cobalt	ND		13	0.23	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Iron	ND		26	15	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lead	ND		2.6	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lithium	ND		13	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Manganese	**3.5**	**J**	3.9	0.16	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Molybdenum	**0.86**	**J**	10	0.42	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Selenium	ND		2.6	0.88	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**		39	6.2	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Arsenic	ND		1.9	0.51	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Beryllium	**0.11**	**J**	0.97	0.062	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Calcium	**1700**		970	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Chromium	**0.52**	**J**	1.9	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Cobalt	**0.94**	**J**	9.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Iron	**1600**		19	11	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lead	**2.5**		1.9	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lithium	ND		9.7	0.58	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Manganese	**190**		2.9	1.1	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Molybdenum	ND		7.8	0.32	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Selenium	ND		1.9	0.66	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**810**		13	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Arsenic	**3.9**		0.65	0.17	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Beryllium	**0.24**	**J**	0.32	0.019	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Calcium	**7.7**	**J**	320	1.9	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Chromium	**1.5**		0.65	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Cobalt	**0.94**	**J**	3.2	0.058	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Iron	**2500**		6.5	3.8	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Lead	**1.3**		0.65	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Lithium	ND		3.2	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Manganese	**120**	**B**	0.97	0.035	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Molybdenum	**0.43**	**J**	2.6	0.11	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2500**		13	2.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Arsenic	**3.2**		0.65	0.28	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Beryllium	**0.21**	**J**	0.32	0.021	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Calcium	**800**		320	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Chromium	**4.2**		0.65	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10
Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.2	J	3.2	0.069	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Iron	5400		6.5	3.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lead	6.9		0.65	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lithium	2.0	J	3.2	0.19	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Manganese	140		0.97	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Molybdenum	0.84	J	2.6	0.11	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Selenium	0.66		0.65	0.61	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	190	30	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Arsenic	ND		9.7	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Beryllium	ND		4.9	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Calcium	110	J	4900	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Chromium	3.4	J	9.7	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Cobalt	ND		49	0.78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Iron	ND		97	57	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lead	ND		9.7	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lithium	8.8	J B *+	49	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Manganese	13	J	15	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Molybdenum	ND		39	1.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Selenium	ND		9.7	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5200		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Arsenic	2.2		0.65	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Beryllium	0.095	J	0.32	0.016	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Calcium	110	J	320	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Chromium	4.8		0.65	0.091	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Cobalt	0.83	J	3.2	0.060	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Iron	4400		6.5	3.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lead	2.2		0.65	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lithium	3.6		3.2	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Manganese	23		0.97	0.32	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Molybdenum	0.16	J	2.6	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	28000		130	21	mg/Kg	☼	10/08/21 08:00	10/26/21 12:45	10
Arsenic	2.0		1.3	0.34	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Beryllium	0.19	J	0.32	0.021	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Calcium	1700		320	3.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Chromium	14		0.65	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Cobalt	ND		6.5	0.067	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Iron	3500		6.5	5.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Lead	5.0		1.3	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Lithium	9.2		3.2	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Manganese	51		0.97	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10

Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.15	J	2.6	0.11	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Selenium	ND		1.3	0.44	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2

Method: 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			11/02/21 16:02	1
Arsenic	11		0.50	0.13	mg/Kg			11/02/21 16:02	1
Beryllium	0.85		0.25	0.0075	mg/Kg			11/02/21 16:02	1
Calcium	4900		250	0.74	mg/Kg			11/02/21 16:02	1
Chromium	29		0.50	0.070	mg/Kg			11/02/21 16:02	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 16:02	1
Iron	17000		5.0	4.1	mg/Kg			11/02/21 16:02	1
Lead	18		0.50	0.11	mg/Kg			11/02/21 16:02	1
Lithium	23		2.5	0.15	mg/Kg			11/02/21 16:02	1
Manganese	540		0.75	0.052	mg/Kg			11/02/21 16:02	1
Molybdenum	2.4		2.0	0.082	mg/Kg			11/02/21 16:02	1
Selenium	0.66		0.50	0.17	mg/Kg			11/02/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	36000		130	21	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Arsenic	9.4		0.65	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Beryllium	0.74		0.32	0.021	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Calcium	5100		3200	34	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Chromium	23		0.65	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Cobalt	4.6	J	6.5	0.067	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Iron	15000		6.5	5.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Lead	15		1.3	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Lithium	13		3.2	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Manganese	350		0.97	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Molybdenum	2.3	J	2.6	0.11	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Selenium	0.58	J	0.65	0.22	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1

Default Detection Limits

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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
Beryllium	0.25	0.077	mg/Kg
Calcium	250	1.9	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.015	mg/Kg
Calcium	250	1.5	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: 3010A

SEP: Metal Hydroxide

Default Detection Limits

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.47	mg/Kg

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
Beryllium	0.75	0.063	mg/Kg
Calcium	750	2.2	mg/Kg
Chromium	1.5	0.21	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
Selenium	1.5	0.52	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
Beryllium	0.25	0.012	mg/Kg
Calcium	250	2.1	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Residual

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg

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

Prep: Residual

Analyte	RL	MDL	Units
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	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
Beryllium	0.25	0.0075	mg/Kg
Calcium	250	0.74	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Total

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	mg/Kg

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

Lab Sample ID: MB 140-54251/17-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Arsenic	ND		0.50	0.13	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Beryllium	ND		0.25	0.016	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Calcium	ND		250	2.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Chromium	ND		0.50	0.070	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Cobalt	ND		2.5	0.026	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Iron	ND		5.0	4.1	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lead	ND		0.50	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lithium	ND		2.5	0.15	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Manganese	ND		0.75	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Selenium	ND		0.50	0.17	mg/Kg		09/29/21 08:00	10/27/21 10:49	1

Lab Sample ID: LCS 140-54251/18-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	99.3		mg/Kg		99	80 - 120
Arsenic	5.00	5.06		mg/Kg		101	80 - 120
Beryllium	2.50	2.57		mg/Kg		103	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.6		mg/Kg		106	80 - 120
Cobalt	5.00	5.19		mg/Kg		104	80 - 125
Iron	50.0	52.2		mg/Kg		104	80 - 120
Lead	5.00	5.20		mg/Kg		104	80 - 120
Lithium	5.00	4.90		mg/Kg		98	80 - 120
Manganese	5.00	5.26		mg/Kg		105	80 - 120
Molybdenum	25.0	26.0		mg/Kg		104	80 - 125
Selenium	7.50	7.30		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 140-54251/19-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	98.5		mg/Kg		98	80 - 120	1	30
Arsenic	5.00	4.94		mg/Kg		99	80 - 120	2	30
Beryllium	2.50	2.50		mg/Kg		100	80 - 120	3	30
Calcium	2500	2510		mg/Kg		100	80 - 120	2	30
Chromium	10.0	10.3		mg/Kg		103	80 - 120	3	30
Cobalt	5.00	5.05		mg/Kg		101	80 - 125	3	30
Iron	50.0	51.4		mg/Kg		103	80 - 120	2	30
Lead	5.00	5.14		mg/Kg		103	80 - 120	1	30
Lithium	5.00	4.86		mg/Kg		97	80 - 120	1	30
Manganese	5.00	5.13		mg/Kg		103	80 - 120	2	30
Molybdenum	25.0	25.4		mg/Kg		102	80 - 125	3	30
Selenium	7.50	7.21		mg/Kg		96	80 - 120	1	30

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

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	26000		28800		mg/Kg	☼	8	30
Calcium	51000		45400		mg/Kg	☼	12	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	5.3		5.81		mg/Kg	☼	8	30
Beryllium	0.55		0.571		mg/Kg	☼	4	30
Chromium	17		19.8		mg/Kg	☼	18	30
Cobalt	3.2		3.84		mg/Kg	☼	18	30
Iron	10000		11200		mg/Kg	☼	9	30
Lead	8.4		9.71		mg/Kg	☼	15	30
Lithium	12		13.0		mg/Kg	☼	9	30
Manganese	280		276		mg/Kg	☼	3	30
Molybdenum	0.78	J	1.31	J F5	mg/Kg	☼	51	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Method: 6010B SEP - SEP Metals (ICP)

Lab Sample ID: MB 140-54252/17-B ^4
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 1
Prep Batch: 54333

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		40	6.4	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Arsenic	ND		2.0	0.52	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Beryllium	ND		1.0	0.31	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Calcium	20.3	J	1000	7.6	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Chromium	ND		2.0	0.28	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Cobalt	ND		10	0.18	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Iron	ND		20	12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lead	0.558	J	2.0	0.44	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lithium	ND		10	0.60	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Manganese	ND		3.0	0.12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Molybdenum	ND		8.0	0.33	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Selenium	ND		2.0	0.68	mg/Kg		09/30/21 08:00	10/22/21 11:17	4

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

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
Beryllium	2.50	2.68		mg/Kg		107	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.2		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cobalt			5.00	4.98	J	mg/Kg		100	80 - 120		
Iron			50.0	52.2		mg/Kg		104	80 - 120		
Lead			5.00	4.96		mg/Kg		99	80 - 120		
Lithium			5.00	5.04	J	mg/Kg		101	80 - 120		
Manganese			5.00	5.28		mg/Kg		106	80 - 120		
Molybdenum			25.0	25.2		mg/Kg		101	80 - 120		
Selenium			7.50	7.34		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 140-54252/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 1
Prep Batch: 54333

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	96.7		mg/Kg		97	80 - 120	7	30
Arsenic			5.00	4.84		mg/Kg		97	80 - 120	4	30
Beryllium			2.50	2.52		mg/Kg		101	80 - 120	6	30
Calcium			2500	2430		mg/Kg		97	80 - 120	5	30
Chromium			10.0	9.69		mg/Kg		97	80 - 120	5	30
Cobalt			5.00	4.92	J	mg/Kg		98	80 - 120	1	30
Iron			50.0	48.9		mg/Kg		98	80 - 120	6	30
Lead			5.00	5.13		mg/Kg		103	80 - 120	3	30
Lithium			5.00	4.54	J	mg/Kg		91	80 - 120	10	30
Manganese			5.00	4.96		mg/Kg		99	80 - 120	6	30
Molybdenum			25.0	25.0		mg/Kg		100	80 - 120	1	30
Selenium			7.50	7.48		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 1
Prep Batch: 54333

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	ND			ND		mg/Kg	☼			NC	30
Arsenic	ND			ND		mg/Kg	☼			NC	30
Beryllium	ND			ND		mg/Kg	☼			NC	30
Calcium	880	J B		843	J	mg/Kg	☼			5	30
Chromium	ND			ND		mg/Kg	☼			NC	30
Cobalt	ND			ND		mg/Kg	☼			NC	30
Iron	ND			ND		mg/Kg	☼			NC	30
Lead	ND			ND		mg/Kg	☼			NC	30
Lithium	ND			ND		mg/Kg	☼			NC	30
Manganese	2.8	J		3.09	J	mg/Kg	☼			8	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54334/17-B ^3
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 2
Prep Batch: 54370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		30	4.8	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Arsenic	ND		1.5	0.39	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Beryllium	ND		0.75	0.048	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Calcium	ND		750	6.6	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Chromium	ND		1.5	0.21	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Cobalt	ND		7.5	0.19	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Iron	ND		15	8.7	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lead	ND		1.5	0.33	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lithium	ND		7.5	0.45	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Manganese	ND		2.3	0.84	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Molybdenum	ND		6.0	0.25	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Selenium	ND		1.5	0.51	mg/Kg		10/01/21 08:00	10/22/21 13:24	3

Lab Sample ID: LCS 140-54334/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	ND		mg/Kg		3	
Arsenic	5.00	3.62		mg/Kg		72	60 - 120
Beryllium	2.50	1.31		mg/Kg		52	40 - 70
Calcium	2500	641	J	mg/Kg		26	10 - 40
Chromium	10.0	7.44		mg/Kg		74	60 - 120
Cobalt	5.00	4.63	J	mg/Kg		93	80 - 120
Iron	50.0	ND		mg/Kg		4	
Lead	5.00	4.76		mg/Kg		95	70 - 120
Lithium	5.00	4.40	J	mg/Kg		88	80 - 120
Manganese	5.00	4.89		mg/Kg		98	80 - 120
Molybdenum	25.0	20.4		mg/Kg		82	70 - 120
Selenium	7.50	5.79		mg/Kg		77	70 - 120

Lab Sample ID: LCSD 140-54334/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	ND		mg/Kg		1		109	
Arsenic	5.00	3.80		mg/Kg		76	60 - 120	5	30
Beryllium	2.50	1.35		mg/Kg		54	40 - 70	3	30
Calcium	2500	648	J	mg/Kg		26	10 - 40	1	30
Chromium	10.0	7.61		mg/Kg		76	60 - 120	2	30
Cobalt	5.00	4.60	J	mg/Kg		92	80 - 120	1	30
Iron	50.0	ND		mg/Kg		2		52	
Lead	5.00	4.60		mg/Kg		92	70 - 120	3	30
Lithium	5.00	4.50	J	mg/Kg		90	80 - 120	2	30
Manganese	5.00	4.90		mg/Kg		98	80 - 120	0	30
Molybdenum	25.0	20.3		mg/Kg		81	70 - 120	0	30
Selenium	7.50	6.07		mg/Kg		81	70 - 120	5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 2
Prep Batch: 54370

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	16	J	15.7	J	mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	16000		15200		mg/Kg	☼	6	30
Chromium	ND		ND		mg/Kg	☼	NC	30
Cobalt	0.57	J	0.447	J	mg/Kg	☼	24	30
Iron	36		35.3		mg/Kg	☼	0.5	
Lead	0.77	J	1.01	J	mg/Kg	☼	26	30
Lithium	ND		ND		mg/Kg	☼	NC	30
Manganese	84		75.4		mg/Kg	☼	11	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54371/17-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 3
Prep Batch: 54400

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	2.1	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Beryllium	ND		0.25	0.015	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Calcium	ND		250	1.5	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Cobalt	ND		2.5	0.045	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Iron	ND		5.0	2.9	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lead	ND		0.50	0.11	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Manganese	0.0835	J	0.75	0.027	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/04/21 08:00	10/22/21 15:23	1

Lab Sample ID: LCS 140-54371/18-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 3
Prep Batch: 54400

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	93.2		mg/Kg		93	80 - 120
Arsenic	5.00	4.81		mg/Kg		96	80 - 120
Beryllium	2.50	2.62		mg/Kg		105	80 - 120
Calcium	2500	38.3	J	mg/Kg		2	
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.01		mg/Kg		100	80 - 120
Iron	50.0	48.5		mg/Kg		97	80 - 120
Lead	5.00	0.139	J	mg/Kg		3	
Lithium	5.00	4.75		mg/Kg		95	80 - 120
Manganese	5.00	5.18		mg/Kg		104	80 - 120
Molybdenum	25.0	24.5		mg/Kg		98	80 - 120
Selenium	7.50	7.34		mg/Kg		98	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54371/19-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 3
Prep Batch: 54400

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	95.6		mg/Kg		96	80 - 120	3	30
Arsenic			5.00	4.76		mg/Kg		95	80 - 120	1	30
Beryllium			2.50	2.60		mg/Kg		104	80 - 120	1	30
Calcium			2500	39.4	J	mg/Kg		2		3	
Chromium			10.0	10.0		mg/Kg		100	80 - 120	1	30
Cobalt			5.00	4.97		mg/Kg		99	80 - 120	1	30
Iron			50.0	50.8		mg/Kg		102	80 - 120	5	30
Lead			5.00	0.122	J	mg/Kg		2		13	
Lithium			5.00	4.95		mg/Kg		99	80 - 120	4	30
Manganese			5.00	5.15		mg/Kg		103	80 - 120	1	30
Molybdenum			25.0	24.2		mg/Kg		97	80 - 120	1	30
Selenium			7.50	7.31		mg/Kg		97	80 - 120	0	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 3
Prep Batch: 54400

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	52			55.7		mg/Kg	☼			8	30
Arsenic	0.26	J		0.285	J	mg/Kg	☼			10	30
Beryllium	ND			ND		mg/Kg	☼			NC	30
Calcium	9.2	J		9.35	J	mg/Kg	☼			1	
Chromium	0.31	J		0.452	J F5	mg/Kg	☼			38	30
Cobalt	0.62	J		0.294	J F5	mg/Kg	☼			72	30
Iron	240			258		mg/Kg	☼			6	30
Lead	ND			ND		mg/Kg	☼			NC	
Lithium	ND			ND		mg/Kg	☼			NC	30
Manganese	51	B		31.3	F3	mg/Kg	☼			48	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54401/17-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 4
Prep Batch: 54485

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Arsenic	ND		0.50	0.22	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Beryllium	ND		0.25	0.016	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Calcium	ND		250	2.2	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Chromium	ND		0.50	0.070	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Cobalt	ND		2.5	0.053	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Iron	ND		5.0	2.9	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lead	ND		0.50	0.11	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lithium	ND		2.5	0.15	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Manganese	ND		0.75	0.13	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Selenium	ND		0.50	0.47	mg/Kg		10/05/21 08:00	10/25/21 11:34	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54401/18-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 4
Prep Batch: 54485

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	99.5		mg/Kg		100	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 130		
Beryllium			2.50	2.68		mg/Kg		107	80 - 120		
Calcium			2500	2520		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.10		mg/Kg		102	80 - 120		
Iron			50.0	51.2		mg/Kg		102	80 - 120		
Lead			5.00	5.11		mg/Kg		102	80 - 120		
Lithium			5.00	5.03		mg/Kg		101	80 - 120		
Manganese			5.00	5.14		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.9		mg/Kg		104	80 - 120		
Selenium			7.50	0.568		mg/Kg		8			

Lab Sample ID: LCSD 140-54401/19-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 4
Prep Batch: 54485

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	4.96		mg/Kg		99	80 - 130	1	30
Beryllium			2.50	2.67		mg/Kg		107	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.2		mg/Kg		102	80 - 120	0	30
Cobalt			5.00	5.07		mg/Kg		101	80 - 120	1	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	0	30
Lead			5.00	5.10		mg/Kg		102	80 - 120	0	30
Lithium			5.00	5.02		mg/Kg		100	80 - 120	0	30
Manganese			5.00	5.13		mg/Kg		103	80 - 120	0	30
Molybdenum			25.0	25.7		mg/Kg		103	80 - 120	1	30
Selenium			7.50	ND		mg/Kg		5		45	

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 4
Prep Batch: 54485

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	370			492		mg/Kg	☼			29	30
Arsenic	1.2			1.80	F3	mg/Kg	☼			41	30
Beryllium	0.077	J		0.0858	J	mg/Kg	☼			11	30
Calcium	16000			10800	F3	mg/Kg	☼			36	30
Chromium	1.6			1.84		mg/Kg	☼			13	30
Cobalt	1.2	J		1.32	J	mg/Kg	☼			10	30
Iron	3900			4250		mg/Kg	☼			9	30
Lead	2.7			2.62		mg/Kg	☼			4	30
Lithium	0.99	J		1.08	J	mg/Kg	☼			9	30
Manganese	93			86.5		mg/Kg	☼			8	30
Molybdenum	0.45	J		0.463	J	mg/Kg	☼			3	30
Selenium	ND			ND		mg/Kg	☼			NC	

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54486/17-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 5
Prep Batch: 54566

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	32.1	J	150	24	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Arsenic	ND		7.5	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Beryllium	ND		3.8	0.32	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Calcium	ND		3800	11	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Chromium	ND		7.5	1.1	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Cobalt	ND		38	0.60	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Iron	ND		75	44	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lead	ND		7.5	1.7	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lithium	8.44	J	38	2.2	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Manganese	ND		11	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Molybdenum	ND		30	1.3	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Selenium	ND		7.5	2.6	mg/Kg		10/07/21 08:00	10/25/21 13:37	5

Lab Sample ID: LCS 140-54486/18-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	300	ND		mg/Kg		6	
Arsenic	15.0	9.89		mg/Kg		66	60 - 100
Beryllium	7.50	3.89		mg/Kg		52	40 - 70
Calcium	7500	2030	J	mg/Kg		27	20 - 50
Chromium	30.0	30.5		mg/Kg		102	80 - 130
Cobalt	15.0	0.863	J	mg/Kg		6	1 - 60
Iron	150	ND		mg/Kg		-2	
Lead	15.0	9.28		mg/Kg		62	40 - 80
Lithium	15.0	23.8	J *+	mg/Kg		159	80 - 150
Manganese	15.0	2.78	J	mg/Kg		19	1 - 60
Molybdenum	75.0	53.6		mg/Kg		72	60 - 100
Selenium	22.5	22.8		mg/Kg		101	80 - 140

Lab Sample ID: LCSD 140-54486/19-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	300	28.1	J	mg/Kg		9		47	
Arsenic	15.0	10.3		mg/Kg		68	60 - 100	4	30
Beryllium	7.50	3.83		mg/Kg		51	40 - 70	2	30
Calcium	7500	2000	J	mg/Kg		27	20 - 50	2	30
Chromium	30.0	30.3		mg/Kg		101	80 - 130	1	30
Cobalt	15.0	0.840	J	mg/Kg		6	1 - 60	3	30
Iron	150	ND		mg/Kg		-1		53	
Lead	15.0	9.87		mg/Kg		66	40 - 80	6	30
Lithium	15.0	23.9	J *+	mg/Kg		159	80 - 150	0	30
Manganese	15.0	2.73	J	mg/Kg		18	1 - 60	2	30
Molybdenum	75.0	53.4		mg/Kg		71	60 - 100	0	30
Selenium	22.5	22.4		mg/Kg		100	80 - 140	2	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 5
Prep Batch: 54566

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	210	B	205		mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	11000		10900		mg/Kg	☼	3	30
Chromium	2.1	J	1.68	J	mg/Kg	☼	20	30
Cobalt	ND		ND		mg/Kg	☼	NC	30
Iron	ND		ND		mg/Kg	☼	NC	
Lead	ND		ND		mg/Kg	☼	NC	30
Lithium	14	J B *+	13.4	J *+	mg/Kg	☼	3	30
Manganese	5.2	J	2.76	J F5	mg/Kg	☼	62	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54567/17-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 6
Prep Batch: 54567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Arsenic	ND		0.50	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Beryllium	ND		0.25	0.012	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Calcium	ND		250	2.1	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Chromium	ND		0.50	0.070	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Cobalt	ND		2.5	0.046	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Iron	ND		5.0	2.9	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lead	ND		0.50	0.11	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lithium	ND		2.5	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Manganese	ND		0.75	0.25	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Molybdenum	ND		2.0	0.099	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Selenium	ND		0.50	0.17	mg/Kg		10/07/21 08:00	10/25/21 15:37	1

Lab Sample ID: LCS 140-54567/18-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 6
Prep Batch: 54567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	96.9		mg/Kg		97	80 - 120
Arsenic	5.00	5.01		mg/Kg		100	80 - 120
Beryllium	2.50	2.64		mg/Kg		106	80 - 120
Calcium	2500	2470		mg/Kg		99	80 - 120
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.00		mg/Kg		100	80 - 120
Iron	50.0	50.1		mg/Kg		100	80 - 120
Lead	5.00	5.10		mg/Kg		102	80 - 120
Lithium	5.00	4.95		mg/Kg		99	80 - 120
Manganese	5.00	5.09		mg/Kg		102	80 - 120
Molybdenum	25.0	25.1		mg/Kg		100	80 - 120
Selenium	7.50	7.68		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54567/19-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 6
Prep Batch: 54567

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	101		mg/Kg		101	80 - 120	4	30
Arsenic			5.00	5.07		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.70		mg/Kg		108	80 - 120	2	30
Calcium			2500	2530		mg/Kg		101	80 - 120	2	30
Chromium			10.0	10.3		mg/Kg		103	80 - 120	2	30
Cobalt			5.00	5.10		mg/Kg		102	80 - 120	2	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	2	30
Lead			5.00	5.24		mg/Kg		105	80 - 120	3	30
Lithium			5.00	5.04		mg/Kg		101	80 - 120	2	30
Manganese			5.00	5.20		mg/Kg		104	80 - 120	2	30
Molybdenum			25.0	25.8		mg/Kg		103	80 - 120	3	30
Selenium			7.50	7.82		mg/Kg		104	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 6
Prep Batch: 54567

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	2300			1960		mg/Kg	☼			14	30
Arsenic	2.2			1.82		mg/Kg	☼			19	30
Beryllium	0.095	J		0.0803	J	mg/Kg	☼			17	30
Calcium	4500			3620		mg/Kg	☼			21	30
Chromium	3.9			3.48		mg/Kg	☼			12	30
Cobalt	1.6	J		1.28	J	mg/Kg	☼			23	30
Iron	4500			3880		mg/Kg	☼			14	30
Lead	2.0			1.66		mg/Kg	☼			18	30
Lithium	3.9			3.31		mg/Kg	☼			17	30
Manganese	61			49.6		mg/Kg	☼			20	30
Molybdenum	0.24	J		0.198	J	mg/Kg	☼			21	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54607/17-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Method Blank
Prep Type: Step 7
Prep Batch: 54607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Beryllium	ND		0.25	0.016	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Calcium	ND		250	2.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Cobalt	ND		2.5	0.026	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Iron	ND		5.0	4.1	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lead	ND		0.50	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Manganese	ND		0.75	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/08/21 08:00	10/26/21 11:23	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54607/18-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	98.4		mg/Kg		98	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 120		
Beryllium			2.50	2.52		mg/Kg		101	80 - 120		
Calcium			2500	2510		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.09		mg/Kg		102	80 - 125		
Iron			50.0	51.8		mg/Kg		104	80 - 120		
Lead			5.00	5.06		mg/Kg		101	80 - 120		
Lithium			5.00	4.99		mg/Kg		100	80 - 120		
Manganese			5.00	5.15		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.7		mg/Kg		103	80 - 125		
Selenium			7.50	7.37		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 140-54607/19-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	98.0		mg/Kg		98	80 - 120	0	30
Arsenic			5.00	5.04		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.54		mg/Kg		102	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.4		mg/Kg		104	80 - 120	1	30
Cobalt			5.00	5.16		mg/Kg		103	80 - 125	1	30
Iron			50.0	52.0		mg/Kg		104	80 - 120	0	30
Lead			5.00	5.15		mg/Kg		103	80 - 120	2	30
Lithium			5.00	4.97		mg/Kg		99	80 - 120	0	30
Manganese			5.00	5.18		mg/Kg		104	80 - 120	1	30
Molybdenum			25.0	26.1		mg/Kg		104	80 - 125	2	30
Selenium			7.50	7.51		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	25000			24700		mg/Kg	☼			0.4	30
Calcium	3100			3220		mg/Kg	☼			2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.70			0.687		mg/Kg	☼			2	30
Beryllium	0.37			0.366		mg/Kg	☼			2	30
Chromium	9.3			8.59		mg/Kg	☼			8	30
Cobalt	0.15	J		0.112	J	mg/Kg	☼			26	30
Iron	2800			2670		mg/Kg	☼			5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Lead	4.3			4.29		mg/Kg	☼			0.5	30
Lithium	6.9			5.78		mg/Kg	☼			17	30
Manganese	53			54.1		mg/Kg	☼			3	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Metals

Prep Batch: 54251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Total	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Total	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Total	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Total	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Total	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Total	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Total	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Total	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Total	
MB 140-54251/17-A	Method Blank	Total/NA	Solid	Total	
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	Total	
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	Total	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	

SEP Batch: 54252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	Exchangeable	
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	Exchangeable	
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	Exchangeable	
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	Exchangeable	
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	Exchangeable	
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	Exchangeable	
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	Exchangeable	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	Exchangeable	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	Exchangeable	
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	Exchangeable	
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	Exchangeable	
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	Exchangeable	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	

Prep Batch: 54333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	3010A	54252
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	3010A	54252
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	3010A	54252
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	3010A	54252
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	3010A	54252
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	3010A	54252
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	3010A	54252
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	3010A	54252
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	3010A	54252
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	3010A	54252
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	3010A	54252
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	3010A	54252
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Metals

SEP Batch: 54334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	Carbonate	
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	Carbonate	
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	Carbonate	
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	Carbonate	
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	Carbonate	
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	Carbonate	
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	Carbonate	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	Carbonate	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	Carbonate	
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	Carbonate	
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	Carbonate	
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	Carbonate	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	

Prep Batch: 54370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	3010A	54334
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	3010A	54334
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	3010A	54334
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	3010A	54334
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	3010A	54334
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	3010A	54334
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	3010A	54334
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	3010A	54334
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	3010A	54334
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	3010A	54334
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	3010A	54334
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	3010A	54334
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334

SEP Batch: 54371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	Non-Crystalline	
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	Non-Crystalline	
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	Non-Crystalline	
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	Non-Crystalline	
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	Non-Crystalline	
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	Non-Crystalline	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	Non-Crystalline	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	Non-Crystalline	
MB 140-54371/17-B	Method Blank	Step 3	Solid	Non-Crystalline	
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	Non-Crystalline	
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	Non-Crystalline	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	

Metals

Prep Batch: 54400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	3010A	54371
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	3010A	54371
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	3010A	54371
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	3010A	54371
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	3010A	54371
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	3010A	54371
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	3010A	54371
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	3010A	54371
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	3010A	54371
MB 140-54371/17-B	Method Blank	Step 3	Solid	3010A	54371
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	3010A	54371
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	3010A	54371
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371

SEP Batch: 54401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	Metal Hydroxide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	Metal Hydroxide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	Metal Hydroxide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	Metal Hydroxide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	Metal Hydroxide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	Metal Hydroxide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	Metal Hydroxide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	Metal Hydroxide	
MB 140-54401/17-B	Method Blank	Step 4	Solid	Metal Hydroxide	
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	Metal Hydroxide	
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	Metal Hydroxide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	

Prep Batch: 54485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	3010A	54401
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	3010A	54401
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	3010A	54401
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	3010A	54401
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	3010A	54401
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	3010A	54401
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	3010A	54401
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	3010A	54401
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	3010A	54401
MB 140-54401/17-B	Method Blank	Step 4	Solid	3010A	54401
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	3010A	54401
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	3010A	54401
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401

Metals

SEP Batch: 54486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	Organic-Bound	
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	Organic-Bound	
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	Organic-Bound	
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	Organic-Bound	
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	Organic-Bound	
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	Organic-Bound	
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	Organic-Bound	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	Organic-Bound	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	Organic-Bound	
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	Organic-Bound	
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	Organic-Bound	
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	Organic-Bound	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	

Prep Batch: 54566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	3010A	54486
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	3010A	54486
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	3010A	54486
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	3010A	54486
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	3010A	54486
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	3010A	54486
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	3010A	54486
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	3010A	54486
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	3010A	54486
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	3010A	54486
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	3010A	54486
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	3010A	54486
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486

SEP Batch: 54567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	Acid/Sulfide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	Acid/Sulfide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	Acid/Sulfide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	Acid/Sulfide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	Acid/Sulfide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	Acid/Sulfide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	Acid/Sulfide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	Acid/Sulfide	
MB 140-54567/17-A	Method Blank	Step 6	Solid	Acid/Sulfide	
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	Acid/Sulfide	
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	Acid/Sulfide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	

Metals

Prep Batch: 54607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	Residual	
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	Residual	
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	Residual	
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	Residual	
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	Residual	
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	Residual	
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	Residual	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	Residual	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	Residual	
MB 140-54607/17-A	Method Blank	Step 7	Solid	Residual	
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	Residual	
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	Residual	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	

Analysis Batch: 55087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	6010B SEP	54333
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	6010B SEP	54370
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	6010B SEP	54400
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	6010B SEP	54333
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	6010B SEP	54370
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	6010B SEP	54400
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	6010B SEP	54333
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	6010B SEP	54370
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	6010B SEP	54400
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	6010B SEP	54333
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	6010B SEP	54370
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	6010B SEP	54400
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	6010B SEP	54333
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	6010B SEP	54370
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	6010B SEP	54400
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	6010B SEP	54333
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	6010B SEP	54370
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	6010B SEP	54400
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	6010B SEP	54333
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	6010B SEP	54370
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	6010B SEP	54333
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	6010B SEP	54370
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	6010B SEP	54333
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	6010B SEP	54370
MB 140-54371/17-B	Method Blank	Step 3	Solid	6010B SEP	54400
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	6010B SEP	54333

Metals (Continued)

Analysis Batch: 55087 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	6010B SEP	54370
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	6010B SEP	54400
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	6010B SEP	54333
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	6010B SEP	54370
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	6010B SEP	54400
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400

Analysis Batch: 55146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	6010B SEP	54566
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	6010B SEP	54567
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	6010B SEP	54485
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	6010B SEP	54566
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	6010B SEP	54567
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	6010B SEP	54485
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	6010B SEP	54566
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	6010B SEP	54567
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	6010B SEP	54485
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	6010B SEP	54566
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	6010B SEP	54567
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	6010B SEP	54485
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	6010B SEP	54566
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	6010B SEP	54567
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	6010B SEP	54485
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	6010B SEP	54566
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	6010B SEP	54485
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	6010B SEP	54566
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	6010B SEP	54485
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	6010B SEP	54566
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	6010B SEP	54567
MB 140-54401/17-B	Method Blank	Step 4	Solid	6010B SEP	54485
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	6010B SEP	54566
MB 140-54567/17-A	Method Blank	Step 6	Solid	6010B SEP	54567
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	6010B SEP	54485
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	6010B SEP	54566
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	6010B SEP	54567
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	6010B SEP	54485

Metals (Continued)

Analysis Batch: 55146 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	6010B SEP	54566
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	6010B SEP	54567
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567

Analysis Batch: 55197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
MB 140-54607/17-A	Method Blank	Step 7	Solid	6010B SEP	54607
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	6010B SEP	54607
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607

Analysis Batch: 55243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251

Metals (Continued)

Analysis Batch: 55243 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
MB 140-54251/17-A	Method Blank	Total/NA	Solid	6010B	54251
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	6010B	54251
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251

Analysis Batch: 55436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-2	N-SB-05 (60.0-67.1)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-3	N-SB-18 (77.5-80.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-4	N-SB-02 (12.5-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-5	N-SB-02 (65.0-71.5)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-6	N-SB-14 (44.2-52.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-7	N-SB-04 (12.0-18.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-8	N-SB-04 (38.7-45.4)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Sum of Steps 1-7	Solid	6010B SEP	

General Chemistry

Analysis Batch: 53225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Moisture	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Moisture	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Moisture	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Moisture	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Moisture	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Moisture	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Moisture	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Moisture	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Moisture	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:14	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:39	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:50	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:03	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		2			55146	10/25/21 17:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:08	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:07	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)

Lab Sample ID: 140-24350-3

Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:06	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:20	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:50	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:59	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4
Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:13	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:11	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:07	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:18	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)
Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:04	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:30	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:55	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-14 (44.2-52.0)
Lab Sample ID: 140-24350-6
Date Collected: 08/19/21 14:45
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-14 (44.2-52.0)

Lab Sample ID: 140-24350-6

Date Collected: 08/19/21 14:45

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:12	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:35	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (12.0-18.0)

Lab Sample ID: 140-24350-7

Date Collected: 08/21/21 07:35

Matrix: Solid

Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:06	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)
Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-04 (38.7-45.4)
Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 86.5

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:35	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)

Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 86.5

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:05	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		5			55243	10/27/21 16:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:53	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		5			55146	10/25/21 18:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:09	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 16:02	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 77.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:33	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Lab Sample ID: 140-24350-10

Date Collected: 08/21/21 10:10

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 77.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55146	10/25/21 11:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:19	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-54251/17-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:49	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54252/17-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:17	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54334/17-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:24	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54371/17-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54401/17-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54486/17-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:37	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc. Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Method Blank — Lab Sample ID: MB 140-54567/17-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank — Lab Sample ID: MB 140-54607/17-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54251/18-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:54	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54252/18-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:22	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 140-54334/18-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:29	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54371/18-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:28	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54401/18-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:39	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54486/18-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54567/18-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54607/18-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54251/19-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:59	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54252/19-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:27	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54334/19-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54371/19-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:32	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54401/19-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:44	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54486/19-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54567/19-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54607/19-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:33	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:47	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:19	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:36	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:44	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:55	KNC	TAL KNX
	Instrument ID: DUO									

Laboratory References:
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
Arkansas DEQ	State	88-0688	06-17-22
California	State	2423	06-30-22
Colorado	State	TN00009	02-28-22
Connecticut	State	PH-0223	02-28-22
Florida	NELAP	E87177	06-30-22
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21 *
Kentucky (DW)	State	90101	12-31-21
Louisiana	NELAP	83979	06-30-22
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-22
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-22
New Hampshire	NELAP	299919	01-17-22
New Jersey	NELAP	TN001	06-30-22
New York	NELAP	10781	03-31-22
North Carolina (DW)	State	21705	07-31-22
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-22
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-22
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-22
West Virginia (DW)	State	9955C	01-02-22
West Virginia DEP	State	345	04-30-22
Wisconsin	State	998044300	08-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Method	Method Description	Protocol	Laboratory
6010B	SEP Metals (ICP) - Total	SW846	TAL KNX
6010B SEP	SEP Metals (ICP)	SW846	TAL KNX
Moisture	Percent Moisture	EPA	TAL KNX
3010A	Preparation, Total Metals	SW846	TAL KNX
Acid/Sulfide	Sequential Extraction Procedure, Acid/Sulfide Fraction	TAL-KNOX	TAL KNX
Carbonate	Sequential Extraction Procedure, Carbonate Fraction	TAL-KNOX	TAL KNX
Exchangeable	Sequential Extraction Procedure, Exchangeable Fraction	TAL-KNOX	TAL KNX
Metal Hydroxide	Sequential Extraction Procedure, Metal Hydroxide Fraction	TAL-KNOX	TAL KNX
Non-Crystalline	Sequential Extraction Procedure, Non-crystalline Materials	TAL-KNOX	TAL KNX
Organic-Bound	Sequential Extraction Procedure, Organic Bound Fraction	TAL-KNOX	TAL KNX
Residual	Sequential Extraction Procedure, Residual Fraction	TAL-KNOX	TAL KNX
Total	Preparation, Total Material	TAL-KNOX	TAL 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:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Brendan Talbert	Lab PM: Henry, Ryan	Carrier Tracking No(s):	COC No: 140-9736-2903.2
Client Contact: Jeffrey Ingram	Phone: (636) 485-8185	E-Mail: williamr.henry@eurofinset.com	State of Origin: IL	Page: Page 1 of 2
Company: Golder Associates Inc.	PWSID:			Job #:
Address: 13515 Barrett Parkway Drive Suite 260	Due Date Requested:			
City: Ballwin	TAT Requested (days):			
State, Zip: MO, 63021	Compliance Project: Δ Yes Δ No			
Phone: 314-984-8800(Tel) 636-724-9323(Fax)	PO #: Purchase Order not required			
Email: Jeffrey_Ingram@golder.com	WO #:			
Project Name: ~~Kincaid~~ Newton Power Station - Illinois	Project #: 14006434			
Site:	SSOW#:			

Analysis Requested

140-24350 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	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 - Select Total Metals	6010B_SEP - SEP	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
N-SB-05(18.0-20.0)	8-17-21	1240	G	S	N	N	/	/		
N-SB-05(60.0-67.1)	8-17-21	1540	G	S			/	/		
N-SB-18 (77.5-80.0)	8-18-21	1000	G	S			/	/		
N-SB-02 (12.5-20.0)	8-18-21	1410	G	S			/	/		
N-SB-02(65.0-71.5)	8-19-21	1200	G	S			/	/		
N-SB-14 ~~(Foam Core)~~	8-19-21	1445	G	S			/	/		N-SB-14 (44.2-52.0)
N-SB-04 (12.0-18.0)	8-21-21	0735	G	S			/	/		
N-SB-04 ~~(Foam Core)~~	8-21-21	0830	G	S			/	/		N-SB-04 (38.7-45.4)
N-SB-xpw04 (10.0-15.0)	8-21-21	0920	G	S			/	/		
N-SB-xpw01 (10.0-12.7)	8-21-21	1010	G	S			/	Y		

Possible Hazard Identification
☐ 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 ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Brendan Talbert	8-23-21 / 1830	Golder		8/24/21 0940	ETA
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.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:** Loc: 140 **24350**

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 : SC 71 Correction factor: +0.1	/			☐ 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

RT: 1.3°C CT: 1.4°C
1 cooler, FedEx Pg
Custody seal intact
Tr# 2828 8850 9224
KW 8/24/21

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 #: 1400647 PM Instructions:

Sample Receiving Associate: Kelsey Date: 8/24/21

QA026R32.doc, 062719

ATTACHMENT 2
EUROFINS SEQUENTIAL EXTRACTION LABORATORY REPORT

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-24350-1
Client Project/Site: Newton Power Station - Illinois

For:
Golder Associates Inc.
13515 Barrett Parkway Drive
Suite 260
Ballwin, Missouri 63021

Attn: Jeffrey Ingram

Ryan Henry

Authorized for release by:
11/2/2021 4:41:43 PM

Ryan Henry, Project Manager I
(865)291-3000
williamr.henry@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Qualifiers

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F3	Duplicate RPD exceeds the control limit
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.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
L	A negative instrument reading had an absolute value greater than the reporting limit

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: 140-24350-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-24350-1

Receipt
The samples were received on 8/24/2021 at 9:40am and arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4º C.

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
S = Percent solids/100

A method blank, laboratory control sample and laboratory control sample duplicate were prepared and analyzed with each SEP step in

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

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.

SEP Report Notes:

The final report lists the results for each step, the result for the total digestion of the sample, and a sum of the results of steps 1 through 7 by element.

Magnesium was not reported for step 1 because the extraction solution for this step (magnesium sulfate) contains high levels of magnesium. Sodium was not reported for steps 2 and 5 since the extraction solutions for these steps contain high levels of sodium. The sum of steps 1 through 7 is much higher than the total result for sodium and magnesium due to the magnesium and sodium introduced by the extraction solutions.

The digestates for steps 1, 2 and 5 were analyzed at a dilution due to instrument problems caused by the high solids content of the digestates. The reporting limits were adjusted accordingly.

Method 6010B: The sample duplicate (DUP) precision for preparation batch 140-54251 and analytical batch 140-55243 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.

Method 6010B: The serial dilution performed for the following samples associated with batch 140-55243 was outside control limits: (140-24350-A-1-A SD ^5) and (140-24350-A-1-A SD ^50)

Method 6010B: The following samples were diluted due to the presence of titanium which interferes with Cobalt and Lead: N-SB-04 (12.0-18.0) (140-24350-7), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-02 (65.0-71.5) (140-24350-5). Elevated reporting limits (RLs) are provided.

Method 6010B: The following sample was diluted due to the presence of iron which interferes with Arsenic and Selenium: N-SB-02 (12.5-20.0) (140-24350-4). Elevated reporting limits (RLs) are provided.

Method 6010B: The following samples were diluted due to the nature of the sample matrix: N-SB-05 (18.0-20.0) (140-24350-1), N-SB-05 (60.0-67.1) (140-24350-2), N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (12.5-20.0) (140-24350-4), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-14 (44.2-52.0) (140-24350-6), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided for aluminum and calcium.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54371 and 140-54400 and analytical batch 140-55087 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.

Method 6010B SEP: The sample duplicate (DUP) precision for preparation batch 140-54401, 140-54485, 140-54486 and 140-54566 and analytical batch 140-55146 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.

Method 6010B SEP: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-54486 and 140-54566 and analytical batch 140-55146 recovered outside control limits for the following analyte: Lithium. This analyte was biased high in the LCS/LCSD and was detected in the associated samples as an estimated value; therefore, the data have been

Job ID: 140-24350-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

reported.

Method 6010B SEP: The following sample was diluted to bring the concentration of target analyte, calcium, within the calibration range: N-SB-05 (60.0-67.1) (140-24350-2). Elevated reporting limits (RLs) are provided.

Method 6010B SEP: The following samples were diluted due to the presence of silicon which interferes with Arsenic, Lead and Selenium: N-SB-18 (77.5-80.0) (140-24350-3), N-SB-02 (65.0-71.5) (140-24350-5), N-SB-04 (12.0-18.0) (140-24350-7), N-SB-04 (38.7-45.4) (140-24350-8), N-SB-XPW 04 (10.0-15.0) (140-24350-9) and N-SB-XPW 01 (10.0-12.7) (140-24350-10). Elevated reporting limits (RLs) are provided.

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: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-24350-1	N-SB-05 (18.0-20.0)	Solid	08/17/21 12:40	08/24/21 09:40
140-24350-2	N-SB-05 (60.0-67.1)	Solid	08/17/21 15:40	08/24/21 09:40
140-24350-3	N-SB-18 (77.5-80.0)	Solid	08/18/21 10:00	08/24/21 09:40
140-24350-4	N-SB-02 (12.5-20.0)	Solid	08/18/21 14:10	08/24/21 09:40
140-24350-5	N-SB-02 (65.0-71.5)	Solid	08/19/21 12:00	08/24/21 09:40
140-24350-6	N-SB-14 (44.2-52.0)	Solid	08/19/21 14:45	08/24/21 09:40
140-24350-7	N-SB-04 (12.0-18.0)	Solid	08/21/21 07:35	08/24/21 09:40
140-24350-8	N-SB-04 (38.7-45.4)	Solid	08/21/21 08:30	08/24/21 09:40
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Solid	08/21/21 09:20	08/24/21 09:40
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Solid	08/21/21 10:10	08/24/21 09:40

Client Sample ID: N-SB-05 (18.0-20.0)
Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Calcium	**880**	**J B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Manganese	**2.8**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 11:32	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**16**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Calcium	**16000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Chromium	ND		1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Cobalt	**0.57**	**J**	8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Iron	**36**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lead	**0.77**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Manganese	**84**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:39	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Arsenic	**0.26**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Beryllium	ND		0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Calcium	**9.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Chromium	**0.31**	**J**	0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Cobalt	**0.62**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Iron	**240**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Manganese	**51**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**370**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Arsenic	**1.2**		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Beryllium	**0.077**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Calcium	**16000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

Client Sample ID: N-SB-05 (18.0-20.0)

Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.2	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Iron	3900		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Lithium	0.99	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Manganese	93		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Molybdenum	0.45	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 11:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	210	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Calcium	11000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Chromium	2.1	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Lithium	14	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Manganese	5.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 13:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2300		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Arsenic	2.2		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Beryllium	0.095	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Calcium	4500		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Chromium	3.9		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Cobalt	1.6	J	2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Iron	4500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Lithium	3.9		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Manganese	61		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Molybdenum	0.24	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	25000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Arsenic	0.70		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Beryllium	0.37		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Calcium	3100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 11:43	10
Chromium	9.3		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Cobalt	0.15	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Iron	2800		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lead	4.3		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Lithium	6.9		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Manganese	53		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

Client Sample ID: N-SB-05 (18.0-20.0)

Date Collected: 08/17/21 12:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-1

Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 12:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**28000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**4.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.55**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**52000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**11000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**9.8**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**26**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**350**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.69**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**26000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Arsenic	**5.3**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Beryllium	**0.55**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Calcium	**51000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 11:28	10
Chromium	**17**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Cobalt	**3.2**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Iron	**10000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lead	**8.4**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Lithium	**12**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Manganese	**280**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Molybdenum	**0.78**	**J**	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1
Selenium	ND		0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:14	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-05 (60.0-67.1)

Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2

Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		49	7.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Arsenic	ND		2.5	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Beryllium	ND		1.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Calcium	**560**	**J B**	1200	9.4	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Chromium	ND		2.5	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Cobalt	ND		12	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Iron	ND		25	14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lead	ND		2.5	0.54	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Lithium	ND		12	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Manganese	**2.7**	**J**	3.7	0.15	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Molybdenum	ND		9.8	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4
Selenium	ND		2.5	0.84	mg/Kg	☼	09/30/21 08:00	10/22/21 11:41	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33**	**J**	37	5.9	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Arsenic	ND		1.8	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Beryllium	ND		0.92	0.059	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Calcium	**25000**		920	8.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Chromium	ND		1.8	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Cobalt	ND		9.2	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Iron	**380**		18	11	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lead	**1.2**	**J**	1.8	0.41	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Lithium	ND		9.2	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Manganese	**85**		2.8	1.0	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Molybdenum	ND		7.4	0.30	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3
Selenium	ND		1.8	0.63	mg/Kg	☼	10/01/21 08:00	10/22/21 13:49	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**340**		12	2.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Arsenic	**0.31**	**J**	0.62	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Beryllium	**0.054**	**J**	0.31	0.018	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Calcium	**6.9**	**J**	310	1.8	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Chromium	**0.77**		0.62	0.086	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Cobalt	**0.67**	**J**	3.1	0.055	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Iron	**4100**		6.2	3.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lead	**0.15**	**J**	0.62	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Lithium	ND		3.1	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Manganese	**42**	**B**	0.92	0.033	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/04/21 08:00	10/22/21 15:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		12	2.0	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Arsenic	ND		0.62	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Beryllium	**0.026**	**J**	0.31	0.020	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Calcium	**59000**		620	5.4	mg/Kg	☼	10/05/21 08:00	10/25/21 17:56	2
Chromium	**0.80**		0.62	0.086	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.70	J	3.1	0.065	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Iron	3000		6.2	3.6	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lead	4.5		0.62	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Lithium	0.95	J	3.1	0.18	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Manganese	350		0.92	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1
Selenium	ND		0.62	0.58	mg/Kg	☼	10/05/21 08:00	10/25/21 12:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	180	29	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Arsenic	ND		9.2	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Beryllium	ND		4.6	0.39	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Calcium	8700		4600	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Chromium	1.5	J	9.2	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Cobalt	ND		46	0.74	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Iron	ND		92	54	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lead	ND		9.2	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Lithium	14	J B *+	46	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Manganese	5.4	J	14	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Molybdenum	ND		37	1.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5
Selenium	ND		9.2	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:02	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1800		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Arsenic	2.3		0.62	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Beryllium	0.076	J	0.31	0.015	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Calcium	7000		310	2.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Chromium	4.0		0.62	0.086	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Cobalt	2.0	J	3.1	0.057	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Iron	6300		6.2	3.6	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lead	2.1		0.62	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Lithium	3.6		3.1	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Manganese	69		0.92	0.31	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Molybdenum	0.29	J	2.5	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/07/21 08:00	10/25/21 16:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	20	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Arsenic	0.61	J	0.62	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Beryllium	0.52		0.31	0.020	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Calcium	4800		3100	32	mg/Kg	☼	10/08/21 08:00	10/26/21 11:52	10
Chromium	10		0.62	0.086	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Cobalt	0.34	J	3.1	0.032	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Iron	3400		6.2	5.0	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lead	4.4		0.62	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Lithium	6.0		3.1	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Manganese	59		0.92	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-05 (60.0-67.1)
Date Collected: 08/17/21 15:40
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-2
Matrix: Solid
Percent Solids: 81.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.5	0.10	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1
Selenium	ND		0.62	0.21	mg/Kg	☼	10/08/21 08:00	10/26/21 13:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**29000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.2**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.67**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**110000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**17**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**3.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**17000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**12**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**610**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.29**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		120	20	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Arsenic	**2.5**		0.62	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Beryllium	**0.54**		0.31	0.020	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Calcium	**84000**		3100	32	mg/Kg	☼	09/29/21 08:00	10/27/21 11:52	10
Chromium	**13**		0.62	0.086	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Cobalt	**3.2**		3.1	0.032	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Iron	**14000**		6.2	5.0	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lead	**9.9**		0.62	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Lithium	**9.6**		3.1	0.18	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Manganese	**380**		0.92	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Molybdenum	**0.31**	**J**	2.5	0.10	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1
Selenium	ND		0.62	0.21	mg/Kg	☼	09/29/21 08:00	10/27/21 13:25	1

Client Sample ID: N-SB-18 (77.5-80.0)

Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3

Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.0	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Arsenic	ND		2.2	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Calcium	**500**	**J B**	1100	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lead	ND		2.2	0.48	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Manganese	**4.0**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Molybdenum	ND		8.8	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4
Selenium	ND		2.2	0.74	mg/Kg	☼	09/30/21 08:00	10/22/21 11:46	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Arsenic	ND		1.6	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Beryllium	ND		0.82	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Calcium	**12000**		820	7.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Cobalt	**0.91**	**J**	8.2	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Iron	**440**		16	9.5	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lead	**1.7**		1.6	0.36	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Lithium	ND		8.2	0.49	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Manganese	**82**		2.5	0.92	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3
Selenium	ND		1.6	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 13:54	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**82**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Arsenic	**0.91**		0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Beryllium	**0.035**	**J**	0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Calcium	**6.5**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Chromium	**0.62**		0.55	0.077	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Cobalt	**0.53**	**J**	2.7	0.049	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Iron	**2500**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lead	**0.12**	**J**	0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Manganese	**69**	**B**	0.82	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Molybdenum	**0.13**	**J**	2.2	0.090	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 15:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**77**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Beryllium	**0.030**	**J**	0.27	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Calcium	**39000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Chromium	**0.87**		0.55	0.077	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

Client Sample ID: N-SB-18 (77.5-80.0)

Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3

Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.48	J	2.7	0.058	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Iron	3800		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lead	2.4		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Lithium	0.83	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Manganese	360		0.82	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Molybdenum	0.11	J	2.2	0.090	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1
Selenium	ND		0.55	0.51	mg/Kg	☼	10/05/21 08:00	10/25/21 12:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	63	J B	160	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Arsenic	ND		8.2	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Beryllium	ND		4.1	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Calcium	7700		4100	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Chromium	1.4	J	8.2	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Cobalt	ND		41	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Iron	ND		82	48	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lead	ND		8.2	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Lithium	12	J B *+	41	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Manganese	39		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5
Selenium	ND		8.2	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:07	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Arsenic	2.2		0.55	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Beryllium	0.084	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Calcium	25000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Chromium	2.9		0.55	0.077	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Cobalt	1.5	J	2.7	0.050	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Iron	8500		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lead	2.0		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Lithium	4.9		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Manganese	300		0.82	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Molybdenum	0.28	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Arsenic	0.66	J	1.1	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Beryllium	0.29		0.27	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Calcium	4200		2700	28	mg/Kg	☼	10/08/21 08:00	10/26/21 11:57	10
Chromium	9.7		0.55	0.077	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Cobalt	0.71	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Iron	3300		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Lead	2.8		1.1	0.24	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2
Lithium	5.9		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Manganese	52		0.82	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-18 (77.5-80.0)
Date Collected: 08/18/21 10:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-3
Matrix: Solid
Percent Solids: 91.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.090	mg/Kg	☼	10/08/21 08:00	10/26/21 13:20	1
Selenium	ND		1.1	0.37	mg/Kg	☼	10/08/21 08:00	10/26/21 14:50	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.8**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.44**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**89000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**16**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.1**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**19000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.9**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**910**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.52**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**19000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Arsenic	**5.8**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Beryllium	**0.38**		0.27	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Calcium	**83000**		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 11:57	10
Chromium	**17**		0.55	0.077	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Cobalt	**5.0**		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Iron	**13000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lead	**9.0**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Lithium	**10**		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Manganese	**600**		0.82	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Molybdenum	**1.0**	**J**	2.2	0.090	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 13:45	1

Client Sample ID: N-SB-02 (12.5-20.0)
Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		43	6.9	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Arsenic	ND		2.1	0.56	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Beryllium	ND		1.1	0.33	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Calcium	**1200**	**B**	1100	8.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Chromium	ND		2.1	0.30	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Cobalt	ND		11	0.19	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Iron	ND		21	12	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lead	ND		2.1	0.47	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Lithium	ND		11	0.64	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Manganese	**3.1**	**J**	3.2	0.13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Molybdenum	ND		8.6	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4
Selenium	ND		2.1	0.73	mg/Kg	☼	09/30/21 08:00	10/22/21 11:51	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**12**	**J**	32	5.2	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Arsenic	ND		1.6	0.42	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Beryllium	ND		0.81	0.052	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Calcium	**18000**		810	7.1	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Chromium	ND		1.6	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Cobalt	**0.31**	**J**	8.1	0.20	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Iron	**19**		16	9.3	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lead	**0.61**	**J**	1.6	0.35	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Lithium	ND		8.1	0.48	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Manganese	**150**		2.4	0.90	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Molybdenum	ND		6.4	0.26	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3
Selenium	ND		1.6	0.55	mg/Kg	☼	10/01/21 08:00	10/22/21 13:59	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**58**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Arsenic	**0.24**	**J**	0.54	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Beryllium	ND		0.27	0.016	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Calcium	**9.7**	**J**	270	1.6	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Chromium	**0.25**	**J**	0.54	0.075	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Cobalt	**2.3**	**J**	2.7	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Iron	**310**		5.4	3.1	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lead	ND		0.54	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Lithium	ND		2.7	0.16	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Manganese	**210**	**B**	0.81	0.029	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Molybdenum	**0.13**	**J**	2.1	0.088	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/04/21 08:00	10/22/21 15:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**510**		11	1.7	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Arsenic	ND		0.54	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Beryllium	**0.17**	**J**	0.27	0.017	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Calcium	**19000**		270	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Chromium	**1.6**		0.54	0.075	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.1	J	2.7	0.057	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Iron	8000		5.4	3.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lead	3.7		0.54	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Lithium	1.4	J	2.7	0.16	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Manganese	170		0.81	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Molybdenum	0.75	J	2.1	0.088	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1
Selenium	ND		0.54	0.50	mg/Kg	☼	10/05/21 08:00	10/25/21 12:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	140	J B	160	25	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Arsenic	3.4	J	8.1	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Beryllium	ND		4.0	0.34	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Calcium	12000		4000	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Chromium	2.6	J	8.1	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Cobalt	ND		40	0.64	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Iron	ND		81	47	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lead	ND		8.1	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Lithium	10	J B *+	40	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Manganese	17		12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Molybdenum	ND		32	1.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5
Selenium	ND		8.1	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4000		11	1.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Arsenic	31		0.54	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Beryllium	0.23	J	0.27	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Calcium	5000		270	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Chromium	6.9		0.54	0.075	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Cobalt	3.3		2.7	0.049	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Iron	19000		5.4	3.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Lithium	6.6		2.7	0.16	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Manganese	120		0.81	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Molybdenum	2.8		2.1	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		110	17	mg/Kg	☼	10/08/21 08:00	10/26/21 12:02	10
Arsenic	4.1		0.54	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Beryllium	0.57		0.27	0.017	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Calcium	2300		270	2.8	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Chromium	17		0.54	0.075	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Cobalt	0.44	J	2.7	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Iron	5200		5.4	4.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lead	4.2		0.54	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Lithium	13		2.7	0.16	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Manganese	52		0.81	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (12.5-20.0)
Date Collected: 08/18/21 14:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-4
Matrix: Solid
Percent Solids: 93.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.31	J	2.1	0.088	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1
Selenium	ND		0.54	0.18	mg/Kg	☼	10/08/21 08:00	10/26/21 13:25	1

Method: 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			11/02/21 15:59	1
Arsenic	38		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.97		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	57000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	28		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	7.4		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	33000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	31		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	720		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	4.0		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		110	17	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Arsenic	51		1.1	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Beryllium	0.76		0.27	0.017	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Calcium	54000		2700	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:02	10
Chromium	22		0.54	0.075	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Cobalt	6.2		2.7	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Iron	34000		11	8.8	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2
Lead	11		0.54	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Lithium	19		2.7	0.16	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Manganese	590		0.81	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Molybdenum	5.5		2.1	0.088	mg/Kg	☼	09/29/21 08:00	10/27/21 13:50	1
Selenium	ND		1.1	0.37	mg/Kg	☼	09/29/21 08:00	10/27/21 16:12	2

Client Sample ID: N-SB-02 (65.0-71.5)
Lab Sample ID: 140-24350-5

Date Collected: 08/19/21 12:00
Matrix: Solid

Date Received: 08/24/21 09:40
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.2	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Beryllium	ND		1.1	0.35	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Calcium	**300**	**J B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Manganese	**3.5**		3.4	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Molybdenum	ND		9.0	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 11:56	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**11**	**J**	34	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Arsenic	ND		1.7	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Calcium	**11000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Cobalt	**0.29**	**J**	8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Iron	**270**		17	9.8	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Manganese	**68**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Molybdenum	ND		6.7	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:04	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**45**		11	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Arsenic	**0.62**		0.56	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Beryllium	**0.034**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Calcium	**6.2**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Chromium	**0.44**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Cobalt	**0.36**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Iron	**3100**		5.6	3.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lead	**0.16**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Manganese	**54**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**79**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Beryllium	ND		0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Calcium	**40000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Chromium	**0.87**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

Client Sample ID: N-SB-02 (65.0-71.5)
Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5
Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.30	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Iron	2200		5.6	3.3	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lead	1.7		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Lithium	0.96	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Manganese	150		0.84	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1
Selenium	ND		0.56	0.53	mg/Kg	☼	10/05/21 08:00	10/25/21 12:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	46	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Calcium	7200		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Chromium	ND		8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Lithium	7.6	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Manganese	14		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Molybdenum	ND		34	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1200		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Arsenic	2.0		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Beryllium	0.040	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Calcium	25000		280	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Chromium	4.3		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Cobalt	1.3	J	2.8	0.052	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Iron	3400		5.6	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lead	1.2		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Lithium	3.6		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Manganese	49		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Molybdenum	ND		2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Arsenic	0.72	J	1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Beryllium	0.25	J	0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Calcium	4100		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:21	10
Chromium	7.4		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Cobalt	0.078	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Iron	2500		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Lead	3.7		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2
Lithium	11		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Manganese	45		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (65.0-71.5)
Date Collected: 08/19/21 12:00
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-5
Matrix: Solid
Percent Solids: 89.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.092	mg/Kg	☼	10/08/21 08:00	10/26/21 13:30	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 14:55	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**20000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.4**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.32**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**88000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**13**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**2.3**	**J**	2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**12000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**8.1**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**23**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**390**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	ND		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Arsenic	**3.0**		1.1	0.29	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Beryllium	**0.26**	**J**	0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Calcium	**95000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:07	10
Chromium	**10**		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Cobalt	**2.6**	**J**	2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Iron	**14000**		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Lead	**6.8**		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2
Lithium	**7.6**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Manganese	**440**		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Molybdenum	**0.26**	**J**	2.2	0.092	mg/Kg	☼	09/29/21 08:00	10/27/21 13:55	1
Selenium	ND		1.1	0.38	mg/Kg	☼	09/29/21 08:00	10/27/21 16:18	2

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		44	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Calcium	**1100**	**B**	1100	8.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Lithium	ND		11	0.66	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Manganese	**10**		3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Molybdenum	ND		8.9	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4
Selenium	ND		2.2	0.75	mg/Kg	☼	09/30/21 08:00	10/22/21 12:26	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**31**	**J**	33	5.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Beryllium	ND		0.83	0.053	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Calcium	**25000**		830	7.3	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Chromium	**0.41**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Cobalt	ND		8.3	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Iron	**160**		17	9.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lead	**1.3**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Lithium	ND		8.3	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Manganese	**130**		2.5	0.93	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Molybdenum	ND		6.6	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3
Selenium	ND		1.7	0.56	mg/Kg	☼	10/01/21 08:00	10/22/21 14:23	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**200**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Arsenic	**0.32**	**J**	0.55	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Beryllium	**0.028**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Calcium	**8.5**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Chromium	**1.7**		0.55	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Cobalt	**0.39**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Iron	**1700**		5.5	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lead	ND		0.55	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Manganese	**61**	**B**	0.83	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Molybdenum	**0.29**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**300**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Arsenic	ND		0.55	0.24	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Beryllium	**0.064**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Calcium	**46000**		280	2.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Chromium	**1.6**		0.55	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Iron	2200		5.5	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lead	2.8		0.55	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Lithium	1.6	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Manganese	300		0.83	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Molybdenum	0.28	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1
Selenium	ND		0.55	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	130	J B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Arsenic	ND		8.3	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Calcium	14000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Chromium	2.0	J	8.3	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Cobalt	ND		42	0.66	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Iron	ND		83	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lead	ND		8.3	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Lithium	8.2	J B *+	42	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Manganese	4.2	J	12	2.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5
Selenium	ND		8.3	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:37	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3000		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Arsenic	2.4		0.55	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Beryllium	0.13	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Calcium	5900		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Chromium	5.5		0.55	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Cobalt	2.8		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Iron	8100		5.5	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lead	2.7		0.55	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Lithium	5.4		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Manganese	100		0.83	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Molybdenum	0.38	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Arsenic	0.88		0.55	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Beryllium	0.49		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Calcium	3600		2800	29	mg/Kg	☼	10/08/21 08:00	10/26/21 12:26	10
Chromium	14		0.55	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Cobalt	0.22	J	2.8	0.029	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Iron	4000		5.5	4.5	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lead	3.8		0.55	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Lithium	8.8		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Manganese	62		0.83	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-14 (44.2-52.0)
Date Collected: 08/19/21 14:45
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-6
Matrix: Solid
Percent Solids: 90.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1
Selenium	ND		0.55	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**33000**		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	**3.6**		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	**0.71**		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	**96000**		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	**25**		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	**4.7**		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	**16000**		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	**11**		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	**24**		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	**670**		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	**0.94**	**J**	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**30000**		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Arsenic	**30**		0.55	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Beryllium	**0.61**		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Calcium	**81000**		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:12	10
Chromium	**21**		0.55	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Cobalt	**7.9**		2.8	0.029	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Iron	**19000**		5.5	4.5	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lead	**9.2**		0.55	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Lithium	**15**		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Manganese	**420**		0.83	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Molybdenum	**8.3**		2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1
Selenium	ND	L	0.55	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:01	1

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		45	7.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Arsenic	ND		2.2	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Beryllium	ND		1.1	0.34	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Calcium	**1400**	**B**	1100	8.5	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Chromium	ND		2.2	0.31	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Cobalt	ND		11	0.20	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Iron	ND		22	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lead	ND		2.2	0.49	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Lithium	ND		11	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Manganese	**0.62**	**J**	3.3	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Molybdenum	ND		8.9	0.37	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4
Selenium	ND		2.2	0.76	mg/Kg	☼	09/30/21 08:00	10/22/21 12:31	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**10**	**J**	33	5.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Arsenic	ND		1.7	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Beryllium	ND		0.84	0.054	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Calcium	**31000**		840	7.4	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Chromium	**0.32**	**J**	1.7	0.23	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Cobalt	ND		8.4	0.21	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Iron	ND		17	9.7	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lead	**0.82**	**J**	1.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Lithium	ND		8.4	0.50	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Manganese	**170**		2.5	0.94	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Molybdenum	ND		6.7	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3
Selenium	ND		1.7	0.57	mg/Kg	☼	10/01/21 08:00	10/22/21 14:28	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**120**		11	2.3	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Arsenic	**0.42**	**J**	0.56	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Beryllium	**0.039**	**J**	0.28	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Calcium	**7.8**	**J**	280	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Chromium	**0.50**	**J**	0.56	0.078	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Cobalt	**2.6**	**J**	2.8	0.050	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Iron	**330**		5.6	3.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lead	**0.13**	**J**	0.56	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Lithium	ND		2.8	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Manganese	**450**	**B**	0.84	0.030	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Molybdenum	**0.31**	**J**	2.2	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**600**		11	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Arsenic	ND		0.56	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Beryllium	**0.16**	**J**	0.28	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Calcium	**28000**		280	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Chromium	**2.4**		0.56	0.078	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.9	J	2.8	0.059	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Iron	6700		5.6	3.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lead	5.1		0.56	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Lithium	1.7	J	2.8	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Manganese	220		0.84	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Molybdenum	0.60	J	2.2	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1
Selenium	0.52	J	0.56	0.52	mg/Kg	☼	10/05/21 08:00	10/25/21 12:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	200	B	170	26	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Arsenic	ND		8.4	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Beryllium	ND		4.2	0.35	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Calcium	13000		4200	12	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Chromium	2.5	J	8.4	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Cobalt	ND		42	0.67	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Iron	ND		84	49	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lead	ND		8.4	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Lithium	8.4	J B *+	42	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Manganese	11	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Molybdenum	ND		33	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5
Selenium	ND		8.4	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:42	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5400		11	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Arsenic	4.5		0.56	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Beryllium	0.24	J	0.28	0.013	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Calcium	5300		280	2.3	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Chromium	8.7		0.56	0.078	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Cobalt	4.0		2.8	0.051	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Iron	13000		5.6	3.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lead	3.8		0.56	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Lithium	8.5		2.8	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Manganese	130		0.84	0.28	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Molybdenum	0.57	J	2.2	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1
Selenium	ND		0.56	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	34000		110	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:31	10
Arsenic	1.4		1.1	0.29	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Beryllium	0.58		0.28	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Calcium	1700		280	2.9	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Chromium	21		0.56	0.078	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Cobalt	0.36	J	5.6	0.058	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Iron	4800		5.6	4.6	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Lead	3.1		1.1	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2
Lithium	16		2.8	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Manganese	46		0.84	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (12.0-18.0)
Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7
Matrix: Solid
Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.13	J	2.2	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:40	1
Selenium	ND		1.1	0.38	mg/Kg	☼	10/08/21 08:00	10/26/21 15:00	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	40000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	6.4		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	1.0		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	80000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	35		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	8.8		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	25000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	13		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	35		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	1000		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	1.6	J	2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	0.52		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	48000		110	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Arsenic	8.3		0.56	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Beryllium	0.98		0.28	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Calcium	67000		2800	29	mg/Kg	☼	09/29/21 08:00	10/27/21 12:17	10
Chromium	36		0.56	0.078	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Cobalt	10		5.6	0.058	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Iron	23000		5.6	4.6	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Lead	13		1.1	0.25	mg/Kg	☼	09/29/21 08:00	10/27/21 16:23	2
Lithium	28		2.8	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Manganese	770		0.84	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Molybdenum	1.7	J	2.2	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1
Selenium	ND	L	0.56	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:06	1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		46	7.4	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Arsenic	ND		2.3	0.60	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Beryllium	ND		1.2	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Calcium	**800**	**J B**	1200	8.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Chromium	ND		2.3	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Cobalt	ND		12	0.21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Iron	ND		23	13	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lead	ND		2.3	0.51	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Lithium	ND		12	0.69	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Manganese	**9.1**		3.5	0.14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Molybdenum	ND		9.2	0.38	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4
Selenium	ND		2.3	0.79	mg/Kg	☼	09/30/21 08:00	10/22/21 12:35	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13**	**J**	35	5.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Arsenic	ND		1.7	0.45	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Beryllium	ND		0.87	0.055	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Calcium	**19000**		870	7.6	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Chromium	ND		1.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Cobalt	ND		8.7	0.22	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Iron	**40**		17	10	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lead	**0.97**	**J**	1.7	0.38	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Lithium	ND		8.7	0.52	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Manganese	**120**		2.6	0.97	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Molybdenum	ND		6.9	0.28	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3
Selenium	ND		1.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:33	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**52**		12	2.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Arsenic	ND		0.58	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Beryllium	**0.026**	**J**	0.29	0.017	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Calcium	**8.5**	**J**	290	1.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Chromium	**0.22**	**J**	0.58	0.081	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Cobalt	**0.069**	**J**	2.9	0.052	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Iron	**180**		5.8	3.4	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lead	ND		0.58	0.13	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Lithium	ND		2.9	0.17	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Manganese	**23**	**B**	0.87	0.031	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Molybdenum	ND		2.3	0.095	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**470**		12	1.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Arsenic	ND		0.58	0.25	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Beryllium	**0.10**	**J**	0.29	0.018	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Calcium	**15000**		290	2.5	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Chromium	**1.8**		0.58	0.081	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	J	2.9	0.061	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Iron	5600		5.8	3.4	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Lithium	1.1	J	2.9	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Manganese	100		0.87	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Molybdenum	1.6	J	2.3	0.095	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1
Selenium	ND		0.58	0.54	mg/Kg	☼	10/05/21 08:00	10/25/21 12:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	160	J B	170	27	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Arsenic	ND		8.7	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Beryllium	ND		4.3	0.36	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Calcium	8800		4300	13	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Chromium	1.9	J	8.7	1.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Cobalt	ND		43	0.69	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Iron	ND		87	51	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lead	ND		8.7	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Lithium	8.0	J B *+	43	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Manganese	3.4	J	13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Molybdenum	ND		35	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5
Selenium	ND		8.7	3.0	mg/Kg	☼	10/07/21 08:00	10/25/21 14:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	2700		12	1.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Arsenic	4.0		0.58	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Beryllium	0.12	J	0.29	0.014	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Calcium	5300		290	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Chromium	5.2		0.58	0.081	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Cobalt	2.6	J	2.9	0.053	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Iron	12000		5.8	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lead	3.1		0.58	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Lithium	4.5		2.9	0.17	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Manganese	94		0.87	0.29	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Molybdenum	3.5		2.3	0.11	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1
Selenium	ND		0.58	0.20	mg/Kg	☼	10/07/21 08:00	10/25/21 16:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	31000		120	18	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Arsenic	1.2		1.2	0.30	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Beryllium	0.54		0.29	0.018	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Calcium	5700		2900	30	mg/Kg	☼	10/08/21 08:00	10/26/21 12:36	10
Chromium	17		0.58	0.081	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Cobalt	0.96	J	2.9	0.030	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Iron	5800		5.8	4.7	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Lead	4.9		1.2	0.25	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2
Lithium	7.5		2.9	0.17	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Manganese	91		0.87	0.13	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.28	J	2.3	0.095	mg/Kg	☼	10/08/21 08:00	10/26/21 13:45	1
Selenium	ND		1.2	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:05	2

Method: 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			11/02/21 15:59	1
Arsenic	5.2		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	0.79		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	54000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	27		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	24000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	12		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	21		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	440		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	5.4		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	ND		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		120	18	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Arsenic	4.1		0.58	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Beryllium	0.55		0.29	0.018	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Calcium	61000		2900	30	mg/Kg	☼	09/29/21 08:00	10/27/21 12:21	10
Chromium	15		0.58	0.081	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Cobalt	3.3		2.9	0.030	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Iron	15000		5.8	4.7	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lead	8.5		0.58	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Lithium	10		2.9	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Manganese	330		0.87	0.13	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Molybdenum	2.6		2.3	0.095	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1
Selenium	ND		0.58	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:12	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9

Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		71	11	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Arsenic	ND		3.6	0.93	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Beryllium	ND		1.8	0.55	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Calcium	**3700**	**B**	1800	14	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Chromium	**0.52**	**J**	3.6	0.50	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Cobalt	ND		18	0.32	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Iron	ND		36	21	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lead	ND		3.6	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Lithium	ND		18	1.1	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Manganese	ND		5.3	0.22	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Molybdenum	**1.8**	**J**	14	0.58	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4
Selenium	ND		3.6	1.2	mg/Kg	☼	09/30/21 08:00	10/22/21 12:40	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**9000**		53	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Arsenic	**3.5**		2.7	0.69	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Beryllium	**0.30**	**J**	1.3	0.085	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Calcium	**32000**		1300	12	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Chromium	**6.9**		2.7	0.37	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Cobalt	**0.49**	**J**	13	0.34	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Iron	**2000**		27	15	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lead	**1.2**	**J**	2.7	0.59	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Lithium	**1.4**	**J**	13	0.80	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Manganese	**12**		4.0	1.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Molybdenum	**0.75**	**J**	11	0.44	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3
Selenium	**0.99**	**J**	2.7	0.91	mg/Kg	☼	10/01/21 08:00	10/22/21 14:38	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**6200**		18	3.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Arsenic	**0.87**	**J**	0.89	0.23	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Beryllium	**0.027**	**J**	0.44	0.027	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Calcium	**42**	**J**	440	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Chromium	**8.4**		0.89	0.12	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Cobalt	**0.91**	**J**	4.4	0.080	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Iron	**2400**		8.9	5.2	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lead	ND		0.89	0.20	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Lithium	**0.61**	**J**	4.4	0.27	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Manganese	**2.7**	**B**	1.3	0.048	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Molybdenum	**1.2**	**J**	3.6	0.15	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1
Selenium	**0.98**		0.89	0.30	mg/Kg	☼	10/04/21 08:00	10/22/21 16:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**21000**		18	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Arsenic	**1.5**		0.89	0.39	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Beryllium	**1.7**		0.44	0.028	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Calcium	**42000**		440	3.9	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Chromium	**26**		0.89	0.12	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	8.0		4.4	0.094	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Iron	12000		8.9	5.2	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lead	13		0.89	0.20	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Lithium	9.9		4.4	0.27	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Manganese	91		1.3	0.23	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Molybdenum	3.7		3.6	0.15	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1
Selenium	ND		0.89	0.84	mg/Kg	☼	10/05/21 08:00	10/25/21 12:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	330	B	270	42	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Arsenic	ND		13	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Beryllium	ND		6.7	0.56	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Calcium	26000		6700	20	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Chromium	11	J	13	1.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Cobalt	ND		67	1.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Iron	ND		130	78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lead	ND		13	2.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Lithium	14	J B *+	67	3.9	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Manganese	9.2	J	20	3.3	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Molybdenum	ND		53	2.2	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5
Selenium	6.4	J	13	4.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	27000		18	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Arsenic	10		0.89	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Beryllium	0.52		0.44	0.021	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Calcium	17000		440	3.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Chromium	8.4		0.89	0.12	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Cobalt	8.0	J	22	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Iron	12000		8.9	5.2	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Lead	24		4.4	0.98	mg/Kg	☼	10/07/21 08:00	10/25/21 18:01	5
Lithium	16		4.4	0.27	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Manganese	60		1.3	0.44	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Molybdenum	0.65	J	3.6	0.18	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1
Selenium	ND		0.89	0.30	mg/Kg	☼	10/07/21 08:00	10/25/21 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	29000		180	28	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Arsenic	1.8		1.8	0.46	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Beryllium	0.25	J	0.44	0.028	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Calcium	10000		4400	46	mg/Kg	☼	10/08/21 08:00	10/26/21 12:40	10
Chromium	11		0.89	0.12	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Cobalt	3.3	J	8.9	0.093	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Iron	6000		8.9	7.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Lead	12		1.8	0.39	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2
Lithium	19		4.4	0.27	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Manganese	39		1.3	0.20	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Date Collected: 08/21/21 09:20
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-9

Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.16	J	3.6	0.15	mg/Kg	☼	10/08/21 08:00	10/26/21 13:50	1
Selenium	ND		1.8	0.61	mg/Kg	☼	10/08/21 08:00	10/26/21 15:09	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	93000		10	1.6	mg/Kg			11/02/21 15:59	1
Arsenic	18		0.50	0.13	mg/Kg			11/02/21 15:59	1
Beryllium	2.8		0.25	0.0075	mg/Kg			11/02/21 15:59	1
Calcium	130000		250	0.74	mg/Kg			11/02/21 15:59	1
Chromium	72		0.50	0.070	mg/Kg			11/02/21 15:59	1
Cobalt	21		2.5	0.023	mg/Kg			11/02/21 15:59	1
Iron	35000		5.0	4.1	mg/Kg			11/02/21 15:59	1
Lead	51		0.50	0.11	mg/Kg			11/02/21 15:59	1
Lithium	61		2.5	0.15	mg/Kg			11/02/21 15:59	1
Manganese	210		0.75	0.052	mg/Kg			11/02/21 15:59	1
Molybdenum	8.2		2.0	0.082	mg/Kg			11/02/21 15:59	1
Selenium	8.3		0.50	0.17	mg/Kg			11/02/21 15:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	73000		180	28	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Arsenic	16		0.89	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Beryllium	1.9		0.44	0.028	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Calcium	130000		4400	46	mg/Kg	☼	09/29/21 08:00	10/27/21 12:26	10
Chromium	54		0.89	0.12	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Cobalt	20	J	22	0.23	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Iron	27000		8.9	7.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Lead	43		4.4	0.98	mg/Kg	☼	09/29/21 08:00	10/27/21 16:28	5
Lithium	34		4.4	0.27	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Manganese	160		1.3	0.20	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Molybdenum	6.7		3.6	0.15	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1
Selenium	4.9		0.89	0.30	mg/Kg	☼	09/29/21 08:00	10/27/21 14:17	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)

Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10

Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		52	8.3	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Arsenic	ND		2.6	0.67	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Beryllium	ND		1.3	0.40	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Calcium	**520**	**J B**	1300	9.8	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Chromium	ND		2.6	0.36	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Cobalt	ND		13	0.23	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Iron	ND		26	15	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lead	ND		2.6	0.57	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Lithium	ND		13	0.78	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Manganese	**3.5**	**J**	3.9	0.16	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Molybdenum	**0.86**	**J**	10	0.42	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4
Selenium	ND		2.6	0.88	mg/Kg	☼	09/30/21 08:00	10/22/21 12:45	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**210**		39	6.2	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Arsenic	ND		1.9	0.51	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Beryllium	**0.11**	**J**	0.97	0.062	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Calcium	**1700**		970	8.5	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Chromium	**0.52**	**J**	1.9	0.27	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Cobalt	**0.94**	**J**	9.7	0.24	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Iron	**1600**		19	11	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lead	**2.5**		1.9	0.43	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Lithium	ND		9.7	0.58	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Manganese	**190**		2.9	1.1	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Molybdenum	ND		7.8	0.32	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3
Selenium	ND		1.9	0.66	mg/Kg	☼	10/01/21 08:00	10/22/21 14:43	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**810**		13	2.7	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Arsenic	**3.9**		0.65	0.17	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Beryllium	**0.24**	**J**	0.32	0.019	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Calcium	**7.7**	**J**	320	1.9	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Chromium	**1.5**		0.65	0.091	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Cobalt	**0.94**	**J**	3.2	0.058	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Iron	**2500**		6.5	3.8	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1
Lead	**1.3**		0.65	0.14	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Lithium	ND		3.2	0.19	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Manganese	**120**	**B**	0.97	0.035	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Molybdenum	**0.43**	**J**	2.6	0.11	mg/Kg	☼	10/04/21 08:00	10/22/21 16:41	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/04/21 08:00	10/25/21 11:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2500**		13	2.1	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Arsenic	**3.2**		0.65	0.28	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Beryllium	**0.21**	**J**	0.32	0.021	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Calcium	**800**		320	2.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Chromium	**4.2**		0.65	0.091	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10
Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.2	J	3.2	0.069	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Iron	5400		6.5	3.8	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lead	6.9		0.65	0.14	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Lithium	2.0	J	3.2	0.19	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Manganese	140		0.97	0.17	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Molybdenum	0.84	J	2.6	0.11	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1
Selenium	0.66		0.65	0.61	mg/Kg	☼	10/05/21 08:00	10/25/21 12:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	64	J B	190	30	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Arsenic	ND		9.7	2.5	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Beryllium	ND		4.9	0.41	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Calcium	110	J	4900	14	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Chromium	3.4	J	9.7	1.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Cobalt	ND		49	0.78	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Iron	ND		97	57	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lead	ND		9.7	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Lithium	8.8	J B *+	49	2.8	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Manganese	13	J	15	2.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Molybdenum	ND		39	1.6	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5
Selenium	ND		9.7	3.4	mg/Kg	☼	10/07/21 08:00	10/25/21 14:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5200		13	2.1	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Arsenic	2.2		0.65	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Beryllium	0.095	J	0.32	0.016	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Calcium	110	J	320	2.7	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Chromium	4.8		0.65	0.091	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Cobalt	0.83	J	3.2	0.060	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Iron	4400		6.5	3.8	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lead	2.2		0.65	0.14	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Lithium	3.6		3.2	0.19	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Manganese	23		0.97	0.32	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Molybdenum	0.16	J	2.6	0.13	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1
Selenium	ND		0.65	0.22	mg/Kg	☼	10/07/21 08:00	10/25/21 16:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	28000		130	21	mg/Kg	☼	10/08/21 08:00	10/26/21 12:45	10
Arsenic	2.0		1.3	0.34	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Beryllium	0.19	J	0.32	0.021	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Calcium	1700		320	3.4	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Chromium	14		0.65	0.091	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Cobalt	ND		6.5	0.067	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Iron	3500		6.5	5.3	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Lead	5.0		1.3	0.28	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2
Lithium	9.2		3.2	0.19	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Manganese	51		0.97	0.14	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Date Collected: 08/21/21 10:10
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-10
Matrix: Solid
Percent Solids: 77.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.15	J	2.6	0.11	mg/Kg	☼	10/08/21 08:00	10/26/21 13:55	1
Selenium	ND		1.3	0.44	mg/Kg	☼	10/08/21 08:00	10/26/21 15:19	2

Method: 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			11/02/21 16:02	1
Arsenic	11		0.50	0.13	mg/Kg			11/02/21 16:02	1
Beryllium	0.85		0.25	0.0075	mg/Kg			11/02/21 16:02	1
Calcium	4900		250	0.74	mg/Kg			11/02/21 16:02	1
Chromium	29		0.50	0.070	mg/Kg			11/02/21 16:02	1
Cobalt	4.9		2.5	0.023	mg/Kg			11/02/21 16:02	1
Iron	17000		5.0	4.1	mg/Kg			11/02/21 16:02	1
Lead	18		0.50	0.11	mg/Kg			11/02/21 16:02	1
Lithium	23		2.5	0.15	mg/Kg			11/02/21 16:02	1
Manganese	540		0.75	0.052	mg/Kg			11/02/21 16:02	1
Molybdenum	2.4		2.0	0.082	mg/Kg			11/02/21 16:02	1
Selenium	0.66		0.50	0.17	mg/Kg			11/02/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	36000		130	21	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Arsenic	9.4		0.65	0.17	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Beryllium	0.74		0.32	0.021	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Calcium	5100		3200	34	mg/Kg	☼	09/29/21 08:00	10/27/21 12:31	10
Chromium	23		0.65	0.091	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Cobalt	4.6	J	6.5	0.067	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Iron	15000		6.5	5.3	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Lead	15		1.3	0.28	mg/Kg	☼	09/29/21 08:00	10/27/21 16:33	2
Lithium	13		3.2	0.19	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Manganese	350		0.97	0.14	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Molybdenum	2.3	J	2.6	0.11	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1
Selenium	0.58	J	0.65	0.22	mg/Kg	☼	09/29/21 08:00	10/27/21 14:23	1

Default Detection Limits

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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
Beryllium	0.25	0.077	mg/Kg
Calcium	250	1.9	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	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
Beryllium	0.25	0.015	mg/Kg
Calcium	250	1.5	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: 3010A

SEP: Metal Hydroxide

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
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.2	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.47	mg/Kg

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
Beryllium	0.75	0.063	mg/Kg
Calcium	750	2.2	mg/Kg
Chromium	1.5	0.21	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
Selenium	1.5	0.52	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
Beryllium	0.25	0.012	mg/Kg
Calcium	250	2.1	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Residual

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

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

Prep: Residual

Analyte	RL	MDL	Units
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	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
Beryllium	0.25	0.0075	mg/Kg
Calcium	250	0.74	mg/Kg
Chromium	0.50	0.070	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
Selenium	0.50	0.17	mg/Kg

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

Prep: Total

Analyte	RL	MDL	Units
Aluminum	10	1.6	mg/Kg
Arsenic	0.50	0.13	mg/Kg
Beryllium	0.25	0.016	mg/Kg
Calcium	250	2.6	mg/Kg
Chromium	0.50	0.070	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	0.11	mg/Kg
Molybdenum	2.0	0.082	mg/Kg
Selenium	0.50	0.17	mg/Kg

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

Lab Sample ID: MB 140-54251/17-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 54251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Arsenic	ND		0.50	0.13	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Beryllium	ND		0.25	0.016	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Calcium	ND		250	2.6	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Chromium	ND		0.50	0.070	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Cobalt	ND		2.5	0.026	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Iron	ND		5.0	4.1	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lead	ND		0.50	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Lithium	ND		2.5	0.15	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Manganese	ND		0.75	0.11	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Molybdenum	ND		2.0	0.082	mg/Kg		09/29/21 08:00	10/27/21 10:49	1
Selenium	ND		0.50	0.17	mg/Kg		09/29/21 08:00	10/27/21 10:49	1

Lab Sample ID: LCS 140-54251/18-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	99.3		mg/Kg		99	80 - 120
Arsenic	5.00	5.06		mg/Kg		101	80 - 120
Beryllium	2.50	2.57		mg/Kg		103	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.6		mg/Kg		106	80 - 120
Cobalt	5.00	5.19		mg/Kg		104	80 - 125
Iron	50.0	52.2		mg/Kg		104	80 - 120
Lead	5.00	5.20		mg/Kg		104	80 - 120
Lithium	5.00	4.90		mg/Kg		98	80 - 120
Manganese	5.00	5.26		mg/Kg		105	80 - 120
Molybdenum	25.0	26.0		mg/Kg		104	80 - 125
Selenium	7.50	7.30		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 140-54251/19-A
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	98.5		mg/Kg		98	80 - 120	1	30
Arsenic	5.00	4.94		mg/Kg		99	80 - 120	2	30
Beryllium	2.50	2.50		mg/Kg		100	80 - 120	3	30
Calcium	2500	2510		mg/Kg		100	80 - 120	2	30
Chromium	10.0	10.3		mg/Kg		103	80 - 120	3	30
Cobalt	5.00	5.05		mg/Kg		101	80 - 125	3	30
Iron	50.0	51.4		mg/Kg		103	80 - 120	2	30
Lead	5.00	5.14		mg/Kg		103	80 - 120	1	30
Lithium	5.00	4.86		mg/Kg		97	80 - 120	1	30
Manganese	5.00	5.13		mg/Kg		103	80 - 120	2	30
Molybdenum	25.0	25.4		mg/Kg		102	80 - 125	3	30
Selenium	7.50	7.21		mg/Kg		96	80 - 120	1	30

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

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	26000		28800		mg/Kg	☼	8	30
Calcium	51000		45400		mg/Kg	☼	12	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55243

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Total/NA
Prep Batch: 54251

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	5.3		5.81		mg/Kg	☼	8	30
Beryllium	0.55		0.571		mg/Kg	☼	4	30
Chromium	17		19.8		mg/Kg	☼	18	30
Cobalt	3.2		3.84		mg/Kg	☼	18	30
Iron	10000		11200		mg/Kg	☼	9	30
Lead	8.4		9.71		mg/Kg	☼	15	30
Lithium	12		13.0		mg/Kg	☼	9	30
Manganese	280		276		mg/Kg	☼	3	30
Molybdenum	0.78	J	1.31	J F5	mg/Kg	☼	51	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Method: 6010B SEP - SEP Metals (ICP)

Lab Sample ID: MB 140-54252/17-B ^4
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 1
Prep Batch: 54333

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		40	6.4	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Arsenic	ND		2.0	0.52	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Beryllium	ND		1.0	0.31	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Calcium	20.3	J	1000	7.6	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Chromium	ND		2.0	0.28	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Cobalt	ND		10	0.18	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Iron	ND		20	12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lead	0.558	J	2.0	0.44	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Lithium	ND		10	0.60	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Manganese	ND		3.0	0.12	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Molybdenum	ND		8.0	0.33	mg/Kg		09/30/21 08:00	10/22/21 11:17	4
Selenium	ND		2.0	0.68	mg/Kg		09/30/21 08:00	10/22/21 11:17	4

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

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
Beryllium	2.50	2.68		mg/Kg		107	80 - 120
Calcium	2500	2560		mg/Kg		102	80 - 120
Chromium	10.0	10.2		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54252/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 1
Prep Batch: 54333

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	5.00	4.98	J	mg/Kg		100	80 - 120
Iron	50.0	52.2		mg/Kg		104	80 - 120
Lead	5.00	4.96		mg/Kg		99	80 - 120
Lithium	5.00	5.04	J	mg/Kg		101	80 - 120
Manganese	5.00	5.28		mg/Kg		106	80 - 120
Molybdenum	25.0	25.2		mg/Kg		101	80 - 120
Selenium	7.50	7.34		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 140-54252/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 1
Prep Batch: 54333

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	96.7		mg/Kg		97	80 - 120	7	30
Arsenic	5.00	4.84		mg/Kg		97	80 - 120	4	30
Beryllium	2.50	2.52		mg/Kg		101	80 - 120	6	30
Calcium	2500	2430		mg/Kg		97	80 - 120	5	30
Chromium	10.0	9.69		mg/Kg		97	80 - 120	5	30
Cobalt	5.00	4.92	J	mg/Kg		98	80 - 120	1	30
Iron	50.0	48.9		mg/Kg		98	80 - 120	6	30
Lead	5.00	5.13		mg/Kg		103	80 - 120	3	30
Lithium	5.00	4.54	J	mg/Kg		91	80 - 120	10	30
Manganese	5.00	4.96		mg/Kg		99	80 - 120	6	30
Molybdenum	25.0	25.0		mg/Kg		100	80 - 120	1	30
Selenium	7.50	7.48		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 1
Prep Batch: 54333

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND		ND		mg/Kg	☼	NC	30
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	880	J B	843	J	mg/Kg	☼	5	30
Chromium	ND		ND		mg/Kg	☼	NC	30
Cobalt	ND		ND		mg/Kg	☼	NC	30
Iron	ND		ND		mg/Kg	☼	NC	30
Lead	ND		ND		mg/Kg	☼	NC	30
Lithium	ND		ND		mg/Kg	☼	NC	30
Manganese	2.8	J	3.09	J	mg/Kg	☼	8	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54334/17-B ^3
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 2
Prep Batch: 54370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		30	4.8	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Arsenic	ND		1.5	0.39	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Beryllium	ND		0.75	0.048	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Calcium	ND		750	6.6	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Chromium	ND		1.5	0.21	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Cobalt	ND		7.5	0.19	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Iron	ND		15	8.7	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lead	ND		1.5	0.33	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Lithium	ND		7.5	0.45	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Manganese	ND		2.3	0.84	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Molybdenum	ND		6.0	0.25	mg/Kg		10/01/21 08:00	10/22/21 13:24	3
Selenium	ND		1.5	0.51	mg/Kg		10/01/21 08:00	10/22/21 13:24	3

Lab Sample ID: LCS 140-54334/18-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	ND		mg/Kg		3	
Arsenic	5.00	3.62		mg/Kg		72	60 - 120
Beryllium	2.50	1.31		mg/Kg		52	40 - 70
Calcium	2500	641	J	mg/Kg		26	10 - 40
Chromium	10.0	7.44		mg/Kg		74	60 - 120
Cobalt	5.00	4.63	J	mg/Kg		93	80 - 120
Iron	50.0	ND		mg/Kg		4	
Lead	5.00	4.76		mg/Kg		95	70 - 120
Lithium	5.00	4.40	J	mg/Kg		88	80 - 120
Manganese	5.00	4.89		mg/Kg		98	80 - 120
Molybdenum	25.0	20.4		mg/Kg		82	70 - 120
Selenium	7.50	5.79		mg/Kg		77	70 - 120

Lab Sample ID: LCSD 140-54334/19-B ^5
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 2
Prep Batch: 54370

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	100	ND		mg/Kg		1		109	
Arsenic	5.00	3.80		mg/Kg		76	60 - 120	5	30
Beryllium	2.50	1.35		mg/Kg		54	40 - 70	3	30
Calcium	2500	648	J	mg/Kg		26	10 - 40	1	30
Chromium	10.0	7.61		mg/Kg		76	60 - 120	2	30
Cobalt	5.00	4.60	J	mg/Kg		92	80 - 120	1	30
Iron	50.0	ND		mg/Kg		2		52	
Lead	5.00	4.60		mg/Kg		92	70 - 120	3	30
Lithium	5.00	4.50	J	mg/Kg		90	80 - 120	2	30
Manganese	5.00	4.90		mg/Kg		98	80 - 120	0	30
Molybdenum	25.0	20.3		mg/Kg		81	70 - 120	0	30
Selenium	7.50	6.07		mg/Kg		81	70 - 120	5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 2
Prep Batch: 54370

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	16	J	15.7	J	mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	16000		15200		mg/Kg	☼	6	30
Chromium	ND		ND		mg/Kg	☼	NC	30
Cobalt	0.57	J	0.447	J	mg/Kg	☼	24	30
Iron	36		35.3		mg/Kg	☼	0.5	
Lead	0.77	J	1.01	J	mg/Kg	☼	26	30
Lithium	ND		ND		mg/Kg	☼	NC	30
Manganese	84		75.4		mg/Kg	☼	11	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54371/17-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Method Blank
Prep Type: Step 3
Prep Batch: 54400

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	2.1	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Beryllium	ND		0.25	0.015	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Calcium	ND		250	1.5	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Cobalt	ND		2.5	0.045	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Iron	ND		5.0	2.9	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lead	ND		0.50	0.11	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Manganese	0.0835	J	0.75	0.027	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/04/21 08:00	10/22/21 15:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/04/21 08:00	10/22/21 15:23	1

Lab Sample ID: LCS 140-54371/18-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample
Prep Type: Step 3
Prep Batch: 54400

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	93.2		mg/Kg		93	80 - 120
Arsenic	5.00	4.81		mg/Kg		96	80 - 120
Beryllium	2.50	2.62		mg/Kg		105	80 - 120
Calcium	2500	38.3	J	mg/Kg		2	
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.01		mg/Kg		100	80 - 120
Iron	50.0	48.5		mg/Kg		97	80 - 120
Lead	5.00	0.139	J	mg/Kg		3	
Lithium	5.00	4.75		mg/Kg		95	80 - 120
Manganese	5.00	5.18		mg/Kg		104	80 - 120
Molybdenum	25.0	24.5		mg/Kg		98	80 - 120
Selenium	7.50	7.34		mg/Kg		98	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54371/19-B
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 3
Prep Batch: 54400

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	95.6		mg/Kg		96	80 - 120	3	30
Arsenic			5.00	4.76		mg/Kg		95	80 - 120	1	30
Beryllium			2.50	2.60		mg/Kg		104	80 - 120	1	30
Calcium			2500	39.4	J	mg/Kg		2		3	
Chromium			10.0	10.0		mg/Kg		100	80 - 120	1	30
Cobalt			5.00	4.97		mg/Kg		99	80 - 120	1	30
Iron			50.0	50.8		mg/Kg		102	80 - 120	5	30
Lead			5.00	0.122	J	mg/Kg		2		13	
Lithium			5.00	4.95		mg/Kg		99	80 - 120	4	30
Manganese			5.00	5.15		mg/Kg		103	80 - 120	1	30
Molybdenum			25.0	24.2		mg/Kg		97	80 - 120	1	30
Selenium			7.50	7.31		mg/Kg		97	80 - 120	0	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55087

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 3
Prep Batch: 54400

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	52			55.7		mg/Kg	☼			8	30
Arsenic	0.26	J		0.285	J	mg/Kg	☼			10	30
Beryllium	ND			ND		mg/Kg	☼			NC	30
Calcium	9.2	J		9.35	J	mg/Kg	☼			1	
Chromium	0.31	J		0.452	J F5	mg/Kg	☼			38	30
Cobalt	0.62	J		0.294	J F5	mg/Kg	☼			72	30
Iron	240			258		mg/Kg	☼			6	30
Lead	ND			ND		mg/Kg	☼			NC	
Lithium	ND			ND		mg/Kg	☼			NC	30
Manganese	51	B		31.3	F3	mg/Kg	☼			48	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54401/17-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 4
Prep Batch: 54485

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Arsenic	ND		0.50	0.22	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Beryllium	ND		0.25	0.016	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Calcium	ND		250	2.2	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Chromium	ND		0.50	0.070	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Cobalt	ND		2.5	0.053	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Iron	ND		5.0	2.9	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lead	ND		0.50	0.11	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Lithium	ND		2.5	0.15	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Manganese	ND		0.75	0.13	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/05/21 08:00	10/25/21 11:34	1
Selenium	ND		0.50	0.47	mg/Kg		10/05/21 08:00	10/25/21 11:34	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54401/18-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 4
Prep Batch: 54485

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	99.5		mg/Kg		100	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 130		
Beryllium			2.50	2.68		mg/Kg		107	80 - 120		
Calcium			2500	2520		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.10		mg/Kg		102	80 - 120		
Iron			50.0	51.2		mg/Kg		102	80 - 120		
Lead			5.00	5.11		mg/Kg		102	80 - 120		
Lithium			5.00	5.03		mg/Kg		101	80 - 120		
Manganese			5.00	5.14		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.9		mg/Kg		104	80 - 120		
Selenium			7.50	0.568		mg/Kg		8			

Lab Sample ID: LCSD 140-54401/19-B
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 4
Prep Batch: 54485

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	4.96		mg/Kg		99	80 - 130	1	30
Beryllium			2.50	2.67		mg/Kg		107	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.2		mg/Kg		102	80 - 120	0	30
Cobalt			5.00	5.07		mg/Kg		101	80 - 120	1	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	0	30
Lead			5.00	5.10		mg/Kg		102	80 - 120	0	30
Lithium			5.00	5.02		mg/Kg		100	80 - 120	0	30
Manganese			5.00	5.13		mg/Kg		103	80 - 120	0	30
Molybdenum			25.0	25.7		mg/Kg		103	80 - 120	1	30
Selenium			7.50	ND		mg/Kg		5		45	

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 4
Prep Batch: 54485

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	370			492		mg/Kg	☼			29	30
Arsenic	1.2			1.80	F3	mg/Kg	☼			41	30
Beryllium	0.077	J		0.0858	J	mg/Kg	☼			11	30
Calcium	16000			10800	F3	mg/Kg	☼			36	30
Chromium	1.6			1.84		mg/Kg	☼			13	30
Cobalt	1.2	J		1.32	J	mg/Kg	☼			10	30
Iron	3900			4250		mg/Kg	☼			9	30
Lead	2.7			2.62		mg/Kg	☼			4	30
Lithium	0.99	J		1.08	J	mg/Kg	☼			9	30
Manganese	93			86.5		mg/Kg	☼			8	30
Molybdenum	0.45	J		0.463	J	mg/Kg	☼			3	30
Selenium	ND			ND		mg/Kg	☼			NC	

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: MB 140-54486/17-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 5
Prep Batch: 54566

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	32.1	J	150	24	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Arsenic	ND		7.5	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Beryllium	ND		3.8	0.32	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Calcium	ND		3800	11	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Chromium	ND		7.5	1.1	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Cobalt	ND		38	0.60	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Iron	ND		75	44	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lead	ND		7.5	1.7	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Lithium	8.44	J	38	2.2	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Manganese	ND		11	1.9	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Molybdenum	ND		30	1.3	mg/Kg		10/07/21 08:00	10/25/21 13:37	5
Selenium	ND		7.5	2.6	mg/Kg		10/07/21 08:00	10/25/21 13:37	5

Lab Sample ID: LCS 140-54486/18-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	300	ND		mg/Kg		6	
Arsenic	15.0	9.89		mg/Kg		66	60 - 100
Beryllium	7.50	3.89		mg/Kg		52	40 - 70
Calcium	7500	2030	J	mg/Kg		27	20 - 50
Chromium	30.0	30.5		mg/Kg		102	80 - 130
Cobalt	15.0	0.863	J	mg/Kg		6	1 - 60
Iron	150	ND		mg/Kg		-2	
Lead	15.0	9.28		mg/Kg		62	40 - 80
Lithium	15.0	23.8	J *+	mg/Kg		159	80 - 150
Manganese	15.0	2.78	J	mg/Kg		19	1 - 60
Molybdenum	75.0	53.6		mg/Kg		72	60 - 100
Selenium	22.5	22.8		mg/Kg		101	80 - 140

Lab Sample ID: LCSD 140-54486/19-B ^5
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 5
Prep Batch: 54566

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	300	28.1	J	mg/Kg		9		47	
Arsenic	15.0	10.3		mg/Kg		68	60 - 100	4	30
Beryllium	7.50	3.83		mg/Kg		51	40 - 70	2	30
Calcium	7500	2000	J	mg/Kg		27	20 - 50	2	30
Chromium	30.0	30.3		mg/Kg		101	80 - 130	1	30
Cobalt	15.0	0.840	J	mg/Kg		6	1 - 60	3	30
Iron	150	ND		mg/Kg		-1		53	
Lead	15.0	9.87		mg/Kg		66	40 - 80	6	30
Lithium	15.0	23.9	J *+	mg/Kg		159	80 - 150	0	30
Manganese	15.0	2.73	J	mg/Kg		18	1 - 60	2	30
Molybdenum	75.0	53.4		mg/Kg		71	60 - 100	0	30
Selenium	22.5	22.4		mg/Kg		100	80 - 140	2	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 5
Prep Batch: 54566

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	210	B	205		mg/Kg	☼	3	
Arsenic	ND		ND		mg/Kg	☼	NC	30
Beryllium	ND		ND		mg/Kg	☼	NC	30
Calcium	11000		10900		mg/Kg	☼	3	30
Chromium	2.1	J	1.68	J	mg/Kg	☼	20	30
Cobalt	ND		ND		mg/Kg	☼	NC	30
Iron	ND		ND		mg/Kg	☼	NC	
Lead	ND		ND		mg/Kg	☼	NC	30
Lithium	14	J B *+	13.4	J *+	mg/Kg	☼	3	30
Manganese	5.2	J	2.76	J F5	mg/Kg	☼	62	30
Molybdenum	ND		ND		mg/Kg	☼	NC	30
Selenium	ND		ND		mg/Kg	☼	NC	30

Lab Sample ID: MB 140-54567/17-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Method Blank
Prep Type: Step 6
Prep Batch: 54567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Arsenic	ND		0.50	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Beryllium	ND		0.25	0.012	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Calcium	ND		250	2.1	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Chromium	ND		0.50	0.070	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Cobalt	ND		2.5	0.046	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Iron	ND		5.0	2.9	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lead	ND		0.50	0.11	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Lithium	ND		2.5	0.15	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Manganese	ND		0.75	0.25	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Molybdenum	ND		2.0	0.099	mg/Kg		10/07/21 08:00	10/25/21 15:37	1
Selenium	ND		0.50	0.17	mg/Kg		10/07/21 08:00	10/25/21 15:37	1

Lab Sample ID: LCS 140-54567/18-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample
Prep Type: Step 6
Prep Batch: 54567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	96.9		mg/Kg		97	80 - 120
Arsenic	5.00	5.01		mg/Kg		100	80 - 120
Beryllium	2.50	2.64		mg/Kg		106	80 - 120
Calcium	2500	2470		mg/Kg		99	80 - 120
Chromium	10.0	10.1		mg/Kg		101	80 - 120
Cobalt	5.00	5.00		mg/Kg		100	80 - 120
Iron	50.0	50.1		mg/Kg		100	80 - 120
Lead	5.00	5.10		mg/Kg		102	80 - 120
Lithium	5.00	4.95		mg/Kg		99	80 - 120
Manganese	5.00	5.09		mg/Kg		102	80 - 120
Molybdenum	25.0	25.1		mg/Kg		100	80 - 120
Selenium	7.50	7.68		mg/Kg		102	80 - 120

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCSD 140-54567/19-A
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 6
Prep Batch: 54567

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	101		mg/Kg		101	80 - 120	4	30
Arsenic			5.00	5.07		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.70		mg/Kg		108	80 - 120	2	30
Calcium			2500	2530		mg/Kg		101	80 - 120	2	30
Chromium			10.0	10.3		mg/Kg		103	80 - 120	2	30
Cobalt			5.00	5.10		mg/Kg		102	80 - 120	2	30
Iron			50.0	51.0		mg/Kg		102	80 - 120	2	30
Lead			5.00	5.24		mg/Kg		105	80 - 120	3	30
Lithium			5.00	5.04		mg/Kg		101	80 - 120	2	30
Manganese			5.00	5.20		mg/Kg		104	80 - 120	2	30
Molybdenum			25.0	25.8		mg/Kg		103	80 - 120	3	30
Selenium			7.50	7.82		mg/Kg		104	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55146

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 6
Prep Batch: 54567

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	2300			1960		mg/Kg	☼			14	30
Arsenic	2.2			1.82		mg/Kg	☼			19	30
Beryllium	0.095	J		0.0803	J	mg/Kg	☼			17	30
Calcium	4500			3620		mg/Kg	☼			21	30
Chromium	3.9			3.48		mg/Kg	☼			12	30
Cobalt	1.6	J		1.28	J	mg/Kg	☼			23	30
Iron	4500			3880		mg/Kg	☼			14	30
Lead	2.0			1.66		mg/Kg	☼			18	30
Lithium	3.9			3.31		mg/Kg	☼			17	30
Manganese	61			49.6		mg/Kg	☼			20	30
Molybdenum	0.24	J		0.198	J	mg/Kg	☼			21	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Lab Sample ID: MB 140-54607/17-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Method Blank
Prep Type: Step 7
Prep Batch: 54607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Arsenic	ND		0.50	0.13	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Beryllium	ND		0.25	0.016	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Calcium	ND		250	2.6	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Chromium	ND		0.50	0.070	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Cobalt	ND		2.5	0.026	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Iron	ND		5.0	4.1	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lead	ND		0.50	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Lithium	ND		2.5	0.15	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Manganese	ND		0.75	0.11	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Molybdenum	ND		2.0	0.082	mg/Kg		10/08/21 08:00	10/26/21 11:23	1
Selenium	ND		0.50	0.17	mg/Kg		10/08/21 08:00	10/26/21 11:23	1

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: LCS 140-54607/18-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum			100	98.4		mg/Kg		98	80 - 120		
Arsenic			5.00	4.99		mg/Kg		100	80 - 120		
Beryllium			2.50	2.52		mg/Kg		101	80 - 120		
Calcium			2500	2510		mg/Kg		101	80 - 120		
Chromium			10.0	10.3		mg/Kg		103	80 - 120		
Cobalt			5.00	5.09		mg/Kg		102	80 - 125		
Iron			50.0	51.8		mg/Kg		104	80 - 120		
Lead			5.00	5.06		mg/Kg		101	80 - 120		
Lithium			5.00	4.99		mg/Kg		100	80 - 120		
Manganese			5.00	5.15		mg/Kg		103	80 - 120		
Molybdenum			25.0	25.7		mg/Kg		103	80 - 125		
Selenium			7.50	7.37		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 140-54607/19-A
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: Lab Control Sample Dup
Prep Type: Step 7
Prep Batch: 54607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			100	98.0		mg/Kg		98	80 - 120	0	30
Arsenic			5.00	5.04		mg/Kg		101	80 - 120	1	30
Beryllium			2.50	2.54		mg/Kg		102	80 - 120	1	30
Calcium			2500	2520		mg/Kg		101	80 - 120	0	30
Chromium			10.0	10.4		mg/Kg		104	80 - 120	1	30
Cobalt			5.00	5.16		mg/Kg		103	80 - 125	1	30
Iron			50.0	52.0		mg/Kg		104	80 - 120	0	30
Lead			5.00	5.15		mg/Kg		103	80 - 120	2	30
Lithium			5.00	4.97		mg/Kg		99	80 - 120	0	30
Manganese			5.00	5.18		mg/Kg		104	80 - 120	1	30
Molybdenum			25.0	26.1		mg/Kg		104	80 - 125	2	30
Selenium			7.50	7.51		mg/Kg		100	80 - 120	2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Aluminum	25000			24700		mg/Kg	☼			0.4	30
Calcium	3100			3220		mg/Kg	☼			2	30

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.70			0.687		mg/Kg	☼			2	30
Beryllium	0.37			0.366		mg/Kg	☼			2	30
Chromium	9.3			8.59		mg/Kg	☼			8	30
Cobalt	0.15	J		0.112	J	mg/Kg	☼			26	30
Iron	2800			2670		mg/Kg	☼			5	30

Method: 6010B SEP - SEP Metals (ICP) (Continued)

Lab Sample ID: 140-24350-1 DU
Matrix: Solid
Analysis Batch: 55197

Client Sample ID: N-SB-05 (18.0-20.0)
Prep Type: Step 7
Prep Batch: 54607

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Lead	4.3			4.29		mg/Kg	☼			0.5	30
Lithium	6.9			5.78		mg/Kg	☼			17	30
Manganese	53			54.1		mg/Kg	☼			3	30
Molybdenum	ND			ND		mg/Kg	☼			NC	30
Selenium	ND			ND		mg/Kg	☼			NC	30

Metals

Prep Batch: 54251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Total	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Total	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Total	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Total	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Total	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Total	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Total	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Total	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Total	
MB 140-54251/17-A	Method Blank	Total/NA	Solid	Total	
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	Total	
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	Total	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Total	

SEP Batch: 54252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	Exchangeable	
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	Exchangeable	
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	Exchangeable	
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	Exchangeable	
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	Exchangeable	
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	Exchangeable	
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	Exchangeable	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	Exchangeable	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	Exchangeable	
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	Exchangeable	
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	Exchangeable	
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	Exchangeable	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	Exchangeable	

Prep Batch: 54333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	3010A	54252
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	3010A	54252
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	3010A	54252
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	3010A	54252
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	3010A	54252
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	3010A	54252
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	3010A	54252
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	3010A	54252
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	3010A	54252
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	3010A	54252
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	3010A	54252
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	3010A	54252
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	3010A	54252

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Metals

SEP Batch: 54334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	Carbonate	
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	Carbonate	
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	Carbonate	
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	Carbonate	
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	Carbonate	
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	Carbonate	
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	Carbonate	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	Carbonate	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	Carbonate	
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	Carbonate	
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	Carbonate	
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	Carbonate	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	Carbonate	

Prep Batch: 54370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	3010A	54334
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	3010A	54334
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	3010A	54334
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	3010A	54334
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	3010A	54334
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	3010A	54334
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	3010A	54334
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	3010A	54334
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	3010A	54334
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	3010A	54334
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	3010A	54334
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	3010A	54334
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	3010A	54334

SEP Batch: 54371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	Non-Crystalline	
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	Non-Crystalline	
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	Non-Crystalline	
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	Non-Crystalline	
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	Non-Crystalline	
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	Non-Crystalline	
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	Non-Crystalline	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	Non-Crystalline	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	Non-Crystalline	
MB 140-54371/17-B	Method Blank	Step 3	Solid	Non-Crystalline	
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	Non-Crystalline	
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	Non-Crystalline	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	Non-Crystalline	

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Metals

Prep Batch: 54400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	3010A	54371
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	3010A	54371
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	3010A	54371
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	3010A	54371
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	3010A	54371
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	3010A	54371
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	3010A	54371
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	3010A	54371
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	3010A	54371
MB 140-54371/17-B	Method Blank	Step 3	Solid	3010A	54371
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	3010A	54371
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	3010A	54371
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	3010A	54371

SEP Batch: 54401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	Metal Hydroxide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	Metal Hydroxide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	Metal Hydroxide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	Metal Hydroxide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	Metal Hydroxide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	Metal Hydroxide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	Metal Hydroxide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	Metal Hydroxide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	Metal Hydroxide	
MB 140-54401/17-B	Method Blank	Step 4	Solid	Metal Hydroxide	
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	Metal Hydroxide	
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	Metal Hydroxide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	Metal Hydroxide	

Prep Batch: 54485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	3010A	54401
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	3010A	54401
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	3010A	54401
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	3010A	54401
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	3010A	54401
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	3010A	54401
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	3010A	54401
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	3010A	54401
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	3010A	54401
MB 140-54401/17-B	Method Blank	Step 4	Solid	3010A	54401
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	3010A	54401
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	3010A	54401
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	3010A	54401

Metals

SEP Batch: 54486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	Organic-Bound	
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	Organic-Bound	
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	Organic-Bound	
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	Organic-Bound	
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	Organic-Bound	
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	Organic-Bound	
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	Organic-Bound	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	Organic-Bound	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	Organic-Bound	
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	Organic-Bound	
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	Organic-Bound	
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	Organic-Bound	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	Organic-Bound	

Prep Batch: 54566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	3010A	54486
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	3010A	54486
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	3010A	54486
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	3010A	54486
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	3010A	54486
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	3010A	54486
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	3010A	54486
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	3010A	54486
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	3010A	54486
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	3010A	54486
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	3010A	54486
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	3010A	54486
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	3010A	54486

SEP Batch: 54567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	Acid/Sulfide	
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	Acid/Sulfide	
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	Acid/Sulfide	
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	Acid/Sulfide	
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	Acid/Sulfide	
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	Acid/Sulfide	
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	Acid/Sulfide	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	Acid/Sulfide	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	Acid/Sulfide	
MB 140-54567/17-A	Method Blank	Step 6	Solid	Acid/Sulfide	
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	Acid/Sulfide	
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	Acid/Sulfide	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	Acid/Sulfide	

Metals

Prep Batch: 54607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	Residual	
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	Residual	
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	Residual	
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	Residual	
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	Residual	
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	Residual	
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	Residual	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	Residual	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	Residual	
MB 140-54607/17-A	Method Blank	Step 7	Solid	Residual	
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	Residual	
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	Residual	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	Residual	

Analysis Batch: 55087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-2	N-SB-05 (60.0-67.1)	Step 1	Solid	6010B SEP	54333
140-24350-2	N-SB-05 (60.0-67.1)	Step 2	Solid	6010B SEP	54370
140-24350-2	N-SB-05 (60.0-67.1)	Step 3	Solid	6010B SEP	54400
140-24350-3	N-SB-18 (77.5-80.0)	Step 1	Solid	6010B SEP	54333
140-24350-3	N-SB-18 (77.5-80.0)	Step 2	Solid	6010B SEP	54370
140-24350-3	N-SB-18 (77.5-80.0)	Step 3	Solid	6010B SEP	54400
140-24350-4	N-SB-02 (12.5-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-4	N-SB-02 (12.5-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-4	N-SB-02 (12.5-20.0)	Step 3	Solid	6010B SEP	54400
140-24350-5	N-SB-02 (65.0-71.5)	Step 1	Solid	6010B SEP	54333
140-24350-5	N-SB-02 (65.0-71.5)	Step 2	Solid	6010B SEP	54370
140-24350-5	N-SB-02 (65.0-71.5)	Step 3	Solid	6010B SEP	54400
140-24350-6	N-SB-14 (44.2-52.0)	Step 1	Solid	6010B SEP	54333
140-24350-6	N-SB-14 (44.2-52.0)	Step 2	Solid	6010B SEP	54370
140-24350-6	N-SB-14 (44.2-52.0)	Step 3	Solid	6010B SEP	54400
140-24350-7	N-SB-04 (12.0-18.0)	Step 1	Solid	6010B SEP	54333
140-24350-7	N-SB-04 (12.0-18.0)	Step 2	Solid	6010B SEP	54370
140-24350-7	N-SB-04 (12.0-18.0)	Step 3	Solid	6010B SEP	54400
140-24350-8	N-SB-04 (38.7-45.4)	Step 1	Solid	6010B SEP	54333
140-24350-8	N-SB-04 (38.7-45.4)	Step 2	Solid	6010B SEP	54370
140-24350-8	N-SB-04 (38.7-45.4)	Step 3	Solid	6010B SEP	54400
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 1	Solid	6010B SEP	54333
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 2	Solid	6010B SEP	54370
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 1	Solid	6010B SEP	54333
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 2	Solid	6010B SEP	54370
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
MB 140-54252/17-B ^4	Method Blank	Step 1	Solid	6010B SEP	54333
MB 140-54334/17-B ^3	Method Blank	Step 2	Solid	6010B SEP	54370
MB 140-54371/17-B	Method Blank	Step 3	Solid	6010B SEP	54400
LCS 140-54252/18-B ^5	Lab Control Sample	Step 1	Solid	6010B SEP	54333

Metals (Continued)

Analysis Batch: 55087 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 140-54334/18-B ^5	Lab Control Sample	Step 2	Solid	6010B SEP	54370
LCS 140-54371/18-B	Lab Control Sample	Step 3	Solid	6010B SEP	54400
LCSD 140-54252/19-B ^5	Lab Control Sample Dup	Step 1	Solid	6010B SEP	54333
LCSD 140-54334/19-B ^5	Lab Control Sample Dup	Step 2	Solid	6010B SEP	54370
LCSD 140-54371/19-B	Lab Control Sample Dup	Step 3	Solid	6010B SEP	54400
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 1	Solid	6010B SEP	54333
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 2	Solid	6010B SEP	54370
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 3	Solid	6010B SEP	54400

Analysis Batch: 55146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 4	Solid	6010B SEP	54485
140-24350-2	N-SB-05 (60.0-67.1)	Step 5	Solid	6010B SEP	54566
140-24350-2	N-SB-05 (60.0-67.1)	Step 6	Solid	6010B SEP	54567
140-24350-3	N-SB-18 (77.5-80.0)	Step 4	Solid	6010B SEP	54485
140-24350-3	N-SB-18 (77.5-80.0)	Step 5	Solid	6010B SEP	54566
140-24350-3	N-SB-18 (77.5-80.0)	Step 6	Solid	6010B SEP	54567
140-24350-4	N-SB-02 (12.5-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-4	N-SB-02 (12.5-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-4	N-SB-02 (12.5-20.0)	Step 6	Solid	6010B SEP	54567
140-24350-5	N-SB-02 (65.0-71.5)	Step 4	Solid	6010B SEP	54485
140-24350-5	N-SB-02 (65.0-71.5)	Step 5	Solid	6010B SEP	54566
140-24350-5	N-SB-02 (65.0-71.5)	Step 6	Solid	6010B SEP	54567
140-24350-6	N-SB-14 (44.2-52.0)	Step 4	Solid	6010B SEP	54485
140-24350-6	N-SB-14 (44.2-52.0)	Step 5	Solid	6010B SEP	54566
140-24350-6	N-SB-14 (44.2-52.0)	Step 6	Solid	6010B SEP	54567
140-24350-7	N-SB-04 (12.0-18.0)	Step 4	Solid	6010B SEP	54485
140-24350-7	N-SB-04 (12.0-18.0)	Step 5	Solid	6010B SEP	54566
140-24350-7	N-SB-04 (12.0-18.0)	Step 6	Solid	6010B SEP	54567
140-24350-8	N-SB-04 (38.7-45.4)	Step 4	Solid	6010B SEP	54485
140-24350-8	N-SB-04 (38.7-45.4)	Step 5	Solid	6010B SEP	54566
140-24350-8	N-SB-04 (38.7-45.4)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 4	Solid	6010B SEP	54485
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 5	Solid	6010B SEP	54566
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 6	Solid	6010B SEP	54567
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 3	Solid	6010B SEP	54400
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 4	Solid	6010B SEP	54485
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 5	Solid	6010B SEP	54566
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 6	Solid	6010B SEP	54567
MB 140-54401/17-B	Method Blank	Step 4	Solid	6010B SEP	54485
MB 140-54486/17-B ^5	Method Blank	Step 5	Solid	6010B SEP	54566
MB 140-54567/17-A	Method Blank	Step 6	Solid	6010B SEP	54567
LCS 140-54401/18-B	Lab Control Sample	Step 4	Solid	6010B SEP	54485
LCS 140-54486/18-B ^5	Lab Control Sample	Step 5	Solid	6010B SEP	54566
LCS 140-54567/18-A	Lab Control Sample	Step 6	Solid	6010B SEP	54567
LCSD 140-54401/19-B	Lab Control Sample Dup	Step 4	Solid	6010B SEP	54485

Metals (Continued)

Analysis Batch: 55146 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 140-54486/19-B ^5	Lab Control Sample Dup	Step 5	Solid	6010B SEP	54566
LCSD 140-54567/19-A	Lab Control Sample Dup	Step 6	Solid	6010B SEP	54567
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 4	Solid	6010B SEP	54485
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 5	Solid	6010B SEP	54566
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 6	Solid	6010B SEP	54567

Analysis Batch: 55197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-2	N-SB-05 (60.0-67.1)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-3	N-SB-18 (77.5-80.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-4	N-SB-02 (12.5-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-5	N-SB-02 (65.0-71.5)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-6	N-SB-14 (44.2-52.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-7	N-SB-04 (12.0-18.0)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-8	N-SB-04 (38.7-45.4)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Step 7	Solid	6010B SEP	54607
MB 140-54607/17-A	Method Blank	Step 7	Solid	6010B SEP	54607
LCS 140-54607/18-A	Lab Control Sample	Step 7	Solid	6010B SEP	54607
LCSD 140-54607/19-A	Lab Control Sample Dup	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607
140-24350-1 DU	N-SB-05 (18.0-20.0)	Step 7	Solid	6010B SEP	54607

Analysis Batch: 55243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	6010B	54251

Metals (Continued)

Analysis Batch: 55243 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	6010B	54251
MB 140-54251/17-A	Method Blank	Total/NA	Solid	6010B	54251
LCS 140-54251/18-A	Lab Control Sample	Total/NA	Solid	6010B	54251
LCSD 140-54251/19-A	Lab Control Sample Dup	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	6010B	54251

Analysis Batch: 55436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-2	N-SB-05 (60.0-67.1)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-3	N-SB-18 (77.5-80.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-4	N-SB-02 (12.5-20.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-5	N-SB-02 (65.0-71.5)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-6	N-SB-14 (44.2-52.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-7	N-SB-04 (12.0-18.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-8	N-SB-04 (38.7-45.4)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Sum of Steps 1-7	Solid	6010B SEP	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Sum of Steps 1-7	Solid	6010B SEP	

General Chemistry

Analysis Batch: 53225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-24350-1	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	
140-24350-2	N-SB-05 (60.0-67.1)	Total/NA	Solid	Moisture	
140-24350-3	N-SB-18 (77.5-80.0)	Total/NA	Solid	Moisture	
140-24350-4	N-SB-02 (12.5-20.0)	Total/NA	Solid	Moisture	
140-24350-5	N-SB-02 (65.0-71.5)	Total/NA	Solid	Moisture	
140-24350-6	N-SB-14 (44.2-52.0)	Total/NA	Solid	Moisture	
140-24350-7	N-SB-04 (12.0-18.0)	Total/NA	Solid	Moisture	
140-24350-8	N-SB-04 (38.7-45.4)	Total/NA	Solid	Moisture	
140-24350-9	N-SB-XPW 04 (10.0-15.0)	Total/NA	Solid	Moisture	
140-24350-10	N-SB-XPW 01 (10.0-12.7)	Total/NA	Solid	Moisture	
140-24350-1 DU	N-SB-05 (18.0-20.0)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:14	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:39	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:50	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:03	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		2			55146	10/25/21 17:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:52	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (60.0-67.1)
Lab Sample ID: 140-24350-2
Date Collected: 08/17/21 15:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 81.3

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-18 (77.5-80.0)
Lab Sample ID: 140-24350-3
Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:54	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:08	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:07	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-18 (77.5-80.0)

Lab Sample ID: 140-24350-3

Date Collected: 08/18/21 10:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 91.3

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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:06	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:20	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:50	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4

Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:59	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-02 (12.5-20.0)

Lab Sample ID: 140-24350-4
Date Collected: 08/18/21 14:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 93.1

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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:13	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:11	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:25	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5
Date Collected: 08/19/21 12:00
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 89.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:07	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:18	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-02 (65.0-71.5)

Lab Sample ID: 140-24350-5

Date Collected: 08/19/21 12:00

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 89.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:04	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:02	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:32	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:30	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 14:55	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-14 (44.2-52.0)

Lab Sample ID: 140-24350-6

Date Collected: 08/19/21 14:45

Matrix: Solid

Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-14 (44.2-52.0)

Lab Sample ID: 140-24350-6

Date Collected: 08/19/21 14:45

Matrix: Solid

Date Received: 08/24/21 09:40

Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:12	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:37	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:35	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (12.0-18.0)

Lab Sample ID: 140-24350-7

Date Collected: 08/21/21 07:35

Matrix: Solid

Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: N-SB-04 (12.0-18.0)

Date Collected: 08/21/21 07:35
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-7

Matrix: Solid
Percent Solids: 89.7

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:06	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:00	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-04 (38.7-45.4)
Date Collected: 08/21/21 08:30
Date Received: 08/24/21 09:40

Lab Sample ID: 140-24350-8
Matrix: Solid
Percent Solids: 86.5

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:21	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:35	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:33	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:47	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:46	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:45	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-04 (38.7-45.4)

Lab Sample ID: 140-24350-8
Date Collected: 08/21/21 08:30
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 86.5

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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:05	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 15:59	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 04 (10.0-15.0)

Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:26	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:17	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		5			55243	10/27/21 16:28	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:53	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-XPW 04 (10.0-15.0)
Lab Sample ID: 140-24350-9
Date Collected: 08/21/21 09:20
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 56.2

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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:52	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:51	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		5			55146	10/25/21 18:01	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:50	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:09	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40

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			55436	11/02/21 16:02	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 77.2

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 12:31	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 14:23	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			55243	10/27/21 16:33	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-XPW 01 (10.0-12.7)
Lab Sample ID: 140-24350-10
Date Collected: 08/21/21 10:10
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 77.2

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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 14:43	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 16:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55146	10/25/21 11:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 12:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 14:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 16:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 12:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 13:55	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		2			55197	10/26/21 15:19	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54251/17-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:49	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Project/Site: Newton Power Station - Illinois

Job ID: 140-24350-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54252/17-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:17	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54334/17-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:24	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54371/17-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54401/17-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54486/17-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:37	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54567/17-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:37	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-54607/17-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:23	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54251/18-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:54	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54252/18-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:22	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54334/18-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:29	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54371/18-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:28	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54401/18-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:39	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54486/18-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54567/18-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-54607/18-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:28	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc. Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 140-54251/19-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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 10:59	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 140-54252/19-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	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		5			55087	10/22/21 11:27	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 140-54334/19-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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		5			55087	10/22/21 13:34	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 140-54371/19-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	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:32	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 140-54401/19-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	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:44	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54486/19-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	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54567/19-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	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:47	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-54607/19-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	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 11:33	KNC	TAL KNX
	Instrument ID: DUO									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			53225	08/29/21 08:58	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		10			55243	10/27/21 11:47	KNC	TAL KNX
	Instrument ID: DUO									
Total/NA	Prep	Total			1.000 g	50 mL	54251	09/29/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			55243	10/27/21 13:19	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	54252	09/29/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	54333	09/30/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			55087	10/22/21 11:36	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Client Sample ID: N-SB-05 (18.0-20.0)
Lab Sample ID: 140-24350-1 DU
Date Collected: 08/17/21 12:40
Matrix: Solid
Date Received: 08/24/21 09:40
Percent Solids: 90.3

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	54334	09/30/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5 mL	50 mL	54370	10/01/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			55087	10/22/21 13:44	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.000 g	25 mL	54371	10/01/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5 mL	50 mL	54400	10/04/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			55087	10/22/21 15:42	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.000 g	25 mL	54401	10/04/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5 mL	50 mL	54485	10/05/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			55146	10/25/21 11:58	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.000 g	75 mL	54486	10/05/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5 mL	50 mL	54566	10/07/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			55146	10/25/21 13:57	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.000 g	250 mL	54567	10/07/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			55146	10/25/21 15:56	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		10			55197	10/26/21 11:48	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	54607	10/08/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			55197	10/26/21 12:55	KNC	TAL KNX
	Instrument ID: DUO									

Laboratory References:
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
Arkansas DEQ	State	88-0688	06-17-22
California	State	2423	06-30-22
Colorado	State	TN00009	02-28-22
Connecticut	State	PH-0223	02-28-22
Florida	NELAP	E87177	06-30-22
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21 *
Kentucky (DW)	State	90101	12-31-21
Louisiana	NELAP	83979	06-30-22
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-22
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-22
New Hampshire	NELAP	299919	01-17-22
New Jersey	NELAP	TN001	06-30-22
New York	NELAP	10781	03-31-22
North Carolina (DW)	State	21705	07-31-22
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-22
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-22
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-22
West Virginia (DW)	State	9955C	01-02-22
West Virginia DEP	State	345	04-30-22
Wisconsin	State	998044300	08-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Golder Associates Inc.
Job ID: 140-24350-1
Project/Site: Newton Power Station - Illinois

Method	Method Description	Protocol	Laboratory
6010B	SEP Metals (ICP) - Total	SW846	TAL KNX
6010B SEP	SEP Metals (ICP)	SW846	TAL KNX
Moisture	Percent Moisture	EPA	TAL KNX
3010A	Preparation, Total Metals	SW846	TAL KNX
Acid/Sulfide	Sequential Extraction Procedure, Acid/Sulfide Fraction	TAL-KNOX	TAL KNX
Carbonate	Sequential Extraction Procedure, Carbonate Fraction	TAL-KNOX	TAL KNX
Exchangeable	Sequential Extraction Procedure, Exchangeable Fraction	TAL-KNOX	TAL KNX
Metal Hydroxide	Sequential Extraction Procedure, Metal Hydroxide Fraction	TAL-KNOX	TAL KNX
Non-Crystalline	Sequential Extraction Procedure, Non-crystalline Materials	TAL-KNOX	TAL KNX
Organic-Bound	Sequential Extraction Procedure, Organic Bound Fraction	TAL-KNOX	TAL KNX
Residual	Sequential Extraction Procedure, Residual Fraction	TAL-KNOX	TAL KNX
Total	Preparation, Total Material	TAL-KNOX	TAL 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:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Brendan Talbert	Lab PM: Henry, Ryan	Carrier Tracking No(s):	COC No: 140-9736-2903.2
Client Contact: Jeffrey Ingram	Phone: (636) 485-8185	E-Mail: williamr.henry@eurofinset.com	State of Origin: IL	Page: Page 1 of 2
Company: Golder Associates Inc.	PWSID:			Job #:
Address: 13515 Barrett Parkway Drive Suite 260	Due Date Requested:			
City: Ballwin	TAT Requested (days):			
State, Zip: MO, 63021	Compliance Project: Δ Yes Δ No			
Phone: 314-984-8800(Tel) 636-724-9323(Fax)	PO #: Purchase Order not required			
Email: Jeffrey_Ingram@golder.com	WO #:			
Project Name: ~~Kincaid~~ Newton Power Station - Illinois	Project #: 14006434			
Site:	SSOW#:			

Analysis Requested

140-24350 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	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 - Select Total Metals	6010B_SEP - SEP	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
N-SB-05(18.0-20.0)	8-17-21	1240	G	S	N	N	/	/		
N-SB-05(60.0-67.1)	8-17-21	1540	G	S			/	/		
N-SB-18 (77.5-80.0)	8-18-21	1000	G	S			/	/		
N-SB-02 (12.5-20.0)	8-18-21	1410	G	S			/	/		
N-SB-02(65.0-71.5)	8-19-21	1200	G	S			/	/		
N-SB-14 ~~(Foam Core)~~	8-19-21	1445	G	S			/	/		N-SB-14 (44.2-52.0)
N-SB-04 (12.0-18.0)	8-21-21	0735	G	S			/	/		
N-SB-04 ~~(Foam Core)~~	8-21-21	0830	G	S			/	/		N-SB-04 (38.7-45.4)
N-SB-xpw04 (10.0-15.0)	8-21-21	0920	G	S			/	/		
N-SB-xpw01 (10.0-12.7)	8-21-21	1010	G	S			/	Y		

Possible Hazard Identification
☐ 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 ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Brendan Talbert	8-23-21 / 1830	Golder		8/24/21 0940	ETA
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.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:** Loc: 140 **24350**

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 : SC 71 Correction factor: +0.1	/			☐ 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

RT: 1.3°C CT: 1.4°C
1 cooler, FedEx Pg
Custody seal intact
Tr# 2828 8850 9224
KW 8/24/21

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 #: 1400647 PM Instructions:

Sample Receiving Associate: Kelsey Date: 8/24/21

QA026R32.doc, 062719

ATTACHMENT 3
SGS SEQUENTIAL EXTRACTION LABORATORY REPORT

SGS proposal: IBD
SGS project #: 2267

Sample receipt date: 13-Dec-23
Report date: 18-Apr-23

Version: Final

Customer details

Name:	Lain Glossop
Address:	SGS Mineralogy

Project reference:

P.O. number:

COC:

ANALYSIS REPORT

SGS WO: 5

Report Distribution

Name	Email
Lain Glossop	
Kim Gibbs	

Special notes:

Tessier sequential extraction

Mineralogy LIMS: MI7011-NOV22
Project: CA20I-00000-211-19465-03

3260 Production Way
Burnaby - British Columbia - V5A 4W4
Phone: 604-638-2349 FAX: 604-444-5486

ANALYSIS REPORT

Method Summaries *Test method information available upon request.*

S(T) and C(T): Total sulfur and total carbon by LECO, Method CSA06V
S(SO4): Sulfate by HCl digestion with ICP finish, Method CSA07V
S(S2-): Sulfide by calculation of S(T) - S(SO4)

TIC: Total inorganic carbon by coulometry, Method CSB02V
AP: Acid generating potential based on sulfide sulfur
NP: Modified neutralisation potential by excess acid addition and back titration to pH 8.3
Net NP: Net neutralisation potential = NP - AP
NPR: Neutralisation potential ratio = NP/AP

Metals by Aqua regia digest with ICP-OES/MS finish, Method ICP21B20/ICM21B20
Metals by multi-acid digest with ICP-OES/MS finish, Method ICP40Q12/IMS40Q12
Tessier Sequential Extraction - method available on request

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Preliminary Data

Noelene Ahern - Manager: ARD

Final Data Approval

Noelene Ahern - Manager: ARD

Tessier Extraction

Water Soluble Metals
Reagent: 15 mL of Nanopure Distilled Water

Sample			N-SB-04 (12-18) Water Soluble	N-SB-04 (40-45) Water Soluble	N-SB-02 (10-13) Water Soluble
Sample weight (g)			1.0357	1.0313	1.0496
Reagent volume (mL)			15	15	15.0
Volume analysed (after wash dilution and preservation) (mL)			22.5	22.5	22.5
Final diluted solution weight (g)			22.32	21.90	21.91
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	41.6	32.2	45.5
Aluminum Al	mg/L	0.001	0.311	0.241	0.375
Antimony Sb	mg/L	0.0009	< 0.0009	< 0.0009	< 0.0009
Arsenic As	mg/L	0.0002	0.0008	0.0018	0.0011
Barium Ba	mg/L	0.00002	0.00694	0.0119	0.0087
Beryllium Be	mg/L	0.000007	0.000011	< 0.000007	0.000012
Bismuth Bi	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001
Boron B	mg/L	0.002	0.018	0.016	0.023
Cadmium Cd	mg/L	0.000003	0.000004	0.000006	0.000004
Calcium Ca	mg/L	0.01	10.8	8.09	10.6
Chromium Cr	mg/L	0.00008	0.00239	0.00165	0.00166
Cobalt Co	mg/L	0.000004	0.000084	0.000058	0.000083
Copper Cu	mg/L	0.0002	0.001	0.0012	0.0014
Iron Fe	mg/L	0.007	0.679	0.533	0.456
Lead Pb	mg/L	0.00009	0.00034	0.00027	0.00036
Lithium Li	mg/L	0.0001	0.0148	0.0073	0.0162
Magnesium Mg	mg/L	0.001	3.55	2.92	4.65
Manganese Mn	mg/L	0.00001	0.00514	0.00508	0.00477
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.00956	0.00494	0.00948
Nickel Ni	mg/L	0.0001	0.0017	0.0009	0.0012
Phosphorus P	mg/L	0.003	0.031	0.027	0.026
Potassium K	mg/L	0.003	3.87	7.15	6.2
Selenium Se	mg/L	0.00004	0.00027	0.0019	0.00075
Silicon Si	mg/L	0.02	3.35	2.74	3.43
Silver Ag	mg/L	0.00005	< 0.00005	< 0.00005	< 0.00005
Sodium Na	mg/L	0.01	4.11	3.94	3.74
Strontium Sr	mg/L	0.00002	0.0228	0.0392	0.0325
Sulphur (S)	mg/L	1	4	2	5
Thallium Tl	mg/L	0.000005	0.000012	0.000023	0.00002
Tin Sn	mg/L	0.00006	0.00041	0.00044	0.00041
Titanium Ti	mg/L	0.00005	0.00306	0.00192	0.00428
Uranium U	mg/L	0.000002	0.000168	0.000359	0.000645
Vanadium V	mg/L	0.00001	0.00149	0.00294	0.00169
Zinc Zn	mg/L	0.002	0.003	0.002	0.003
Zirconium Zr	mg/L	0.002	< 0.002	< 0.002	< 0.002

Tessier Extraction

Water Soluble Metals Reagent: 15 mL of Nanopure Distilled Water					
Sample			**N-SB-05 (10-16.6) Water Soluble**	**N-SB-14 (50-52) Water Soluble**	**Blank**
Sample weight (g)			1.0388	1.0434	0
Reagent volume (mL)			15.0	15.0	15
Volume analysed (after wash dilution and preservation) (mL)			22.5	22.5	22.5
Final diluted solution weight (g)			22.02	22.13	23.18
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	44.2	80	2.4
Aluminum Al	mg/L	0.001	2.88	0.817	< 0.01
Antimony Sb	mg/L	0.0009	< 0.0009	< 0.0009	< 0.009
Arsenic As	mg/L	0.0002	0.0024	0.0022	< 0.002
Barium Ba	mg/L	0.00002	0.037	0.01524	0.0036
Beryllium Be	mg/L	0.000007	0.000173	0.000053	< 0.00007
Bismuth Bi	mg/L	0.00001	0.00002	0.00002	< 0.0001
Boron B	mg/L	0.002	0.009	0.024	< 0.02
Cadmium Cd	mg/L	0.000003	0.000005	0.000018	< 0.00003
Calcium Ca	mg/L	0.01	10.6	22.5	< 0.1
Chromium Cr	mg/L	0.00008	0.0069	0.00722	0.0449
Cobalt Co	mg/L	0.000004	0.001001	0.000602	0.00139
Copper Cu	mg/L	0.0002	0.0079	0.0146	0.011
Iron Fe	mg/L	0.007	3.45	3.02	25.4
Lead Pb	mg/L	0.00009	0.00257	0.00124	< 0.0009
Lithium Li	mg/L	0.0001	0.0099	0.0113	< 0.001
Magnesium Mg	mg/L	0.001	4.33	5.78	0.57
Manganese Mn	mg/L	0.00001	0.0289	0.0403	0.174
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0024	0.02013	0.0047
Nickel Ni	mg/L	0.0001	0.005	0.0208	0.059
Phosphorus P	mg/L	0.003	0.082	0.069	< 0.03
Potassium K	mg/L	0.003	2.69	11	0.09
Selenium Se	mg/L	0.00004	0.00141	0.00218	< 0.0004
Silicon Si	mg/L	0.02	9.36	3.3	< 0.2
Silver Ag	mg/L	0.00005	< 0.00005	< 0.00005	< 0.0005
Sodium Na	mg/L	0.01	5.05	4.8	< 0.1
Strontium Sr	mg/L	0.00002	0.0359	0.0634	< 0.0008
Sulphur (S)	mg/L	1	5	18	< 1
Thallium Tl	mg/L	0.000005	0.000033	0.000052	< 0.00005
Tin Sn	mg/L	0.00006	0.00043	0.00043	0.0018
Titanium Ti	mg/L	0.00005	0.0467	0.0145	0.001
Uranium U	mg/L	0.000002	0.000255	0.00176	0.00002
Vanadium V	mg/L	0.00001	0.00779	0.00257	0.0009
Zinc Zn	mg/L	0.002	0.009	0.007	0.02
Zirconium Zr	mg/L	0.002	0.005	0.003	< 0.02

Tessier Extraction

Exchangeable Metals
Reagent: 15 mL of 1 M MgCl2 (pH 7)

Sample			N-SB-04 (12-18)	N-SB-04 (40-45)	N-SB-02 (10-13)
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			27.5	27.5	27.5
Final diluted solution weight (g)			28.82	29.36	30.0
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	42500	33000	31000
Aluminum Al	mg/L	0.001	0.35	0.25	0.17
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.005	0.006	0.006
Barium Ba	mg/L	0.00002	0.954	0.609	0.699
Beryllium Be	mg/L	0.000007	0.00013	0.00013	0.00011
Bismuth Bi	mg/L	0.00001	0.0002	0.0003	0.0003
Boron B	mg/L	0.002	< 0.02	< 0.02	< 0.02
Cadmium Cd	mg/L	0.000003	0.00074	0.00127	0.00081
Calcium Ca	mg/L	0.01	129	97.8	106
Chromium Cr	mg/L	0.00008	0.0246	0.0275	0.0296
Cobalt Co	mg/L	0.000004	0.00111	0.00093	0.00118
Copper Cu	mg/L	0.0002	0.004	0.016	0.011
Iron Fe	mg/L	0.007	0.65	0.49	0.32
Lead Pb	mg/L	0.00009	< 0.0009	< 0.0009	< 0.0009
Lithium Li	mg/L	0.0001	0.017	0.009	0.015
Magnesium Mg	mg/L	0.001	10300	7990	7480
Manganese Mn	mg/L	0.00001	0.173	0.415	0.276
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0052	0.004	0.0045
Nickel Ni	mg/L	0.0001	0.002	0.002	0.003
Phosphorus P	mg/L	0.003	0.11	0.14	0.08
Potassium K	mg/L	0.003	12.7	9.2	11.5
Selenium Se	mg/L	0.00004	0.0042	0.0048	0.0034
Silicon Si	mg/L	0.02	3.5	3	3
Silver Ag	mg/L	0.00005	0.003	0.0084	0.0072
Sodium Na	mg/L	0.01	5.8	4.7	4.1
Strontium Sr	mg/L	0.00002	0.279	0.242	0.244
Sulphur (S)	mg/L	1	26	26	25
Thallium Tl	mg/L	0.000005	0.00018	0.00026	0.00017
Tin Sn	mg/L	0.00006	0.0043	0.0038	0.004
Titanium Ti	mg/L	0.00005	0.0105	0.0083	0.0048
Uranium U	mg/L	0.000002	0.00243	0.00256	0.0029
Vanadium V	mg/L	0.00001	0.0111	0.0124	0.0116
Zinc Zn	mg/L	0.002	0.03	0.03	0.02
Zirconium Zr	mg/L	0.002	< 0.02	< 0.02	< 0.02

Tessier Extraction

Exchangeable Metals Reagent: 15 mL of 1 M MgCl2 (pH 7)					
Sample			**N-SB-05 (10-16.6)**	**N-SB-14 (50-52)**	**Blank**
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			27.5	27.5	27.5
Final diluted solution weight (g)			29.025	30.01	28.52
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	39000	36300	30600
Aluminum Al	mg/L	0.001	0.42	0.23	0.02
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.003	0.005	0.003
Barium Ba	mg/L	0.00002	1.86	0.327	0.0046
Beryllium Be	mg/L	0.000007	0.00014	0.0001	< 0.00007
Bismuth Bi	mg/L	0.00001	0.0008	0.0003	< 0.0001
Boron B	mg/L	0.002	< 0.02	< 0.02	< 0.02
Cadmium Cd	mg/L	0.000003	0.00056	0.001	< 0.00003
Calcium Ca	mg/L	0.01	104	116	1.7
Chromium Cr	mg/L	0.00008	0.0197	0.0244	0.0599
Cobalt Co	mg/L	0.000004	0.00791	0.00164	0.00094
Copper Cu	mg/L	0.0002	0.007	0.008	0.011
Iron Fe	mg/L	0.007	0.5	0.38	20.8
Lead Pb	mg/L	0.00009	0.0011	< 0.0009	0.001
Lithium Li	mg/L	0.0001	0.013	0.012	0.001
Magnesium Mg	mg/L	0.001	9430	8770	7420
Manganese Mn	mg/L	0.00001	0.486	0.561	0.149
Mercury Hg	ug/L	0.01	< 0.01	0.02	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0037	0.0084	0.0071
Nickel Ni	mg/L	0.0001	0.007	0.004	0.059
Phosphorus P	mg/L	0.003	0.09	0.11	< 0.03
Potassium K	mg/L	0.003	9.91	10.9	1.91
Selenium Se	mg/L	0.00004	0.0049	0.0041	< 0.0004
Silicon Si	mg/L	0.02	4	2.7	< 0.2
Silver Ag	mg/L	0.00005	0.0072	0.0043	0.0076
Sodium Na	mg/L	0.01	10.9	7.4	1.3
Strontium Sr	mg/L	0.00002	0.421	0.248	0.003
Sulphur (S)	mg/L	1	26	26	22
Thallium Tl	mg/L	0.000005	0.00016	0.00032	< 0.00005
Tin Sn	mg/L	0.00006	0.0042	0.0041	0.0035
Titanium Ti	mg/L	0.00005	0.015	0.0077	0.0006
Uranium U	mg/L	0.000002	0.0004	0.00647	0.00003
Vanadium V	mg/L	0.00001	0.0086	0.0097	0.0082
Zinc Zn	mg/L	0.002	0.03	0.02	0.03
Zirconium Zr	mg/L	0.002	< 0.02	< 0.02	< 0.02

Tessier Extraction

Metals Bound to Carbonates

Reagent: 15 mL of 1 M NaOAc (adjusted to pH 5.0 with Acetic Acid)

Sample			N-SB-04 (12-18) Bound to Carbonate	N-SB-04 (40-45) Bound to Carbonate	N-SB-02 (10-13) Bound to Carbonate
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			32.5	32.5	32.5
Final diluted solution weight (g)			33.705	33.68	33.6
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	4960	4450	5020
Aluminum Al	mg/L	0.001	18.3	13.3	16.7
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.008	0.009	0.007
Barium Ba	mg/L	0.00002	1.99	0.709	1.23
Beryllium Be	mg/L	0.000007	0.00383	0.00302	0.00317
Bismuth Bi	mg/L	0.00001	0.0009	0.0008	0.0006
Boron B	mg/L	0.002	0.03	0.03	0.05
Cadmium Cd	mg/L	0.000003	0.00621	0.00455	0.00267
Calcium Ca	mg/L	0.01	1560	1310	1360
Chromium Cr	mg/L	0.00008	0.83	2.12	1.85
Cobalt Co	mg/L	0.000004	0.136	0.0217	0.118
Copper Cu	mg/L	0.0002	0.405	0.399	0.575
Iron Fe	mg/L	0.007	23.2	53	46.2
Lead Pb	mg/L	0.00009	0.116	0.0707	0.0947
Lithium Li	mg/L	0.0001	0.034	0.024	0.033
Magnesium Mg	mg/L	0.001	259	290	393
Manganese Mn	mg/L	0.00001	18.1	8.75	10.4
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0159	0.0382	0.0187
Nickel Ni	mg/L	0.0001	0.152	0.099	0.193
Phosphorus P	mg/L	0.003	0.1	0.33	0.17
Potassium K	mg/L	0.003	9.92	8.24	9.87
Selenium Se	mg/L	0.00004	0.0048	0.0048	0.0043
Silicon Si	mg/L	0.02	23	17.4	23.4
Silver Ag	mg/L	0.00005	< 0.0005	< 0.0005	< 0.0005
Sodium Na	mg/L	0.01	8700	8610	8630
Strontium Sr	mg/L	0.00002	1.45	1.52	1.19
Sulphur (S)	mg/L	1	5	3	5
Thallium Tl	mg/L	0.000005	0.00026	0.0002	0.00019
Tin Sn	mg/L	0.00006	0.0032	0.0028	0.0027
Titanium Ti	mg/L	0.00005	0.0118	0.0195	0.0158
Uranium U	mg/L	0.000002	0.00843	0.00618	0.00852
Vanadium V	mg/L	0.00001	0.0251	0.0842	0.0708
Zinc Zn	mg/L	0.002	0.19	0.21	0.3
Zirconium Zr	mg/L	0.002	< 0.02	< 0.02	< 0.02

Tessier Extraction

Metals Bound to Carbonates Reagent: 15 mL of 1 M NaOAc (adjusted to pH 5.0 with Acetic Acid)					
Sample			**N-SB-05 (10-16.6) Bound to Carbonate**	**N-SB-14 (50-52) Bound to Carbonate**	**Blank**
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			32.5	32.5	32.5
Final diluted solution weight (g)			33.78	33.74	33.42
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	890	4770	1
Aluminum Al	mg/L	0.001	17.5	17.1	0.02
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.006	0.009	< 0.002
Barium Ba	mg/L	0.00002	1.57	0.711	0.002
Beryllium Be	mg/L	0.000007	0.00537	0.00372	< 0.00007
Bismuth Bi	mg/L	0.00001	0.0007	0.001	< 0.0001
Boron B	mg/L	0.002	< 0.02	0.04	< 0.02
Cadmium Cd	mg/L	0.000003	0.00068	0.00348	< 0.00003
Calcium Ca	mg/L	0.01	22.2	1410	0
Chromium Cr	mg/L	0.00008	1.53	1.89	0.004
Cobalt Co	mg/L	0.000004	0.0977	0.0502	< 0.00004
Copper Cu	mg/L	0.0002	0.442	0.033	< 0.002
Iron Fe	mg/L	0.007	31.7	72	0.16
Lead Pb	mg/L	0.00009	0.0857	0.0701	< 0.0009
Lithium Li	mg/L	0.0001	0.019	0.031	0.002
Magnesium Mg	mg/L	0.001	203	301	0.18
Manganese Mn	mg/L	0.00001	2.22	10.8	0.0075
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0173	0.0292	0.002
Nickel Ni	mg/L	0.0001	0.113	0.136	0.001
Phosphorus P	mg/L	0.003	0.12	0.16	< 0.03
Potassium K	mg/L	0.003	6.92	9.33	2.78
Selenium Se	mg/L	0.00004	0.0047	0.0066	0.0007
Silicon Si	mg/L	0.02	25.5	22.5	0
Silver Ag	mg/L	0.00005	< 0.0005	< 0.0005	0.0065
Sodium Na	mg/L	0.01	8770	8540	9600
Strontium Sr	mg/L	0.00002	0.0944	1.65	< 0.0008
Sulphur (S)	mg/L	1	4	4	< 10
Thallium Tl	mg/L	0.000005	0.00009	0.00021	< 0.00005
Tin Sn	mg/L	0.00006	0.0025	0.003	0.0015
Titanium Ti	mg/L	0.00005	0.0091	0.017	0.0005
Uranium U	mg/L	0.000002	0.00511	0.0127	0.00005
Vanadium V	mg/L	0.00001	0.0937	0.0919	0.0002
Zinc Zn	mg/L	0.002	0.19	0.37	0.02
Zirconium Zr	mg/L	0.002	< 0.02	< 0.02	< 0.02

Tessier Extraction

Metals Bound to Fe and Mn Oxides
Reagent: 15 mL of 0.04M NH2OH. HCl in 25% HOAc

Sample			N-SB-04 (12-18) Bound to Fe&Mn Oxides	N-SB-04 (40-45) Bound to Fe&Mn Oxides	N-SB-02 (10-13) Bound to Fe&Mn Oxides
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			32.5	32.5	32.5
Final diluted solution weight (g)			31.99	32.23	33.0
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	1260	939	1540
Aluminum Al	mg/L	0.001	31.2	26.1	25.2
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.009	0.025	0.009
Barium Ba	mg/L	0.00002	0.275	0.148	0.178
Beryllium Be	mg/L	0.000007	0.00777	0.00395	0.0051
Bismuth Bi	mg/L	0.00001	0.001	0.0007	0.0009
Boron B	mg/L	0.002	0.07	0.04	0.07
Cadmium Cd	mg/L	0.000003	0.00043	0.00384	0.00072
Calcium Ca	mg/L	0.01	265	203	319
Chromium Cr	mg/L	0.00008	0.759	0.718	0.789
Cobalt Co	mg/L	0.000004	0.0519	0.044	0.0248
Copper Cu	mg/L	0.0002	0.223	0.222	0.211
Iron Fe	mg/L	0.007	89.4	73.7	94.4
Lead Pb	mg/L	0.00009	0.0791	0.0605	0.0893
Lithium Li	mg/L	0.0001	0.106	0.062	0.084
Magnesium Mg	mg/L	0.001	146	105	181
Manganese Mn	mg/L	0.00001	1.77	1.57	2.09
Mercury Hg	ug/L	0.01	0.04	0.02	0.02
Molybdenum Mo	mg/L	0.00004	0.0432	0.0985	0.0738
Nickel Ni	mg/L	0.0001	0.142	0.126	0.127
Phosphorus P	mg/L	0.003	0.96	2.61	1.03
Potassium K	mg/L	0.003	5.82	4.3	5.15
Selenium Se	mg/L	0.00004	0.0004	0.0681	0.0009
Silicon Si	mg/L	0.02	37.2	25.8	32.6
Silver Ag	mg/L	0.00005	0.0094	0.0056	0.0047
Sodium Na	mg/L	0.01	67.8	36.8	50.2
Strontium Sr	mg/L	0.00002	0.214	0.192	0.191
Sulphur (S)	mg/L	1	6	11	7
Thallium Tl	mg/L	0.000005	0.00031	0.00031	0.00025
Tin Sn	mg/L	0.00006	0.0019	0.0054	0.0008
Titanium Ti	mg/L	0.00005	0.0088	0.0503	0.0145
Uranium U	mg/L	0.000002	0.00746	0.0053	0.00651
Vanadium V	mg/L	0.00001	0.166	0.0964	0.13
Zinc Zn	mg/L	0.002	0.28	0.25	0.35
Zirconium Zr	mg/L	0.002	< 0.02	< 0.02	0.02

Tessier Extraction

Metals Bound to Fe and Mn Oxides Reagent: 15 mL of 0.04M NH2OH. HCl in 25% HOAc					
Sample			**N-SB-05 (10-16.6) Bound to Fe&Mn Oxides**	**N-SB-14 (50-52) Bound to Fe&Mn Oxides**	**Blank**
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL)			32.5	32.5	32.5
Final diluted solution weight (g)			31.22	31.65	33.01
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	97	1720	< 0.5
Aluminum Al	mg/L	0.001	24.6	28.3	0.02
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.012	0.021	< 0.002
Barium Ba	mg/L	0.00002	0.333	0.158	< 0.0008
Beryllium Be	mg/L	0.000007	0.0112	0.00513	< 0.00007
Bismuth Bi	mg/L	0.00001	0.0012	0.0014	< 0.0001
Boron B	mg/L	0.002	0.03	0.06	< 0.02
Cadmium Cd	mg/L	0.000003	0.0003	0.00064	< 0.00003
Calcium Ca	mg/L	0.01	4.5	357	< 0.1
Chromium Cr	mg/L	0.00008	1.07	0.822	0.0055
Cobalt Co	mg/L	0.000004	0.0479	0.0758	0.00004
Copper Cu	mg/L	0.0002	0.369	0.027	0.0013
Iron Fe	mg/L	0.007	106	148	0.073
Lead Pb	mg/L	0.00009	0.111	0.118	0.00043
Lithium Li	mg/L	0.0001	0.079	0.076	0.0058
Magnesium Mg	mg/L	0.001	20.9	201	0.019
Manganese Mn	mg/L	0.00001	0.783	2.78	0.0005
Mercury Hg	ug/L	0.01	0.03	0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.0644	0.126	0.00391
Nickel Ni	mg/L	0.0001	0.182	0.172	0.0023
Phosphorus P	mg/L	0.003	0.48	2.03	0.027
Potassium K	mg/L	0.003	4.37	4.81	< 0.009
Selenium Se	mg/L	0.00004	0.0012	0.0017	0.00082
Silicon Si	mg/L	0.02	35.5	29.4	0.03
Silver Ag	mg/L	0.00005	0.0105	0.0006	0.00014
Sodium Na	mg/L	0.01	290	46.5	0.1
Strontium Sr	mg/L	0.00002	0.0319	0.248	0.00026
Sulphur (S)	mg/L	1	2	7	5
Thallium Tl	mg/L	0.000005	0.00012	0.00038	0.00002
Tin Sn	mg/L	0.00006	0.002	0.007	0.00175
Titanium Ti	mg/L	0.00005	0.0065	0.013	0.00067
Uranium U	mg/L	0.000002	0.00445	0.0078	0.00014
Vanadium V	mg/L	0.00001	0.3	0.15	0.00021
Zinc Zn	mg/L	0.002	0.3	0.41	0.033
Zirconium Zr	mg/L	0.002	< 0.02	0.02	0.002

Tessier Extraction

Metals Bound to Organics
Reagent: 3 mL of 0.02 M HNO3 + 5 mL 30% H2O2
+ 5 mL 1.2 M NH4OAc in 20% HNO3

Sample			N-SB-04 (12-18)	N-SB-04 (40-45)	N-SB-02 (10-13)
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL) (Vol. is approximate)			37.5	37.5	37.5
Final diluted solution weight (g)			36.635	37.275	37.4
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	121	65.4	84.2
Aluminum Al	mg/L	0.001	30.8	20.1	24.2
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.009
Arsenic As	mg/L	0.0002	0.011	0.015	0.037
Barium Ba	mg/L	0.00002	0.15	0.053	0.0763
Beryllium Be	mg/L	0.000007	0.00165	0.0007	0.00118
Bismuth Bi	mg/L	0.00001	< 0.0001	< 0.0001	< 0.0001
Boron B	mg/L	0.002	< 0.02	< 0.02	< 0.02
Cadmium Cd	mg/L	0.000003	0.00014	0.00019	0.00123
Calcium Ca	mg/L	0.01	27.8	15.7	18.1
Chromium Cr	mg/L	0.00008	0.173	0.148	0.176
Cobalt Co	mg/L	0.000004	0.0136	0.0155	0.0101
Copper Cu	mg/L	0.0002	0.061	0.164	0.155
Iron Fe	mg/L	0.007	11.3	14.5	13.3
Lead Pb	mg/L	0.00009	0.0291	0.019	0.028
Lithium Li	mg/L	0.0001	0.039	0.032	0.034
Magnesium Mg	mg/L	0.001	12.6	6.38	9.48
Manganese Mn	mg/L	0.00001	0.257	0.221	0.208
Mercury Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.089	0.101	0.121
Nickel Ni	mg/L	0.0001	0.048	0.045	0.044
Phosphorus P	mg/L	0.003	10.5	14.1	10.8
Potassium K	mg/L	0.003	1.87	1.34	1.68
Selenium Se	mg/L	0.00004	0.0007	0.0021	0.0046
Silicon Si	mg/L	0.02	18.7	14.5	18
Silver Ag	mg/L	0.00005	0.0064	0.0052	0.0066
Sodium Na	mg/L	0.01	17.7	16.1	16.9
Strontium Sr	mg/L	0.00002	0.0543	0.0518	0.038
Sulphur (S)	mg/L	1	2	6	8
Thallium Tl	mg/L	0.000005	0.00022	0.00022	0.00023
Tin Sn	mg/L	0.00006	0.059	0.22	0.135
Titanium Ti	mg/L	0.00005	0.931	0.93	1.1
Uranium U	mg/L	0.000002	0.00151	0.00152	0.00145
Vanadium V	mg/L	0.00001	0.0997	0.0549	0.0788
Zinc Zn	mg/L	0.002	0.11	0.15	0.3
Zirconium Zr	mg/L	0.002	< 0.02	0.05	0.04

Tessier Extraction

Metals Bound to Organics Reagent: 3 mL of 0.02 M HNO3 + 5 mL 30% H2O2 + 5 mL 1.2 M NH4OAc in 20% HNO3					
Sample			**N-SB-05 (10-16.6)**	**N-SB-14 (50-52)**	**Blank**
Reagent volume (mL)			15	15	15
Volume analysed (after wash dilution and preservation) (mL) (Vol. is approximate)			37.5	37.5	37.5
Final diluted solution weight (g)			36.37	36.84	39.06
Parameter	**Units**	**RDL**			
Hardness CaCO3	mg/L	0.05	34.5	89.5	5.4
Aluminum Al	mg/L	0.001	57.4	26.4	0.073
Antimony Sb	mg/L	0.0009	< 0.009	< 0.009	< 0.0009
Arsenic As	mg/L	0.0002	0.017	0.061	0.0003
Barium Ba	mg/L	0.00002	0.31	0.0667	0.00219
Beryllium Be	mg/L	0.000007	0.0027	0.00111	0.00001
Bismuth Bi	mg/L	0.00001	0.0001	0.0002	0.00001
Boron B	mg/L	0.002	< 0.02	< 0.02	0.008
Cadmium Cd	mg/L	0.000003	0.00021	0.00036	0.00001
Calcium Ca	mg/L	0.01	3.4	20.2	1.54
Chromium Cr	mg/L	0.00008	0.205	0.146	0.0126
Cobalt Co	mg/L	0.000004	0.015	0.0284	0.00035
Copper Cu	mg/L	0.0002	0.076	0.94	0.002
Iron Fe	mg/L	0.007	19.6	37.5	0.07
Lead Pb	mg/L	0.00009	0.0567	0.0417	0.00072
Lithium Li	mg/L	0.0001	0.022	0.041	0.0002
Magnesium Mg	mg/L	0.001	6.35	9.51	0.37
Manganese Mn	mg/L	0.00001	0.202	0.269	0.0016
Mercury Hg	ug/L	0.01	0.08	< 0.01	< 0.01
Molybdenum Mo	mg/L	0.00004	0.106	0.0792	0.00711
Nickel Ni	mg/L	0.0001	0.07	0.075	0.0087
Phosphorus P	mg/L	0.003	9.12	15.6	13.3
Potassium K	mg/L	0.003	1.62	1.38	0.19
Selenium Se	mg/L	0.00004	0.0016	0.0041	0.00106
Silicon Si	mg/L	0.02	21.8	17.5	0.11
Silver Ag	mg/L	0.00005	0.0034	0.0081	0.00018
Sodium Na	mg/L	0.01	20.6	16.7	16.7
Strontium Sr	mg/L	0.00002	0.0218	0.055	0.00848
Sulphur (S)	mg/L	1	2	22	< 1
Thallium Tl	mg/L	0.000005	0.00014	0.00057	< 0.000005
Tin Sn	mg/L	0.00006	0.0516	0.329	7.69
Titanium Ti	mg/L	0.00005	0.56	0.388	0.00257
Uranium U	mg/L	0.000002	0.00087	0.00262	0.00009
Vanadium V	mg/L	0.00001	0.114	0.0591	0.00016
Zinc Zn	mg/L	0.002	0.14	0.22	0.025
Zirconium Zr	mg/L	0.002	0.03	0.1	< 0.002

SGS proposal: IBD
SGS project #: 2267

Sample receipt date: 13-Dec-23
Report date: 18-Apr-23

Version: Final

Metals - Multi-Acid Digestion with ICP-OES/MS Finish

Test Units Method Code	Residual wt g	Aluminum µg/g	Antimony µg/g	Arsenic µg/g	Boron µg/g	Barium µg/g	Beryllium µg/g	Bismuth µg/g	Cadmium µg/g	Calcium µg/g	Chromium µg/g	Cobalt µg/g	Copper µg/g	Iron µg/g	Lead µg/g	Lithium µg/g	Magnesium µg/g
Lower detection		3	0.8	0.5	1	0.01	0.02	0.09	0.02	3	0.5	0.01	0.1	3	0.05	2	3
Sample ID																	
N-SB-04 (12-18)	0.7794	44000	1.10	13	5	390	1.4	0.2	< 0.02	2100	90	8.8	27.0	41000	13	30	5400
N-SB-04 (40-45)	0.7915	32000	< 0.8	11	<1	380	0.9	< 0.09	< 0.02	4400	53	5.7	16.0	24000	10	13	3300
N-SB-02 (10-13)	0.7800	36000	< 0.8	12	<1	370	0.8	0.1	< 0.02	2800	56	4.4	20.0	26000	9	19	3600
N-SB-05 (10-16.6)	0.9525	36000	< 0.8	4.3	<1	310	0.6	0.1	< 0.02	1900	47	4.3	13.0	20000	9	19	2800
N-SB-14 (50-52)	0.7531	38000	< 0.8	8.2	<1	390	0.9	< 0.09	0.02	4100	53	5.3	18.0	21000	8	18	4400

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Test Units Method Code	Manganese µg/g	Molybdenum µg/g	Nickel µg/g	Phosphorus µg/g	Potassium µg/g	Selenium µg/g	Tin µg/g	Silver µg/g	Sodium µg/g	Strontium µg/g	Sulphur µg/g	Thallium µg/g	Titanium µg/g	Uranium µg/g	Vanadium µg/g	Zinc µg/g	Zirconium µg/g
Lower detection	0.1	0.1	0.1	3	3	0.7	6	0.5	3	0.02	3	0.02	0.1	0.002	1	0.7	0.03
Sample ID																	
N-SB-04 (12-18)	210	5.4	34	710	20000	< 0.1	240	< 0.5	8600	97	< 3	0.78	3900	2.11	77	82	392
N-SB-04 (40-45)	230	8.6	19	400	15000	< 0.1	210	< 0.5	12000	130	< 3	0.47	2900	1.44	42	51	270
N-SB-02 (10-13)	150	7.2	22	480	17000	< 0.1	220	< 0.5	7800	98	< 3	0.53	2600	1.54	46	52	293
N-SB-05 (10-16.6)	93	5.2	27	280	13000	< 0.1	190	< 0.5	5100	73	< 3	0.54	2900	1.29	39	50	307
N-SB-14 (50-52)	190	9.5	20	350	17000	< 0.1	220	1	10000	120	< 3	0.47	3200	1.82	52	43	342

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ATTACHMENT 4
SGS X-RAY DIFFRACTION LABORATORY REPORT

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom XRD/MI4503-OCT21*
Sample Receipt:	*October 4, 2021*
Sample Analysis:	*October 8, 2021*
Reporting Date:	*November 2, 2021*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 35 kV, 40 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
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:

1) Method Summary
2) Quantitative XRD Results
3) XRD Pattern(s)

Kim Gibbs, H.B.Sc., P.Geo.
Senior Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

ACCREDITATION: SGS Minerals Services Lakefield is accredited to the requirements of ISO/IEC 17025 for specific tests as listed on our scope of accreditation, including geochemical, mineralogical and trade mineral tests. To view a list of the accredited methods, please visit the following website and search SGS Canada - Minerals Services - Lakefield: http://palcan.scc.ca/SpecsSearch/GLSearchForm.do.

Method Summary

The Rietveld Method of Mineral Identification by XRD (ME-LR-MIN-MET-MN-D05) method used by SGS Minerals Services is accredited to the requirements of ISO/IEC 17025.

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.

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Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

Mineral/Compound	N-SB-05 (18.0-20.0) OCT4503-01 (wt %)	N-SB-05 (60.0-67.1) OCT4503-02 (wt %)	N-SB-18 (77.5-80.0) OCT4503-03 (wt %)	N-SB-02 (12.5-20.0) OCT4503-04 (wt %)	N-SB-02 (65.0-71.5) OCT4503-05 (wt %)	N-SB-14 OCT4503-06 (wt %)	N-SB-04 (12.0-18.0) OCT4503-07 (wt %)	N-SB-04 OCT4503-08 (wt %)	N-SB-XPW04 (10.0-15.0) OCT4503-09 (wt %)	N-SB-XPW01 (10.0-12.7) OCT4503-10 (wt %)
Quartz	46.0	41.3	32.7	48.9	47.6	48.0	47.3	51.7	22.6	68.7
Albite	8.2	8.8	4.1	8.4	5.2	13.6	9.1	12.7	14.5	10.0
Calcite	20.7	12.9	13.3	3.6	4.9	9.3	11.1	9.7	13.2	0.1
Dolomite	9.5	18.5	27.3	12.7	26.1	6.8	5.0	6.0	-	0.1
Ankerite	3.3	2.3	8.3	2.2	2.6	2.6	4.1	4.4	-	0.0
Microcline	4.5	4.5	4.2	7.6	5.1	6.2	5.4	4.2	-	8.8
Muscovite	5.0	1.6	1.2	8.7	1.0	5.5	10.5	3.1	-	8.5
Diopside	0.9	2.9	2.0	1.7	1.5	2.5	1.0	1.4	15.2	1.4
Biotite	1.8	1.8	0.8	3.5	1.5	1.8	2.4	2.1	-	2.5
Actinolite	-	2.9	2.1	-	-	-	-	2.3	-	-
Chlorite	-	2.6	1.9	2.8	2.7	3.8	4.2	2.3	-	-
Fluorapatite	-	-	2.0	-	1.8	-	-	-	-	-
Perovskite	-	-	-	-	-	-	-	-	8.7	-
Periclase	-	-	-	-	-	-	-	-	1.6	-
Hematite	-	-	-	-	-	-	-	-	3.4	-
Magnetite	-	-	-	-	-	-	-	-	0.1	-
Gehlenite	-	-	-	-	-	-	-	-	13.9	-
Mullite	-	-	-	-	-	-	-	-	3.7	-
Ganophyllite	-	-	-	-	-	-	-	-	3.1	-
TOTAL	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.

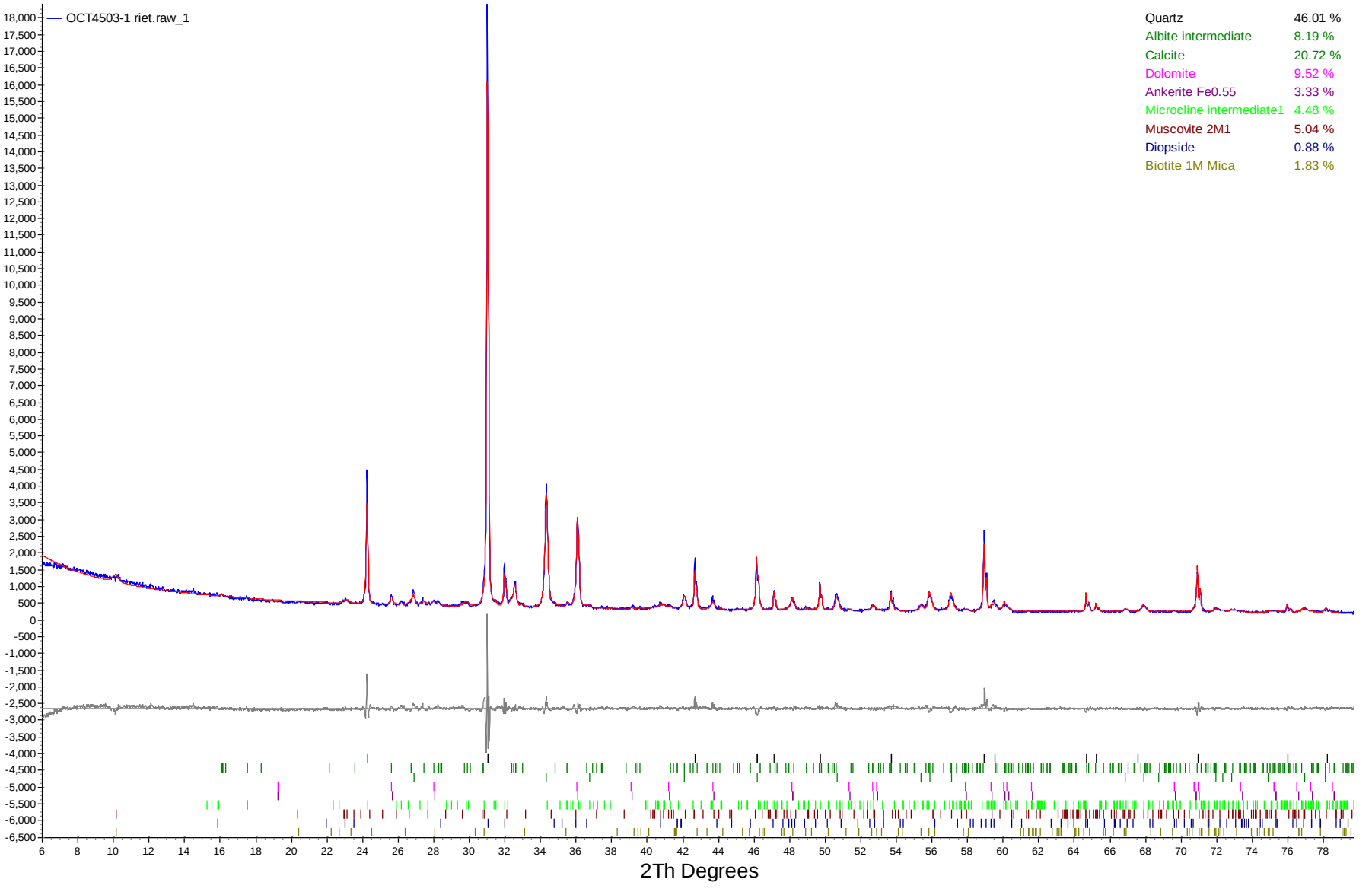
Dashes indicate that the mineral was not identified by the analyst and not included in the refinement calculation for the sample.

The weight percent quantities indicated have been normalized to a sum of 100%. The quantity of amorphous material has not been determined.

Mineral List

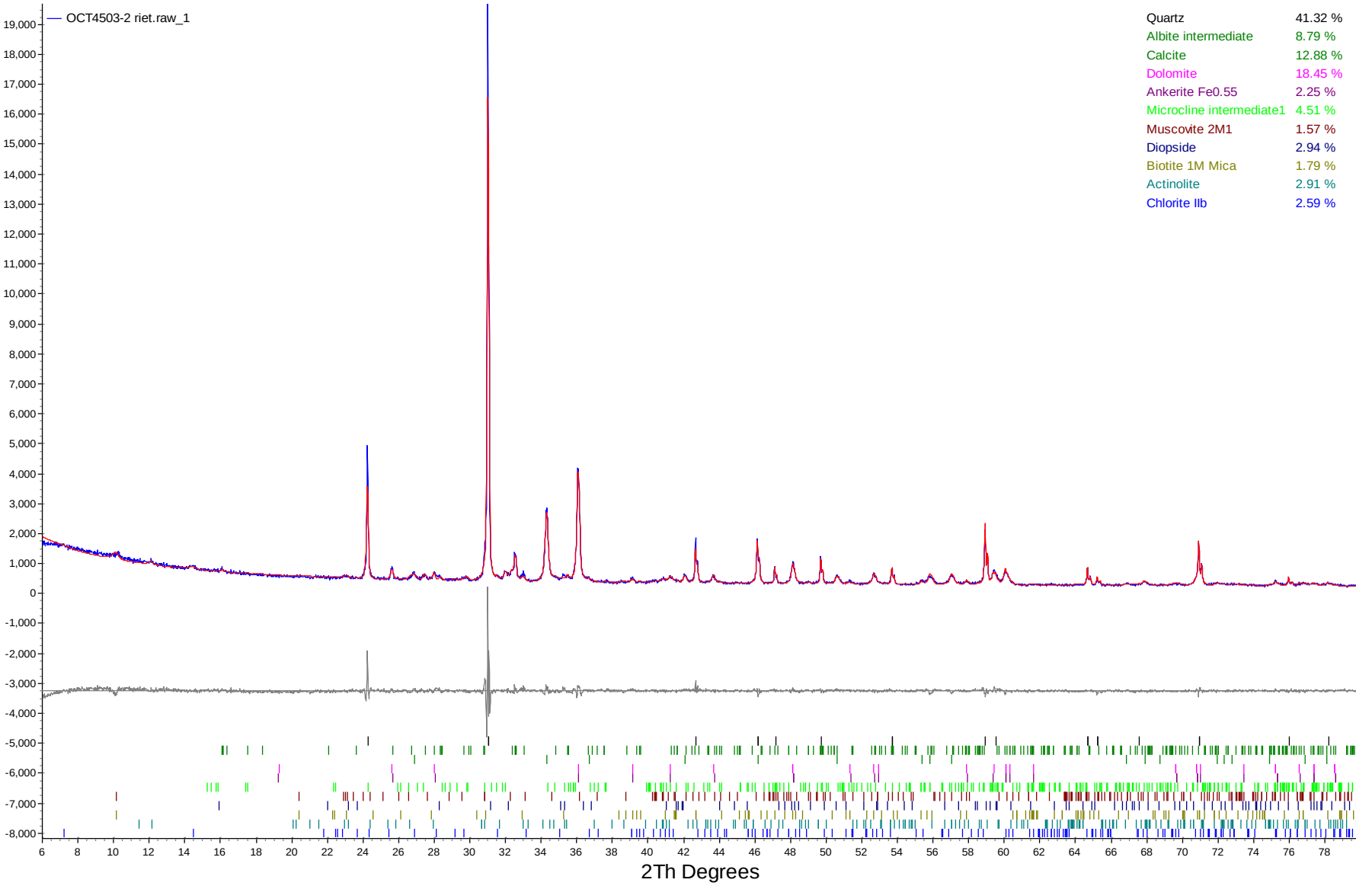
Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Calcite	$CaCO_3$
Dolomite	$CaMg(CO_3)_2$
Ankerite	$CaFe(CO_3)_2$
Microcline	$KAlSi_3O_8$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Diopside	$CaMgSi_2O_6$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Fluorapatite	$Ca_5(PO_4)_3F$
Perovskite	$CaTiO_3$
Periclase	MgO
Hematite	Fe2O3
Magnetite	Fe_3O_4
Gehlenite	$Ca_2(Mg_{0.25}Al_{0.75})(Si_{1.25}Al_{0.75}O_7)$
Mullite	$\sim Al_6Si_3O_{15}$
Ganophyllite	$K_{2.16}Mn_{16}Si_{26.9}O_{67.8}(OH)_8$

N-SB-05 (18.0-20.0)



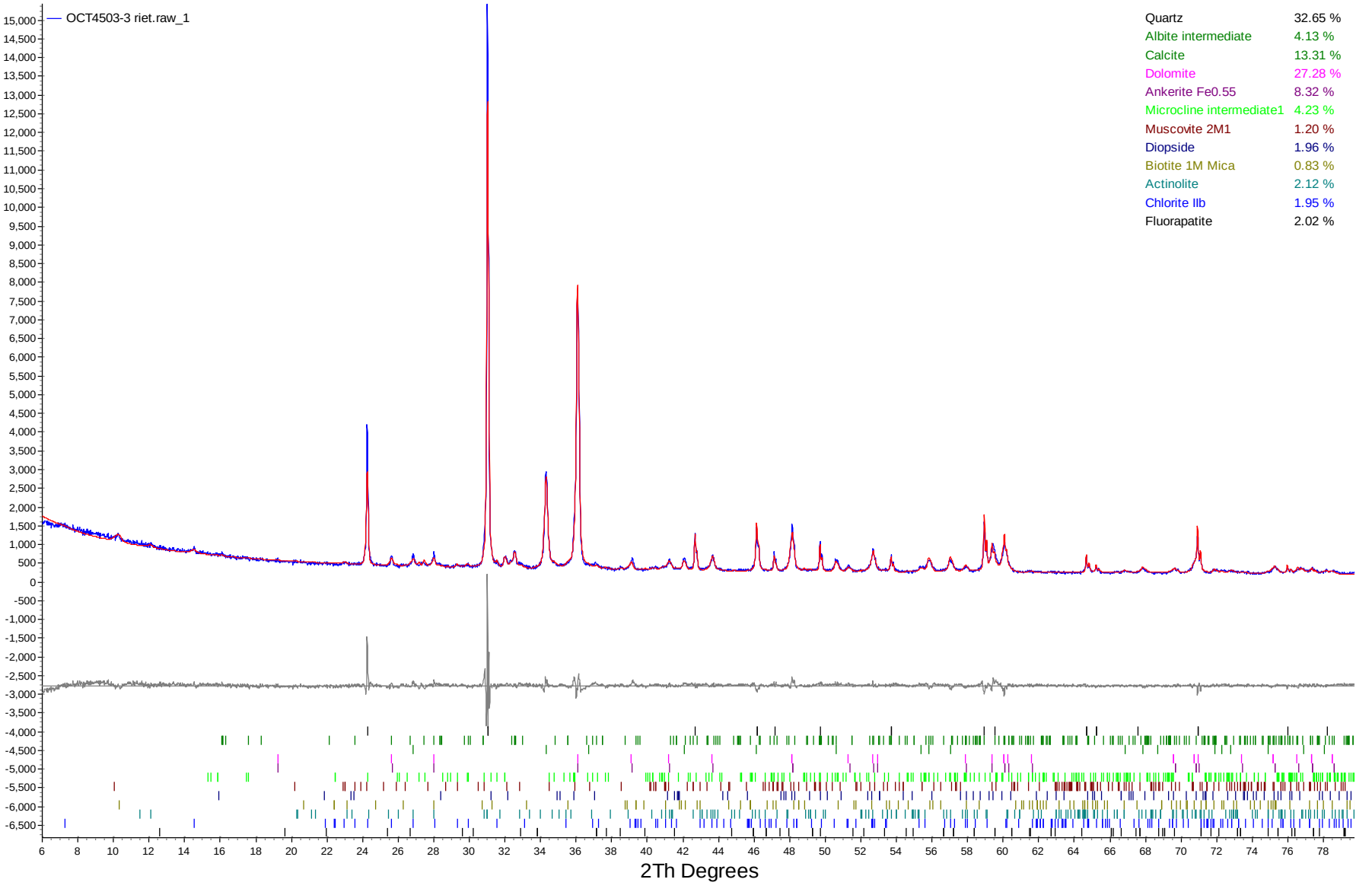
Quartz	46.01 %
Albite intermediate	8.19 %
Calcite	20.72 %
Dolomite	9.52 %
Ankerite Fe0.55	3.33 %
Microcline intermediate1	4.48 %
Muscovite 2M1	5.04 %
Diopside	0.88 %
Biotite 1M Mica	1.83 %

N-SB-05 (60.0-67.1)



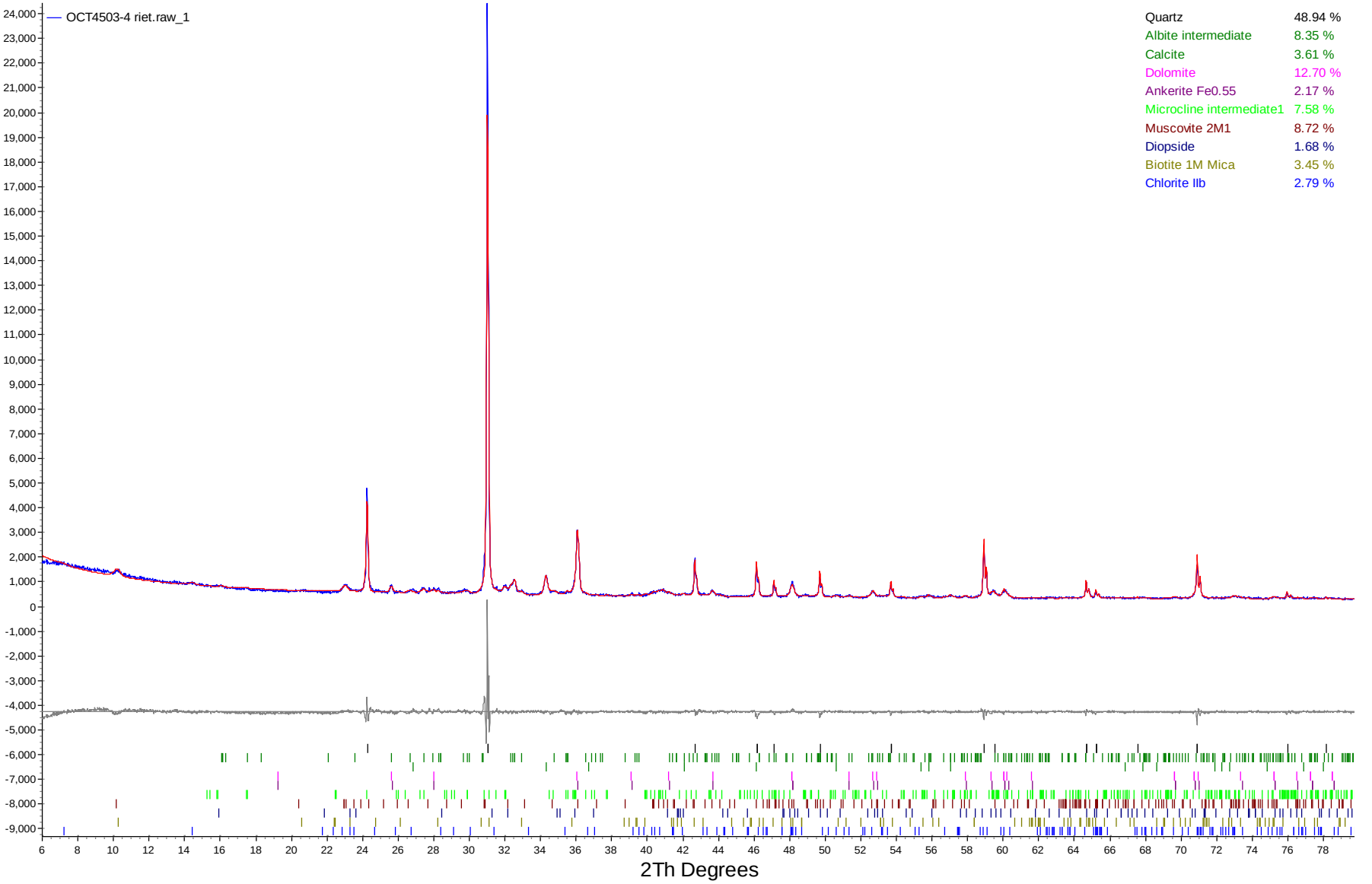
Quartz	41.32 %
Albite intermediate	8.79 %
Calcite	12.88 %
Dolomite	18.45 %
Ankerite Fe0.55	2.25 %
Microcline intermediate1	4.51 %
Muscovite 2M1	1.57 %
Diopside	2.94 %
Biotite 1M Mica	1.79 %
Actinolite	2.91 %
Chlorite IIb	2.59 %

N-SB-18 (77.5-80.0)



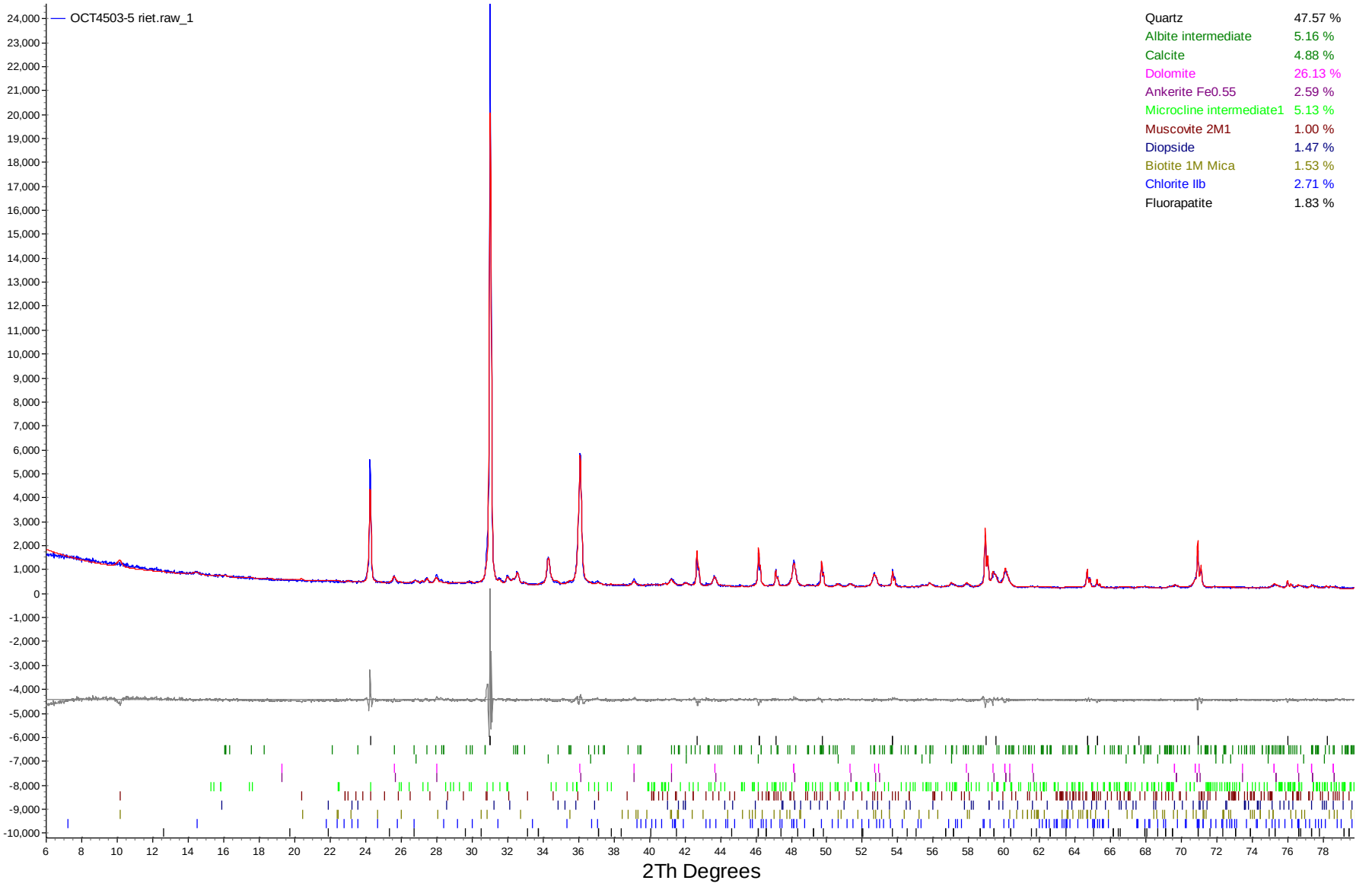
Quartz	32.65 %
Albite intermediate	4.13 %
Calcite	13.31 %
Dolomite	27.28 %
Ankerite Fe0.55	8.32 %
Microcline intermediate1	4.23 %
Muscovite 2M1	1.20 %
Diopside	1.96 %
Biotite 1M Mica	0.83 %
Actinolite	2.12 %
Chlorite IIb	1.95 %
Fluorapatite	2.02 %

N-SB-02 (12.5-20.0)



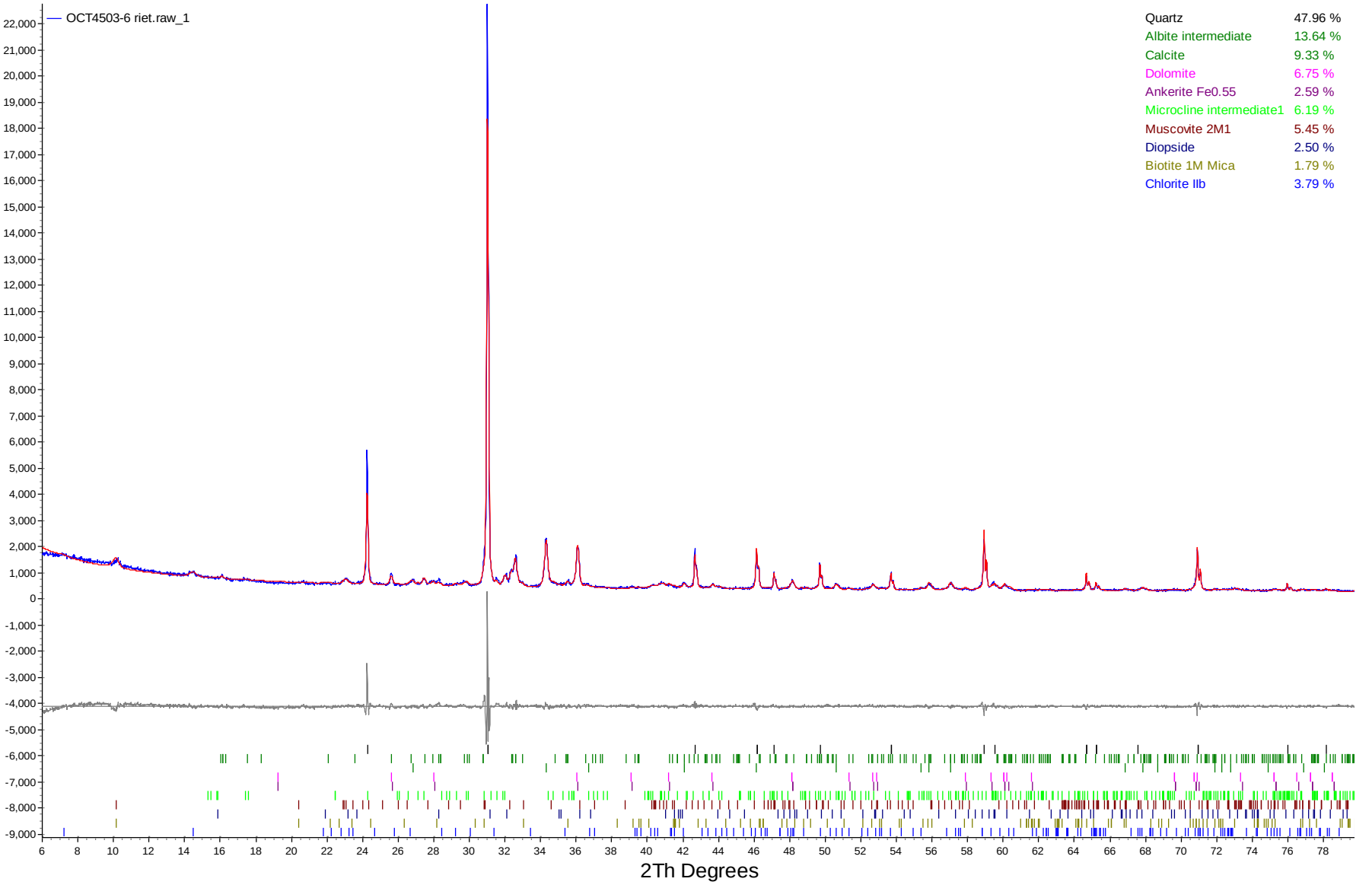
Quartz	48.94 %
Albite intermediate	8.35 %
Calcite	3.61 %
Dolomite	12.70 %
Ankerite Fe0.55	2.17 %
Microcline intermediate1	7.58 %
Muscovite 2M1	8.72 %
Diopside	1.68 %
Biotite 1M Mica	3.45 %
Chlorite IIb	2.79 %

N-SB-02 (65.0-71.5)



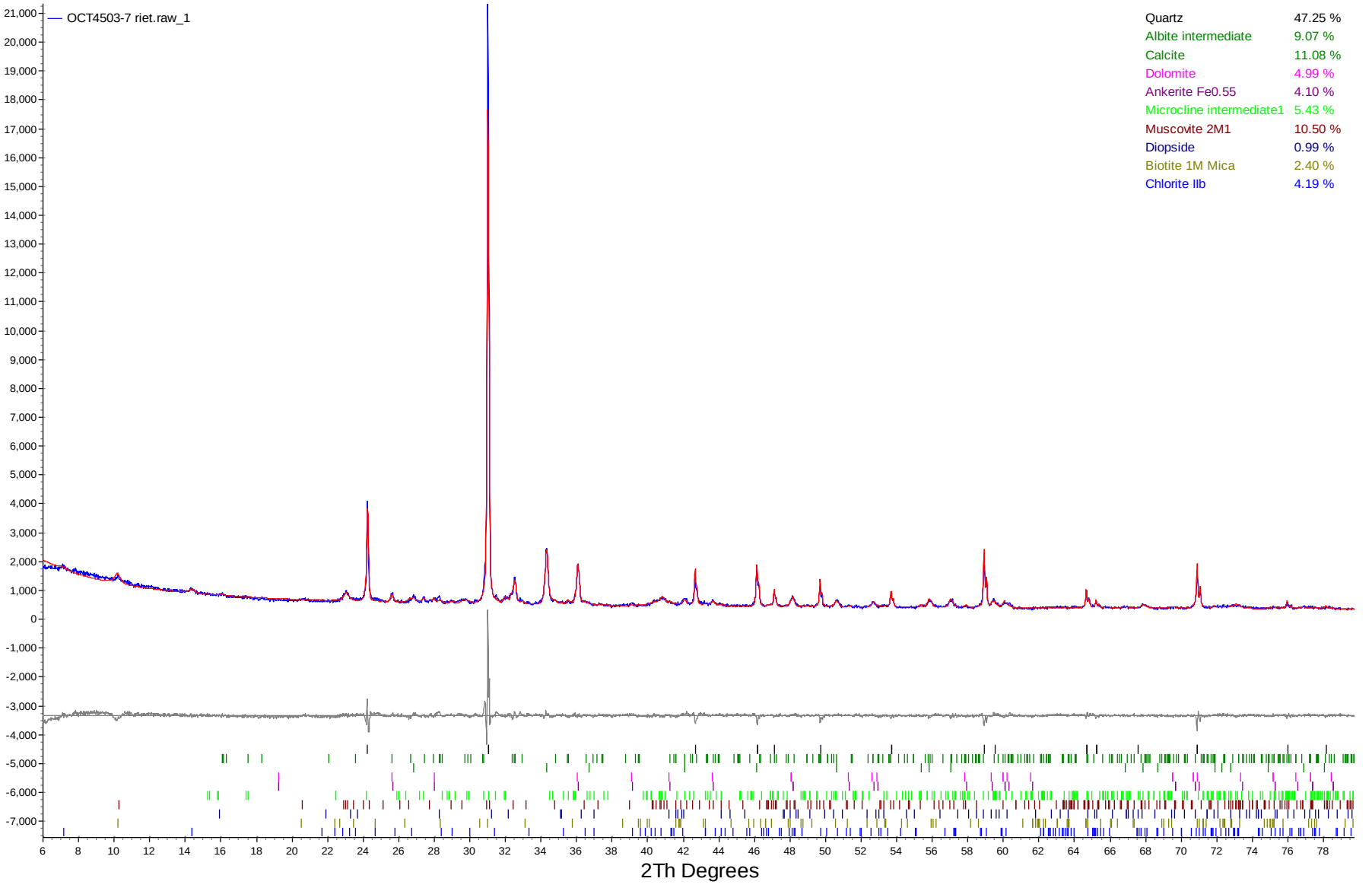
Quartz	47.57 %
Albite intermediate	5.16 %
Calcite	4.88 %
Dolomite	26.13 %
Ankerite Fe0.55	2.59 %
Microcline intermediate1	5.13 %
Muscovite 2M1	1.00 %
Diopside	1.47 %
Biotite 1M Mica	1.53 %
Chlorite IIb	2.71 %
Fluorapatite	1.83 %

N-SB-14



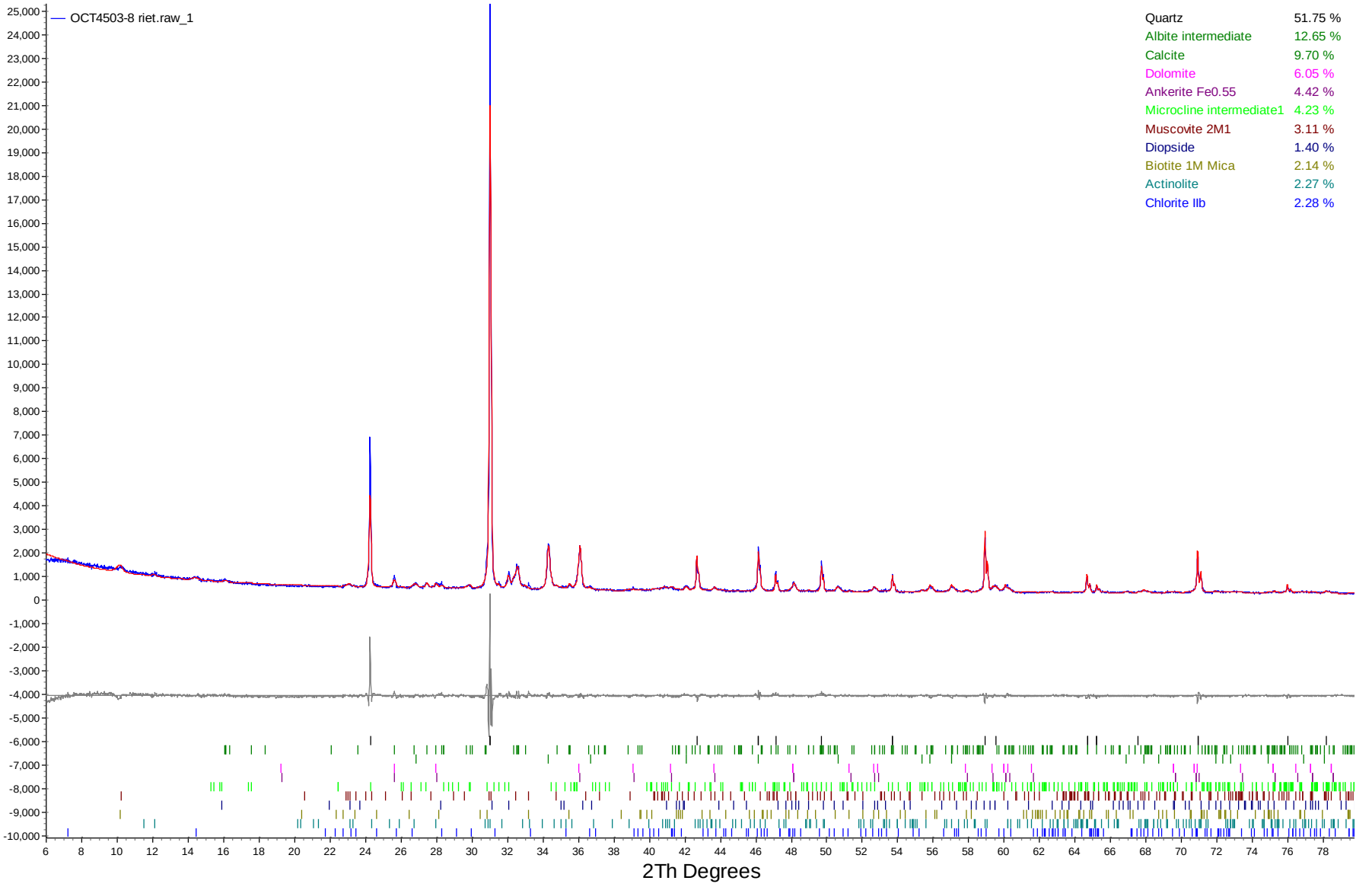
Quartz	47.96 %
Albite intermediate	13.64 %
Calcite	9.33 %
Dolomite	6.75 %
Ankerite Fe0.55	2.59 %
Microcline intermediate1	6.19 %
Muscovite 2M1	5.45 %
Diopside	2.50 %
Biotite 1M Mica	1.79 %
Chlorite IIb	3.79 %

N-SB-04 (12.0-18.0)



Quartz	47.25 %
Albite intermediate	9.07 %
Calcite	11.08 %
Dolomite	4.99 %
Ankerite Fe0.55	4.10 %
Microcline intermediate1	5.43 %
Muscovite 2M1	10.50 %
Diopside	0.99 %
Biotite 1M Mica	2.40 %
Chlorite IIb	4.19 %

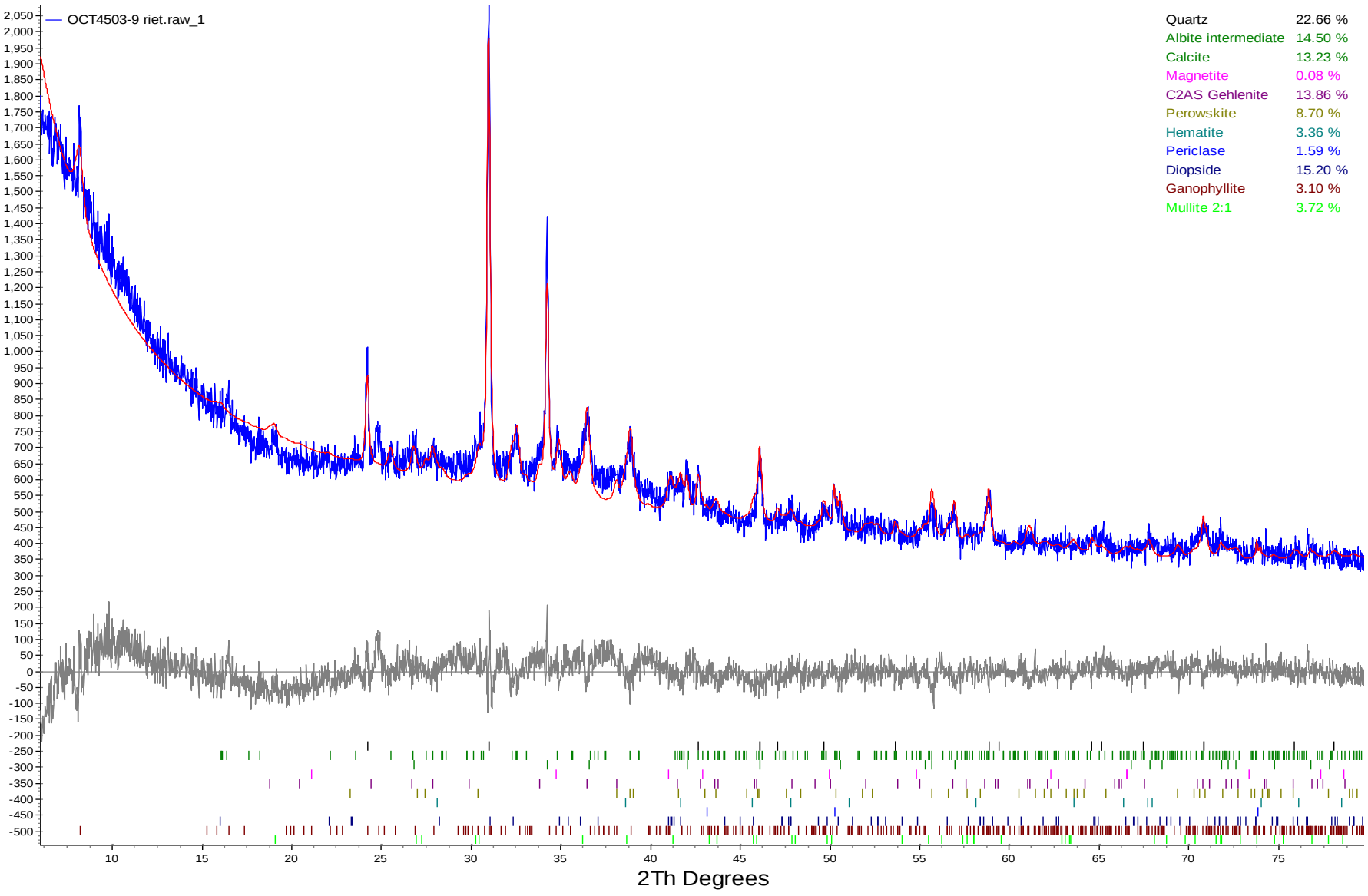
N-SB-04



Quartz	51.75 %
Albite intermediate	12.65 %
Calcite	9.70 %
Dolomite	6.05 %
Ankerite Fe0.55	4.42 %
Microcline intermediate1	4.23 %
Muscovite 2M1	3.11 %
Diopside	1.40 %
Biotite 1M Mica	2.14 %
Actinolite	2.27 %
Chlorite IIb	2.28 %

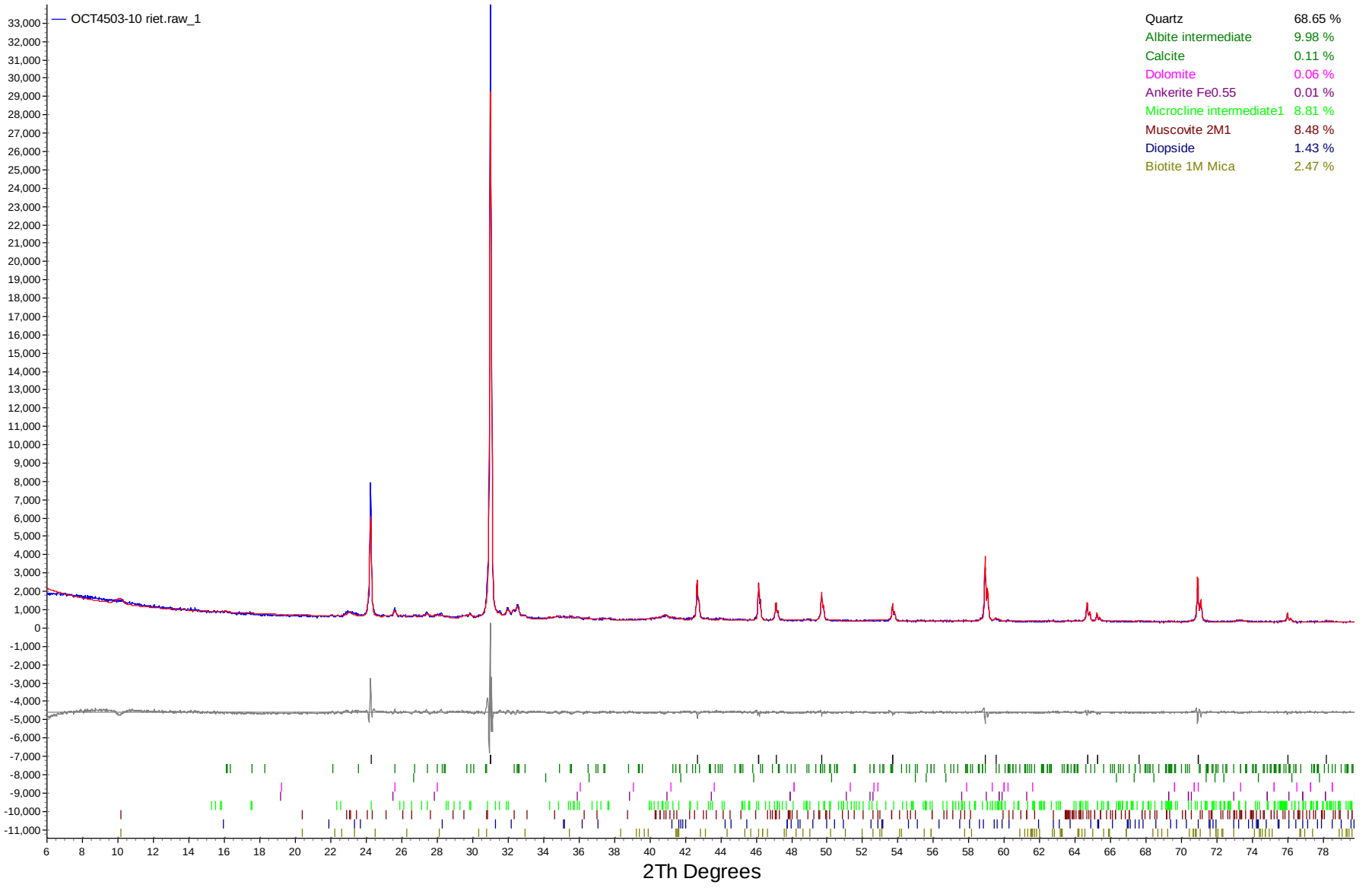
Environmental Services
Custom XRD/MI4503-OCT21
11/02/2021

N-SB-XPW04 (10.0-15.0)



Quartz	22.66 %
Albite intermediate	14.50 %
Calcite	13.23 %
Magnetite	0.08 %
C2AS Gehlenite	13.86 %
Perowskite	8.70 %
Hematite	3.36 %
Periclase	1.59 %
Diopside	15.20 %
Ganophyllite	3.10 %
Mullite 2:1	3.72 %

N-SB-XPW01 (10.0-12.7)



Quartz	68.65 %
Albite intermediate	9.98 %
Calcite	0.11 %
Dolomite	0.06 %
Ankerite Fe0.55	0.01 %
Microcline intermediate1	8.81 %
Muscovite 2M1	8.48 %
Diopside	1.43 %
Biotite 1M Mica	2.47 %

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*WSP (Golder Associates Inc.)*
Project Number/ LIMS No.	*19465-04/MI7011-NOV22*
Sample Receipt:	*November 2, 2022*
Sample Analysis:	*February 16, 2023*
Reporting Date:	*September 7, 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:

1) Method Summary
2) Quantitative XRD Results
3) XRD Pattern(s)

Landon Kapusianyk, B.Sc.
Mineralogist

Logan Jameson, M.Sc., 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.

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3260 Production Way, Burnaby, British Columbia, Canada V5A 4W4
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Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

Mineral/Compound	N-SB-04 (12-18) JAN7011-01 (wt %)	N-SB-04 (40-45) JAN7011-02 (wt %)	N-SB-02 (10-13) JAN7011-03 (wt %)	N-SB-05 (10-16.6) JAN7011-04 (wt %)	N-SB-14 (50-52) JAN7011-05 (wt %)
Quartz	46.1	53.0	53.9	72.8	50.4
Albite	9.7	14.3	9.0	7.7	10.0
Orthoclase	2.3	2.4	3.1	6.6	2.6
Biotite	2.0	0.8	1.6	-	0.3
Muscovite	16.0	8.7	10.4	-	11.1
Chlorite	2.9	2.5	1.5	-	3.7
Calcite	12.9	7.7	7.0	-	9.9
Dolomite	7.0	9.9	11.9	0.9	12.1
Ankerite	1.1	-	1.1		
Actinolite	-	0.8	0.5	-	-
Montmorillonite	-	-	-	12.0	-
TOTAL	100	100	100	100	100

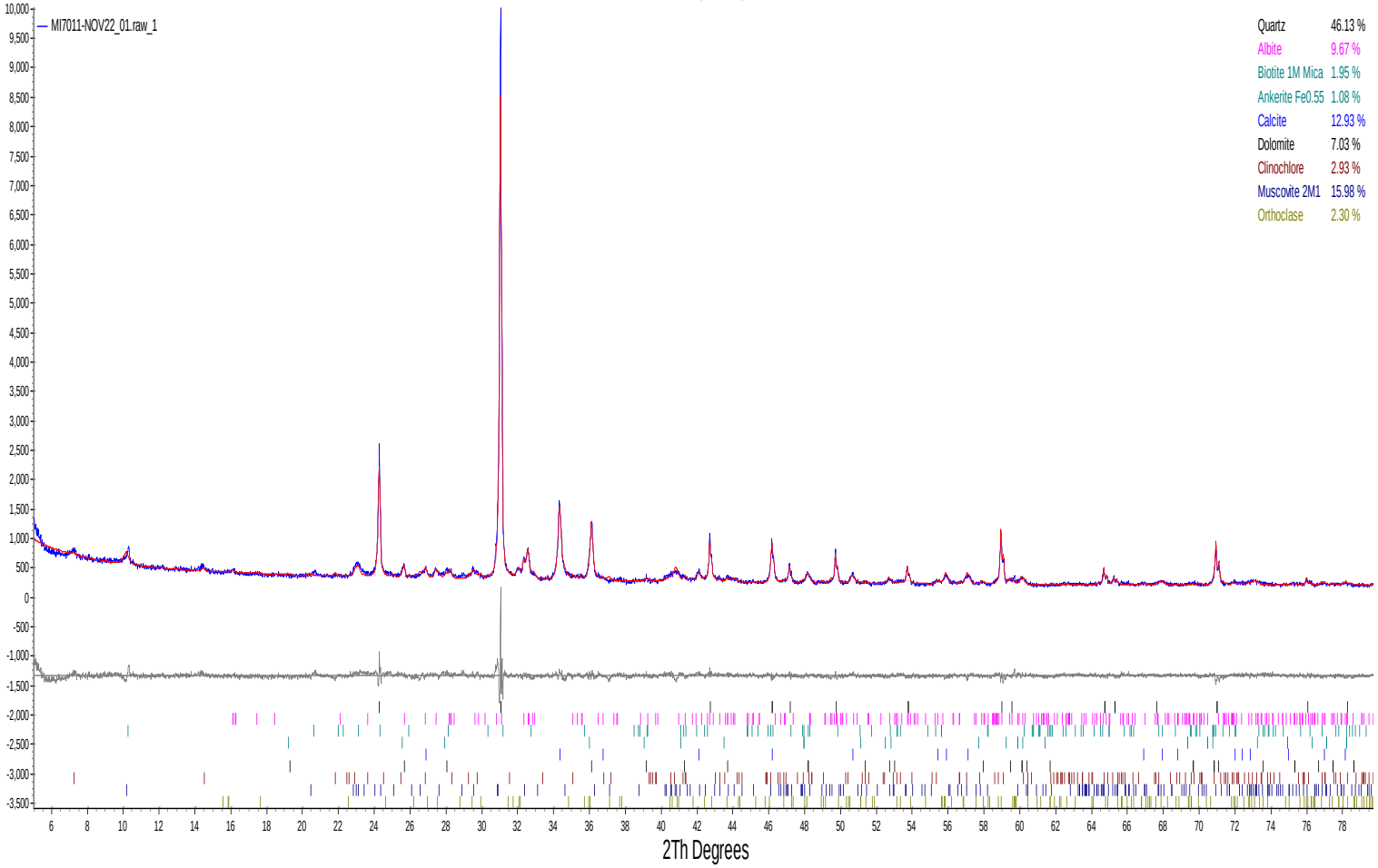
Zero values indicate that the mineral was included in the refinement, but the calculated concentration is below a measurable value.

Dashes indicate that the mineral was not identified by the analyst and not included in the refinement calculation for the sample.

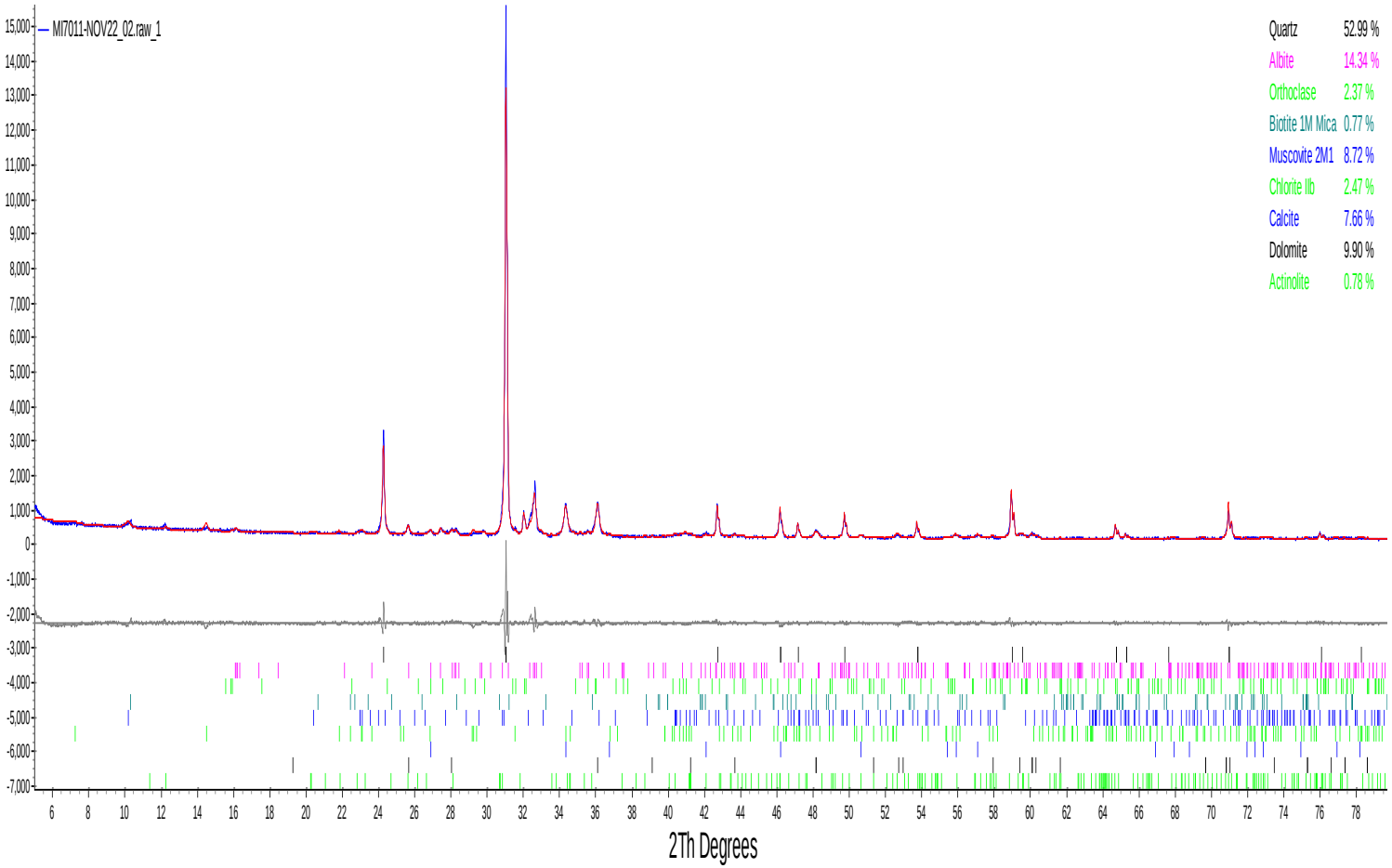
The weight percent quantities indicated have been normalized to a sum of 100%. The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Orthoclase	$KAlSi_3O_8$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Calcite	$CaCO_3$
Dolomite	$CaMg(CO_3)_2$
Ankerite	$CaFe(CO_3)_2$
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot 10H_2O$

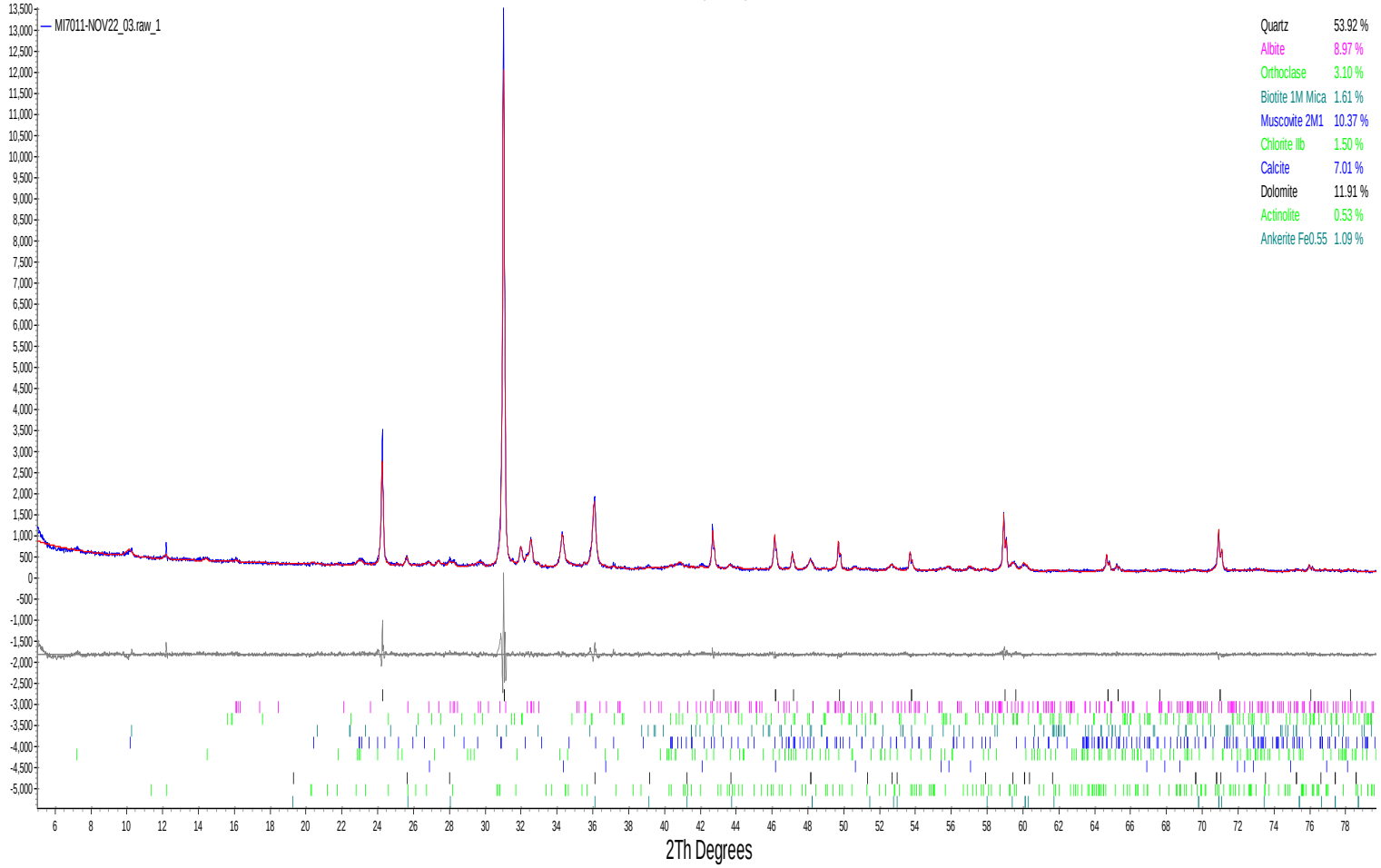
N-SB-04 (12-18)


MI7011-NOV22_01.raw_1
Quartz 46.13 %
Albite 9.67 %
Biotite 1M Mica 1.95 %
Ankerite Fe0.55 1.08 %
Calcite 12.93 %
Dolomite 7.03 %
Clinochlore 2.93 %
Muscovite 2M1 15.98 %
Orthoclase 2.30 %
2Th Degrees

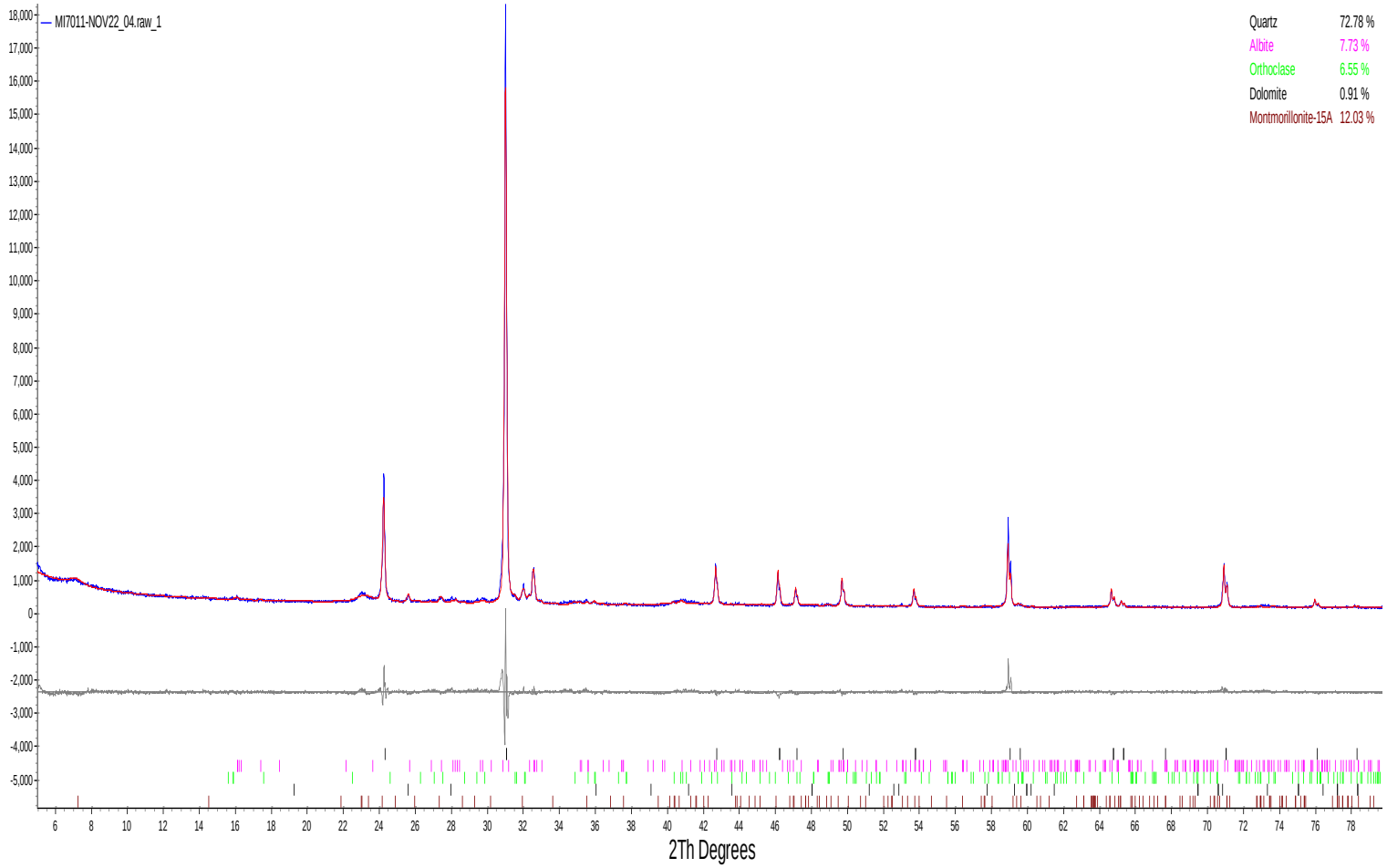
N-SB-04 (40-45)


MI7011-NOV22_02.raw_1
Quartz 52.99 %
Albite 14.34 %
Orthoclase 2.37 %
Biotite 1M Mica 0.77 %
Muscovite 2M1 8.72 %
Chlorite IIb 2.47 %
Calcite 7.66 %
Dolomite 9.90 %
Actinolite 0.78 %
2Th Degrees

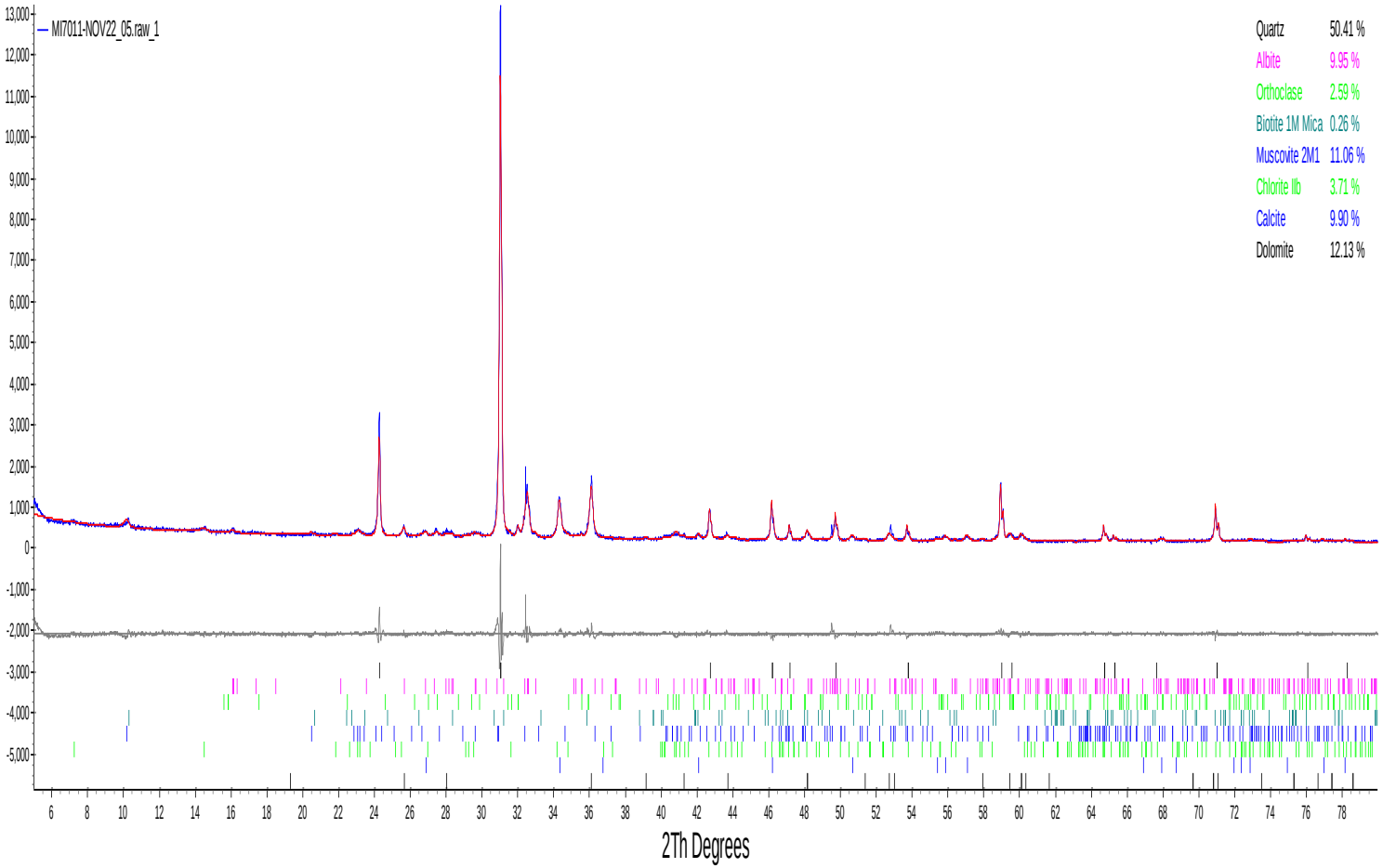
N-SB-02 (10-13)


MI7011-NOV22_03.raw_1
Quartz 53.92 %
Albite 8.97 %
Orthoclase 3.10 %
Biotite 1M Mica 1.61 %
Muscovite 2M1 10.37 %
Chlorite IIb 1.50 %
Calcite 7.01 %
Dolomite 11.91 %
Actinolite 0.53 %
Ankerite Fe0.55 1.09 %
2Th Degrees

N-SB-05 (10-16.6


MI7011-NOV22_04.raw_1
Quartz 72.78 %
Albite 7.73 %
Orthoclase 6.55 %
Dolomite 0.91 %
Montmorillonite-15A 12.03 %
2Th Degrees

N-SB-14 (50-52)


MI7011-NOV22_05.raw_1
Quartz 50.41 %
Albite 9.95 %
Orthoclase 2.59 %
Biotite 1M Mica 0.26 %
Muscovite 2M1 11.06 %
Chlorite IIb 3.71 %
Calcite 9.90 %
Dolomite 12.13 %
2Th Degrees

ATTACHMENT 5
SGS X-RAY FLUORESCENCE (XRF) LABORATORY REPORT

ANALYSIS REPORT BBM23-25016

To F400101 SGS CANADA INC
LAIN GLOSSOP
3260 PRODUCTION WAY
BURNABY V5A 4W4
BC
CANADA

Project	CA20I-00000-211-19465-03	Date Received	13-Dec-2022
Submission Number	19465-03I/ MI7011-NOV22/ 5 Pulps	Date Analysed	05-Jan-2023 - 09-Jan-2023
Number of Samples	5	Date Completed	11-Jan-2023
		SGS Order Number	BBM23-25016

Methods Summary

Number of Sample	Method Code	Description
5	GC_CSA06V	Control grade Total Sulphur and Carbon, IR Combustion
5	G_PHY01V	Loss on ignition (LOI), Furnace, variable wt, variable temp
5	GO_XRF72	Borate Fusion, XRF, Ore Grade

Authorised Signatory

John Chiang
Laboratory Operations Manager

SCC Accredited LAB Accrédité CCN

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- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received

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Project	CA20I-00000-211-19465-03
Submission Number	19465-03I/ MI7011-NOV22/ 5 Pulps
Number of Samples	5

ANALYSIS REPORT BBM23-25016

Element	@S	LOI	@Al2O3	@CaO	@Cr2O3	@Fe2O3
Method	GC_CSA06V	G_PHY01V	GO_XRF72	GO_XRF72	GO_XRF72	GO_XRF72
Lower Limit	0.01	-10	0.01	0.01	0.01	0.01
Upper Limit	100	100	100	60	5	100
Unit	%	%	%	%	%	%
N-SB-04 (12-18)	0.04	12.8487	10.34	9.54	0.02	4.89
N-SB-04 (40-45)	0.03	10.0880	7.32	8.23	0.04	3.31
N-SB-02 (10-13)	0.04	11.9900	7.26	8.65	0.03	3.47
N-SB-05 (10-16.6)	0.04	5.19844	9.39	0.74	0.03	3.32
N-SB-14 (50-52)	0.14	11.9588	7.99	9.31	0.03	3.43
*Rep N-SB-14 (50-52)	0.14	-	-	-	-	-
*Std GS314-2	2.56	-	-	-	-	-
*Blk BLANK	<0.01	-	-	-	-	-
*Std OREAS 624	13.57	-	-	-	-	-
*Rep N-SB-04 (12-18)	-	12.8387	-	-	-	-
*Blk BLANK	-	-	-	-	-	-
*Std OREAS 70b	-	6.91000	-	-	-	-
*Rep N-SB-04 (12-18)	-	-	10.36	9.60	0.02	4.89
*Std OREAS 751	-	-	15.83	1.04	0.01	2.41
*Blk BLANK	-	-	<0.01	<0.01	<0.01	<0.01

Element	@K2O	@MgO	Mn3O4	@Na2O	@P2O5	@SiO2
Method	GO_XRF72	GO_XRF72	GO_XRF72	GO_XRF72	GO_XRF72	GO_XRF72
Lower Limit	0.01	0.01	0.01	0.01	0.01	0.01
Upper Limit	70	100	100	60	55	100
Unit	%	%	%	%	%	%
N-SB-04 (12-18)	1.97	2.57	0.11	0.90	0.11	56.19
N-SB-04 (40-45)	1.55	2.58	0.07	1.26	0.11	65.37
N-SB-02 (10-13)	1.71	3.33	0.07	0.81	0.08	62.21
N-SB-05 (10-16.6)	1.67	0.74	0.02	0.65	0.03	77.97
N-SB-14 (50-52)	1.68	3.11	0.09	1.06	0.09	60.55
*Rep N-SB-04 (12-18)	1.95	2.56	0.11	0.90	0.11	56.25
*Std OREAS 751	2.92	0.50	0.10	3.40	0.28	71.33
*Blk BLANK	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received

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Project	CA20I-00000-211-19465-03
Submission Number	19465-03I/ MI7011-NOV22/ 5 Pulps
Number of Samples	5

ANALYSIS REPORT BBM23-25016

Element	@TiO2	@V2O5	Sum	Cl
Method	GO_XRF72	GO_XRF72	GO_XRF72	GO_XRF72
Lower Limit	0.01	0.01	0.01	0.01
Upper Limit	100	10	100	30
Unit	%	%	%	%
N-SB-04 (12-18)	0.59	<0.01	87.35	<0.01
N-SB-04 (40-45)	0.45	<0.01	90.41	<0.01
N-SB-02 (10-13)	0.39	<0.01	88.18	<0.01
N-SB-05 (10-16.6)	0.54	0.01	95.20	<0.01
N-SB-14 (50-52)	0.49	0.01	88.23	0.01
*Rep N-SB-04 (12-18)	0.59	0.02	87.46	<0.01
*Std OREAS 751	0.24	<0.01	98.29	0.01
*Blk BLANK	<0.01	<0.01	0.04	<0.01

SGS Canada Minerals Burnaby conforms to the requirements of ISO/IEC17025 for specific tests as listed on their scope of accreditation found at https://www.scc.ca/en/search/laboratories/sgs
Tests and Elements marked with an "@" symbol in the report denote ISO/IEC17025 accreditation.

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received

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Member of the SGS Group (SGS SA)

ATTACHMENT 6
SGS TESCAN INTEGRATED MINERAL ANALYSIS (TIMA) LABORATORY REPORT

TIMA DATA

prepared for:

WSP USA

19465-03
MI7011-NOV22
December 1, 2023

Prepared by:

Margot Aldis
Mineralogist

SGS Canada
3260 Production Way, Burnaby, BC V5A 4W4
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Member of the SGS Group (SGS SA)

WSP USA
19465-03
MI7011-NOV22

High Definition Mineralogical Analysis using TIMA (TESCAN Integrated Mineral Analyzer)

Modals

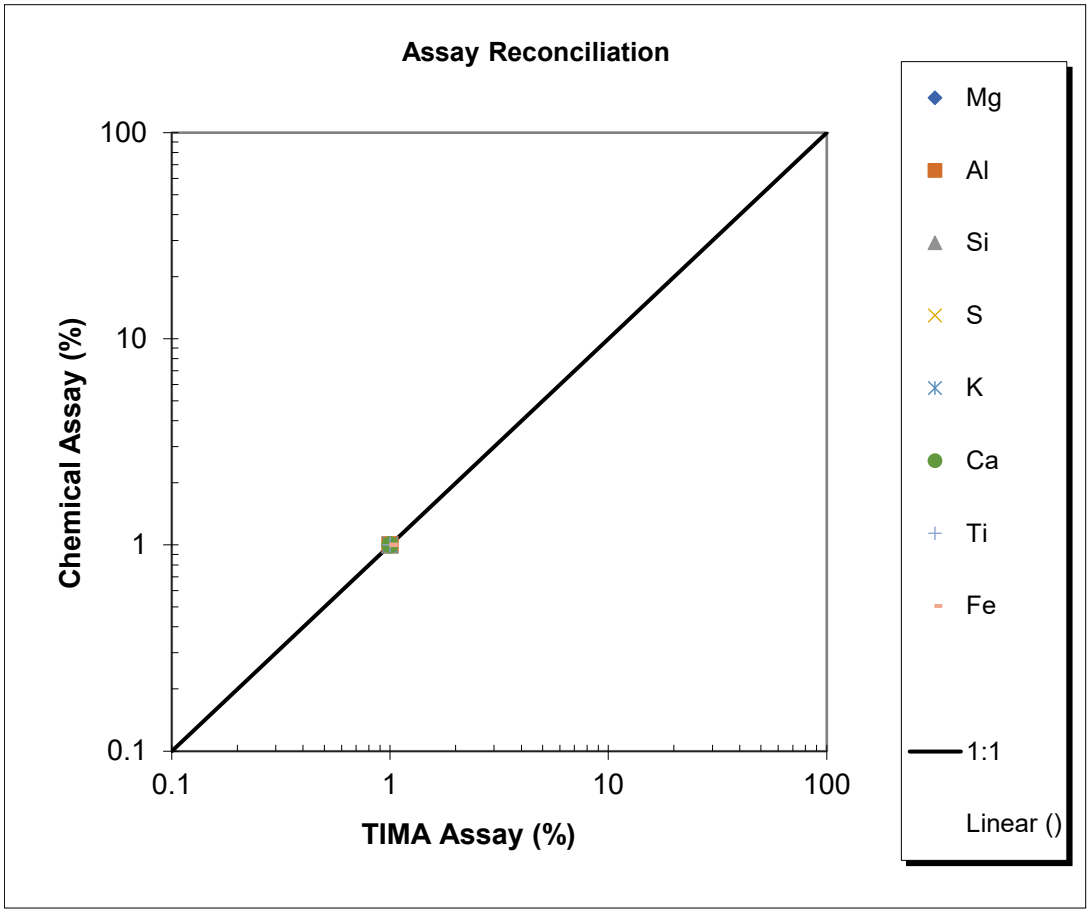
Survey		**19465-03 / MI7011-NOV22**		
Project		**WSP USA**		
Sample		N-SB-04 (12.0-18.0)	N-SB-02 (10.0-13.0)	N-SB-05 (10.0-16.6)
Fraction		As Rec'd	As Rec'd	As Rec'd
Mass % of Size Fraction [%]		100.0	100.0	100.0
Median Particle Size (µm)		90	111	86
		Sample	**Sample**	**Sample**
Mineral Mass (%)	Quartz	37.7	55.1	61.9
	Plagioclase	11.1	9.28	8.12
	K-Feldspar	3.12	5.28	5.32
	Mixed Clays/Micas	21.1	8.41	22.5
	Chlorites	1.86	0.81	0.48
	Other Silicates	0.95	0.85	0.21
	Iron Oxides	0.73	0.96	0.49
	Ti Fe Oxide	0.73	0.45	0.50
	Other Oxides	0.06	0.07	0.08
	Calcite	13.7	7.70	0.23
	Dolomite	8.05	10.5	0.09
	Ankerite	0.55	0.35	0.02
	Sulphides	0.00	0.05	0.01
	Sulphates/Phosphates	0.22	0.14	0.04
	Other	0.09	0.09	0.07
	Total	100.0	100.0	100.0
Mean Grain Size (µm)	Quartz	18	30	20
	Plagioclase	13	16	11
	K-Feldspar	18	23	21
	Mixed Clays/Micas	7	7	8
	Chlorites	7	7	7
	Other Silicates	10	9	14
	Iron Oxides	12	13	19
	Ti Fe Oxide	6	7	7
	Other Oxides	13	11	11
	Calcite	14	19	16
	Dolomite	14	15	13
	Ankerite	6	7	9
	Other Carbonates	0	4	0
	Sulphides	4	11	5
	Sulphates/Phosphates	11	11	8

**The main sulphide in the sulphides group is pyrite.*

WSP USA
19465-03
MI7011-NOV22

High Definition Mineralogical Analysis using TIMA (TESCAN Integrated Mineral Analyzer)

Assay Reconciliation



Sample	N-SB-04 (12.0-18.0)	N-SB-02 (10.0-13.0)	N-SB-05 (10.0-16.6)
Element	**As Rec'd**	**As Rec'd**	**As Rec'd**
Mg TIMA Calculated	1.51	1.70	0.33
Mg Chemical Assay	1.55	2.01	0.45
Al TIMA Calculated	4.92	3.34	4.56
Al Chemical Assay	5.47	3.84	4.97
Si TIMA Calculated	27.0	32.1	38.2
Si Chemical Assay	26.3	29.1	36.4
S TIMA Calculated	0.01	0.03	0.01
S Chemical Assay	0.04	0.04	0.04
K TIMA Calculated	1.54	1.19	1.35
K Chemical Assay	1.64	1.42	1.39
Ca TIMA Calculated	7.89	5.86	0.51
Ca Chemical Assay	6.82	6.18	0.53
Ti TIMA Calculated	0.48	0.31	0.40
Ti Chemical Assay	0.35	0.23	0.32
Fe TIMA Calculated	2.92	1.87	1.78
Fe Chemical Assay	3.42	2.43	2.32

ATTACHMENT 7
SGS ELECTRON MICROPROBE ANALYSIS (EMPA) AND LASER ABLATION-INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY (LA-ICP-MS) LAB REPORT

MEMO

To : PJ Nolan; Eric Schneider

Project : 19465-03 Newton Power Plant (MI7011-NOV22)

Company : WSP, on behalf of Vistra Energy

Date : September 11, 2023

Total pages : 5 + Appendices

Re : TIMA Mineralogical Analysis of Soil Samples with supporting EMPA and LA-ICP-MS data focused on Lithium Determination.

This memo summarizes testwork completed by the mineralogy group at SGS Burnaby, BC, Canada, on five samples submitted by WSP. The objective of the testwork was to characterize the mineralogy of samples and determine if any minerals contain low levels of lithium (Li). The analysis was completed using a combination of TIMA-X (TESCAN Integrated Mineral Analyser), XRD analysis (X-Ray Diffraction), EMPA (Electron MicroProbe Analysis) and LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry). The modal mineralogy and elemental compositions are reported.

The analysis indicated that the samples were primarily composed of quartz (37.7-61.9%), with the phase of interest being mixed clay/mica species (8.41-22.5%). Moderate abundance of plagioclase (8.12-11.1%) and minor amounts of K-feldspar. Carbonates of calcite and dolomite are present in abundance in two of the samples. The Li concentration within the mixed clay/mica ranged from 3.25 ppm to 502.9 ppm.

1. Sample Preparation

Five samples were provided for the project and submitted to SGS Mineralogy. The samples were received wet and were dried at 30 °C. Dry weight was taken and inventoried, and all information was entered into a Laboratory Information Management System (LIMS) with the assigned number MI7011-NOV22.

Head geochemical assay submission was done on a pulverized subsample. Assays conducted were major elements by Whole Rock Analysis (WRA), including chlorine (Cl) using fusion X-ray Fluorescence (XRF), total S by LECO and trace metals by multi-acid ICP-MS/OES for lithium (Li) and boron (B). A subsample of each sample was submitted for XRD analysis, and a further subsample was submitted to the SGS ARD department for 6-step Tessier Sequential Extraction, to include boron.

Three samples were selected for further mineralogy analysis by TIMA, with EMPA and LA-ICP-MS based on the clay/mica content and lithium values. These selected samples were (N-SB-04 (12-18), N-SB-02 (10-13), and N-SB-05 (10-16.6).

Each sample was de-agglomerated, stage-crushed to a P80 of 150 µm and micro-riffled to obtain a ~2-3 g subsample, which was used to prepare two polished sections per sample.

2. Tessier Leach

The summary of lithium results of the 6-step Tessier Leach test on all five samples. Measured and normalized are given below in Table 1 and Table 2, and the full elemental suite is shown in the results attached.

Table 1: Summary of the Lithium results from the 6-Step Tessier Leach Test

Element	Tessier Leach Step	Unit	N-SB-04 (12-18)	N-SB-04 (40-45)	N-SB-02 (10-13)	N-SB-05 (10-16.6)	N-SB-14 (50-52)
Lithium (Li)	Water Soluble	ppm	0.01	0.01	0.02	0.01	0.01
Lithium (Li)	Exchangable	ppm	0.02	0.01	0.02	0.01	0.01
Lithium (Li)	Bound to carbonates	ppm	0.03	0.02	0.03	0.02	0.03
Lithium (Li)	Bound to Fe&Mn Oxides	ppm	0.11	0.06	0.08	0.08	0.08
Lithium (Li)	Bound in Organics	ppm	0.04	0.03	0.03	0.02	0.04
Lithium (Li)	Residue	ppm	30.0	13.0	19.0	19.0	18.0
Lithium (Li)	Total	ppm	30.2	13.1	19.2	19.1	18.2

Table 2: Normalized Lithium results from the 6-Step Tessier Leach Test

Element	Tessier Leach Step	Unit	N-SB-04 (12-18)	N-SB-04 (40-45)	N-SB-02 (10-13)	N-SB-05 (10-16.6)	N-SB-14 (50-52)
Lithium (Li)	Water Soluble	%	0.05	0.06	0.08	0.05	0.06
Lithium (Li)	Exchangable	%	0.06	0.07	0.08	0.07	0.07
Lithium (Li)	Bound to carbonates	%	0.11	0.18	0.17	0.10	0.17
Lithium (Li)	Bound to Fe&Mn Oxides	%	0.35	0.47	0.44	0.41	0.42
Lithium (Li)	Bound in Organics	%	0.13	0.24	0.18	0.11	0.23
Lithium (Li)	Residue	%	99.3	99.0	99.1	99.3	99.1
Lithium (Li)	Total	%	100.0	100.0	100.0	100.0	100.0

3. MINERALOGY

3.1. X-RAY DIFFRACTION ANALYSIS

The mineral identification and interpretation by XRD involved 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). Quantitative Rietveld analysis is performed by using Topas 4.2 (Bruker AXS).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds. 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 and additional mineralogy. The primary mineral was quartz, with notable amounts of muscovite and montmorillonite.

Table 3: Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

Mineral/Compound	N-SB-04 (12-18) JAN7011-01 (wt %)	N-SB-04 (40-45) JAN7011-02 (wt %)	N-SB-02 (10-13) JAN7011-03 (wt %)	N-SB-05 (10-16.6) JAN7011-04 (wt %)	N-SB-14 (50-52) JAN7011-05 (wt %)
Quartz	46.1	53.0	53.9	72.8	50.4
Albite	9.7	14.3	9.0	7.7	10.0
Orthoclase	2.3	2.4	3.1	6.6	2.6
Biotite	2.0	0.8	1.6	-	0.3
Muscovite	16.0	8.7	10.4	-	11.1
Chlorite	2.9	2.5	1.5	-	3.7
Calcite	12.9	7.7	7.0	-	9.9
Dolomite	7.0	9.9	11.9	0.9	12.1
Ankerite	1.1	-	1.1		
Actinolite	-	0.8	0.5	-	-
Montmorillonite	-	-	-	12.0	-
TOTAL	100	100	100	100	100

3.2. TIMA-X MINERALOGY (ALTERNATIVE AUTOMATED MINERALOGICAL ANALYSIS)

TIMA-X is an acronym for TESCAN Integrated Mineral Analyzer, and it is based on four Energy Dispersive X-ray (EDX) silicon drift detectors (SDD) attached to a TESCAN MIRA (field-emission gun – FEG) platform, which also includes a backscattered electron (BSE) and secondary electron (SE) detectors. The TIMA system utilizes both the EDX and BSE signals to identify minerals at each measurement point (or each homogenous segment of a grain, depending upon the analysis mode). It is optimized to deal with rapidly acquired low-count spectra. These EDX (and BSE) spectra (and BSE data) are compared to entries in a mineral library on a first-match principle to identify the mineral phase. The mineral library is based on theoretical mineral/phase composition or created by the user based on BSE, X-ray spectral windows counts and ratios.

High-Resolution Mapping (THRM), was the selected scan mode. The THRM collects a BSE signal and an X-ray spectrum at a set resolution (3 µm) to map the particles. It collects modal and textural information, such as liberation or exposure analysis of grains of interest.

Three samples were analyzed using TIMA-X for the project. The mineral abundances were determined and shown below in Table 4, with the data report attached. The mineral phase of interest would be mixed clays/micas. These were grouped due to the fine-grained and intergrown nature of the minerals. The abundance of mixed clays/micas ranged from 8.41 % to 22.5% and on average ~17.3%.

Table 4: Modal Mineralogy by TIMA-X (across three selected samples)

Survey		**19465-03 / MI7011-NOV22**		
Project		**WSP USA**		
Sample		**N-SB-04 (12.0-18.0)**	**N-SB-02 (10.0-13.0)**	**N-SB-05 (10.0-16.6)**
Mineral Mass (%)	Quartz	37.7	55.1	61.9
	Plagioclase	11.1	9.28	8.12
	K-Feldspar	3.12	5.28	5.32
	Mixed Clays/Micas	21.1	8.41	22.5
	Chlorites	1.86	0.81	0.48
	Other Silicates	0.95	0.85	0.21
	Iron Oxides	0.73	0.96	0.49
	Ti Fe Oxide	0.73	0.45	0.50
	Other Oxides	0.06	0.07	0.08
	Calcite	13.7	7.70	0.23
	Dolomite	8.05	10.5	0.09
	Ankerite	0.55	0.35	0.02
	Sulphides	0.00	0.05	0.01
	Sulphates/Phosphates	0.22	0.14	0.04
	Other	0.09	0.09	0.07
	Total	100.0	100.0	100.0

3.3. EMPA AND LA-ICP-MS

The polished sections for each sample were submitted for EMPA and LA-ICP-MS at the University of New Brunswick, Microscopy and Microanalysis Facility. Electron Microprobe Analysis (EMPA) with selected minerals of interest (clays and micas) were analyzed to quantify the chemical composition of the major and minor elements. It is well known that many minerals display compositional variations. Therefore, EPMA was necessary to determine the chemistry of the minerals and identify the minerals correctly. LA-ICP-MS was combined with the EPMA to determine the Li content in the clay-sized and mica minerals.

The EMPA data indicated that the lithium concentration across all three samples ranged from 3.25 ppm to 502.9 ppm and averaged at 70.5 ppm. Among the three samples, N-SB-04 (12.0-18.0) showed the highest average Li concentration of 93.3 ppm, followed by N-SB-02 (10-13) at 67.6 ppm and N-SB-05 (10-16.6) at 53.3 ppm.

4. Conclusion

Due to the trace lithium grades and the fine-grained nature of the micas present, gathering a high number of satisfactory elemental data points was challenging, with only 64 viable LA-ICP-MS points out of 126 points selected. The variability of lithium content of the clay/mica grains was notably large, along with mixed EMPA spectra. Only eight grains had a value greater than 100 ppm Li, although sample N-SB-04 (12.0-18.0) had one at 502.9 ppm at point g11. This sample contains muscovite, but due to the high Fe content, this high Li-bearing phase is suspected to be biotite (mica). Sample N-SB-05 (10-16.6) was the only sample to contain montmorillonite by XRD. That did not change the relative abundance of lithium within the samples compared to the muscovite-rich samples. To conclude, the LA-ICP-MS results, in conjunction with the TIMA data, indicated that the primary source of deleterious lithium was within the mixed clay/mica phases.

Refer to the official project report for extended TIMA, EMPA, and LA-ICP-MS data.

WSP-USA (Newton)
19465-03
MI7011-NOV22
08/24/2023

EMPA and LA-ICP-MS Data

N-SB-04 (12.0-18.0)																		
11A	EMPA: Oxide Weight Percentage (%)																LA-ICP-MS	
Pt#	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	MnO	FeO	Rb2O	Cs2O	BaO	Cl	F	Total	Label	LA-ICP #	Mean Li7 (ppm)
1	0.33	0.92	9.79	29.7	2.70	3.73	0.82	0.06	4.23	0.02	0.00	0.69	0.37	0.05	53.3	g1	SGS-19465-3-11A - 1	58.3
2	0.22	2.38	17.2	42.1	2.57	1.38	0.40	0.03	6.34	0.03	0.01	0.55	0.08	0.04	73.3	g2	SGS-19465-3-11A - 2	85.4
3	0.12	1.96	8.27	47.0	0.79	5.01	0.10	0.01	8.46	0.03	0.00	0.15	0.16	0.45	72.2	g3	~~SGS-19465-3-11A - 3~~	N/A
4	0.20	1.92	13.7	38.5	2.45	4.85	0.14	0.00	6.65	0.03	0.00	0.26	0.06	0.09	68.8	g4	SGS-19465-3-11A - 4	80.9
5	0.32	6.83	14.0	30.7	2.05	7.59	0.43	0.15	6.34	0.02	0.01	0.01	0.14	0.06	68.7	g5	SGS-19465-3-11A - 5	74.1
6	0.13	1.39	12.2	36.6	2.22	2.62	1.17	0.08	5.09	0.02	0.02	0.44	0.31	0.00	62.2	g6	SGS-19465-3-11A - 6	49.0
7	0.15	1.04	11.3	47.2	3.61	7.23	0.00	0.06	3.78	0.03	0.00	0.39	0.12	0.08	74.9	g7	~~SGS-19465-3-11A - 7~~	N/A
8	0.21	1.44	14.8	27.6	2.41	0.46	0.43	0.31	19.4	0.03	0.00	0.11	0.14	0.16	67.4	g8	SGS-19465-3-11A - 8	91.0
9	0.24	1.09	12.2	30.5	2.46	5.20	0.43	0.13	7.64	0.02	0.00	0.00	0.09	0.05	59.9	g9	SGS-19465-3-11A - 9	57.2
10	0.92	0.98	18.0	50.9	3.65	1.13	0.00	0.07	3.85	0.04	0.00	0.00	0.13	0.04	79.7	g10	~~SGS-19465-3-11A - 10~~	N/A
11	0.09	5.16	16.9	27.8	0.00	0.86	1.26	0.22	27.7	0.00	0.00	0.00	0.06	0.19	80.1	g11	SGS-19465-3-11A - 11	502.9
12	1.40	0.31	5.42	75.0	0.80	0.25	0.08	0.00	2.22	0.07	0.01	0.71	0.04	0.03	86.3	g12	~~SGS-19465-3-11A - 12~~	N/A
13	0.19	5.82	11.8	23.3	1.66	5.94	0.50	0.00	12.0	0.03	0.00	2.12	0.27	0.07	63.7	g13	SGS-19465-3-11A - 13	52.1
14	0.14	2.96	18.5	55.3	5.00	0.94	0.50	0.00	4.82	0.03	0.01	0.04	0.08	0.15	88.4	g14	SGS-19465-3-11A - 14	56.5
15	0.14	2.20	12.0	25.9	2.47	18.5	0.68	0.00	3.34	0.02	0.00	0.82	0.15	0.02	66.3	g15	~~SGS-19465-3-11A - 15~~	N/A
16	0.14	3.07	8.88	50.1	1.66	3.93	0.00	0.00	3.42	0.04	0.00	0.00	0.10	0.02	71.3	g16	~~SGS-19465-3-11A - 16~~	N/A
17	0.86	1.54	13.2	32.5	2.03	12.8	0.69	0.10	4.70	0.03	0.00	0.24	0.11	0.01	68.8	g17	~~SGS-19465-3-11A - 17~~	N/A
18	0.43	1.91	11.5	50.2	0.90	0.39	0.42	0.03	10.2	0.04	0.01	0.00	0.00	0.16	76.1	g18	SGS-19465-3-11A - 18	50.0
19	0.31	2.06	10.9	36.6	2.50	1.80	0.00	0.00	3.78	0.04	0.00	0.25	0.18	0.04	58.4	g19	SGS-19465-3-11A - 19	55.3
20	0.16	1.61	11.4	51.5	2.12	1.52	0.00	0.00	7.60	0.03	0.03	0.21	0.11	0.09	76.3	g20	~~SGS-19465-3-11A - 20~~	N/A
21	0.37	13.2	5.22	19.3	1.13	18.4	0.00	0.02	1.78	0.00	0.00	0.91	0.12	0.67	60.7	g21	~~SGS-19465-3-11A - 21~~	N/A
22	0.35	2.12	17.8	40.4	2.83	0.62	0.00	0.00	6.13	0.04	0.00	0.00	0.09	0.00	70.4	g22	~~SGS-19465-3-11A - 22~~	N/A
23	0.71	0.00	18.0	60.7	14.9	0.25	0.00	0.00	0.00	0.05	0.00	0.82	0.31	0.00	95.6	g23	SGS-19465-3-11A - 23	3.25
24	0.19	3.31	14.7	37.7	2.73	4.39	0.00	0.00	6.63	0.02	0.00	0.00	0.12	0.05	69.8	g24	SGS-19465-3-11A - 24	58.8
25	0.06	0.09	34.0	39.7	0.07	0.31	0.00	0.00	0.39	0.02	0.01	0.33	0.00	0.11	75.1	g25	~~SGS-19465-3-11A - 25~~	N/A
26	0.13	0.66	6.07	60.5	1.21	2.64	0.00	0.00	2.92	0.05	0.00	0.00	0.14	0.03	74.3	g26	~~SGS-19465-3-11A - 26~~	N/A
27	0.26	1.12	12.0	45.4	2.30	1.43	0.00	0.00	2.81	0.06	0.01	0.00	0.27	0.03	65.6	g27	~~SGS-19465-3-11A - 27~~	N/A
28	0.77	5.84	8.34	37.2	1.07	8.80	0.00	0.00	2.45	0.03	0.00	0.00	0.21	0.11	64.7	g28	~~SGS-19465-3-11A - 28~~	N/A
29	0.32	2.64	16.3	31.1	2.64	8.67	0.26	0.06	7.63	0.01	0.00	0.07	0.21	0.02	69.9	g29	~~SGS-19465-3-11A - 29~~	N/A
30	0.23	2.19	14.9	42.8	1.65	3.58	0.34	0.05	8.82	0.04	0.00	0.00	0.15	0.15	74.8	g30	SGS-19465-3-11A - 30	83.9
31	0.17	1.75	9.38	55.9	1.62	2.36	0.25	0.04	4.06	0.03	0.00	0.11	0.13	0.05	75.8	g31	~~SGS-19465-3-11A - 31~~	N/A
32	0.13	3.24	10.2	40.4	1.92	4.69	0.16	0.11	4.55	0.02	0.00	0.05	0.18	0.19	65.7	g32	~~SGS-19465-3-11A - 32~~	N/A
33	0.16	2.41	11.0	54.7	2.04	4.21	0.58	0.00	4.49	0.02	0.00	0.24	0.09	0.02	79.9	g33	~~SGS-19465-3-11A - 33~~	N/A
34	0.37	1.15	21.5	43.9	4.79	0.69	2.40	0.02	4.37	0.02	0.02	0.37	0.06	0.10	79.7	g34	SGS-19465-3-11A - 34	120.8
35	1.04	1.33	16.5	43.1	3.34	1.16	0.00	0.10	8.82	0.04	0.01	0.00	0.16	0.14	75.7	g35	~~SGS-19465-3-11A - 35~~	N/A
36	0.10	0.64	8.43	77.2	2.30	0.25	0.00	0.00	1.97	0.06	0.00	0.00	0.05	0.11	91.0	g36	~~SGS-19465-3-11A - 36~~	N/A
37	0.97	1.10	10.1	59.0	1.56	2.56	0.39	0.03	3.80	0.04	0.00	0.07	0.17	0.03	79.8	g37	~~SGS-19465-3-11A - 37~~	N/A
38	0.27	1.67	20.8	33.5	3.78	0.76	0.75	0.15	14.1	0.02	0.00	0.12	0.09	0.04	76.0	g38	~~SGS-19465-3-11A - 38~~	N/A
39	0.15	1.59	16.7	38.8	3.44	0.45	0.31	0.21	13.4	0.03	0.01	0.11	0.17	0.13	75.4	g39	SGS-19465-3-11A - 39	68.1
40	0.26	1.16	16.6	28.6	3.50	7.98	0.28	1.43	7.68	0.04	0.00	0.23	0.18	0.12	68.0	g40	SGS-19465-3-11A - 40	117.6
41	0.83	2.12	19.8	48.9	3.80	0.72	0.51	0.07	5.39	0.03	0.01	0.01	0.07	0.06	82.3	g41	SGS-19465-3-11A - 41	114.0
42	0.47	1.84	14.6	50.4	3.32	2.33	1.05	0.03	5.21	0.02	0.00	0.11	0.10	0.04	79.6	g42	SGS-19465-3-11A - 42	86.2
Max	1.40	13.2	34.0	77.2	14.9	18.5	2.40	1.43	27.7	0.07	0.03	2.12	0.37	0.67	95.6	---	---	502.9
Min	0.06	0.00	5.22	19.3	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.3	---	---	3.25
Avg	0.36	2.33	13.7	42.8	2.62	3.89	0.37	0.08	6.40	0.03	0.00	0.25	0.14	0.10	73.0	---	---	93.3

EMPA and LA-ICP-MS Data

N-SB-02 (10.0-13.0)																		
31A	EMPA: Oxide Weight Percentage (%)																LA-ICP-MS	
Pt#	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	MnO	FeO	Rb2O	Cs2O	BaO	Cl	F	Total	Label	LA-ICP #	Mean Li7 (ppm)
43	0.10	7.19	7.40	31.5	1.49	12.8	0.26	0.03	2.32	0.03	0.00	0.11	0.07	0.00	63.4	g1	SGS-19465-3-31A -1	100.9
44	0.36	1.88	14.4	43.7	3.65	2.95	0.72	0.06	3.43	0.04	0.01	0.27	0.08	0.00	71.5	g2	SGS-19465-3-31A -2	32.1
45	0.12	2.26	6.40	46.8	1.28	5.25	0.23	0.03	2.46	0.02	0.00	0.15	0.11	0.00	65.1	g3	~~SGS-19465-3-31A - 3~~	N/A
46	0.25	1.28	11.2	31.4	3.51	6.70	0.17	0.13	4.82	0.02	0.01	0.09	0.13	0.04	59.7	g4	SGS-19465-3-31A - 4	41.2
47	0.15	0.73	5.94	72.4	1.55	2.81	0.12	0.01	1.81	0.05	0.00	0.14	0.08	0.05	85.8	g5	~~SGS-19465-3-31A - 5~~	N/A
48	2.00	1.13	11.5	43.9	1.84	3.14	0.36	0.06	8.93	0.03	0.00	0.12	0.09	0.00	73.1	g6	~~SGS-19465-3-31A - 6~~	N/A
49	0.26	5.02	12.1	35.8	2.22	11.5	0.50	0.09	3.72	0.03	0.00	0.13	0.07	0.23	71.6	g7	SGS-19465-3-31A - 7	196.6
50	0.01	13.1	21.0	23.6	0.00	0.14	0.12	0.14	22.5	0.01	0.00	0.06	0.05	0.11	80.7	g8	SGS-19465-3-31A - 8	67.7
51	0.13	1.98	11.1	34.9	2.77	4.93	0.52	0.05	5.57	0.04	0.00	0.05	0.14	0.10	62.2	g9	SGS-19465-3-31A - 9	56.9
52	0.42	1.45	14.9	50.5	4.71	1.49	0.43	0.03	7.78	0.02	0.01	0.30	0.12	0.07	82.2	g10	SGS-19465-3-31A - 10	64.5
53	1.51	0.01	17.2	59.6	15.3	0.06	0.03	0.03	0.06	0.02	0.00	1.10	0.00	0.00	94.8	g11	SGS-19465-3-31A - 11	N/A
54	1.22	1.77	13.7	40.2	2.57	5.00	0.19	0.29	3.62	0.01	0.01	0.08	0.11	0.10	68.8	g12	SGS-19465-3-31A - 12	76.2
55	0.45	2.37	16.7	31.3	4.47	3.10	0.42	0.05	3.06	0.01	0.00	0.15	0.18	0.06	62.2	g13	~~SGS-19465-3-31A - 13~~	N/A
56	0.18	2.58	7.54	35.7	1.99	5.91	1.27	0.05	0.00	0.02	0.00	0.04	0.09	0.01	55.3	g14	~~SGS-19465-3-31A - 14~~	N/A
57	0.04	14.1	2.86	7.86	0.83	23.9	0.27	0.04	0.00	0.01	0.00	0.00	0.06	0.02	50.0	g15	~~SGS-19465-3-31A - 15~~	N/A
58	0.11	0.85	7.05	56.1	1.55	1.82	0.60	0.03	2.83	0.04	0.01	0.14	0.08	0.00	71.2	g16	~~SGS-19465-3-31A - 16~~	N/A
59	0.43	1.52	12.9	29.3	3.01	2.08	0.55	0.06	2.81	0.01	0.00	0.08	0.15	0.12	52.9	g17	~~SGS-19465-3-31A - 17~~	N/A
60	0.49	2.76	7.51	22.1	3.06	20.8	0.19	0.11	4.11	0.01	0.00	0.03	0.14	0.00	61.3	g18	SGS-19465-3-31A - 18	33.4
61	0.10	8.36	6.72	17.6	1.81	17.5	0.32	0.07	3.44	0.02	0.02	0.10	0.07	0.08	56.2	g19	~~SGS-19465-3-31A - 19~~	N/A
62	0.23	1.76	9.99	38.7	2.13	2.76	0.26	0.07	5.65	0.02	0.02	0.11	0.13	0.01	61.8	g20	SGS-19465-3-31A - 20	44.6
63	0.02	16.6	0.22	1.02	0.11	29.0	0.07	0.56	2.71	0.01	0.00	0.08	0.04	0.00	50.4	g21	~~SGS-19465-3-31A - 21~~	N/A
64	1.62	1.49	14.7	47.9	2.56	3.26	0.79	0.08	3.76	0.04	0.00	0.17	0.16	0.03	76.5	g22	SGS-19465-3-31A - 22	100.6
65	0.15	3.64	10.3	25.5	2.50	10.2	0.40	0.12	4.12	0.01	0.00	0.00	0.07	0.03	57.1	g23	SGS-19465-3-31A - 23	73.5
66	0.15	1.25	9.34	63.4	2.10	1.84	0.23	0.01	2.85	0.04	0.00	0.12	0.15	0.01	81.5	g24	SGS-19465-3-31A - 24	38.2
67	0.22	3.08	24.9	42.4	9.17	1.40	0.18	0.05	1.83	0.03	0.01	0.58	0.04	0.04	84.0	g25	~~SGS-19465-3-31A - 25~~	N/A
68	0.17	3.42	13.3	52.7	2.59	3.38	0.34	0.12	7.69	0.03	0.02	0.12	0.06	0.07	84.0	g26	~~SGS-19465-3-31A - 26~~	N/A
69	0.37	0.00	16.6	60.5	16.6	0.01	0.05	0.00	0.08	0.06	0.00	0.48	0.00	0.03	94.8	g27	~~SGS-19465-3-31A - 27~~	N/A
70	0.10	7.81	6.33	27.4	1.66	13.0	0.18	1.57	4.55	0.00	0.00	0.20	0.10	0.00	62.9	g28	~~SGS-19465-3-31A - 28~~	N/A
71	0.20	1.85	8.20	55.7	1.91	4.23	0.35	0.07	2.90	0.04	0.01	0.09	0.17	0.10	75.8	g29	~~SGS-19465-3-31A - 29~~	N/A
72	0.24	2.62	16.0	38.7	2.82	3.05	0.44	0.03	8.31	0.01	0.00	0.17	0.17	0.13	72.6	g30	SGS-19465-3-31A - 30	37.8
73	1.54	3.67	8.03	44.6	1.29	9.27	0.20	0.09	2.47	0.02	0.00	0.00	0.07	0.10	71.3	g31	SGS-19465-3-31A - 31	160.5
74	0.14	1.16	10.7	55.9	2.52	1.65	0.29	0.02	2.94	0.03	0.00	0.20	0.10	0.00	75.6	g32	~~SGS-19465-3-31A - 32~~	N/A
75	0.15	2.37	9.30	47.2	2.30	3.47	0.38	0.10	7.86	0.04	0.00	0.00	0.06	0.04	73.2	g33	SGS-19465-3-31A - 33	47.0
76	0.13	2.55	10.0	48.0	2.63	4.76	0.29	0.56	5.22	0.02	0.02	0.03	0.11	0.19	74.4	g34	~~SGS-19465-3-31A - 34~~	N/A
77	0.25	1.87	12.3	33.5	2.95	13.0	0.39	0.06	4.50	0.03	0.02	0.01	0.10	0.24	69.1	g35	~~SGS-19465-3-31A - 35~~	N/A
78	1.50	1.21	11.6	36.2	2.20	5.35	0.21	0.05	4.93	0.01	0.01	0.14	0.13	0.03	63.5	g36	~~SGS-19465-3-31A - 36~~	N/A
79	0.22	1.68	11.0	32.1	2.72	8.09	0.53	0.20	9.39	0.01	0.00	0.09	0.04	0.11	66.2	g37	SGS-19465-3-31A - 37	58.5
80	0.33	1.74	12.4	46.8	2.89	1.94	0.45	0.07	6.40	0.02	0.00	0.00	0.07	0.00	73.1	g38	SGS-19465-3-31A - 38	83.4
81	0.48	3.34	9.51	39.6	2.52	6.16	0.24	0.05	7.29	0.03	0.01	0.23	0.07	0.16	69.7	g39	SGS-19465-3-31A - 39	24.8
82	0.26	3.28	9.75	48.3	1.41	3.83	0.60	0.16	6.65	0.02	0.00	0.12	0.10	0.07	74.5	g40	SGS-19465-3-31A - 40	47.8
83	0.77	11.7	6.05	16.3	1.13	19.7	0.14	0.09	2.27	0.01	0.00	0.06	0.07	0.13	58.3	g41	SGS-19465-3-31A - 41	34.0
84	0.10	10.3	8.10	15.9	1.58	14.9	0.22	0.09	7.30	0.02	0.00	0.18	0.09	0.03	58.9	g42	~~SGS-19465-3-31A - 42~~	N/A
Max	2.00	16.6	24.9	72.4	16.6	29.0	1.27	1.57	22.5	0.06	0.02	1.10	0.18	0.24	94.8	---	---	196.6
Min	0.01	0.00	0.22	1.02	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.0	---	---	24.8
Avg	0.42	3.78	10.9	38.9	3.04	7.05	0.35	0.13	4.64	0.02	0.00	0.15	0.09	0.06	69.4	---	---	67.6

EMPA and LA-ICP-MS Data

N-SB-05 (10.0-16.6)																		
41A	EMPA: Oxide Weight Percentage (%)																LA-ICP-MS	
Pt#	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	MnO	FeO	Rb2O	Cs2O	BaO	Cl	F	Total	Label	LA-ICP #	Mean Li7 (ppm)
85	0.09	0.73	9.37	69.4	0.90	0.26	0.43	0.02	3.07	0.04	0.00	0.19	0.09	0.13	84.7	g1	~~SGS-19465-3-41A - 1~~	N/A
86	6.44	0.10	16.9	49.3	1.58	0.83	0.01	0.04	0.22	0.00	0.01	0.07	0.20	0.00	75.7	g2	SGS-19465-3-41A - 2	5.59
87	0.08	0.63	8.00	38.3	2.00	0.65	0.50	0.04	3.74	0.02	0.00	0.12	0.06	0.06	54.1	g3	~~SGS-19465-3-41A - 3~~	N/A
88	0.10	1.16	11.6	56.2	1.16	0.55	0.59	0.03	4.53	0.02	0.01	0.15	0.04	0.08	76.2	g4	SGS-19465-3-41A - 4	44.1
89	0.12	1.06	11.4	50.8	1.48	0.78	0.49	0.06	4.58	0.04	0.00	0.14	0.11	0.32	71.2	g5	SGS-19465-3-41A - 5	51.3
90	0.12	1.42	15.3	53.7	1.65	0.48	0.51	0.02	5.19	0.04	0.02	0.00	0.11	0.16	78.7	g6	SGS-19465-3-41A - 6	72.0
91	0.50	0.88	17.2	53.1	7.54	0.27	0.24	0.01	3.57	0.05	0.00	0.10	0.12	0.03	83.6	g7	SGS-19465-3-41A - 7	66.6
92	0.15	1.29	15.3	47.1	1.69	0.56	0.56	0.03	6.63	0.03	0.00	0.00	0.06	0.17	73.6	g8	SGS-19465-3-41A - 8	49.5
93	0.12	1.50	15.7	55.2	1.49	0.81	0.45	0.04	6.37	0.04	0.00	0.09	0.06	0.07	81.9	g9	~~SGS-19465-3-41A - 9~~	N/A
94	0.19	1.44	17.7	42.5	1.99	1.17	0.56	0.09	6.54	0.04	0.01	0.14	0.03	0.12	72.5	g10	SGS-19465-3-41A - 10	75.3
95	0.17	0.97	14.2	51.0	2.75	0.57	0.96	0.04	5.48	0.02	0.01	0.11	0.02	0.09	76.3	g11	~~SGS-19465-3-41A - 11~~	N/A
96	0.28	1.05	12.1	38.1	1.99	0.84	1.66	0.03	4.33	0.03	0.00	0.14	0.12	0.00	60.7	g12	SGS-19465-3-41A - 12	43.0
97	0.13	1.57	17.2	43.6	2.13	1.37	0.41	0.02	5.67	0.04	0.00	0.18	0.06	0.06	72.4	g13	~~SGS-19465-3-41A - 13~~	N/A
98	0.13	1.01	12.9	51.0	1.52	0.84	0.71	0.09	4.68	0.03	0.00	0.18	0.07	0.09	73.2	g14	SGS-19465-3-41A - 14	57.6
99	0.18	1.28	14.7	41.5	1.48	0.63	0.35	0.05	4.19	0.03	0.01	0.11	0.09	0.02	64.6	g15	~~SGS-19465-3-41A - 15~~	N/A
100	0.19	1.74	17.6	45.0	1.58	0.84	0.44	0.08	9.40	0.02	0.01	0.00	0.08	0.23	77.1	g16	SGS-19465-3-41A - 16	76.7
101	0.22	1.24	17.8	43.7	2.72	0.67	0.41	0.03	5.13	0.02	0.00	0.13	0.07	0.06	72.2	g17	~~SGS-19465-3-41A - 17~~	N/A
102	0.47	1.35	16.5	40.1	2.03	0.67	0.44	0.03	5.02	0.03	0.00	0.18	0.15	0.10	67.0	g18	~~SGS-19465-3-41A - 18~~	N/A
103	0.22	0.81	9.56	68.8	1.80	0.39	0.49	0.04	3.53	0.05	0.01	0.13	0.03	0.10	86.0	g19	~~SGS-19465-3-41A - 19~~	N/A
104	0.29	0.82	16.4	52.1	6.21	0.57	0.53	0.02	4.20	0.05	0.00	0.26	0.06	0.17	81.6	g20	SGS-19465-3-41A - 20	60.2
105	0.18	1.11	12.4	49.4	1.20	0.64	0.69	0.15	4.75	0.03	0.00	0.00	0.08	0.00	70.6	g21	SGS-19465-3-41A - 21	57.0
106	0.13	1.32	9.97	45.4	1.65	0.40	0.40	0.05	5.47	0.05	0.00	0.10	0.09	0.06	65.0	g22	~~SGS-19465-3-41A - 22~~	N/A
107	0.52	1.32	17.4	43.8	1.97	1.04	0.53	0.03	5.67	0.03	0.00	0.04	0.06	0.31	72.6	g23	~~SGS-19465-3-41A - 23~~	N/A
108	0.09	1.26	12.8	42.8	1.42	0.90	0.49	0.02	4.83	0.02	0.00	0.05	0.16	0.25	65.0	g24	~~SGS-19465-3-41A - 24~~	N/A
109	0.17	1.35	14.3	33.8	1.70	0.90	0.61	0.06	7.64	0.03	0.01	0.11	0.06	0.17	60.8	g25	SGS-19465-3-41A - 25	55.3
110	0.21	0.54	6.95	60.9	1.08	0.33	0.16	0.00	2.59	0.04	0.00	0.05	0.05	0.26	73.1	g26	~~SGS-19465-3-41A - 26~~	N/A
111	0.25	0.84	14.1	45.9	4.79	0.43	0.79	0.07	4.31	0.05	0.00	0.17	0.11	0.18	71.9	g27	SGS-19465-3-41A - 27	51.1
112	1.89	0.75	11.0	56.1	0.79	1.45	1.01	0.00	2.74	0.04	0.02	0.04	0.10	0.11	76.0	g28	~~SGS-19465-3-41A - 28~~	N/A
113	0.21	1.60	16.2	39.0	3.99	0.62	0.46	0.04	5.21	0.03	0.00	0.00	0.04	0.27	67.5	g29	~~SGS-19465-3-41A - 29~~	N/A
114	0.15	1.33	17.0	36.8	1.79	0.77	0.82	0.04	5.76	0.09	0.00	0.13	0.06	0.18	64.9	g30	~~SGS-19465-3-41A - 30~~	N/A
115	0.39	0.85	9.11	32.3	1.33	0.78	0.38	0.03	5.44	0.00	0.02	0.06	0.09	0.14	50.8	g31	SGS-19465-3-41A - 31	38.6
116	1.90	1.26	14.4	35.5	1.15	0.90	0.48	0.04	8.14	0.02	0.00	0.05	0.11	0.10	64.0	g32	~~SGS-19465-3-41A - 32~~	N/A
117	0.12	1.10	13.7	45.7	3.70	1.12	1.01	0.02	4.15	0.04	0.00	0.03	0.12	0.05	70.8	g33	SGS-19465-3-41A - 33	62.5
118	0.21	1.09	9.45	24.8	1.33	0.69	0.61	0.02	3.64	0.07	0.01	0.12	0.09	0.21	42.2	g34	~~SGS-19465-3-41A - 34~~	N/A
119	0.60	0.93	12.3	48.7	4.20	0.61	0.26	0.03	4.96	0.02	0.01	0.21	0.10	0.22	73.1	g35	SGS-19465-3-41A - 35	54.4
120	0.22	0.88	12.6	31.8	2.46	1.05	0.39	0.03	6.09	0.02	0.00	0.21	0.02	0.19	55.9	g36	SGS-19465-3-41A - 36	52.4
121	0.11	0.99	9.74	38.5	1.12	0.80	0.82	0.00	12.1	0.04	0.00	0.00	0.03	0.26	64.4	g37	SGS-19465-3-41A - 37	39.4
122	0.24	1.20	13.4	54.5	2.34	0.55	0.31	0.03	4.04	0.05	0.03	0.00	0.06	0.02	76.8	g38	SGS-19465-3-41A - 38	19.8
123	0.31	1.42	16.5	36.9	2.47	0.59	9.13	0.00	4.52	0.01	0.00	0.11	0.05	0.21	72.1	g39	~~SGS-19465-3-41A - 39~~	N/A
124	0.21	0.41	13.7	49.1	9.85	0.31	1.85	0.02	2.18	0.04	0.00	0.09	0.04	0.19	77.9	g40	SGS-19465-3-41A - 40	46.4
125	0.20	2.13	19.3	46.5	1.74	1.18	0.53	0.02	6.12	0.04	0.00	0.08	0.06	0.32	78.0	g41	SGS-19465-3-41A - 41	82.9
126	0.98	1.22	14.4	39.5	1.49	0.72	0.41	0.01	4.65	0.01	0.00	0.08	0.21	0.07	63.7	g42	SGS-19465-3-41A - 42	65.0
Max	6.44	2.13	19.3	69.4	9.85	1.45	9.13	0.15	12.1	0.09	0.03	0.26	0.21	0.32	86.0	---	---	82.9
Min	0.08	0.10	6.95	24.8	0.79	0.26	0.01	0.00	0.22	0.00	0.00	0.00	0.02	0.00	42.2	---	---	5.59
Avg	0.46	1.12	13.8	45.9	2.36	0.73	0.78	0.04	5.02	0.03	0.01	0.10	0.08	0.14	70.5	---	---	53.3

Mica Sheet (In-house)															
	Na2O	**MgO**	**Al2O3**	**SiO2**	**K2O**	**CaO**	**TiO2**	**MnO**	**FeO**	**Rb2O**	**Cs2O**	**BaO**	**Cl**	**F**	**Total**
	0.71	0.77	33.9	45.9	10.2	0.00	0.32	0.05	1.87	0.04	0.00	0.35	0.00	0.14	94.2
	0.75	0.76	34.2	45.9	10.2	0.01	0.23	0.00	1.96	0.04	0.00	0.34	0.01	0.12	94.5
	0.71	0.78	34.0	45.7	10.0	0.02	0.36	0.01	1.94	0.05	0.00	0.00	0.00	0.12	93.7
	0.73	0.76	34.0	45.9	10.2	0.02	0.48	0.01	1.88	0.04	0.00	0.00	0.01	0.13	94.1
Max	0.75	0.78	34.2	45.9	10.2	0.02	0.48	0.05	1.96	0.05	0.00	0.35	0.01	0.14	94.5
Min	0.71	0.76	33.9	45.7	10.0	0.00	0.23	0.00	1.87	0.04	0.00	0.00	0.00	0.12	93.7
Avg	0.72	0.77	34.0	45.8	10.2	0.01	0.35	0.02	1.91	0.04	0.00	0.17	0.01	0.13	94.1
Recommended	0.71	0.76	34.1	45.9	10.2	N/A	0.38	N/A	1.95	N/A	N/A	N/A	N/A	N/A	N/A

ATTACHMENT 8
AQUEOUS DATA

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW01	Porewater	2/17/2021	pH (field)	SU	12.3
CCR	XPW01	Porewater	3/9/2021	pH (field)	SU	12.4
CCR	XPW01	Porewater	3/30/2021	pH (field)	SU	12.4
CCR	XPW01	Porewater	4/28/2021	pH (field)	SU	12.3
CCR	XPW01	Porewater	7/14/2021	pH (field)	SU	12.2
CCR	XPW01	Porewater	2/23/2022	pH (field)	SU	12.6
CCR	XPW01	Porewater	6/14/2022	pH (field)	SU	12.5
CCR	XPW01	Porewater	8/15/2022	pH (field)	SU	12.1
CCR	XPW01	Porewater	2/1/2023	pH (field)	SU	12.4
CCR	XPW01	Porewater	4/27/2023	pH (field)	SU	12.2
CCR	XPW01	Porewater	7/24/2023	pH (field)	SU	12.7
CCR	XPW01	Porewater	10/10/2023	pH (field)	SU	12.5
CCR	XPW01	Porewater	2/17/2021	Oxidation Reduction Potential	mV	-314
CCR	XPW01	Porewater	3/9/2021	Oxidation Reduction Potential	mV	-296
CCR	XPW01	Porewater	3/30/2021	Oxidation Reduction Potential	mV	-265
CCR	XPW01	Porewater	4/28/2021	Oxidation Reduction Potential	mV	-329
CCR	XPW01	Porewater	7/14/2021	Oxidation Reduction Potential	mV	-345
CCR	XPW01	Porewater	2/23/2022	Oxidation Reduction Potential	mV	-357
CCR	XPW01	Porewater	6/14/2022	Oxidation Reduction Potential	mV	-374
CCR	XPW01	Porewater	8/15/2022	Oxidation Reduction Potential	mV	-342
CCR	XPW01	Porewater	2/1/2023	Oxidation Reduction Potential	mV	-338
CCR	XPW01	Porewater	4/27/2023	Oxidation Reduction Potential	mV	-379
CCR	XPW01	Porewater	7/24/2023	Oxidation Reduction Potential	mV	-290
CCR	XPW01	Porewater	10/10/2023	Oxidation Reduction Potential	mV	-295
CCR	XPW01	Porewater	2/17/2021	Eh	V	-0.12
CCR	XPW01	Porewater	3/9/2021	Eh	V	-0.10
CCR	XPW01	Porewater	3/30/2021	Eh	V	-0.070
CCR	XPW01	Porewater	4/28/2021	Eh	V	-0.13
CCR	XPW01	Porewater	7/14/2021	Eh	V	-0.15
CCR	XPW01	Porewater	2/23/2022	Eh	V	-0.16
CCR	XPW01	Porewater	6/14/2022	Eh	V	-0.18
CCR	XPW01	Porewater	8/15/2022	Eh	V	-0.15
CCR	XPW01	Porewater	2/1/2023	Eh	V	-0.14
CCR	XPW01	Porewater	4/27/2023	Eh	V	-0.19
CCR	XPW01	Porewater	7/24/2023	Eh	V	-0.096
CCR	XPW01	Porewater	10/10/2023	Eh	V	-0.10
CCR	XPW01	Porewater	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	3/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	7/14/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	2/23/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	6/14/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	8/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	2/1/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW01	Porewater	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW01	Porewater	7/24/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW01	Porewater	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW01	Porewater	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	380
CCR	XPW01	Porewater	3/9/2021	Alkalinity, carbonate	mg/L CaCO3	260
CCR	XPW01	Porewater	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	450
CCR	XPW01	Porewater	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	450
CCR	XPW01	Porewater	7/14/2021	Alkalinity, carbonate	mg/L CaCO3	500
CCR	XPW01	Porewater	2/23/2022	Alkalinity, carbonate	mg/L CaCO3	520
CCR	XPW01	Porewater	6/14/2022	Alkalinity, carbonate	mg/L CaCO3	500
CCR	XPW01	Porewater	8/15/2022	Alkalinity, carbonate	mg/L CaCO3	500
CCR	XPW01	Porewater	2/1/2023	Alkalinity, carbonate	mg/L CaCO3	580
CCR	XPW01	Porewater	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	700
CCR	XPW01	Porewater	7/24/2023	Alkalinity, carbonate	mg/L CaCO3	799
CCR	XPW01	Porewater	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	700
CCR	XPW01	Porewater	2/17/2021	Barium, total	mg/L	0.0350
CCR	XPW01	Porewater	3/9/2021	Barium, total	mg/L	0.140
CCR	XPW01	Porewater	3/30/2021	Barium, total	mg/L	0.0640
CCR	XPW01	Porewater	4/28/2021	Barium, total	mg/L	0.460
CCR	XPW01	Porewater	7/14/2021	Barium, total	mg/L	0.0390
CCR	XPW01	Porewater	7/24/2023	Barium, total	mg/L	0.0448
CCR	XPW01	Porewater	10/10/2023	Barium, total	mg/L	0.0652
CCR	XPW01	Porewater	2/17/2021	Calcium, total	mg/L	62.0
CCR	XPW01	Porewater	3/9/2021	Calcium, total	mg/L	63.0
CCR	XPW01	Porewater	3/30/2021	Calcium, total	mg/L	54.0
CCR	XPW01	Porewater	4/28/2021	Calcium, total	mg/L	61.0
CCR	XPW01	Porewater	7/14/2021	Calcium, total	mg/L	31.0
CCR	XPW01	Porewater	2/23/2022	Calcium, total	mg/L	33.0
CCR	XPW01	Porewater	6/14/2022	Calcium, total	mg/L	20.0
CCR	XPW01	Porewater	8/15/2022	Calcium, total	mg/L	28.0
CCR	XPW01	Porewater	2/1/2023	Calcium, total	mg/L	24.0
CCR	XPW01	Porewater	4/27/2023	Calcium, total	mg/L	36.0
CCR	XPW01	Porewater	7/24/2023	Calcium, total	mg/L	10.3
CCR	XPW01	Porewater	10/10/2023	Calcium, total	mg/L	12.4
CCR	XPW01	Porewater	2/17/2021	Chloride, total	mg/L	49.0
CCR	XPW01	Porewater	3/9/2021	Chloride, total	mg/L	38.0
CCR	XPW01	Porewater	3/30/2021	Chloride, total	mg/L	32.0
CCR	XPW01	Porewater	4/28/2021	Chloride, total	mg/L	33.0
CCR	XPW01	Porewater	7/14/2021	Chloride, total	mg/L	27.0
CCR	XPW01	Porewater	2/23/2022	Chloride, total	mg/L	25.0
CCR	XPW01	Porewater	6/14/2022	Chloride, total	mg/L	14.0
CCR	XPW01	Porewater	8/15/2022	Chloride, total	mg/L	11.0
CCR	XPW01	Porewater	2/1/2023	Chloride, total	mg/L	9.70
CCR	XPW01	Porewater	4/27/2023	Chloride, total	mg/L	8.10
CCR	XPW01	Porewater	7/24/2023	Chloride, total	mg/L	44.0
CCR	XPW01	Porewater	10/10/2023	Chloride, total	mg/L	50.0
CCR	XPW01	Porewater	4/27/2023	Ferrous Iron, dissolved	mg/L	0.510

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW01	Porewater	7/24/2023	Ferrous Iron, dissolved	mg/L	0.571
CCR	XPW01	Porewater	4/27/2023	Iron, dissolved	mg/L	0.0420
CCR	XPW01	Porewater	7/24/2023	Iron, dissolved	mg/L	0.0699
CCR	XPW01	Porewater	2/17/2021	Lithium, total	mg/L	0.110
CCR	XPW01	Porewater	3/9/2021	Lithium, total	mg/L	0.130
CCR	XPW01	Porewater	3/30/2021	Lithium, total	mg/L	0.140
CCR	XPW01	Porewater	4/28/2021	Lithium, total	mg/L	0.0740
CCR	XPW01	Porewater	7/14/2021	Lithium, total	mg/L	0.150
CCR	XPW01	Porewater	7/24/2023	Lithium, total	mg/L	0.0545
CCR	XPW01	Porewater	10/10/2023	Lithium, total	mg/L	0.0580
CCR	XPW01	Porewater	2/17/2021	Magnesium, total	mg/L	0.160
CCR	XPW01	Porewater	3/9/2021	Magnesium, total	mg/L	0.810
CCR	XPW01	Porewater	3/30/2021	Magnesium, total	mg/L	0.320
CCR	XPW01	Porewater	4/28/2021	Magnesium, total	mg/L	2.70
CCR	XPW01	Porewater	7/14/2021	Magnesium, total	mg/L	0.790
CCR	XPW01	Porewater	2/23/2022	Magnesium, total	mg/L	0.980
CCR	XPW01	Porewater	6/14/2022	Magnesium, total	mg/L	0.420
CCR	XPW01	Porewater	8/15/2022	Magnesium, total	mg/L	3.80
CCR	XPW01	Porewater	2/1/2023	Magnesium, total	mg/L	3.30
CCR	XPW01	Porewater	4/27/2023	Magnesium, total	mg/L	8.70
CCR	XPW01	Porewater	7/24/2023	Magnesium, total	mg/L	0.343
CCR	XPW01	Porewater	10/10/2023	Magnesium, total	mg/L	1.08
CCR	XPW01	Porewater	4/27/2023	Manganese, dissolved	mg/L	<0.00023
CCR	XPW01	Porewater	7/24/2023	Manganese, dissolved	mg/L	<0.0008
CCR	XPW01	Porewater	7/24/2023	Phosphate, dissolved	mg/L	0.301
CCR	XPW01	Porewater	2/17/2021	Potassium, total	mg/L	160
CCR	XPW01	Porewater	3/9/2021	Potassium, total	mg/L	150
CCR	XPW01	Porewater	3/30/2021	Potassium, total	mg/L	130
CCR	XPW01	Porewater	4/28/2021	Potassium, total	mg/L	130
CCR	XPW01	Porewater	7/14/2021	Potassium, total	mg/L	98.0
CCR	XPW01	Porewater	2/23/2022	Potassium, total	mg/L	96.0
CCR	XPW01	Porewater	6/14/2022	Potassium, total	mg/L	64.0
CCR	XPW01	Porewater	8/15/2022	Potassium, total	mg/L	74.0
CCR	XPW01	Porewater	2/1/2023	Potassium, total	mg/L	57.0
CCR	XPW01	Porewater	4/27/2023	Potassium, total	mg/L	47.0
CCR	XPW01	Porewater	7/24/2023	Potassium, total	mg/L	42.4
CCR	XPW01	Porewater	10/10/2023	Potassium, total	mg/L	46.9
CCR	XPW01	Porewater	4/27/2023	Silicon, dissolved	mg/L	74.0
CCR	XPW01	Porewater	7/24/2023	Silicon, dissolved	mg/L	75.1
CCR	XPW01	Porewater	2/17/2021	Sodium, total	mg/L	9,600
CCR	XPW01	Porewater	3/9/2021	Sodium, total	mg/L	8,000
CCR	XPW01	Porewater	3/30/2021	Sodium, total	mg/L	6,700
CCR	XPW01	Porewater	4/28/2021	Sodium, total	mg/L	7,000
CCR	XPW01	Porewater	7/14/2021	Sodium, total	mg/L	5,700
CCR	XPW01	Porewater	2/23/2022	Sodium, total	mg/L	4,900
CCR	XPW01	Porewater	6/14/2022	Sodium, total	mg/L	3,400

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW01	Porewater	8/15/2022	Sodium, total	mg/L	3,800
CCR	XPW01	Porewater	2/1/2023	Sodium, total	mg/L	2,600
CCR	XPW01	Porewater	4/27/2023	Sodium, total	mg/L	2,400
CCR	XPW01	Porewater	7/24/2023	Sodium, total	mg/L	2,050
CCR	XPW01	Porewater	10/10/2023	Sodium, total	mg/L	2,110
CCR	XPW01	Porewater	2/17/2021	Sulfate, total	mg/L	19,000
CCR	XPW01	Porewater	3/9/2021	Sulfate, total	mg/L	14,000
CCR	XPW01	Porewater	3/30/2021	Sulfate, total	mg/L	19,000
CCR	XPW01	Porewater	4/28/2021	Sulfate, total	mg/L	12,000
CCR	XPW01	Porewater	7/14/2021	Sulfate, total	mg/L	11,000
CCR	XPW01	Porewater	2/23/2022	Sulfate, total	mg/L	9,300
CCR	XPW01	Porewater	6/14/2022	Sulfate, total	mg/L	6,100
CCR	XPW01	Porewater	8/15/2022	Sulfate, total	mg/L	5,900
CCR	XPW01	Porewater	2/1/2023	Sulfate, total	mg/L	4,200
CCR	XPW01	Porewater	4/27/2023	Sulfate, total	mg/L	2,900
CCR	XPW01	Porewater	7/24/2023	Sulfate, total	mg/L	2,530
CCR	XPW01	Porewater	10/10/2023	Sulfate, total	mg/L	2,720
CCR	XPW01	Porewater	2/17/2021	Total Dissolved Solids	mg/L	27,000
CCR	XPW01	Porewater	3/9/2021	Total Dissolved Solids	mg/L	24,000
CCR	XPW01	Porewater	3/30/2021	Total Dissolved Solids	mg/L	24,000
CCR	XPW01	Porewater	4/28/2021	Total Dissolved Solids	mg/L	14,000
CCR	XPW01	Porewater	7/14/2021	Total Dissolved Solids	mg/L	17,000
CCR	XPW01	Porewater	2/23/2022	Total Dissolved Solids	mg/L	15,000
CCR	XPW01	Porewater	6/14/2022	Total Dissolved Solids	mg/L	11,000
CCR	XPW01	Porewater	8/15/2022	Total Dissolved Solids	mg/L	10,000
CCR	XPW01	Porewater	2/1/2023	Total Dissolved Solids	mg/L	3,400
CCR	XPW01	Porewater	4/27/2023	Total Dissolved Solids	mg/L	6,900
CCR	XPW01	Porewater	7/24/2023	Total Dissolved Solids	mg/L	6,110
CCR	XPW01	Porewater	10/10/2023	Total Dissolved Solids	mg/L	6,500
CCR	XPW02	Porewater	2/17/2021	pH (field)	SU	8.6
CCR	XPW02	Porewater	3/9/2021	pH (field)	SU	9.2
CCR	XPW02	Porewater	3/30/2021	pH (field)	SU	8.9
CCR	XPW02	Porewater	4/28/2021	pH (field)	SU	9.9
CCR	XPW02	Porewater	7/14/2021	pH (field)	SU	9.7
CCR	XPW02	Porewater	2/23/2022	pH (field)	SU	9.5
CCR	XPW02	Porewater	6/14/2022	pH (field)	SU	10.1
CCR	XPW02	Porewater	8/15/2022	pH (field)	SU	9.7
CCR	XPW02	Porewater	2/1/2023	pH (field)	SU	10.1
CCR	XPW02	Porewater	4/27/2023	pH (field)	SU	9.6
CCR	XPW02	Porewater	7/24/2023	pH (field)	SU	9.5
CCR	XPW02	Porewater	10/10/2023	pH (field)	SU	9.7
CCR	XPW02	Porewater	2/17/2021	Oxidation Reduction Potential	mV	-169
CCR	XPW02	Porewater	3/9/2021	Oxidation Reduction Potential	mV	-209
CCR	XPW02	Porewater	3/30/2021	Oxidation Reduction Potential	mV	-142
CCR	XPW02	Porewater	4/28/2021	Oxidation Reduction Potential	mV	-259
CCR	XPW02	Porewater	7/14/2021	Oxidation Reduction Potential	mV	-266

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW02	Porewater	2/23/2022	Oxidation Reduction Potential	mV	-233
CCR	XPW02	Porewater	6/14/2022	Oxidation Reduction Potential	mV	-262
CCR	XPW02	Porewater	8/15/2022	Oxidation Reduction Potential	mV	-231
CCR	XPW02	Porewater	2/1/2023	Oxidation Reduction Potential	mV	-79.0
CCR	XPW02	Porewater	4/27/2023	Oxidation Reduction Potential	mV	-237
CCR	XPW02	Porewater	7/24/2023	Oxidation Reduction Potential	mV	-106
CCR	XPW02	Porewater	10/10/2023	Oxidation Reduction Potential	mV	-102
CCR	XPW02	Porewater	2/17/2021	Eh	V	0.032
CCR	XPW02	Porewater	3/9/2021	Eh	V	-0.014
CCR	XPW02	Porewater	3/30/2021	Eh	V	0.051
CCR	XPW02	Porewater	4/28/2021	Eh	V	-0.065
CCR	XPW02	Porewater	7/14/2021	Eh	V	-0.073
CCR	XPW02	Porewater	2/23/2022	Eh	V	-0.033
CCR	XPW02	Porewater	6/14/2022	Eh	V	-0.070
CCR	XPW02	Porewater	8/15/2022	Eh	V	-0.039
CCR	XPW02	Porewater	2/1/2023	Eh	V	0.12
CCR	XPW02	Porewater	4/27/2023	Eh	V	-0.043
CCR	XPW02	Porewater	7/24/2023	Eh	V	0.088
CCR	XPW02	Porewater	10/10/2023	Eh	V	0.092
CCR	XPW02	Porewater	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	42.0
CCR	XPW02	Porewater	3/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	12.0
CCR	XPW02	Porewater	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	15.0
CCR	XPW02	Porewater	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW02	Porewater	7/14/2021	Alkalinity, bicarbonate	mg/L CaCO3	15.0
CCR	XPW02	Porewater	2/23/2022	Alkalinity, bicarbonate	mg/L CaCO3	2.00
CCR	XPW02	Porewater	6/14/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW02	Porewater	8/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	10.0
CCR	XPW02	Porewater	2/1/2023	Alkalinity, bicarbonate	mg/L CaCO3	25.0
CCR	XPW02	Porewater	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	12.0
CCR	XPW02	Porewater	7/24/2023	Alkalinity, bicarbonate	mg/L CaCO3	23.0
CCR	XPW02	Porewater	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	16.0
CCR	XPW02	Porewater	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	20.0
CCR	XPW02	Porewater	3/9/2021	Alkalinity, carbonate	mg/L CaCO3	35.0
CCR	XPW02	Porewater	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	25.0
CCR	XPW02	Porewater	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	45.0
CCR	XPW02	Porewater	7/14/2021	Alkalinity, carbonate	mg/L CaCO3	25.0
CCR	XPW02	Porewater	2/23/2022	Alkalinity, carbonate	mg/L CaCO3	37.0
CCR	XPW02	Porewater	6/14/2022	Alkalinity, carbonate	mg/L CaCO3	45.0
CCR	XPW02	Porewater	8/15/2022	Alkalinity, carbonate	mg/L CaCO3	30.0
CCR	XPW02	Porewater	2/1/2023	Alkalinity, carbonate	mg/L CaCO3	20.0
CCR	XPW02	Porewater	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	35.0
CCR	XPW02	Porewater	7/24/2023	Alkalinity, carbonate	mg/L CaCO3	24.0
CCR	XPW02	Porewater	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	27.0
CCR	XPW02	Porewater	2/17/2021	Barium, total	mg/L	0.0170
CCR	XPW02	Porewater	3/9/2021	Barium, total	mg/L	0.0240
CCR	XPW02	Porewater	3/30/2021	Barium, total	mg/L	0.0500

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW02	Porewater	4/28/2021	Barium, total	mg/L	0.0420
CCR	XPW02	Porewater	7/14/2021	Barium, total	mg/L	0.0250
CCR	XPW02	Porewater	7/24/2023	Barium, total	mg/L	0.0138
CCR	XPW02	Porewater	10/10/2023	Barium, total	mg/L	0.0781
CCR	XPW02	Porewater	2/17/2021	Calcium, total	mg/L	15.0
CCR	XPW02	Porewater	3/9/2021	Calcium, total	mg/L	20.0
CCR	XPW02	Porewater	3/30/2021	Calcium, total	mg/L	22.0
CCR	XPW02	Porewater	4/28/2021	Calcium, total	mg/L	25.0
CCR	XPW02	Porewater	7/14/2021	Calcium, total	mg/L	21.0
CCR	XPW02	Porewater	2/23/2022	Calcium, total	mg/L	40.0
CCR	XPW02	Porewater	6/14/2022	Calcium, total	mg/L	30.0
CCR	XPW02	Porewater	8/15/2022	Calcium, total	mg/L	29.0
CCR	XPW02	Porewater	2/1/2023	Calcium, total	mg/L	31.0
CCR	XPW02	Porewater	4/27/2023	Calcium, total	mg/L	23.0
CCR	XPW02	Porewater	7/24/2023	Calcium, total	mg/L	27.6
CCR	XPW02	Porewater	10/10/2023	Calcium, total	mg/L	37.2
CCR	XPW02	Porewater	2/17/2021	Chloride, total	mg/L	10.0
CCR	XPW02	Porewater	3/9/2021	Chloride, total	mg/L	9.60
CCR	XPW02	Porewater	3/30/2021	Chloride, total	mg/L	9.90
CCR	XPW02	Porewater	4/28/2021	Chloride, total	mg/L	9.70
CCR	XPW02	Porewater	7/14/2021	Chloride, total	mg/L	10.0
CCR	XPW02	Porewater	2/23/2022	Chloride, total	mg/L	12.0
CCR	XPW02	Porewater	6/14/2022	Chloride, total	mg/L	8.60
CCR	XPW02	Porewater	8/15/2022	Chloride, total	mg/L	8.90
CCR	XPW02	Porewater	2/1/2023	Chloride, total	mg/L	8.40
CCR	XPW02	Porewater	4/27/2023	Chloride, total	mg/L	8.80
CCR	XPW02	Porewater	7/24/2023	Chloride, total	mg/L	16.0
CCR	XPW02	Porewater	10/10/2023	Chloride, total	mg/L	16.0
CCR	XPW02	Porewater	4/27/2023	Ferrous Iron, dissolved	mg/L	<0.02
CCR	XPW02	Porewater	7/24/2023	Ferrous Iron, dissolved	mg/L	0.193
CCR	XPW02	Porewater	4/27/2023	Iron, dissolved	mg/L	0.000910
CCR	XPW02	Porewater	7/24/2023	Iron, dissolved	mg/L	0.0348
CCR	XPW02	Porewater	2/17/2021	Lithium, total	mg/L	<0.0099
CCR	XPW02	Porewater	3/9/2021	Lithium, total	mg/L	<0.0099
CCR	XPW02	Porewater	3/30/2021	Lithium, total	mg/L	0.0260
CCR	XPW02	Porewater	4/28/2021	Lithium, total	mg/L	0.0230
CCR	XPW02	Porewater	7/14/2021	Lithium, total	mg/L	0.0280
CCR	XPW02	Porewater	7/24/2023	Lithium, total	mg/L	0.0207
CCR	XPW02	Porewater	10/10/2023	Lithium, total	mg/L	0.0308
CCR	XPW02	Porewater	2/17/2021	Magnesium, total	mg/L	0.300
CCR	XPW02	Porewater	3/9/2021	Magnesium, total	mg/L	0.330
CCR	XPW02	Porewater	3/30/2021	Magnesium, total	mg/L	0.490
CCR	XPW02	Porewater	4/28/2021	Magnesium, total	mg/L	0.550
CCR	XPW02	Porewater	7/14/2021	Magnesium, total	mg/L	0.340
CCR	XPW02	Porewater	2/23/2022	Magnesium, total	mg/L	1.20
CCR	XPW02	Porewater	6/14/2022	Magnesium, total	mg/L	0.280

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW02	Porewater	8/15/2022	Magnesium, total	mg/L	0.370
CCR	XPW02	Porewater	2/1/2023	Magnesium, total	mg/L	1.40
CCR	XPW02	Porewater	4/27/2023	Magnesium, total	mg/L	<0.011
CCR	XPW02	Porewater	7/24/2023	Magnesium, total	mg/L	0.202
CCR	XPW02	Porewater	10/10/2023	Magnesium, total	mg/L	0.668
CCR	XPW02	Porewater	4/27/2023	Manganese, dissolved	mg/L	0.000520
CCR	XPW02	Porewater	7/24/2023	Manganese, dissolved	mg/L	0.00150
CCR	XPW02	Porewater	7/24/2023	Phosphate, dissolved	mg/L	0.316
CCR	XPW02	Porewater	2/17/2021	Potassium, total	mg/L	15.0
CCR	XPW02	Porewater	3/9/2021	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	3/30/2021	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	4/28/2021	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	7/14/2021	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	2/23/2022	Potassium, total	mg/L	18.0
CCR	XPW02	Porewater	6/14/2022	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	8/15/2022	Potassium, total	mg/L	15.0
CCR	XPW02	Porewater	2/1/2023	Potassium, total	mg/L	16.0
CCR	XPW02	Porewater	4/27/2023	Potassium, total	mg/L	14.0
CCR	XPW02	Porewater	7/24/2023	Potassium, total	mg/L	16.4
CCR	XPW02	Porewater	10/10/2023	Potassium, total	mg/L	19.4
CCR	XPW02	Porewater	4/27/2023	Silicon, dissolved	mg/L	4.40
CCR	XPW02	Porewater	7/24/2023	Silicon, dissolved	mg/L	3.90
CCR	XPW02	Porewater	2/17/2021	Sodium, total	mg/L	77.0
CCR	XPW02	Porewater	3/9/2021	Sodium, total	mg/L	72.0
CCR	XPW02	Porewater	3/30/2021	Sodium, total	mg/L	69.0
CCR	XPW02	Porewater	4/28/2021	Sodium, total	mg/L	77.0
CCR	XPW02	Porewater	7/14/2021	Sodium, total	mg/L	73.0
CCR	XPW02	Porewater	2/23/2022	Sodium, total	mg/L	70.0
CCR	XPW02	Porewater	6/14/2022	Sodium, total	mg/L	61.0
CCR	XPW02	Porewater	8/15/2022	Sodium, total	mg/L	65.0
CCR	XPW02	Porewater	2/1/2023	Sodium, total	mg/L	70.0
CCR	XPW02	Porewater	4/27/2023	Sodium, total	mg/L	64.0
CCR	XPW02	Porewater	7/24/2023	Sodium, total	mg/L	69.1
CCR	XPW02	Porewater	10/10/2023	Sodium, total	mg/L	74.9
CCR	XPW02	Porewater	2/17/2021	Sulfate, total	mg/L	160
CCR	XPW02	Porewater	3/9/2021	Sulfate, total	mg/L	150
CCR	XPW02	Porewater	3/30/2021	Sulfate, total	mg/L	160
CCR	XPW02	Porewater	4/28/2021	Sulfate, total	mg/L	190
CCR	XPW02	Porewater	7/14/2021	Sulfate, total	mg/L	160
CCR	XPW02	Porewater	2/23/2022	Sulfate, total	mg/L	210
CCR	XPW02	Porewater	6/14/2022	Sulfate, total	mg/L	170
CCR	XPW02	Porewater	8/15/2022	Sulfate, total	mg/L	160
CCR	XPW02	Porewater	2/1/2023	Sulfate, total	mg/L	150
CCR	XPW02	Porewater	4/27/2023	Sulfate, total	mg/L	150
CCR	XPW02	Porewater	7/24/2023	Sulfate, total	mg/L	213
CCR	XPW02	Porewater	10/10/2023	Sulfate, total	mg/L	239

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW02	Porewater	2/17/2021	Total Dissolved Solids	mg/L	310
CCR	XPW02	Porewater	3/9/2021	Total Dissolved Solids	mg/L	320
CCR	XPW02	Porewater	3/30/2021	Total Dissolved Solids	mg/L	300
CCR	XPW02	Porewater	4/28/2021	Total Dissolved Solids	mg/L	380
CCR	XPW02	Porewater	7/14/2021	Total Dissolved Solids	mg/L	360
CCR	XPW02	Porewater	2/23/2022	Total Dissolved Solids	mg/L	360
CCR	XPW02	Porewater	6/14/2022	Total Dissolved Solids	mg/L	400
CCR	XPW02	Porewater	8/15/2022	Total Dissolved Solids	mg/L	360
CCR	XPW02	Porewater	2/1/2023	Total Dissolved Solids	mg/L	320
CCR	XPW02	Porewater	4/27/2023	Total Dissolved Solids	mg/L	290
CCR	XPW02	Porewater	7/24/2023	Total Dissolved Solids	mg/L	360
CCR	XPW02	Porewater	10/10/2023	Total Dissolved Solids	mg/L	404
CCR	XPW03	Porewater	2/17/2021	pH (field)	SU	10.9
CCR	XPW03	Porewater	3/9/2021	pH (field)	SU	10.8
CCR	XPW03	Porewater	3/30/2021	pH (field)	SU	10.2
CCR	XPW03	Porewater	4/28/2021	pH (field)	SU	11.3
CCR	XPW03	Porewater	7/14/2021	pH (field)	SU	11.2
CCR	XPW03	Porewater	2/23/2022	pH (field)	SU	11.3
CCR	XPW03	Porewater	6/15/2022	pH (field)	SU	11.3
CCR	XPW03	Porewater	8/16/2022	pH (field)	SU	11.2
CCR	XPW03	Porewater	2/2/2023	pH (field)	SU	11.8
CCR	XPW03	Porewater	4/27/2023	pH (field)	SU	11.5
CCR	XPW03	Porewater	7/26/2023	pH (field)	SU	11.5
CCR	XPW03	Porewater	10/10/2023	pH (field)	SU	11.8
CCR	XPW03	Porewater	2/17/2021	Oxidation Reduction Potential	mV	-255
CCR	XPW03	Porewater	3/9/2021	Oxidation Reduction Potential	mV	-224
CCR	XPW03	Porewater	3/30/2021	Oxidation Reduction Potential	mV	-126
CCR	XPW03	Porewater	4/28/2021	Oxidation Reduction Potential	mV	-244
CCR	XPW03	Porewater	7/14/2021	Oxidation Reduction Potential	mV	-241
CCR	XPW03	Porewater	2/23/2022	Oxidation Reduction Potential	mV	-210
CCR	XPW03	Porewater	6/15/2022	Oxidation Reduction Potential	mV	-264
CCR	XPW03	Porewater	8/16/2022	Oxidation Reduction Potential	mV	-205
CCR	XPW03	Porewater	2/2/2023	Oxidation Reduction Potential	mV	-186
CCR	XPW03	Porewater	4/27/2023	Oxidation Reduction Potential	mV	-273
CCR	XPW03	Porewater	7/26/2023	Oxidation Reduction Potential	mV	-75.0
CCR	XPW03	Porewater	10/10/2023	Oxidation Reduction Potential	mV	-168
CCR	XPW03	Porewater	2/17/2021	Eh	V	-0.058
CCR	XPW03	Porewater	3/9/2021	Eh	V	-0.030
CCR	XPW03	Porewater	3/30/2021	Eh	V	0.068
CCR	XPW03	Porewater	4/28/2021	Eh	V	-0.051
CCR	XPW03	Porewater	7/14/2021	Eh	V	-0.049
CCR	XPW03	Porewater	2/23/2022	Eh	V	-0.013
CCR	XPW03	Porewater	6/15/2022	Eh	V	-0.071
CCR	XPW03	Porewater	8/16/2022	Eh	V	-0.013
CCR	XPW03	Porewater	2/2/2023	Eh	V	0.0094
CCR	XPW03	Porewater	4/27/2023	Eh	V	-0.079

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW03	Porewater	7/26/2023	Eh	V	0.12
CCR	XPW03	Porewater	10/10/2023	Eh	V	0.026
CCR	XPW03	Porewater	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	3/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	7/14/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	2/23/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	6/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	8/16/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	2/2/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW03	Porewater	7/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW03	Porewater	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW03	Porewater	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	75.0
CCR	XPW03	Porewater	3/9/2021	Alkalinity, carbonate	mg/L CaCO3	55.0
CCR	XPW03	Porewater	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	50.0
CCR	XPW03	Porewater	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	75.0
CCR	XPW03	Porewater	7/14/2021	Alkalinity, carbonate	mg/L CaCO3	50.0
CCR	XPW03	Porewater	2/23/2022	Alkalinity, carbonate	mg/L CaCO3	85.0
CCR	XPW03	Porewater	6/15/2022	Alkalinity, carbonate	mg/L CaCO3	65.0
CCR	XPW03	Porewater	8/16/2022	Alkalinity, carbonate	mg/L CaCO3	150
CCR	XPW03	Porewater	2/2/2023	Alkalinity, carbonate	mg/L CaCO3	180
CCR	XPW03	Porewater	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	200
CCR	XPW03	Porewater	7/26/2023	Alkalinity, carbonate	mg/L CaCO3	175
CCR	XPW03	Porewater	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	140
CCR	XPW03	Porewater	2/17/2021	Barium, total	mg/L	0.0690
CCR	XPW03	Porewater	3/9/2021	Barium, total	mg/L	0.110
CCR	XPW03	Porewater	3/30/2021	Barium, total	mg/L	0.0880
CCR	XPW03	Porewater	4/28/2021	Barium, total	mg/L	0.370
CCR	XPW03	Porewater	7/14/2021	Barium, total	mg/L	0.440
CCR	XPW03	Porewater	7/26/2023	Barium, total	mg/L	0.0603
CCR	XPW03	Porewater	10/10/2023	Barium, total	mg/L	0.0618
CCR	XPW03	Porewater	2/17/2021	Calcium, total	mg/L	42.0
CCR	XPW03	Porewater	3/9/2021	Calcium, total	mg/L	47.0
CCR	XPW03	Porewater	3/30/2021	Calcium, total	mg/L	44.0
CCR	XPW03	Porewater	4/28/2021	Calcium, total	mg/L	55.0
CCR	XPW03	Porewater	7/14/2021	Calcium, total	mg/L	72.0
CCR	XPW03	Porewater	2/23/2022	Calcium, total	mg/L	33.0
CCR	XPW03	Porewater	6/15/2022	Calcium, total	mg/L	35.0
CCR	XPW03	Porewater	8/16/2022	Calcium, total	mg/L	30.0
CCR	XPW03	Porewater	2/2/2023	Calcium, total	mg/L	37.0
CCR	XPW03	Porewater	4/27/2023	Calcium, total	mg/L	26.0
CCR	XPW03	Porewater	7/26/2023	Calcium, total	mg/L	22.8
CCR	XPW03	Porewater	10/10/2023	Calcium, total	mg/L	24.8
CCR	XPW03	Porewater	2/17/2021	Chloride, total	mg/L	14.0

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW03	Porewater	3/9/2021	Chloride, total	mg/L	9.20
CCR	XPW03	Porewater	3/30/2021	Chloride, total	mg/L	13.0
CCR	XPW03	Porewater	4/28/2021	Chloride, total	mg/L	11.0
CCR	XPW03	Porewater	7/14/2021	Chloride, total	mg/L	11.0
CCR	XPW03	Porewater	2/23/2022	Chloride, total	mg/L	13.0
CCR	XPW03	Porewater	6/15/2022	Chloride, total	mg/L	11.0
CCR	XPW03	Porewater	8/16/2022	Chloride, total	mg/L	11.0
CCR	XPW03	Porewater	2/2/2023	Chloride, total	mg/L	9.60
CCR	XPW03	Porewater	4/27/2023	Chloride, total	mg/L	9.70
CCR	XPW03	Porewater	7/26/2023	Chloride, total	mg/L	21.0
CCR	XPW03	Porewater	10/10/2023	Chloride, total	mg/L	21.0
CCR	XPW03	Porewater	4/27/2023	Ferrous Iron, dissolved	mg/L	<0.02
CCR	XPW03	Porewater	7/26/2023	Ferrous Iron, dissolved	mg/L	3.24
CCR	XPW03	Porewater	4/27/2023	Iron, dissolved	mg/L	0.00670
CCR	XPW03	Porewater	7/26/2023	Iron, dissolved	mg/L	0.0120
CCR	XPW03	Porewater	2/17/2021	Lithium, total	mg/L	0.0320
CCR	XPW03	Porewater	3/9/2021	Lithium, total	mg/L	0.0240
CCR	XPW03	Porewater	3/30/2021	Lithium, total	mg/L	0.0250
CCR	XPW03	Porewater	4/28/2021	Lithium, total	mg/L	0.0290
CCR	XPW03	Porewater	7/14/2021	Lithium, total	mg/L	0.0400
CCR	XPW03	Porewater	7/26/2023	Lithium, total	mg/L	0.121
CCR	XPW03	Porewater	10/10/2023	Lithium, total	mg/L	0.0324
CCR	XPW03	Porewater	2/17/2021	Magnesium, total	mg/L	<0.017
CCR	XPW03	Porewater	3/9/2021	Magnesium, total	mg/L	0.440
CCR	XPW03	Porewater	3/30/2021	Magnesium, total	mg/L	0.160
CCR	XPW03	Porewater	4/28/2021	Magnesium, total	mg/L	2.10
CCR	XPW03	Porewater	7/14/2021	Magnesium, total	mg/L	2.50
CCR	XPW03	Porewater	2/23/2022	Magnesium, total	mg/L	0.410
CCR	XPW03	Porewater	6/15/2022	Magnesium, total	mg/L	0.240
CCR	XPW03	Porewater	8/16/2022	Magnesium, total	mg/L	0.530
CCR	XPW03	Porewater	2/2/2023	Magnesium, total	mg/L	2.70
CCR	XPW03	Porewater	4/27/2023	Magnesium, total	mg/L	<0.011
CCR	XPW03	Porewater	7/26/2023	Magnesium, total	mg/L	0.134
CCR	XPW03	Porewater	10/10/2023	Magnesium, total	mg/L	0.103
CCR	XPW03	Porewater	4/27/2023	Manganese, dissolved	mg/L	<0.00023
CCR	XPW03	Porewater	7/26/2023	Manganese, dissolved	mg/L	<0.0008
CCR	XPW03	Porewater	7/26/2023	Phosphate, dissolved	mg/L	<0.005
CCR	XPW03	Porewater	2/17/2021	Potassium, total	mg/L	18.0
CCR	XPW03	Porewater	3/9/2021	Potassium, total	mg/L	15.0
CCR	XPW03	Porewater	3/30/2021	Potassium, total	mg/L	11.0
CCR	XPW03	Porewater	4/28/2021	Potassium, total	mg/L	17.0
CCR	XPW03	Porewater	7/14/2021	Potassium, total	mg/L	18.0
CCR	XPW03	Porewater	2/23/2022	Potassium, total	mg/L	15.0
CCR	XPW03	Porewater	6/15/2022	Potassium, total	mg/L	14.0
CCR	XPW03	Porewater	8/16/2022	Potassium, total	mg/L	14.0
CCR	XPW03	Porewater	2/2/2023	Potassium, total	mg/L	18.0

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW03	Porewater	4/27/2023	Potassium, total	mg/L	18.0
CCR	XPW03	Porewater	7/26/2023	Potassium, total	mg/L	22.5
CCR	XPW03	Porewater	10/10/2023	Potassium, total	mg/L	23.2
CCR	XPW03	Porewater	4/27/2023	Silicon, dissolved	mg/L	14.0
CCR	XPW03	Porewater	7/26/2023	Silicon, dissolved	mg/L	10.8
CCR	XPW03	Porewater	2/17/2021	Sodium, total	mg/L	63.0
CCR	XPW03	Porewater	3/9/2021	Sodium, total	mg/L	58.0
CCR	XPW03	Porewater	3/30/2021	Sodium, total	mg/L	38.0
CCR	XPW03	Porewater	4/28/2021	Sodium, total	mg/L	55.0
CCR	XPW03	Porewater	7/14/2021	Sodium, total	mg/L	55.0
CCR	XPW03	Porewater	2/23/2022	Sodium, total	mg/L	110
CCR	XPW03	Porewater	6/15/2022	Sodium, total	mg/L	100
CCR	XPW03	Porewater	8/16/2022	Sodium, total	mg/L	160
CCR	XPW03	Porewater	2/2/2023	Sodium, total	mg/L	230
CCR	XPW03	Porewater	4/27/2023	Sodium, total	mg/L	190
CCR	XPW03	Porewater	7/26/2023	Sodium, total	mg/L	190
CCR	XPW03	Porewater	10/10/2023	Sodium, total	mg/L	206
CCR	XPW03	Porewater	2/17/2021	Sulfate, total	mg/L	92.0
CCR	XPW03	Porewater	3/9/2021	Sulfate, total	mg/L	93.0
CCR	XPW03	Porewater	3/30/2021	Sulfate, total	mg/L	94.0
CCR	XPW03	Porewater	4/28/2021	Sulfate, total	mg/L	96.0
CCR	XPW03	Porewater	7/14/2021	Sulfate, total	mg/L	120
CCR	XPW03	Porewater	2/23/2022	Sulfate, total	mg/L	130
CCR	XPW03	Porewater	6/15/2022	Sulfate, total	mg/L	150
CCR	XPW03	Porewater	8/16/2022	Sulfate, total	mg/L	180
CCR	XPW03	Porewater	2/2/2023	Sulfate, total	mg/L	98.0
CCR	XPW03	Porewater	4/27/2023	Sulfate, total	mg/L	120
CCR	XPW03	Porewater	7/26/2023	Sulfate, total	mg/L	138
CCR	XPW03	Porewater	10/10/2023	Sulfate, total	mg/L	132
CCR	XPW03	Porewater	2/17/2021	Total Dissolved Solids	mg/L	310
CCR	XPW03	Porewater	3/9/2021	Total Dissolved Solids	mg/L	330
CCR	XPW03	Porewater	3/30/2021	Total Dissolved Solids	mg/L	270
CCR	XPW03	Porewater	4/28/2021	Total Dissolved Solids	mg/L	340
CCR	XPW03	Porewater	7/14/2021	Total Dissolved Solids	mg/L	360
CCR	XPW03	Porewater	2/23/2022	Total Dissolved Solids	mg/L	420
CCR	XPW03	Porewater	6/15/2022	Total Dissolved Solids	mg/L	490
CCR	XPW03	Porewater	8/16/2022	Total Dissolved Solids	mg/L	590
CCR	XPW03	Porewater	2/2/2023	Total Dissolved Solids	mg/L	780
CCR	XPW03	Porewater	4/27/2023	Total Dissolved Solids	mg/L	620
CCR	XPW03	Porewater	7/26/2023	Total Dissolved Solids	mg/L	664
CCR	XPW03	Porewater	10/10/2023	Total Dissolved Solids	mg/L	712
CCR	XPW04	Porewater	2/17/2021	pH (field)	SU	10.8
CCR	XPW04	Porewater	3/9/2021	pH (field)	SU	10.0
CCR	XPW04	Porewater	3/29/2021	pH (field)	SU	9.1
CCR	XPW04	Porewater	4/28/2021	pH (field)	SU	11.5
CCR	XPW04	Porewater	7/14/2021	pH (field)	SU	10.0

Attachment 8. Aqueous Data
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW04	Porewater	2/23/2022	pH (field)	SU	9.5
CCR	XPW04	Porewater	6/15/2022	pH (field)	SU	11.8
CCR	XPW04	Porewater	8/16/2022	pH (field)	SU	11.4
CCR	XPW04	Porewater	2/1/2023	pH (field)	SU	11.6
CCR	XPW04	Porewater	4/28/2023	pH (field)	SU	11.6
CCR	XPW04	Porewater	7/24/2023	pH (field)	SU	12.5
CCR	XPW04	Porewater	10/10/2023	pH (field)	SU	12.0
CCR	XPW04	Porewater	2/17/2021	Oxidation Reduction Potential	mV	-291
CCR	XPW04	Porewater	3/9/2021	Oxidation Reduction Potential	mV	-336
CCR	XPW04	Porewater	3/29/2021	Oxidation Reduction Potential	mV	-304
CCR	XPW04	Porewater	4/28/2021	Oxidation Reduction Potential	mV	-296
CCR	XPW04	Porewater	7/14/2021	Oxidation Reduction Potential	mV	-312
CCR	XPW04	Porewater	2/23/2022	Oxidation Reduction Potential	mV	-315
CCR	XPW04	Porewater	6/15/2022	Oxidation Reduction Potential	mV	-332
CCR	XPW04	Porewater	8/16/2022	Oxidation Reduction Potential	mV	-296
CCR	XPW04	Porewater	2/1/2023	Oxidation Reduction Potential	mV	-165
CCR	XPW04	Porewater	4/28/2023	Oxidation Reduction Potential	mV	-255
CCR	XPW04	Porewater	7/24/2023	Oxidation Reduction Potential	mV	-226
CCR	XPW04	Porewater	10/10/2023	Oxidation Reduction Potential	mV	-219
CCR	XPW04	Porewater	2/17/2021	Eh	V	-0.093
CCR	XPW04	Porewater	3/9/2021	Eh	V	-0.14
CCR	XPW04	Porewater	3/29/2021	Eh	V	-0.11
CCR	XPW04	Porewater	4/28/2021	Eh	V	-0.10
CCR	XPW04	Porewater	7/14/2021	Eh	V	-0.12
CCR	XPW04	Porewater	2/23/2022	Eh	V	-0.12
CCR	XPW04	Porewater	6/15/2022	Eh	V	-0.14
CCR	XPW04	Porewater	8/16/2022	Eh	V	-0.10
CCR	XPW04	Porewater	2/1/2023	Eh	V	0.031
CCR	XPW04	Porewater	4/28/2023	Eh	V	-0.060
CCR	XPW04	Porewater	7/24/2023	Eh	V	-0.032
CCR	XPW04	Porewater	10/10/2023	Eh	V	-0.025
CCR	XPW04	Porewater	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	3/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	3/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	52.0
CCR	XPW04	Porewater	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	7/14/2021	Alkalinity, bicarbonate	mg/L CaCO3	38.0
CCR	XPW04	Porewater	2/23/2022	Alkalinity, bicarbonate	mg/L CaCO3	80.0
CCR	XPW04	Porewater	6/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	8/16/2022	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	2/1/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	4/28/2023	Alkalinity, bicarbonate	mg/L CaCO3	<10
CCR	XPW04	Porewater	7/24/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW04	Porewater	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	0
CCR	XPW04	Porewater	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	150
CCR	XPW04	Porewater	3/9/2021	Alkalinity, carbonate	mg/L CaCO3	130
CCR	XPW04	Porewater	3/29/2021	Alkalinity, carbonate	mg/L CaCO3	70.0

Attachment 8. Aqueous Data
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW04	Porewater	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	120
CCR	XPW04	Porewater	7/14/2021	Alkalinity, carbonate	mg/L CaCO3	120
CCR	XPW04	Porewater	2/23/2022	Alkalinity, carbonate	mg/L CaCO3	60.0
CCR	XPW04	Porewater	6/15/2022	Alkalinity, carbonate	mg/L CaCO3	150
CCR	XPW04	Porewater	8/16/2022	Alkalinity, carbonate	mg/L CaCO3	150
CCR	XPW04	Porewater	2/1/2023	Alkalinity, carbonate	mg/L CaCO3	150
CCR	XPW04	Porewater	4/28/2023	Alkalinity, carbonate	mg/L CaCO3	220
CCR	XPW04	Porewater	7/24/2023	Alkalinity, carbonate	mg/L CaCO3	296
CCR	XPW04	Porewater	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	164
CCR	XPW04	Porewater	2/17/2021	Barium, total	mg/L	0.130
CCR	XPW04	Porewater	3/9/2021	Barium, total	mg/L	0.150
CCR	XPW04	Porewater	3/29/2021	Barium, total	mg/L	0.300
CCR	XPW04	Porewater	4/28/2021	Barium, total	mg/L	0.220
CCR	XPW04	Porewater	7/14/2021	Barium, total	mg/L	0.0890
CCR	XPW04	Porewater	7/24/2023	Barium, total	mg/L	0.0749
CCR	XPW04	Porewater	10/10/2023	Barium, total	mg/L	0.114
CCR	XPW04	Porewater	2/17/2021	Calcium, total	mg/L	80.0
CCR	XPW04	Porewater	3/9/2021	Calcium, total	mg/L	65.0
CCR	XPW04	Porewater	3/29/2021	Calcium, total	mg/L	53.0
CCR	XPW04	Porewater	4/28/2021	Calcium, total	mg/L	120
CCR	XPW04	Porewater	7/14/2021	Calcium, total	mg/L	60.0
CCR	XPW04	Porewater	2/23/2022	Calcium, total	mg/L	68.0
CCR	XPW04	Porewater	6/15/2022	Calcium, total	mg/L	120
CCR	XPW04	Porewater	8/16/2022	Calcium, total	mg/L	120
CCR	XPW04	Porewater	2/1/2023	Calcium, total	mg/L	130
CCR	XPW04	Porewater	4/28/2023	Calcium, total	mg/L	100
CCR	XPW04	Porewater	7/24/2023	Calcium, total	mg/L	76.3
CCR	XPW04	Porewater	10/10/2023	Calcium, total	mg/L	122
CCR	XPW04	Porewater	2/17/2021	Chloride, total	mg/L	62.0
CCR	XPW04	Porewater	3/9/2021	Chloride, total	mg/L	34.0
CCR	XPW04	Porewater	3/29/2021	Chloride, total	mg/L	31.0
CCR	XPW04	Porewater	4/28/2021	Chloride, total	mg/L	37.0
CCR	XPW04	Porewater	7/14/2021	Chloride, total	mg/L	34.0
CCR	XPW04	Porewater	2/23/2022	Chloride, total	mg/L	30.0
CCR	XPW04	Porewater	6/15/2022	Chloride, total	mg/L	50.0
CCR	XPW04	Porewater	8/16/2022	Chloride, total	mg/L	54.0
CCR	XPW04	Porewater	2/1/2023	Chloride, total	mg/L	46.0
CCR	XPW04	Porewater	4/28/2023	Chloride, total	mg/L	59.0
CCR	XPW04	Porewater	7/24/2023	Chloride, total	mg/L	186
CCR	XPW04	Porewater	10/10/2023	Chloride, total	mg/L	148
CCR	XPW04	Porewater	4/28/2023	Ferrous Iron, dissolved	mg/L	0.370
CCR	XPW04	Porewater	7/24/2023	Ferrous Iron, dissolved	mg/L	0.127
CCR	XPW04	Porewater	4/28/2023	Iron, dissolved	mg/L	<0.014
CCR	XPW04	Porewater	7/24/2023	Iron, dissolved	mg/L	<0.04
CCR	XPW04	Porewater	2/17/2021	Lithium, total	mg/L	0.0210
CCR	XPW04	Porewater	3/9/2021	Lithium, total	mg/L	<0.0099

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HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW04	Porewater	3/29/2021	Lithium, total	mg/L	<0.0099
CCR	XPW04	Porewater	4/28/2021	Lithium, total	mg/L	0.0200
CCR	XPW04	Porewater	7/14/2021	Lithium, total	mg/L	<0.0099
CCR	XPW04	Porewater	7/24/2023	Lithium, total	mg/L	0.0324
CCR	XPW04	Porewater	10/10/2023	Lithium, total	mg/L	0.0260
CCR	XPW04	Porewater	2/17/2021	Magnesium, total	mg/L	0.890
CCR	XPW04	Porewater	3/9/2021	Magnesium, total	mg/L	1.40
CCR	XPW04	Porewater	3/29/2021	Magnesium, total	mg/L	2.40
CCR	XPW04	Porewater	4/28/2021	Magnesium, total	mg/L	0.700
CCR	XPW04	Porewater	7/14/2021	Magnesium, total	mg/L	0.830
CCR	XPW04	Porewater	2/23/2022	Magnesium, total	mg/L	1.70
CCR	XPW04	Porewater	6/15/2022	Magnesium, total	mg/L	0.250
CCR	XPW04	Porewater	8/16/2022	Magnesium, total	mg/L	0.140
CCR	XPW04	Porewater	2/1/2023	Magnesium, total	mg/L	0.430
CCR	XPW04	Porewater	4/28/2023	Magnesium, total	mg/L	0.500
CCR	XPW04	Porewater	7/24/2023	Magnesium, total	mg/L	0.275
CCR	XPW04	Porewater	10/10/2023	Magnesium, total	mg/L	0.586
CCR	XPW04	Porewater	4/28/2023	Manganese, dissolved	mg/L	<0.0046
CCR	XPW04	Porewater	7/24/2023	Manganese, dissolved	mg/L	0.00320
CCR	XPW04	Porewater	7/24/2023	Phosphate, dissolved	mg/L	0.169
CCR	XPW04	Porewater	2/17/2021	Potassium, total	mg/L	44.0
CCR	XPW04	Porewater	3/9/2021	Potassium, total	mg/L	34.0
CCR	XPW04	Porewater	3/29/2021	Potassium, total	mg/L	24.0
CCR	XPW04	Porewater	4/28/2021	Potassium, total	mg/L	62.0
CCR	XPW04	Porewater	7/14/2021	Potassium, total	mg/L	34.0
CCR	XPW04	Porewater	2/23/2022	Potassium, total	mg/L	34.0
CCR	XPW04	Porewater	6/15/2022	Potassium, total	mg/L	84.0
CCR	XPW04	Porewater	8/16/2022	Potassium, total	mg/L	87.0
CCR	XPW04	Porewater	2/1/2023	Potassium, total	mg/L	90.0
CCR	XPW04	Porewater	4/28/2023	Potassium, total	mg/L	89.0
CCR	XPW04	Porewater	7/24/2023	Potassium, total	mg/L	88.6
CCR	XPW04	Porewater	10/10/2023	Potassium, total	mg/L	93.7
CCR	XPW04	Porewater	4/28/2023	Silicon, dissolved	mg/L	24.0
CCR	XPW04	Porewater	7/24/2023	Silicon, dissolved	mg/L	37.7
CCR	XPW04	Porewater	2/17/2021	Sodium, total	mg/L	1,100
CCR	XPW04	Porewater	3/9/2021	Sodium, total	mg/L	740
CCR	XPW04	Porewater	3/29/2021	Sodium, total	mg/L	260
CCR	XPW04	Porewater	4/28/2021	Sodium, total	mg/L	1,800
CCR	XPW04	Porewater	7/14/2021	Sodium, total	mg/L	680
CCR	XPW04	Porewater	2/23/2022	Sodium, total	mg/L	700
CCR	XPW04	Porewater	6/15/2022	Sodium, total	mg/L	3,400
CCR	XPW04	Porewater	8/16/2022	Sodium, total	mg/L	4,000
CCR	XPW04	Porewater	2/1/2023	Sodium, total	mg/L	3,700
CCR	XPW04	Porewater	4/28/2023	Sodium, total	mg/L	4,700
CCR	XPW04	Porewater	7/24/2023	Sodium, total	mg/L	4,560
CCR	XPW04	Porewater	10/10/2023	Sodium, total	mg/L	4,080

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HSU	Location	Well Type	Date	Parameter	Unit	Result
CCR	XPW04	Porewater	2/17/2021	Sulfate, total	mg/L	2,200
CCR	XPW04	Porewater	3/9/2021	Sulfate, total	mg/L	1,400
CCR	XPW04	Porewater	3/29/2021	Sulfate, total	mg/L	600
CCR	XPW04	Porewater	4/28/2021	Sulfate, total	mg/L	3,800
CCR	XPW04	Porewater	7/14/2021	Sulfate, total	mg/L	1,600
CCR	XPW04	Porewater	2/23/2022	Sulfate, total	mg/L	1,800
CCR	XPW04	Porewater	6/15/2022	Sulfate, total	mg/L	7,500
CCR	XPW04	Porewater	8/16/2022	Sulfate, total	mg/L	4,000
CCR	XPW04	Porewater	2/1/2023	Sulfate, total	mg/L	6,200
CCR	XPW04	Porewater	4/28/2023	Sulfate, total	mg/L	9,500
CCR	XPW04	Porewater	7/24/2023	Sulfate, total	mg/L	9,420
CCR	XPW04	Porewater	10/10/2023	Sulfate, total	mg/L	9,130
CCR	XPW04	Porewater	2/17/2021	Total Dissolved Solids	mg/L	3,500
CCR	XPW04	Porewater	3/9/2021	Total Dissolved Solids	mg/L	2,200
CCR	XPW04	Porewater	3/29/2021	Total Dissolved Solids	mg/L	1,100
CCR	XPW04	Porewater	4/28/2021	Total Dissolved Solids	mg/L	6,100
CCR	XPW04	Porewater	7/14/2021	Total Dissolved Solids	mg/L	2,700
CCR	XPW04	Porewater	2/23/2022	Total Dissolved Solids	mg/L	2,900
CCR	XPW04	Porewater	6/15/2022	Total Dissolved Solids	mg/L	11,000
CCR	XPW04	Porewater	8/16/2022	Total Dissolved Solids	mg/L	9,500
CCR	XPW04	Porewater	2/1/2023	Total Dissolved Solids	mg/L	11,000
CCR	XPW04	Porewater	4/28/2023	Total Dissolved Solids	mg/L	14,000
CCR	XPW04	Porewater	7/24/2023	Total Dissolved Solids	mg/L	16,600
CCR	XPW04	Porewater	10/10/2023	Total Dissolved Solids	mg/L	14,000
UA	APW05	B	12/15/2015	pH (field)	SU	7.5
UA	APW05	B	1/20/2016	pH (field)	SU	7.5
UA	APW05	B	4/27/2016	pH (field)	SU	7.7
UA	APW05	B	8/1/2016	pH (field)	SU	7.5
UA	APW05	B	10/25/2016	pH (field)	SU	7.6
UA	APW05	B	1/23/2017	pH (field)	SU	7.4
UA	APW05	B	4/24/2017	pH (field)	SU	7.0
UA	APW05	B	6/13/2017	pH (field)	SU	7.1
UA	APW05	B	11/17/2017	pH (field)	SU	6.9
UA	APW05	B	5/18/2018	pH (field)	SU	7.1
UA	APW05	B	8/17/2018	pH (field)	SU	7.0
UA	APW05	B	11/9/2018	pH (field)	SU	7.0
UA	APW05	B	2/22/2019	pH (field)	SU	6.9
UA	APW05	B	8/22/2019	pH (field)	SU	7.0
UA	APW05	B	2/4/2020	pH (field)	SU	7.5
UA	APW05	B	6/11/2020	pH (field)	SU	7.4
UA	APW05	B	7/28/2020	pH (field)	SU	7.7
UA	APW05	B	2/9/2021	pH (field)	SU	7.6
UA	APW05	B	2/17/2021	pH (field)	SU	7.2
UA	APW05	B	3/10/2021	pH (field)	SU	7.7
UA	APW05	B	3/30/2021	pH (field)	SU	7.2
UA	APW05	B	4/28/2021	pH (field)	SU	7.5

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	5/25/2021	pH (field)	SU	7.5
UA	APW05	B	6/17/2021	pH (field)	SU	7.7
UA	APW05	B	6/30/2021	pH (field)	SU	7.6
UA	APW05	B	7/15/2021	pH (field)	SU	7.8
UA	APW05	B	11/10/2021	pH (field)	SU	7.5
UA	APW05	B	2/22/2022	pH (field)	SU	7.7
UA	APW05	B	6/15/2022	pH (field)	SU	7.5
UA	APW05	B	8/16/2022	pH (field)	SU	7.3
UA	APW05	B	3/14/2023	pH (field)	SU	7.6
UA	APW05	B	4/27/2023	pH (field)	SU	7.1
UA	APW05	B	7/24/2023	pH (field)	SU	8.0
UA	APW05	B	10/10/2023	pH (field)	SU	7.4
UA	APW05	B	12/15/2015	Oxidation Reduction Potential	mV	-57.0
UA	APW05	B	1/20/2016	Oxidation Reduction Potential	mV	-51.0
UA	APW05	B	4/27/2016	Oxidation Reduction Potential	mV	27.0
UA	APW05	B	8/1/2016	Oxidation Reduction Potential	mV	-64.0
UA	APW05	B	10/25/2016	Oxidation Reduction Potential	mV	-83.0
UA	APW05	B	1/23/2017	Oxidation Reduction Potential	mV	-143
UA	APW05	B	4/24/2017	Oxidation Reduction Potential	mV	-101
UA	APW05	B	6/13/2017	Oxidation Reduction Potential	mV	-88.0
UA	APW05	B	11/17/2017	Oxidation Reduction Potential	mV	-60.0
UA	APW05	B	5/18/2018	Oxidation Reduction Potential	mV	-61.0
UA	APW05	B	8/17/2018	Oxidation Reduction Potential	mV	-69.0
UA	APW05	B	11/9/2018	Oxidation Reduction Potential	mV	-56.0
UA	APW05	B	2/22/2019	Oxidation Reduction Potential	mV	-60.0
UA	APW05	B	8/22/2019	Oxidation Reduction Potential	mV	-60.0
UA	APW05	B	2/4/2020	Oxidation Reduction Potential	mV	-119
UA	APW05	B	6/11/2020	Oxidation Reduction Potential	mV	-124
UA	APW05	B	7/28/2020	Oxidation Reduction Potential	mV	-146
UA	APW05	B	2/9/2021	Oxidation Reduction Potential	mV	-129
UA	APW05	B	2/17/2021	Oxidation Reduction Potential	mV	192
UA	APW05	B	3/10/2021	Oxidation Reduction Potential	mV	-129
UA	APW05	B	3/30/2021	Oxidation Reduction Potential	mV	-71.9
UA	APW05	B	4/28/2021	Oxidation Reduction Potential	mV	-65.0
UA	APW05	B	5/25/2021	Oxidation Reduction Potential	mV	61.8
UA	APW05	B	6/17/2021	Oxidation Reduction Potential	mV	-150
UA	APW05	B	6/30/2021	Oxidation Reduction Potential	mV	-160
UA	APW05	B	7/15/2021	Oxidation Reduction Potential	mV	-140
UA	APW05	B	11/10/2021	Oxidation Reduction Potential	mV	-114
UA	APW05	B	2/22/2022	Oxidation Reduction Potential	mV	-69.9
UA	APW05	B	6/15/2022	Oxidation Reduction Potential	mV	-138
UA	APW05	B	8/16/2022	Oxidation Reduction Potential	mV	-106
UA	APW05	B	4/27/2023	Oxidation Reduction Potential	mV	-124
UA	APW05	B	7/24/2023	Oxidation Reduction Potential	mV	-88.0
UA	APW05	B	10/10/2023	Oxidation Reduction Potential	mV	-134
UA	APW05	B	12/15/2015	Eh	V	0.14

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	1/20/2016	Eh	V	0.15
UA	APW05	B	4/27/2016	Eh	V	0.22
UA	APW05	B	8/1/2016	Eh	V	0.13
UA	APW05	B	10/25/2016	Eh	V	0.11
UA	APW05	B	1/23/2017	Eh	V	0.053
UA	APW05	B	4/24/2017	Eh	V	0.093
UA	APW05	B	6/13/2017	Eh	V	0.11
UA	APW05	B	11/17/2017	Eh	V	0.14
UA	APW05	B	5/18/2018	Eh	V	0.13
UA	APW05	B	8/17/2018	Eh	V	0.13
UA	APW05	B	11/9/2018	Eh	V	0.14
UA	APW05	B	2/22/2019	Eh	V	0.14
UA	APW05	B	8/22/2019	Eh	V	0.13
UA	APW05	B	2/4/2020	Eh	V	0.079
UA	APW05	B	6/11/2020	Eh	V	0.072
UA	APW05	B	7/28/2020	Eh	V	0.047
UA	APW05	B	2/9/2021	Eh	V	0.069
UA	APW05	B	2/17/2021	Eh	V	0.39
UA	APW05	B	3/10/2021	Eh	V	0.067
UA	APW05	B	3/30/2021	Eh	V	0.12
UA	APW05	B	4/28/2021	Eh	V	0.13
UA	APW05	B	5/25/2021	Eh	V	0.26
UA	APW05	B	6/17/2021	Eh	V	0.043
UA	APW05	B	6/30/2021	Eh	V	0.033
UA	APW05	B	7/15/2021	Eh	V	0.054
UA	APW05	B	11/10/2021	Eh	V	0.080
UA	APW05	B	2/22/2022	Eh	V	0.13
UA	APW05	B	6/15/2022	Eh	V	0.055
UA	APW05	B	8/16/2022	Eh	V	0.087
UA	APW05	B	4/27/2023	Eh	V	0.072
UA	APW05	B	7/24/2023	Eh	V	0.11
UA	APW05	B	10/10/2023	Eh	V	0.061
UA	APW05	B	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	520
UA	APW05	B	8/17/2018	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW05	B	2/4/2020	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW05	B	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW05	B	2/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW05	B	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW05	B	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW05	B	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW05	B	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW05	B	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	390
UA	APW05	B	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW05	B	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW05	B	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW05	B	11/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	450

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW05	B	6/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW05	B	8/16/2022	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW05	B	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW05	B	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW05	B	7/24/2023	Alkalinity, bicarbonate	mg/L CaCO3	474
UA	APW05	B	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	486
UA	APW05	B	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	8/17/2018	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	2/4/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	2/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	11/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	6/15/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	8/16/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	7/24/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW05	B	12/15/2015	Barium, total	mg/L	0.190
UA	APW05	B	1/20/2016	Barium, total	mg/L	0.190
UA	APW05	B	4/27/2016	Barium, total	mg/L	0.240
UA	APW05	B	8/1/2016	Barium, total	mg/L	0.210
UA	APW05	B	10/25/2016	Barium, total	mg/L	0.220
UA	APW05	B	1/23/2017	Barium, total	mg/L	0.210
UA	APW05	B	4/24/2017	Barium, total	mg/L	0.200
UA	APW05	B	6/13/2017	Barium, total	mg/L	0.230
UA	APW05	B	2/17/2021	Barium, total	mg/L	0.220
UA	APW05	B	3/10/2021	Barium, total	mg/L	0.240
UA	APW05	B	3/30/2021	Barium, total	mg/L	0.270
UA	APW05	B	4/28/2021	Barium, total	mg/L	0.240
UA	APW05	B	5/25/2021	Barium, total	mg/L	0.240
UA	APW05	B	6/17/2021	Barium, total	mg/L	0.250
UA	APW05	B	6/30/2021	Barium, total	mg/L	0.250
UA	APW05	B	7/15/2021	Barium, total	mg/L	0.250
UA	APW05	B	6/15/2022	Barium, total	mg/L	0.250
UA	APW05	B	8/16/2022	Barium, total	mg/L	0.260

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	3/14/2023	Barium, total	mg/L	0.280
UA	APW05	B	4/27/2023	Barium, total	mg/L	0.250
UA	APW05	B	7/24/2023	Barium, total	mg/L	0.312
UA	APW05	B	10/10/2023	Barium, total	mg/L	0.333
UA	APW05	B	12/15/2015	Calcium, total	mg/L	51.0
UA	APW05	B	1/20/2016	Calcium, total	mg/L	52.0
UA	APW05	B	4/27/2016	Calcium, total	mg/L	71.0
UA	APW05	B	8/1/2016	Calcium, total	mg/L	49.0
UA	APW05	B	10/25/2016	Calcium, total	mg/L	50.0
UA	APW05	B	1/23/2017	Calcium, total	mg/L	45.0
UA	APW05	B	4/24/2017	Calcium, total	mg/L	44.0
UA	APW05	B	6/13/2017	Calcium, total	mg/L	48.0
UA	APW05	B	11/17/2017	Calcium, total	mg/L	51.0
UA	APW05	B	5/18/2018	Calcium, total	mg/L	48.0
UA	APW05	B	8/17/2018	Calcium, total	mg/L	54.0
UA	APW05	B	11/9/2018	Calcium, total	mg/L	50.0
UA	APW05	B	2/22/2019	Calcium, total	mg/L	50.0
UA	APW05	B	8/22/2019	Calcium, total	mg/L	49.0
UA	APW05	B	2/4/2020	Calcium, total	mg/L	51.0
UA	APW05	B	7/28/2020	Calcium, total	mg/L	53.0
UA	APW05	B	2/9/2021	Calcium, total	mg/L	54.0
UA	APW05	B	2/17/2021	Calcium, total	mg/L	49.0
UA	APW05	B	3/10/2021	Calcium, total	mg/L	55.0
UA	APW05	B	3/30/2021	Calcium, total	mg/L	54.0
UA	APW05	B	4/28/2021	Calcium, total	mg/L	52.0
UA	APW05	B	5/25/2021	Calcium, total	mg/L	54.0
UA	APW05	B	6/17/2021	Calcium, total	mg/L	58.0
UA	APW05	B	6/30/2021	Calcium, total	mg/L	52.0
UA	APW05	B	7/15/2021	Calcium, total	mg/L	51.0
UA	APW05	B	11/10/2021	Calcium, total	mg/L	54.0
UA	APW05	B	2/22/2022	Calcium, total	mg/L	51.0
UA	APW05	B	6/15/2022	Calcium, total	mg/L	51.0
UA	APW05	B	8/16/2022	Calcium, total	mg/L	54.0
UA	APW05	B	3/14/2023	Calcium, total	mg/L	56.0
UA	APW05	B	4/27/2023	Calcium, total	mg/L	49.0
UA	APW05	B	7/24/2023	Calcium, total	mg/L	50.4
UA	APW05	B	10/10/2023	Calcium, total	mg/L	52.8
UA	APW05	B	12/15/2015	Chloride, total	mg/L	48.0
UA	APW05	B	1/20/2016	Chloride, total	mg/L	50.0
UA	APW05	B	4/27/2016	Chloride, total	mg/L	58.0
UA	APW05	B	8/1/2016	Chloride, total	mg/L	52.0
UA	APW05	B	10/25/2016	Chloride, total	mg/L	50.0
UA	APW05	B	1/23/2017	Chloride, total	mg/L	50.0
UA	APW05	B	4/24/2017	Chloride, total	mg/L	46.0
UA	APW05	B	6/13/2017	Chloride, total	mg/L	47.0
UA	APW05	B	11/17/2017	Chloride, total	mg/L	43.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	5/18/2018	Chloride, total	mg/L	48.0
UA	APW05	B	8/17/2018	Chloride, total	mg/L	56.0
UA	APW05	B	11/9/2018	Chloride, total	mg/L	51.0
UA	APW05	B	2/22/2019	Chloride, total	mg/L	48.0
UA	APW05	B	8/22/2019	Chloride, total	mg/L	50.0
UA	APW05	B	2/4/2020	Chloride, total	mg/L	54.0
UA	APW05	B	7/28/2020	Chloride, total	mg/L	52.0
UA	APW05	B	2/9/2021	Chloride, total	mg/L	50.0
UA	APW05	B	2/17/2021	Chloride, total	mg/L	52.0
UA	APW05	B	3/10/2021	Chloride, total	mg/L	48.0
UA	APW05	B	3/30/2021	Chloride, total	mg/L	49.0
UA	APW05	B	4/28/2021	Chloride, total	mg/L	51.0
UA	APW05	B	5/25/2021	Chloride, total	mg/L	48.0
UA	APW05	B	6/17/2021	Chloride, total	mg/L	50.0
UA	APW05	B	6/30/2021	Chloride, total	mg/L	51.0
UA	APW05	B	7/15/2021	Chloride, total	mg/L	52.0
UA	APW05	B	11/10/2021	Chloride, total	mg/L	62.0
UA	APW05	B	2/22/2022	Chloride, total	mg/L	50.0
UA	APW05	B	6/15/2022	Chloride, total	mg/L	45.0
UA	APW05	B	8/16/2022	Chloride, total	mg/L	46.0
UA	APW05	B	3/14/2023	Chloride, total	mg/L	44.0
UA	APW05	B	4/27/2023	Chloride, total	mg/L	46.0
UA	APW05	B	7/24/2023	Chloride, total	mg/L	46.0
UA	APW05	B	10/10/2023	Chloride, total	mg/L	46.0
UA	APW05	B	4/27/2023	Ferrous Iron, dissolved	mg/L	1.20
UA	APW05	B	7/24/2023	Ferrous Iron, dissolved	mg/L	0.999
UA	APW05	B	4/27/2023	Iron, dissolved	mg/L	1.10
UA	APW05	B	7/24/2023	Iron, dissolved	mg/L	1.31
UA	APW05	B	12/15/2015	Lithium, total	mg/L	0.0230
UA	APW05	B	1/20/2016	Lithium, total	mg/L	0.0170
UA	APW05	B	4/27/2016	Lithium, total	mg/L	0.0200
UA	APW05	B	8/1/2016	Lithium, total	mg/L	0.0160
UA	APW05	B	10/25/2016	Lithium, total	mg/L	0.0150
UA	APW05	B	1/23/2017	Lithium, total	mg/L	0.0130
UA	APW05	B	4/24/2017	Lithium, total	mg/L	0.0150
UA	APW05	B	6/13/2017	Lithium, total	mg/L	0.0140
UA	APW05	B	2/17/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	3/30/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	4/28/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	5/25/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	6/17/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	6/30/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	7/15/2021	Lithium, total	mg/L	<0.0099
UA	APW05	B	6/15/2022	Lithium, total	mg/L	<0.005
UA	APW05	B	8/16/2022	Lithium, total	mg/L	0.00840

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	3/14/2023	Lithium, total	mg/L	0.00940
UA	APW05	B	4/27/2023	Lithium, total	mg/L	0.00870
UA	APW05	B	7/24/2023	Lithium, total	mg/L	0.00880
UA	APW05	B	10/10/2023	Lithium, total	mg/L	0.00900
UA	APW05	B	6/13/2017	Magnesium, total	mg/L	23.0
UA	APW05	B	8/17/2018	Magnesium, total	mg/L	27.0
UA	APW05	B	2/4/2020	Magnesium, total	mg/L	27.0
UA	APW05	B	7/28/2020	Magnesium, total	mg/L	29.0
UA	APW05	B	2/9/2021	Magnesium, total	mg/L	29.0
UA	APW05	B	2/17/2021	Magnesium, total	mg/L	28.0
UA	APW05	B	3/10/2021	Magnesium, total	mg/L	29.0
UA	APW05	B	3/30/2021	Magnesium, total	mg/L	26.0
UA	APW05	B	4/28/2021	Magnesium, total	mg/L	29.0
UA	APW05	B	5/25/2021	Magnesium, total	mg/L	28.0
UA	APW05	B	6/17/2021	Magnesium, total	mg/L	31.0
UA	APW05	B	6/30/2021	Magnesium, total	mg/L	30.0
UA	APW05	B	7/15/2021	Magnesium, total	mg/L	28.0
UA	APW05	B	11/10/2021	Magnesium, total	mg/L	29.0
UA	APW05	B	2/22/2022	Magnesium, total	mg/L	29.0
UA	APW05	B	6/15/2022	Magnesium, total	mg/L	28.0
UA	APW05	B	8/16/2022	Magnesium, total	mg/L	29.0
UA	APW05	B	3/14/2023	Magnesium, total	mg/L	33.0
UA	APW05	B	4/27/2023	Magnesium, total	mg/L	26.0
UA	APW05	B	7/24/2023	Magnesium, total	mg/L	25.4
UA	APW05	B	10/10/2023	Magnesium, total	mg/L	27.2
UA	APW05	B	4/27/2023	Manganese, dissolved	mg/L	0.0400
UA	APW05	B	7/24/2023	Manganese, dissolved	mg/L	0.0275
UA	APW05	B	7/24/2023	Phosphate, dissolved	mg/L	0.414
UA	APW05	B	6/13/2017	Potassium, total	mg/L	2.80
UA	APW05	B	8/17/2018	Potassium, total	mg/L	2.70
UA	APW05	B	2/4/2020	Potassium, total	mg/L	1.80
UA	APW05	B	7/28/2020	Potassium, total	mg/L	1.60
UA	APW05	B	2/9/2021	Potassium, total	mg/L	1.90
UA	APW05	B	2/17/2021	Potassium, total	mg/L	2.10
UA	APW05	B	3/10/2021	Potassium, total	mg/L	1.70
UA	APW05	B	3/30/2021	Potassium, total	mg/L	1.50
UA	APW05	B	4/28/2021	Potassium, total	mg/L	1.50
UA	APW05	B	5/25/2021	Potassium, total	mg/L	1.60
UA	APW05	B	6/17/2021	Potassium, total	mg/L	1.60
UA	APW05	B	6/30/2021	Potassium, total	mg/L	1.60
UA	APW05	B	7/15/2021	Potassium, total	mg/L	1.50
UA	APW05	B	11/10/2021	Potassium, total	mg/L	1.50
UA	APW05	B	2/22/2022	Potassium, total	mg/L	1.60
UA	APW05	B	6/15/2022	Potassium, total	mg/L	1.50
UA	APW05	B	8/16/2022	Potassium, total	mg/L	1.70
UA	APW05	B	3/14/2023	Potassium, total	mg/L	1.70

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	4/27/2023	Potassium, total	mg/L	1.40
UA	APW05	B	7/24/2023	Potassium, total	mg/L	1.55
UA	APW05	B	10/10/2023	Potassium, total	mg/L	1.52
UA	APW05	B	4/27/2023	Silicon, dissolved	mg/L	6.20
UA	APW05	B	7/24/2023	Silicon, dissolved	mg/L	5.63
UA	APW05	B	6/13/2017	Sodium, total	mg/L	130
UA	APW05	B	8/17/2018	Sodium, total	mg/L	130
UA	APW05	B	2/4/2020	Sodium, total	mg/L	140
UA	APW05	B	7/28/2020	Sodium, total	mg/L	140
UA	APW05	B	2/9/2021	Sodium, total	mg/L	130
UA	APW05	B	2/17/2021	Sodium, total	mg/L	140
UA	APW05	B	3/10/2021	Sodium, total	mg/L	130
UA	APW05	B	3/30/2021	Sodium, total	mg/L	120
UA	APW05	B	4/28/2021	Sodium, total	mg/L	140
UA	APW05	B	5/25/2021	Sodium, total	mg/L	130
UA	APW05	B	6/17/2021	Sodium, total	mg/L	140
UA	APW05	B	6/30/2021	Sodium, total	mg/L	140
UA	APW05	B	7/15/2021	Sodium, total	mg/L	130
UA	APW05	B	11/10/2021	Sodium, total	mg/L	130
UA	APW05	B	2/22/2022	Sodium, total	mg/L	140
UA	APW05	B	6/15/2022	Sodium, total	mg/L	120
UA	APW05	B	8/16/2022	Sodium, total	mg/L	140
UA	APW05	B	3/14/2023	Sodium, total	mg/L	160
UA	APW05	B	4/27/2023	Sodium, total	mg/L	130
UA	APW05	B	7/24/2023	Sodium, total	mg/L	128
UA	APW05	B	10/10/2023	Sodium, total	mg/L	130
UA	APW05	B	12/15/2015	Sulfate, total	mg/L	15.0
UA	APW05	B	1/20/2016	Sulfate, total	mg/L	15.0
UA	APW05	B	4/27/2016	Sulfate, total	mg/L	14.0
UA	APW05	B	8/1/2016	Sulfate, total	mg/L	1.80
UA	APW05	B	10/25/2016	Sulfate, total	mg/L	<0.12
UA	APW05	B	1/23/2017	Sulfate, total	mg/L	<0.12
UA	APW05	B	4/24/2017	Sulfate, total	mg/L	1.20
UA	APW05	B	6/13/2017	Sulfate, total	mg/L	<0.12
UA	APW05	B	11/17/2017	Sulfate, total	mg/L	<0.12
UA	APW05	B	5/18/2018	Sulfate, total	mg/L	2.10
UA	APW05	B	8/17/2018	Sulfate, total	mg/L	1.40
UA	APW05	B	11/9/2018	Sulfate, total	mg/L	5.10
UA	APW05	B	2/22/2019	Sulfate, total	mg/L	3.50
UA	APW05	B	8/22/2019	Sulfate, total	mg/L	2.30
UA	APW05	B	2/4/2020	Sulfate, total	mg/L	2.30
UA	APW05	B	7/28/2020	Sulfate, total	mg/L	1.80
UA	APW05	B	2/9/2021	Sulfate, total	mg/L	1.30
UA	APW05	B	2/17/2021	Sulfate, total	mg/L	3.30
UA	APW05	B	3/10/2021	Sulfate, total	mg/L	1.30
UA	APW05	B	3/30/2021	Sulfate, total	mg/L	1.30

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW05	B	4/28/2021	Sulfate, total	mg/L	1.10
UA	APW05	B	5/25/2021	Sulfate, total	mg/L	1.00
UA	APW05	B	6/17/2021	Sulfate, total	mg/L	<0.18
UA	APW05	B	6/30/2021	Sulfate, total	mg/L	1.00
UA	APW05	B	7/15/2021	Sulfate, total	mg/L	1.10
UA	APW05	B	11/10/2021	Sulfate, total	mg/L	<0.18
UA	APW05	B	2/22/2022	Sulfate, total	mg/L	<0.18
UA	APW05	B	6/15/2022	Sulfate, total	mg/L	<0.18
UA	APW05	B	8/16/2022	Sulfate, total	mg/L	0.690
UA	APW05	B	3/14/2023	Sulfate, total	mg/L	1.10
UA	APW05	B	4/27/2023	Sulfate, total	mg/L	0.970
UA	APW05	B	7/24/2023	Sulfate, total	mg/L	10.0
UA	APW05	B	10/10/2023	Sulfate, total	mg/L	8.00
UA	APW05	B	12/15/2015	Total Dissolved Solids	mg/L	560
UA	APW05	B	1/20/2016	Total Dissolved Solids	mg/L	510
UA	APW05	B	4/27/2016	Total Dissolved Solids	mg/L	520
UA	APW05	B	8/1/2016	Total Dissolved Solids	mg/L	500
UA	APW05	B	10/25/2016	Total Dissolved Solids	mg/L	1,000
UA	APW05	B	1/23/2017	Total Dissolved Solids	mg/L	550
UA	APW05	B	4/24/2017	Total Dissolved Solids	mg/L	600
UA	APW05	B	6/13/2017	Total Dissolved Solids	mg/L	540
UA	APW05	B	11/17/2017	Total Dissolved Solids	mg/L	480
UA	APW05	B	5/18/2018	Total Dissolved Solids	mg/L	480
UA	APW05	B	11/9/2018	Total Dissolved Solids	mg/L	500
UA	APW05	B	2/22/2019	Total Dissolved Solids	mg/L	600
UA	APW05	B	8/22/2019	Total Dissolved Solids	mg/L	530
UA	APW05	B	2/4/2020	Total Dissolved Solids	mg/L	600
UA	APW05	B	7/28/2020	Total Dissolved Solids	mg/L	530
UA	APW05	B	2/9/2021	Total Dissolved Solids	mg/L	560
UA	APW05	B	2/17/2021	Total Dissolved Solids	mg/L	510
UA	APW05	B	3/10/2021	Total Dissolved Solids	mg/L	530
UA	APW05	B	3/30/2021	Total Dissolved Solids	mg/L	560
UA	APW05	B	4/28/2021	Total Dissolved Solids	mg/L	570
UA	APW05	B	5/25/2021	Total Dissolved Solids	mg/L	570
UA	APW05	B	6/17/2021	Total Dissolved Solids	mg/L	560
UA	APW05	B	6/30/2021	Total Dissolved Solids	mg/L	470
UA	APW05	B	7/15/2021	Total Dissolved Solids	mg/L	560
UA	APW05	B	11/10/2021	Total Dissolved Solids	mg/L	510
UA	APW05	B	2/22/2022	Total Dissolved Solids	mg/L	470
UA	APW05	B	6/15/2022	Total Dissolved Solids	mg/L	590
UA	APW05	B	8/16/2022	Total Dissolved Solids	mg/L	580
UA	APW05	B	3/14/2023	Total Dissolved Solids	mg/L	490
UA	APW05	B	4/27/2023	Total Dissolved Solids	mg/L	560
UA	APW05	B	7/24/2023	Total Dissolved Solids	mg/L	550
UA	APW05	B	10/10/2023	Total Dissolved Solids	mg/L	562
UA	APW06	B	12/15/2015	pH (field)	SU	7.5

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	1/20/2016	pH (field)	SU	7.4
UA	APW06	B	4/27/2016	pH (field)	SU	6.5
UA	APW06	B	8/1/2016	pH (field)	SU	7.4
UA	APW06	B	10/25/2016	pH (field)	SU	7.5
UA	APW06	B	1/23/2017	pH (field)	SU	6.9
UA	APW06	B	4/24/2017	pH (field)	SU	7.2
UA	APW06	B	6/13/2017	pH (field)	SU	7.1
UA	APW06	B	11/17/2017	pH (field)	SU	7.2
UA	APW06	B	5/18/2018	pH (field)	SU	7.3
UA	APW06	B	8/17/2018	pH (field)	SU	7.3
UA	APW06	B	11/9/2018	pH (field)	SU	7.2
UA	APW06	B	2/22/2019	pH (field)	SU	7.3
UA	APW06	B	8/23/2019	pH (field)	SU	7.3
UA	APW06	B	2/4/2020	pH (field)	SU	7.5
UA	APW06	B	6/11/2020	pH (field)	SU	7.4
UA	APW06	B	7/28/2020	pH (field)	SU	7.8
UA	APW06	B	2/9/2021	pH (field)	SU	7.6
UA	APW06	B	2/17/2021	pH (field)	SU	6.4
UA	APW06	B	3/10/2021	pH (field)	SU	7.7
UA	APW06	B	3/30/2021	pH (field)	SU	7.1
UA	APW06	B	4/29/2021	pH (field)	SU	7.7
UA	APW06	B	5/25/2021	pH (field)	SU	7.7
UA	APW06	B	6/16/2021	pH (field)	SU	7.7
UA	APW06	B	6/30/2021	pH (field)	SU	7.6
UA	APW06	B	7/15/2021	pH (field)	SU	7.5
UA	APW06	B	11/10/2021	pH (field)	SU	7.5
UA	APW06	B	2/22/2022	pH (field)	SU	7.6
UA	APW06	B	6/14/2022	pH (field)	SU	7.5
UA	APW06	B	8/17/2022	pH (field)	SU	7.5
UA	APW06	B	3/15/2023	pH (field)	SU	7.5
UA	APW06	B	4/26/2023	pH (field)	SU	7.3
UA	APW06	B	7/25/2023	pH (field)	SU	7.7
UA	APW06	B	10/10/2023	pH (field)	SU	7.1
UA	APW06	B	12/15/2015	Oxidation Reduction Potential	mV	-5.00
UA	APW06	B	1/20/2016	Oxidation Reduction Potential	mV	58.0
UA	APW06	B	4/27/2016	Oxidation Reduction Potential	mV	-61.0
UA	APW06	B	8/1/2016	Oxidation Reduction Potential	mV	-80.0
UA	APW06	B	10/25/2016	Oxidation Reduction Potential	mV	-73.0
UA	APW06	B	1/23/2017	Oxidation Reduction Potential	mV	-109
UA	APW06	B	4/24/2017	Oxidation Reduction Potential	mV	-94.0
UA	APW06	B	6/13/2017	Oxidation Reduction Potential	mV	-83.0
UA	APW06	B	11/17/2017	Oxidation Reduction Potential	mV	-79.0
UA	APW06	B	5/18/2018	Oxidation Reduction Potential	mV	-67.0
UA	APW06	B	8/17/2018	Oxidation Reduction Potential	mV	-73.0
UA	APW06	B	11/9/2018	Oxidation Reduction Potential	mV	-82.0
UA	APW06	B	2/22/2019	Oxidation Reduction Potential	mV	-71.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	8/23/2019	Oxidation Reduction Potential	mV	-58.0
UA	APW06	B	2/4/2020	Oxidation Reduction Potential	mV	-125
UA	APW06	B	6/11/2020	Oxidation Reduction Potential	mV	-125
UA	APW06	B	7/28/2020	Oxidation Reduction Potential	mV	-164
UA	APW06	B	2/9/2021	Oxidation Reduction Potential	mV	-110
UA	APW06	B	2/17/2021	Oxidation Reduction Potential	mV	-41.0
UA	APW06	B	3/10/2021	Oxidation Reduction Potential	mV	-131
UA	APW06	B	3/30/2021	Oxidation Reduction Potential	mV	-69.7
UA	APW06	B	4/29/2021	Oxidation Reduction Potential	mV	-130
UA	APW06	B	5/25/2021	Oxidation Reduction Potential	mV	-138
UA	APW06	B	6/16/2021	Oxidation Reduction Potential	mV	-127
UA	APW06	B	6/30/2021	Oxidation Reduction Potential	mV	-120
UA	APW06	B	7/15/2021	Oxidation Reduction Potential	mV	-148
UA	APW06	B	11/10/2021	Oxidation Reduction Potential	mV	-131
UA	APW06	B	2/22/2022	Oxidation Reduction Potential	mV	-19.2
UA	APW06	B	6/14/2022	Oxidation Reduction Potential	mV	-108
UA	APW06	B	8/17/2022	Oxidation Reduction Potential	mV	-147
UA	APW06	B	4/26/2023	Oxidation Reduction Potential	mV	-128
UA	APW06	B	7/25/2023	Oxidation Reduction Potential	mV	22.0
UA	APW06	B	10/10/2023	Oxidation Reduction Potential	mV	-99.0
UA	APW06	B	12/15/2015	Eh	V	0.19
UA	APW06	B	1/20/2016	Eh	V	0.26
UA	APW06	B	4/27/2016	Eh	V	0.13
UA	APW06	B	8/1/2016	Eh	V	0.11
UA	APW06	B	10/25/2016	Eh	V	0.12
UA	APW06	B	1/23/2017	Eh	V	0.088
UA	APW06	B	4/24/2017	Eh	V	0.100
UA	APW06	B	6/13/2017	Eh	V	0.11
UA	APW06	B	11/17/2017	Eh	V	0.12
UA	APW06	B	5/18/2018	Eh	V	0.13
UA	APW06	B	8/17/2018	Eh	V	0.12
UA	APW06	B	11/9/2018	Eh	V	0.11
UA	APW06	B	2/22/2019	Eh	V	0.13
UA	APW06	B	8/23/2019	Eh	V	0.14
UA	APW06	B	2/4/2020	Eh	V	0.073
UA	APW06	B	6/11/2020	Eh	V	0.070
UA	APW06	B	7/28/2020	Eh	V	0.029
UA	APW06	B	2/9/2021	Eh	V	0.090
UA	APW06	B	2/17/2021	Eh	V	0.16
UA	APW06	B	3/10/2021	Eh	V	0.065
UA	APW06	B	3/30/2021	Eh	V	0.13
UA	APW06	B	4/29/2021	Eh	V	0.065
UA	APW06	B	5/25/2021	Eh	V	0.051
UA	APW06	B	6/16/2021	Eh	V	0.063
UA	APW06	B	6/30/2021	Eh	V	0.069
UA	APW06	B	7/15/2021	Eh	V	0.039

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	11/10/2021	Eh	V	0.063
UA	APW06	B	2/22/2022	Eh	V	0.18
UA	APW06	B	6/14/2022	Eh	V	0.082
UA	APW06	B	8/17/2022	Eh	V	0.048
UA	APW06	B	4/26/2023	Eh	V	0.066
UA	APW06	B	7/25/2023	Eh	V	0.22
UA	APW06	B	10/10/2023	Eh	V	0.097
UA	APW06	B	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW06	B	8/17/2018	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW06	B	2/4/2020	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW06	B	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW06	B	2/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW06	B	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW06	B	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW06	B	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW06	B	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW06	B	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	880
UA	APW06	B	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW06	B	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW06	B	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW06	B	11/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW06	B	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW06	B	6/14/2022	Alkalinity, bicarbonate	mg/L CaCO3	370
UA	APW06	B	8/17/2022	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW06	B	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW06	B	4/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	380
UA	APW06	B	7/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	456
UA	APW06	B	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	476
UA	APW06	B	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	8/17/2018	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	2/4/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	2/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	11/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	6/14/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	8/17/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	4/26/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	7/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW06	B	12/15/2015	Barium, total	mg/L	0.160
UA	APW06	B	1/20/2016	Barium, total	mg/L	0.170
UA	APW06	B	4/27/2016	Barium, total	mg/L	0.210
UA	APW06	B	8/1/2016	Barium, total	mg/L	0.200
UA	APW06	B	10/25/2016	Barium, total	mg/L	0.220
UA	APW06	B	1/23/2017	Barium, total	mg/L	0.210
UA	APW06	B	4/24/2017	Barium, total	mg/L	0.200
UA	APW06	B	6/13/2017	Barium, total	mg/L	0.220
UA	APW06	B	2/17/2021	Barium, total	mg/L	0.240
UA	APW06	B	3/10/2021	Barium, total	mg/L	0.250
UA	APW06	B	3/30/2021	Barium, total	mg/L	0.220
UA	APW06	B	4/29/2021	Barium, total	mg/L	0.250
UA	APW06	B	5/25/2021	Barium, total	mg/L	0.280
UA	APW06	B	6/16/2021	Barium, total	mg/L	0.250
UA	APW06	B	6/30/2021	Barium, total	mg/L	0.230
UA	APW06	B	7/15/2021	Barium, total	mg/L	0.230
UA	APW06	B	6/14/2022	Barium, total	mg/L	0.240
UA	APW06	B	8/17/2022	Barium, total	mg/L	0.220
UA	APW06	B	3/15/2023	Barium, total	mg/L	0.210
UA	APW06	B	4/26/2023	Barium, total	mg/L	0.240
UA	APW06	B	7/25/2023	Barium, total	mg/L	0.254
UA	APW06	B	10/10/2023	Barium, total	mg/L	0.304
UA	APW06	B	12/15/2015	Calcium, total	mg/L	53.0
UA	APW06	B	1/20/2016	Calcium, total	mg/L	53.0
UA	APW06	B	4/27/2016	Calcium, total	mg/L	64.0
UA	APW06	B	8/1/2016	Calcium, total	mg/L	50.0
UA	APW06	B	10/25/2016	Calcium, total	mg/L	50.0
UA	APW06	B	1/23/2017	Calcium, total	mg/L	46.0
UA	APW06	B	4/24/2017	Calcium, total	mg/L	43.0
UA	APW06	B	6/13/2017	Calcium, total	mg/L	51.0
UA	APW06	B	11/17/2017	Calcium, total	mg/L	50.0
UA	APW06	B	5/18/2018	Calcium, total	mg/L	51.0
UA	APW06	B	8/17/2018	Calcium, total	mg/L	52.0
UA	APW06	B	11/9/2018	Calcium, total	mg/L	51.0
UA	APW06	B	2/22/2019	Calcium, total	mg/L	45.0
UA	APW06	B	8/23/2019	Calcium, total	mg/L	55.0
UA	APW06	B	2/4/2020	Calcium, total	mg/L	53.0
UA	APW06	B	7/28/2020	Calcium, total	mg/L	55.0
UA	APW06	B	2/9/2021	Calcium, total	mg/L	55.0
UA	APW06	B	2/17/2021	Calcium, total	mg/L	54.0
UA	APW06	B	3/10/2021	Calcium, total	mg/L	58.0
UA	APW06	B	3/30/2021	Calcium, total	mg/L	56.0
UA	APW06	B	4/29/2021	Calcium, total	mg/L	62.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	5/25/2021	Calcium, total	mg/L	68.0
UA	APW06	B	6/16/2021	Calcium, total	mg/L	67.0
UA	APW06	B	6/30/2021	Calcium, total	mg/L	63.0
UA	APW06	B	7/15/2021	Calcium, total	mg/L	55.0
UA	APW06	B	11/10/2021	Calcium, total	mg/L	120
UA	APW06	B	2/22/2022	Calcium, total	mg/L	56.0
UA	APW06	B	6/14/2022	Calcium, total	mg/L	59.0
UA	APW06	B	8/17/2022	Calcium, total	mg/L	56.0
UA	APW06	B	3/15/2023	Calcium, total	mg/L	54.0
UA	APW06	B	4/26/2023	Calcium, total	mg/L	58.0
UA	APW06	B	7/25/2023	Calcium, total	mg/L	53.7
UA	APW06	B	10/10/2023	Calcium, total	mg/L	56.8
UA	APW06	B	12/15/2015	Chloride, total	mg/L	26.0
UA	APW06	B	1/20/2016	Chloride, total	mg/L	24.0
UA	APW06	B	4/27/2016	Chloride, total	mg/L	29.0
UA	APW06	B	8/1/2016	Chloride, total	mg/L	27.0
UA	APW06	B	10/25/2016	Chloride, total	mg/L	26.0
UA	APW06	B	1/23/2017	Chloride, total	mg/L	26.0
UA	APW06	B	4/24/2017	Chloride, total	mg/L	50.0
UA	APW06	B	6/13/2017	Chloride, total	mg/L	25.0
UA	APW06	B	11/17/2017	Chloride, total	mg/L	23.0
UA	APW06	B	5/18/2018	Chloride, total	mg/L	25.0
UA	APW06	B	8/17/2018	Chloride, total	mg/L	25.0
UA	APW06	B	11/9/2018	Chloride, total	mg/L	24.0
UA	APW06	B	2/22/2019	Chloride, total	mg/L	24.0
UA	APW06	B	8/23/2019	Chloride, total	mg/L	26.0
UA	APW06	B	2/4/2020	Chloride, total	mg/L	27.0
UA	APW06	B	7/28/2020	Chloride, total	mg/L	24.0
UA	APW06	B	2/9/2021	Chloride, total	mg/L	24.0
UA	APW06	B	2/17/2021	Chloride, total	mg/L	23.0
UA	APW06	B	3/10/2021	Chloride, total	mg/L	22.0
UA	APW06	B	3/30/2021	Chloride, total	mg/L	26.0
UA	APW06	B	4/29/2021	Chloride, total	mg/L	23.0
UA	APW06	B	5/25/2021	Chloride, total	mg/L	23.0
UA	APW06	B	6/16/2021	Chloride, total	mg/L	25.0
UA	APW06	B	6/30/2021	Chloride, total	mg/L	32.0
UA	APW06	B	7/15/2021	Chloride, total	mg/L	27.0
UA	APW06	B	11/10/2021	Chloride, total	mg/L	24.0
UA	APW06	B	2/22/2022	Chloride, total	mg/L	26.0
UA	APW06	B	6/14/2022	Chloride, total	mg/L	21.0
UA	APW06	B	8/17/2022	Chloride, total	mg/L	23.0
UA	APW06	B	3/15/2023	Chloride, total	mg/L	22.0
UA	APW06	B	4/26/2023	Chloride, total	mg/L	26.0
UA	APW06	B	7/25/2023	Chloride, total	mg/L	24.0
UA	APW06	B	10/10/2023	Chloride, total	mg/L	23.0
UA	APW06	B	4/26/2023	Ferrous Iron, dissolved	mg/L	0.900

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	7/25/2023	Ferrous Iron, dissolved	mg/L	0.678
UA	APW06	B	4/26/2023	Iron, dissolved	mg/L	0.880
UA	APW06	B	7/25/2023	Iron, dissolved	mg/L	0.683
UA	APW06	B	12/15/2015	Lithium, total	mg/L	0.0190
UA	APW06	B	1/20/2016	Lithium, total	mg/L	0.0120
UA	APW06	B	4/27/2016	Lithium, total	mg/L	0.0190
UA	APW06	B	8/1/2016	Lithium, total	mg/L	0.0160
UA	APW06	B	10/25/2016	Lithium, total	mg/L	0.0150
UA	APW06	B	1/23/2017	Lithium, total	mg/L	0.0140
UA	APW06	B	4/24/2017	Lithium, total	mg/L	0.0150
UA	APW06	B	6/13/2017	Lithium, total	mg/L	0.0140
UA	APW06	B	2/17/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	3/30/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	4/29/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	5/25/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	6/16/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	6/30/2021	Lithium, total	mg/L	0.0300
UA	APW06	B	7/15/2021	Lithium, total	mg/L	<0.0099
UA	APW06	B	6/14/2022	Lithium, total	mg/L	<0.005
UA	APW06	B	8/17/2022	Lithium, total	mg/L	0.0120
UA	APW06	B	3/15/2023	Lithium, total	mg/L	0.0100
UA	APW06	B	4/26/2023	Lithium, total	mg/L	0.0120
UA	APW06	B	7/25/2023	Lithium, total	mg/L	0.00960
UA	APW06	B	10/10/2023	Lithium, total	mg/L	0.0106
UA	APW06	B	6/13/2017	Magnesium, total	mg/L	26.0
UA	APW06	B	8/17/2018	Magnesium, total	mg/L	24.0
UA	APW06	B	2/4/2020	Magnesium, total	mg/L	25.0
UA	APW06	B	7/28/2020	Magnesium, total	mg/L	27.0
UA	APW06	B	2/9/2021	Magnesium, total	mg/L	27.0
UA	APW06	B	2/17/2021	Magnesium, total	mg/L	26.0
UA	APW06	B	3/10/2021	Magnesium, total	mg/L	27.0
UA	APW06	B	3/30/2021	Magnesium, total	mg/L	24.0
UA	APW06	B	4/29/2021	Magnesium, total	mg/L	31.0
UA	APW06	B	5/25/2021	Magnesium, total	mg/L	30.0
UA	APW06	B	6/16/2021	Magnesium, total	mg/L	30.0
UA	APW06	B	6/30/2021	Magnesium, total	mg/L	30.0
UA	APW06	B	7/15/2021	Magnesium, total	mg/L	27.0
UA	APW06	B	11/10/2021	Magnesium, total	mg/L	47.0
UA	APW06	B	2/22/2022	Magnesium, total	mg/L	28.0
UA	APW06	B	6/14/2022	Magnesium, total	mg/L	28.0
UA	APW06	B	8/17/2022	Magnesium, total	mg/L	26.0
UA	APW06	B	3/15/2023	Magnesium, total	mg/L	29.0
UA	APW06	B	4/26/2023	Magnesium, total	mg/L	27.0
UA	APW06	B	7/25/2023	Magnesium, total	mg/L	24.7
UA	APW06	B	10/10/2023	Magnesium, total	mg/L	25.7

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	4/26/2023	Manganese, dissolved	mg/L	0.0390
UA	APW06	B	7/25/2023	Manganese, dissolved	mg/L	0.0486
UA	APW06	B	7/25/2023	Phosphate, dissolved	mg/L	0.249
UA	APW06	B	6/13/2017	Potassium, total	mg/L	2.00
UA	APW06	B	8/17/2018	Potassium, total	mg/L	1.60
UA	APW06	B	2/4/2020	Potassium, total	mg/L	1.40
UA	APW06	B	7/28/2020	Potassium, total	mg/L	1.30
UA	APW06	B	2/9/2021	Potassium, total	mg/L	1.40
UA	APW06	B	2/17/2021	Potassium, total	mg/L	1.30
UA	APW06	B	3/10/2021	Potassium, total	mg/L	1.50
UA	APW06	B	3/30/2021	Potassium, total	mg/L	1.30
UA	APW06	B	4/29/2021	Potassium, total	mg/L	2.10
UA	APW06	B	5/25/2021	Potassium, total	mg/L	2.80
UA	APW06	B	6/16/2021	Potassium, total	mg/L	2.30
UA	APW06	B	6/30/2021	Potassium, total	mg/L	2.20
UA	APW06	B	7/15/2021	Potassium, total	mg/L	1.70
UA	APW06	B	11/10/2021	Potassium, total	mg/L	2.90
UA	APW06	B	2/22/2022	Potassium, total	mg/L	1.80
UA	APW06	B	6/14/2022	Potassium, total	mg/L	1.90
UA	APW06	B	8/17/2022	Potassium, total	mg/L	1.40
UA	APW06	B	3/15/2023	Potassium, total	mg/L	1.40
UA	APW06	B	4/26/2023	Potassium, total	mg/L	1.50
UA	APW06	B	7/25/2023	Potassium, total	mg/L	1.42
UA	APW06	B	10/10/2023	Potassium, total	mg/L	1.48
UA	APW06	B	4/26/2023	Silicon, dissolved	mg/L	7.50
UA	APW06	B	7/25/2023	Silicon, dissolved	mg/L	6.67
UA	APW06	B	6/13/2017	Sodium, total	mg/L	140
UA	APW06	B	8/17/2018	Sodium, total	mg/L	120
UA	APW06	B	2/4/2020	Sodium, total	mg/L	130
UA	APW06	B	7/28/2020	Sodium, total	mg/L	130
UA	APW06	B	2/9/2021	Sodium, total	mg/L	130
UA	APW06	B	2/17/2021	Sodium, total	mg/L	130
UA	APW06	B	3/10/2021	Sodium, total	mg/L	120
UA	APW06	B	3/30/2021	Sodium, total	mg/L	110
UA	APW06	B	4/29/2021	Sodium, total	mg/L	130
UA	APW06	B	5/25/2021	Sodium, total	mg/L	110
UA	APW06	B	6/16/2021	Sodium, total	mg/L	120
UA	APW06	B	6/30/2021	Sodium, total	mg/L	120
UA	APW06	B	7/15/2021	Sodium, total	mg/L	120
UA	APW06	B	11/10/2021	Sodium, total	mg/L	120
UA	APW06	B	2/22/2022	Sodium, total	mg/L	130
UA	APW06	B	6/14/2022	Sodium, total	mg/L	110
UA	APW06	B	8/17/2022	Sodium, total	mg/L	120
UA	APW06	B	3/15/2023	Sodium, total	mg/L	130
UA	APW06	B	4/26/2023	Sodium, total	mg/L	120
UA	APW06	B	7/25/2023	Sodium, total	mg/L	115

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	10/10/2023	Sodium, total	mg/L	115
UA	APW06	B	12/15/2015	Sulfate, total	mg/L	9.90
UA	APW06	B	1/20/2016	Sulfate, total	mg/L	9.90
UA	APW06	B	4/27/2016	Sulfate, total	mg/L	7.40
UA	APW06	B	8/1/2016	Sulfate, total	mg/L	1.20
UA	APW06	B	10/25/2016	Sulfate, total	mg/L	<0.12
UA	APW06	B	1/23/2017	Sulfate, total	mg/L	<0.12
UA	APW06	B	4/24/2017	Sulfate, total	mg/L	<0.12
UA	APW06	B	6/13/2017	Sulfate, total	mg/L	2.30
UA	APW06	B	11/17/2017	Sulfate, total	mg/L	1.90
UA	APW06	B	5/18/2018	Sulfate, total	mg/L	1.70
UA	APW06	B	8/17/2018	Sulfate, total	mg/L	1.70
UA	APW06	B	11/9/2018	Sulfate, total	mg/L	2.10
UA	APW06	B	2/22/2019	Sulfate, total	mg/L	1.70
UA	APW06	B	8/23/2019	Sulfate, total	mg/L	5.80
UA	APW06	B	2/4/2020	Sulfate, total	mg/L	<0.062
UA	APW06	B	7/28/2020	Sulfate, total	mg/L	3.20
UA	APW06	B	2/9/2021	Sulfate, total	mg/L	1.80
UA	APW06	B	2/17/2021	Sulfate, total	mg/L	3.60
UA	APW06	B	3/10/2021	Sulfate, total	mg/L	9.20
UA	APW06	B	3/30/2021	Sulfate, total	mg/L	7.70
UA	APW06	B	4/29/2021	Sulfate, total	mg/L	8.50
UA	APW06	B	5/25/2021	Sulfate, total	mg/L	7.80
UA	APW06	B	6/16/2021	Sulfate, total	mg/L	6.20
UA	APW06	B	6/30/2021	Sulfate, total	mg/L	6.30
UA	APW06	B	7/15/2021	Sulfate, total	mg/L	7.80
UA	APW06	B	11/10/2021	Sulfate, total	mg/L	4.40
UA	APW06	B	2/22/2022	Sulfate, total	mg/L	7.60
UA	APW06	B	6/14/2022	Sulfate, total	mg/L	11.0
UA	APW06	B	8/17/2022	Sulfate, total	mg/L	6.10
UA	APW06	B	3/15/2023	Sulfate, total	mg/L	6.80
UA	APW06	B	4/26/2023	Sulfate, total	mg/L	7.60
UA	APW06	B	7/25/2023	Sulfate, total	mg/L	17.0
UA	APW06	B	10/10/2023	Sulfate, total	mg/L	11.0
UA	APW06	B	12/15/2015	Total Dissolved Solids	mg/L	480
UA	APW06	B	1/20/2016	Total Dissolved Solids	mg/L	500
UA	APW06	B	4/27/2016	Total Dissolved Solids	mg/L	450
UA	APW06	B	8/1/2016	Total Dissolved Solids	mg/L	520
UA	APW06	B	10/25/2016	Total Dissolved Solids	mg/L	560
UA	APW06	B	1/23/2017	Total Dissolved Solids	mg/L	530
UA	APW06	B	4/24/2017	Total Dissolved Solids	mg/L	540
UA	APW06	B	6/13/2017	Total Dissolved Solids	mg/L	460
UA	APW06	B	11/17/2017	Total Dissolved Solids	mg/L	470
UA	APW06	B	5/18/2018	Total Dissolved Solids	mg/L	420
UA	APW06	B	11/9/2018	Total Dissolved Solids	mg/L	440
UA	APW06	B	2/22/2019	Total Dissolved Solids	mg/L	480

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW06	B	8/23/2019	Total Dissolved Solids	mg/L	500
UA	APW06	B	2/4/2020	Total Dissolved Solids	mg/L	640
UA	APW06	B	7/28/2020	Total Dissolved Solids	mg/L	510
UA	APW06	B	2/9/2021	Total Dissolved Solids	mg/L	450
UA	APW06	B	2/17/2021	Total Dissolved Solids	mg/L	500
UA	APW06	B	3/10/2021	Total Dissolved Solids	mg/L	540
UA	APW06	B	3/30/2021	Total Dissolved Solids	mg/L	500
UA	APW06	B	4/29/2021	Total Dissolved Solids	mg/L	610
UA	APW06	B	5/25/2021	Total Dissolved Solids	mg/L	490
UA	APW06	B	6/16/2021	Total Dissolved Solids	mg/L	520
UA	APW06	B	6/30/2021	Total Dissolved Solids	mg/L	500
UA	APW06	B	7/15/2021	Total Dissolved Solids	mg/L	490
UA	APW06	B	11/10/2021	Total Dissolved Solids	mg/L	500
UA	APW06	B	2/22/2022	Total Dissolved Solids	mg/L	450
UA	APW06	B	6/14/2022	Total Dissolved Solids	mg/L	560
UA	APW06	B	8/17/2022	Total Dissolved Solids	mg/L	440
UA	APW06	B	3/15/2023	Total Dissolved Solids	mg/L	500
UA	APW06	B	4/26/2023	Total Dissolved Solids	mg/L	500
UA	APW06	B	7/25/2023	Total Dissolved Solids	mg/L	540
UA	APW06	B	10/10/2023	Total Dissolved Solids	mg/L	526
UA	APW07	C	12/15/2015	pH (field)	SU	7.4
UA	APW07	C	1/21/2016	pH (field)	SU	7.4
UA	APW07	C	5/3/2016	pH (field)	SU	7.5
UA	APW07	C	8/1/2016	pH (field)	SU	7.3
UA	APW07	C	10/26/2016	pH (field)	SU	7.2
UA	APW07	C	1/26/2017	pH (field)	SU	7.2
UA	APW07	C	4/24/2017	pH (field)	SU	7.3
UA	APW07	C	6/13/2017	pH (field)	SU	7.2
UA	APW07	C	11/17/2017	pH (field)	SU	7.2
UA	APW07	C	5/18/2018	pH (field)	SU	7.1
UA	APW07	C	8/18/2018	pH (field)	SU	7.1
UA	APW07	C	11/9/2018	pH (field)	SU	7.0
UA	APW07	C	2/22/2019	pH (field)	SU	7.2
UA	APW07	C	8/23/2019	pH (field)	SU	7.1
UA	APW07	C	2/5/2020	pH (field)	SU	7.4
UA	APW07	C	6/11/2020	pH (field)	SU	7.3
UA	APW07	C	7/28/2020	pH (field)	SU	7.3
UA	APW07	C	2/10/2021	pH (field)	SU	7.0
UA	APW07	C	11/9/2021	pH (field)	SU	7.4
UA	APW07	C	2/22/2022	pH (field)	SU	7.3
UA	APW07	C	6/14/2022	pH (field)	SU	7.4
UA	APW07	C	8/16/2022	pH (field)	SU	7.1
UA	APW07	C	1/31/2023	pH (field)	SU	6.8
UA	APW07	C	4/27/2023	pH (field)	SU	7.4
UA	APW07	C	7/25/2023	pH (field)	SU	7.3
UA	APW07	C	10/10/2023	pH (field)	SU	7.6

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	12/15/2015	Oxidation Reduction Potential	mV	-40.0
UA	APW07	C	1/21/2016	Oxidation Reduction Potential	mV	-110
UA	APW07	C	5/3/2016	Oxidation Reduction Potential	mV	-94.0
UA	APW07	C	8/1/2016	Oxidation Reduction Potential	mV	-114
UA	APW07	C	10/26/2016	Oxidation Reduction Potential	mV	-69.0
UA	APW07	C	1/26/2017	Oxidation Reduction Potential	mV	-136
UA	APW07	C	4/24/2017	Oxidation Reduction Potential	mV	-112
UA	APW07	C	6/13/2017	Oxidation Reduction Potential	mV	-94.0
UA	APW07	C	11/17/2017	Oxidation Reduction Potential	mV	-71.0
UA	APW07	C	5/18/2018	Oxidation Reduction Potential	mV	-88.0
UA	APW07	C	8/18/2018	Oxidation Reduction Potential	mV	-88.0
UA	APW07	C	11/9/2018	Oxidation Reduction Potential	mV	-92.0
UA	APW07	C	2/22/2019	Oxidation Reduction Potential	mV	-92.0
UA	APW07	C	8/23/2019	Oxidation Reduction Potential	mV	-74.0
UA	APW07	C	2/5/2020	Oxidation Reduction Potential	mV	-137
UA	APW07	C	6/11/2020	Oxidation Reduction Potential	mV	-164
UA	APW07	C	7/28/2020	Oxidation Reduction Potential	mV	-104
UA	APW07	C	2/10/2021	Oxidation Reduction Potential	mV	-10.5
UA	APW07	C	11/9/2021	Oxidation Reduction Potential	mV	-90.5
UA	APW07	C	2/22/2022	Oxidation Reduction Potential	mV	4.50
UA	APW07	C	6/14/2022	Oxidation Reduction Potential	mV	-91.7
UA	APW07	C	8/16/2022	Oxidation Reduction Potential	mV	-116
UA	APW07	C	1/31/2023	Oxidation Reduction Potential	mV	106
UA	APW07	C	4/27/2023	Oxidation Reduction Potential	mV	-116
UA	APW07	C	7/25/2023	Oxidation Reduction Potential	mV	33.0
UA	APW07	C	10/10/2023	Oxidation Reduction Potential	mV	-68.0
UA	APW07	C	12/15/2015	Eh	V	0.16
UA	APW07	C	1/21/2016	Eh	V	0.089
UA	APW07	C	5/3/2016	Eh	V	0.10
UA	APW07	C	8/1/2016	Eh	V	0.078
UA	APW07	C	10/26/2016	Eh	V	0.12
UA	APW07	C	1/26/2017	Eh	V	0.062
UA	APW07	C	4/24/2017	Eh	V	0.082
UA	APW07	C	6/13/2017	Eh	V	0.10
UA	APW07	C	11/17/2017	Eh	V	0.13
UA	APW07	C	5/18/2018	Eh	V	0.11
UA	APW07	C	8/18/2018	Eh	V	0.11
UA	APW07	C	11/9/2018	Eh	V	0.10
UA	APW07	C	2/22/2019	Eh	V	0.11
UA	APW07	C	8/23/2019	Eh	V	0.12
UA	APW07	C	2/5/2020	Eh	V	0.062
UA	APW07	C	6/11/2020	Eh	V	0.031
UA	APW07	C	7/28/2020	Eh	V	0.089
UA	APW07	C	2/10/2021	Eh	V	0.19
UA	APW07	C	11/9/2021	Eh	V	0.11
UA	APW07	C	2/22/2022	Eh	V	0.20

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	6/14/2022	Eh	V	0.10
UA	APW07	C	8/16/2022	Eh	V	0.078
UA	APW07	C	1/31/2023	Eh	V	0.31
UA	APW07	C	4/27/2023	Eh	V	0.080
UA	APW07	C	7/25/2023	Eh	V	0.23
UA	APW07	C	10/10/2023	Eh	V	0.13
UA	APW07	C	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW07	C	8/18/2018	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW07	C	2/5/2020	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW07	C	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW07	C	2/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW07	C	11/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW07	C	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW07	C	6/14/2022	Alkalinity, bicarbonate	mg/L CaCO3	300
UA	APW07	C	8/16/2022	Alkalinity, bicarbonate	mg/L CaCO3	340
UA	APW07	C	1/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	310
UA	APW07	C	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW07	C	7/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	493
UA	APW07	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	512
UA	APW07	C	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	8/18/2018	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	2/5/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	2/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	11/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	6/14/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	8/16/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	1/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	7/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW07	C	12/15/2015	Barium, total	mg/L	0.350
UA	APW07	C	1/21/2016	Barium, total	mg/L	0.400
UA	APW07	C	5/3/2016	Barium, total	mg/L	0.410
UA	APW07	C	8/1/2016	Barium, total	mg/L	0.450
UA	APW07	C	10/26/2016	Barium, total	mg/L	0.500
UA	APW07	C	1/26/2017	Barium, total	mg/L	0.450
UA	APW07	C	4/24/2017	Barium, total	mg/L	0.450
UA	APW07	C	6/13/2017	Barium, total	mg/L	0.480
UA	APW07	C	6/14/2022	Barium, total	mg/L	0.500
UA	APW07	C	8/16/2022	Barium, total	mg/L	0.510
UA	APW07	C	1/31/2023	Barium, total	mg/L	0.540
UA	APW07	C	4/27/2023	Barium, total	mg/L	0.510
UA	APW07	C	7/25/2023	Barium, total	mg/L	0.519
UA	APW07	C	10/10/2023	Barium, total	mg/L	0.808

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	12/15/2015	Calcium, total	mg/L	74.0
UA	APW07	C	1/21/2016	Calcium, total	mg/L	74.0
UA	APW07	C	5/3/2016	Calcium, total	mg/L	85.0
UA	APW07	C	8/1/2016	Calcium, total	mg/L	86.0
UA	APW07	C	10/26/2016	Calcium, total	mg/L	76.0
UA	APW07	C	1/26/2017	Calcium, total	mg/L	87.0
UA	APW07	C	4/24/2017	Calcium, total	mg/L	87.0
UA	APW07	C	6/13/2017	Calcium, total	mg/L	93.0
UA	APW07	C	11/17/2017	Calcium, total	mg/L	72.0
UA	APW07	C	5/18/2018	Calcium, total	mg/L	97.0
UA	APW07	C	8/18/2018	Calcium, total	mg/L	100
UA	APW07	C	11/9/2018	Calcium, total	mg/L	92.0
UA	APW07	C	2/22/2019	Calcium, total	mg/L	45.0
UA	APW07	C	8/23/2019	Calcium, total	mg/L	58.0
UA	APW07	C	2/5/2020	Calcium, total	mg/L	100
UA	APW07	C	7/28/2020	Calcium, total	mg/L	94.0
UA	APW07	C	2/10/2021	Calcium, total	mg/L	110
UA	APW07	C	11/9/2021	Calcium, total	mg/L	97.0
UA	APW07	C	2/22/2022	Calcium, total	mg/L	96.0
UA	APW07	C	6/14/2022	Calcium, total	mg/L	93.0
UA	APW07	C	8/16/2022	Calcium, total	mg/L	96.0
UA	APW07	C	1/31/2023	Calcium, total	mg/L	110
UA	APW07	C	4/27/2023	Calcium, total	mg/L	100
UA	APW07	C	7/25/2023	Calcium, total	mg/L	90.4
UA	APW07	C	10/10/2023	Calcium, total	mg/L	96.2
UA	APW07	C	12/15/2015	Chloride, total	mg/L	69.0
UA	APW07	C	1/21/2016	Chloride, total	mg/L	79.0
UA	APW07	C	5/3/2016	Chloride, total	mg/L	72.0
UA	APW07	C	8/1/2016	Chloride, total	mg/L	77.0
UA	APW07	C	10/26/2016	Chloride, total	mg/L	79.0
UA	APW07	C	1/26/2017	Chloride, total	mg/L	77.0
UA	APW07	C	4/24/2017	Chloride, total	mg/L	77.0
UA	APW07	C	6/13/2017	Chloride, total	mg/L	77.0
UA	APW07	C	11/17/2017	Chloride, total	mg/L	73.0
UA	APW07	C	5/18/2018	Chloride, total	mg/L	75.0
UA	APW07	C	8/18/2018	Chloride, total	mg/L	77.0
UA	APW07	C	11/9/2018	Chloride, total	mg/L	71.0
UA	APW07	C	2/22/2019	Chloride, total	mg/L	43.0
UA	APW07	C	8/23/2019	Chloride, total	mg/L	46.0
UA	APW07	C	2/5/2020	Chloride, total	mg/L	68.0
UA	APW07	C	6/11/2020	Chloride, total	mg/L	68.0
UA	APW07	C	7/28/2020	Chloride, total	mg/L	77.0
UA	APW07	C	2/10/2021	Chloride, total	mg/L	69.0
UA	APW07	C	11/9/2021	Chloride, total	mg/L	66.0
UA	APW07	C	2/22/2022	Chloride, total	mg/L	67.0
UA	APW07	C	6/14/2022	Chloride, total	mg/L	64.0

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Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	8/16/2022	Chloride, total	mg/L	63.0
UA	APW07	C	1/31/2023	Chloride, total	mg/L	59.0
UA	APW07	C	4/27/2023	Chloride, total	mg/L	63.0
UA	APW07	C	7/25/2023	Chloride, total	mg/L	62.0
UA	APW07	C	10/10/2023	Chloride, total	mg/L	67.0
UA	APW07	C	4/27/2023	Ferrous Iron, dissolved	mg/L	1.10
UA	APW07	C	7/25/2023	Ferrous Iron, dissolved	mg/L	2.29
UA	APW07	C	4/27/2023	Iron, dissolved	mg/L	2.30
UA	APW07	C	7/25/2023	Iron, dissolved	mg/L	2.36
UA	APW07	C	12/15/2015	Lithium, total	mg/L	<0.0001
UA	APW07	C	1/21/2016	Lithium, total	mg/L	<0.0001
UA	APW07	C	5/3/2016	Lithium, total	mg/L	<0.0001
UA	APW07	C	8/1/2016	Lithium, total	mg/L	<0.0001
UA	APW07	C	10/26/2016	Lithium, total	mg/L	<0.0001
UA	APW07	C	1/26/2017	Lithium, total	mg/L	<0.0001
UA	APW07	C	4/24/2017	Lithium, total	mg/L	<0.0001
UA	APW07	C	6/13/2017	Lithium, total	mg/L	<0.0001
UA	APW07	C	6/14/2022	Lithium, total	mg/L	<0.005
UA	APW07	C	8/16/2022	Lithium, total	mg/L	<0.005
UA	APW07	C	1/31/2023	Lithium, total	mg/L	<0.005
UA	APW07	C	4/27/2023	Lithium, total	mg/L	0.00580
UA	APW07	C	7/25/2023	Lithium, total	mg/L	0.00340
UA	APW07	C	10/10/2023	Lithium, total	mg/L	0.00250
UA	APW07	C	6/13/2017	Magnesium, total	mg/L	36.0
UA	APW07	C	8/18/2018	Magnesium, total	mg/L	39.0
UA	APW07	C	2/5/2020	Magnesium, total	mg/L	42.0
UA	APW07	C	7/28/2020	Magnesium, total	mg/L	38.0
UA	APW07	C	2/10/2021	Magnesium, total	mg/L	42.0
UA	APW07	C	11/9/2021	Magnesium, total	mg/L	37.0
UA	APW07	C	2/22/2022	Magnesium, total	mg/L	39.0
UA	APW07	C	6/14/2022	Magnesium, total	mg/L	37.0
UA	APW07	C	8/16/2022	Magnesium, total	mg/L	42.0
UA	APW07	C	1/31/2023	Magnesium, total	mg/L	42.0
UA	APW07	C	4/27/2023	Magnesium, total	mg/L	40.0
UA	APW07	C	7/25/2023	Magnesium, total	mg/L	34.8
UA	APW07	C	10/10/2023	Magnesium, total	mg/L	35.4
UA	APW07	C	4/27/2023	Manganese, dissolved	mg/L	0.0210
UA	APW07	C	7/25/2023	Manganese, dissolved	mg/L	0.0224
UA	APW07	C	7/25/2023	Phosphate, dissolved	mg/L	1.11
UA	APW07	C	6/13/2017	Potassium, total	mg/L	2.00
UA	APW07	C	8/18/2018	Potassium, total	mg/L	2.60
UA	APW07	C	2/5/2020	Potassium, total	mg/L	2.00
UA	APW07	C	7/28/2020	Potassium, total	mg/L	1.40
UA	APW07	C	2/10/2021	Potassium, total	mg/L	2.90
UA	APW07	C	11/9/2021	Potassium, total	mg/L	1.60
UA	APW07	C	2/22/2022	Potassium, total	mg/L	1.90

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	6/14/2022	Potassium, total	mg/L	1.60
UA	APW07	C	8/16/2022	Potassium, total	mg/L	1.80
UA	APW07	C	1/31/2023	Potassium, total	mg/L	2.40
UA	APW07	C	4/27/2023	Potassium, total	mg/L	2.50
UA	APW07	C	7/25/2023	Potassium, total	mg/L	1.76
UA	APW07	C	10/10/2023	Potassium, total	mg/L	1.80
UA	APW07	C	4/27/2023	Silicon, dissolved	mg/L	8.10
UA	APW07	C	7/25/2023	Silicon, dissolved	mg/L	7.29
UA	APW07	C	6/13/2017	Sodium, total	mg/L	100
UA	APW07	C	8/18/2018	Sodium, total	mg/L	98.0
UA	APW07	C	2/5/2020	Sodium, total	mg/L	100
UA	APW07	C	7/28/2020	Sodium, total	mg/L	98.0
UA	APW07	C	2/10/2021	Sodium, total	mg/L	91.0
UA	APW07	C	11/9/2021	Sodium, total	mg/L	91.0
UA	APW07	C	2/22/2022	Sodium, total	mg/L	97.0
UA	APW07	C	6/14/2022	Sodium, total	mg/L	84.0
UA	APW07	C	8/16/2022	Sodium, total	mg/L	110
UA	APW07	C	1/31/2023	Sodium, total	mg/L	100
UA	APW07	C	4/27/2023	Sodium, total	mg/L	93.0
UA	APW07	C	7/25/2023	Sodium, total	mg/L	91.2
UA	APW07	C	10/10/2023	Sodium, total	mg/L	95.4
UA	APW07	C	12/15/2015	Sulfate, total	mg/L	13.0
UA	APW07	C	1/21/2016	Sulfate, total	mg/L	8.60
UA	APW07	C	5/3/2016	Sulfate, total	mg/L	7.50
UA	APW07	C	8/1/2016	Sulfate, total	mg/L	2.80
UA	APW07	C	10/26/2016	Sulfate, total	mg/L	<0.12
UA	APW07	C	1/26/2017	Sulfate, total	mg/L	<0.12
UA	APW07	C	4/24/2017	Sulfate, total	mg/L	<0.12
UA	APW07	C	6/13/2017	Sulfate, total	mg/L	<0.12
UA	APW07	C	11/17/2017	Sulfate, total	mg/L	3.80
UA	APW07	C	5/18/2018	Sulfate, total	mg/L	4.90
UA	APW07	C	8/18/2018	Sulfate, total	mg/L	3.20
UA	APW07	C	11/9/2018	Sulfate, total	mg/L	4.50
UA	APW07	C	2/22/2019	Sulfate, total	mg/L	66.0
UA	APW07	C	8/23/2019	Sulfate, total	mg/L	62.0
UA	APW07	C	2/5/2020	Sulfate, total	mg/L	5.70
UA	APW07	C	7/28/2020	Sulfate, total	mg/L	6.70
UA	APW07	C	2/10/2021	Sulfate, total	mg/L	6.30
UA	APW07	C	11/9/2021	Sulfate, total	mg/L	11.0
UA	APW07	C	2/22/2022	Sulfate, total	mg/L	11.0
UA	APW07	C	6/14/2022	Sulfate, total	mg/L	12.0
UA	APW07	C	8/16/2022	Sulfate, total	mg/L	12.0
UA	APW07	C	1/31/2023	Sulfate, total	mg/L	12.0
UA	APW07	C	4/27/2023	Sulfate, total	mg/L	14.0
UA	APW07	C	7/25/2023	Sulfate, total	mg/L	23.0
UA	APW07	C	10/10/2023	Sulfate, total	mg/L	16.0

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW07	C	12/15/2015	Total Dissolved Solids	mg/L	520
UA	APW07	C	1/21/2016	Total Dissolved Solids	mg/L	440
UA	APW07	C	5/3/2016	Total Dissolved Solids	mg/L	500
UA	APW07	C	8/1/2016	Total Dissolved Solids	mg/L	490
UA	APW07	C	10/26/2016	Total Dissolved Solids	mg/L	590
UA	APW07	C	1/26/2017	Total Dissolved Solids	mg/L	520
UA	APW07	C	4/24/2017	Total Dissolved Solids	mg/L	600
UA	APW07	C	6/13/2017	Total Dissolved Solids	mg/L	560
UA	APW07	C	11/17/2017	Total Dissolved Solids	mg/L	530
UA	APW07	C	5/18/2018	Total Dissolved Solids	mg/L	500
UA	APW07	C	11/9/2018	Total Dissolved Solids	mg/L	500
UA	APW07	C	2/22/2019	Total Dissolved Solids	mg/L	340
UA	APW07	C	8/23/2019	Total Dissolved Solids	mg/L	350
UA	APW07	C	2/5/2020	Total Dissolved Solids	mg/L	640
UA	APW07	C	7/28/2020	Total Dissolved Solids	mg/L	530
UA	APW07	C	2/10/2021	Total Dissolved Solids	mg/L	540
UA	APW07	C	11/9/2021	Total Dissolved Solids	mg/L	600
UA	APW07	C	2/22/2022	Total Dissolved Solids	mg/L	550
UA	APW07	C	6/14/2022	Total Dissolved Solids	mg/L	530
UA	APW07	C	8/16/2022	Total Dissolved Solids	mg/L	600
UA	APW07	C	1/31/2023	Total Dissolved Solids	mg/L	560
UA	APW07	C	4/27/2023	Total Dissolved Solids	mg/L	590
UA	APW07	C	7/25/2023	Total Dissolved Solids	mg/L	605
UA	APW07	C	10/10/2023	Total Dissolved Solids	mg/L	630
UA	APW08	C	12/15/2015	pH (field)	SU	7.4
UA	APW08	C	1/21/2016	pH (field)	SU	7.5
UA	APW08	C	5/3/2016	pH (field)	SU	7.4
UA	APW08	C	8/2/2016	pH (field)	SU	7.2
UA	APW08	C	10/26/2016	pH (field)	SU	7.4
UA	APW08	C	1/25/2017	pH (field)	SU	7.2
UA	APW08	C	4/25/2017	pH (field)	SU	7.5
UA	APW08	C	6/13/2017	pH (field)	SU	7.3
UA	APW08	C	11/17/2017	pH (field)	SU	7.1
UA	APW08	C	5/18/2018	pH (field)	SU	7.2
UA	APW08	C	8/18/2018	pH (field)	SU	7.2
UA	APW08	C	11/9/2018	pH (field)	SU	7.1
UA	APW08	C	2/22/2019	pH (field)	SU	7.2
UA	APW08	C	8/23/2019	pH (field)	SU	7.2
UA	APW08	C	2/5/2020	pH (field)	SU	7.4
UA	APW08	C	6/11/2020	pH (field)	SU	7.3
UA	APW08	C	7/28/2020	pH (field)	SU	7.3
UA	APW08	C	10/28/2020	pH (field)	SU	7.4
UA	APW08	C	2/10/2021	pH (field)	SU	7.2
UA	APW08	C	11/9/2021	pH (field)	SU	7.4
UA	APW08	C	2/22/2022	pH (field)	SU	7.4
UA	APW08	C	6/14/2022	pH (field)	SU	7.4

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	8/16/2022	pH (field)	SU	7.1
UA	APW08	C	1/31/2023	pH (field)	SU	7.3
UA	APW08	C	4/26/2023	pH (field)	SU	7.5
UA	APW08	C	7/31/2023	pH (field)	SU	7.1
UA	APW08	C	10/10/2023	pH (field)	SU	7.4
UA	APW08	C	12/15/2015	Oxidation Reduction Potential	mV	38.0
UA	APW08	C	1/21/2016	Oxidation Reduction Potential	mV	-93.0
UA	APW08	C	5/3/2016	Oxidation Reduction Potential	mV	-93.0
UA	APW08	C	8/2/2016	Oxidation Reduction Potential	mV	-87.0
UA	APW08	C	10/26/2016	Oxidation Reduction Potential	mV	-76.0
UA	APW08	C	1/25/2017	Oxidation Reduction Potential	mV	-121
UA	APW08	C	4/25/2017	Oxidation Reduction Potential	mV	-103
UA	APW08	C	6/13/2017	Oxidation Reduction Potential	mV	-108
UA	APW08	C	11/17/2017	Oxidation Reduction Potential	mV	-102
UA	APW08	C	5/18/2018	Oxidation Reduction Potential	mV	-96.0
UA	APW08	C	8/18/2018	Oxidation Reduction Potential	mV	-101
UA	APW08	C	11/9/2018	Oxidation Reduction Potential	mV	-109
UA	APW08	C	2/22/2019	Oxidation Reduction Potential	mV	-99.0
UA	APW08	C	8/23/2019	Oxidation Reduction Potential	mV	-98.0
UA	APW08	C	2/5/2020	Oxidation Reduction Potential	mV	-130
UA	APW08	C	6/11/2020	Oxidation Reduction Potential	mV	-127
UA	APW08	C	7/28/2020	Oxidation Reduction Potential	mV	-101
UA	APW08	C	10/28/2020	Oxidation Reduction Potential	mV	-94.2
UA	APW08	C	2/10/2021	Oxidation Reduction Potential	mV	-103
UA	APW08	C	11/9/2021	Oxidation Reduction Potential	mV	-99.2
UA	APW08	C	2/22/2022	Oxidation Reduction Potential	mV	-93.8
UA	APW08	C	6/14/2022	Oxidation Reduction Potential	mV	-139
UA	APW08	C	8/16/2022	Oxidation Reduction Potential	mV	-125
UA	APW08	C	1/31/2023	Oxidation Reduction Potential	mV	-109
UA	APW08	C	4/26/2023	Oxidation Reduction Potential	mV	-118
UA	APW08	C	7/31/2023	Oxidation Reduction Potential	mV	94.0
UA	APW08	C	10/10/2023	Oxidation Reduction Potential	mV	-64.0
UA	APW08	C	12/15/2015	Eh	V	0.24
UA	APW08	C	1/21/2016	Eh	V	0.11
UA	APW08	C	5/3/2016	Eh	V	0.10
UA	APW08	C	8/2/2016	Eh	V	0.11
UA	APW08	C	10/26/2016	Eh	V	0.12
UA	APW08	C	1/25/2017	Eh	V	0.075
UA	APW08	C	4/25/2017	Eh	V	0.091
UA	APW08	C	6/13/2017	Eh	V	0.086
UA	APW08	C	11/17/2017	Eh	V	0.095
UA	APW08	C	5/18/2018	Eh	V	0.099
UA	APW08	C	8/18/2018	Eh	V	0.094
UA	APW08	C	11/9/2018	Eh	V	0.087
UA	APW08	C	2/22/2019	Eh	V	0.099
UA	APW08	C	8/23/2019	Eh	V	0.096

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	2/5/2020	Eh	V	0.068
UA	APW08	C	6/11/2020	Eh	V	0.068
UA	APW08	C	7/28/2020	Eh	V	0.093
UA	APW08	C	10/28/2020	Eh	V	0.10
UA	APW08	C	2/10/2021	Eh	V	0.096
UA	APW08	C	11/9/2021	Eh	V	0.096
UA	APW08	C	2/22/2022	Eh	V	0.10
UA	APW08	C	6/14/2022	Eh	V	0.055
UA	APW08	C	8/16/2022	Eh	V	0.068
UA	APW08	C	1/31/2023	Eh	V	0.089
UA	APW08	C	4/26/2023	Eh	V	0.078
UA	APW08	C	7/31/2023	Eh	V	0.29
UA	APW08	C	10/10/2023	Eh	V	0.13
UA	APW08	C	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	520
UA	APW08	C	8/18/2018	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW08	C	2/5/2020	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW08	C	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW08	C	2/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW08	C	11/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW08	C	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW08	C	6/14/2022	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW08	C	8/16/2022	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW08	C	1/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	340
UA	APW08	C	4/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW08	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	505
UA	APW08	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	532
UA	APW08	C	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	8/18/2018	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	2/5/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	2/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	11/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	6/14/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	8/16/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	1/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	4/26/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW08	C	12/15/2015	Barium, total	mg/L	0.240
UA	APW08	C	1/21/2016	Barium, total	mg/L	0.300
UA	APW08	C	5/3/2016	Barium, total	mg/L	0.320
UA	APW08	C	8/2/2016	Barium, total	mg/L	0.320
UA	APW08	C	10/26/2016	Barium, total	mg/L	0.350
UA	APW08	C	1/25/2017	Barium, total	mg/L	0.370
UA	APW08	C	4/25/2017	Barium, total	mg/L	0.360

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	6/13/2017	Barium, total	mg/L	0.390
UA	APW08	C	6/14/2022	Barium, total	mg/L	0.460
UA	APW08	C	8/16/2022	Barium, total	mg/L	0.490
UA	APW08	C	1/31/2023	Barium, total	mg/L	0.500
UA	APW08	C	4/26/2023	Barium, total	mg/L	0.470
UA	APW08	C	7/31/2023	Barium, total	mg/L	0.651
UA	APW08	C	10/10/2023	Barium, total	mg/L	0.777
UA	APW08	C	12/15/2015	Calcium, total	mg/L	85.0
UA	APW08	C	1/21/2016	Calcium, total	mg/L	85.0
UA	APW08	C	5/3/2016	Calcium, total	mg/L	100
UA	APW08	C	8/2/2016	Calcium, total	mg/L	94.0
UA	APW08	C	10/26/2016	Calcium, total	mg/L	84.0
UA	APW08	C	1/25/2017	Calcium, total	mg/L	100
UA	APW08	C	4/25/2017	Calcium, total	mg/L	100
UA	APW08	C	6/13/2017	Calcium, total	mg/L	110
UA	APW08	C	11/17/2017	Calcium, total	mg/L	83.0
UA	APW08	C	5/18/2018	Calcium, total	mg/L	92.0
UA	APW08	C	8/18/2018	Calcium, total	mg/L	82.0
UA	APW08	C	11/9/2018	Calcium, total	mg/L	110
UA	APW08	C	2/22/2019	Calcium, total	mg/L	80.0
UA	APW08	C	8/23/2019	Calcium, total	mg/L	82.0
UA	APW08	C	2/5/2020	Calcium, total	mg/L	120
UA	APW08	C	7/28/2020	Calcium, total	mg/L	110
UA	APW08	C	2/10/2021	Calcium, total	mg/L	110
UA	APW08	C	11/9/2021	Calcium, total	mg/L	100
UA	APW08	C	2/22/2022	Calcium, total	mg/L	110
UA	APW08	C	6/14/2022	Calcium, total	mg/L	110
UA	APW08	C	8/16/2022	Calcium, total	mg/L	100
UA	APW08	C	1/31/2023	Calcium, total	mg/L	110
UA	APW08	C	4/26/2023	Calcium, total	mg/L	110
UA	APW08	C	7/31/2023	Calcium, total	mg/L	102
UA	APW08	C	10/10/2023	Calcium, total	mg/L	103
UA	APW08	C	12/15/2015	Chloride, total	mg/L	52.0
UA	APW08	C	1/21/2016	Chloride, total	mg/L	59.0
UA	APW08	C	5/3/2016	Chloride, total	mg/L	55.0
UA	APW08	C	8/2/2016	Chloride, total	mg/L	56.0
UA	APW08	C	10/26/2016	Chloride, total	mg/L	59.0
UA	APW08	C	1/25/2017	Chloride, total	mg/L	57.0
UA	APW08	C	4/25/2017	Chloride, total	mg/L	57.0
UA	APW08	C	6/13/2017	Chloride, total	mg/L	57.0
UA	APW08	C	11/17/2017	Chloride, total	mg/L	50.0
UA	APW08	C	5/18/2018	Chloride, total	mg/L	56.0
UA	APW08	C	8/18/2018	Chloride, total	mg/L	57.0
UA	APW08	C	11/9/2018	Chloride, total	mg/L	56.0
UA	APW08	C	2/22/2019	Chloride, total	mg/L	56.0
UA	APW08	C	8/23/2019	Chloride, total	mg/L	59.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	2/5/2020	Chloride, total	mg/L	55.0
UA	APW08	C	7/28/2020	Chloride, total	mg/L	62.0
UA	APW08	C	10/28/2020	Chloride, total	mg/L	55.0
UA	APW08	C	2/10/2021	Chloride, total	mg/L	57.0
UA	APW08	C	11/9/2021	Chloride, total	mg/L	52.0
UA	APW08	C	2/22/2022	Chloride, total	mg/L	54.0
UA	APW08	C	6/14/2022	Chloride, total	mg/L	54.0
UA	APW08	C	8/16/2022	Chloride, total	mg/L	56.0
UA	APW08	C	1/31/2023	Chloride, total	mg/L	55.0
UA	APW08	C	4/26/2023	Chloride, total	mg/L	58.0
UA	APW08	C	7/31/2023	Chloride, total	mg/L	56.0
UA	APW08	C	10/10/2023	Chloride, total	mg/L	60.0
UA	APW08	C	4/26/2023	Ferrous Iron, dissolved	mg/L	2.60
UA	APW08	C	7/31/2023	Ferrous Iron, dissolved	mg/L	5.76
UA	APW08	C	4/26/2023	Iron, dissolved	mg/L	2.20
UA	APW08	C	7/31/2023	Iron, dissolved	mg/L	3.24
UA	APW08	C	12/15/2015	Lithium, total	mg/L	0.0130
UA	APW08	C	1/21/2016	Lithium, total	mg/L	0.0120
UA	APW08	C	5/3/2016	Lithium, total	mg/L	<0.0001
UA	APW08	C	8/2/2016	Lithium, total	mg/L	<0.0001
UA	APW08	C	10/26/2016	Lithium, total	mg/L	<0.0001
UA	APW08	C	1/25/2017	Lithium, total	mg/L	<0.0001
UA	APW08	C	4/25/2017	Lithium, total	mg/L	0.0170
UA	APW08	C	6/13/2017	Lithium, total	mg/L	0.0120
UA	APW08	C	6/14/2022	Lithium, total	mg/L	<0.005
UA	APW08	C	8/16/2022	Lithium, total	mg/L	<0.005
UA	APW08	C	1/31/2023	Lithium, total	mg/L	<0.005
UA	APW08	C	4/26/2023	Lithium, total	mg/L	0.00570
UA	APW08	C	7/31/2023	Lithium, total	mg/L	0.00270
UA	APW08	C	10/10/2023	Lithium, total	mg/L	0.00220
UA	APW08	C	6/13/2017	Magnesium, total	mg/L	47.0
UA	APW08	C	8/18/2018	Magnesium, total	mg/L	43.0
UA	APW08	C	2/5/2020	Magnesium, total	mg/L	52.0
UA	APW08	C	7/28/2020	Magnesium, total	mg/L	46.0
UA	APW08	C	2/10/2021	Magnesium, total	mg/L	45.0
UA	APW08	C	11/9/2021	Magnesium, total	mg/L	42.0
UA	APW08	C	2/22/2022	Magnesium, total	mg/L	45.0
UA	APW08	C	6/14/2022	Magnesium, total	mg/L	44.0
UA	APW08	C	8/16/2022	Magnesium, total	mg/L	44.0
UA	APW08	C	1/31/2023	Magnesium, total	mg/L	45.0
UA	APW08	C	4/26/2023	Magnesium, total	mg/L	45.0
UA	APW08	C	7/31/2023	Magnesium, total	mg/L	42.9
UA	APW08	C	10/10/2023	Magnesium, total	mg/L	41.1
UA	APW08	C	4/26/2023	Manganese, dissolved	mg/L	0.0610
UA	APW08	C	7/31/2023	Manganese, dissolved	mg/L	0.0585
UA	APW08	C	7/31/2023	Phosphate, dissolved	mg/L	1.24

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	6/13/2017	Potassium, total	mg/L	3.50
UA	APW08	C	8/18/2018	Potassium, total	mg/L	2.70
UA	APW08	C	2/5/2020	Potassium, total	mg/L	2.60
UA	APW08	C	7/28/2020	Potassium, total	mg/L	1.80
UA	APW08	C	2/10/2021	Potassium, total	mg/L	2.10
UA	APW08	C	11/9/2021	Potassium, total	mg/L	1.60
UA	APW08	C	2/22/2022	Potassium, total	mg/L	1.90
UA	APW08	C	6/14/2022	Potassium, total	mg/L	2.00
UA	APW08	C	8/16/2022	Potassium, total	mg/L	1.90
UA	APW08	C	1/31/2023	Potassium, total	mg/L	2.00
UA	APW08	C	4/26/2023	Potassium, total	mg/L	2.00
UA	APW08	C	7/31/2023	Potassium, total	mg/L	1.99
UA	APW08	C	10/10/2023	Potassium, total	mg/L	1.89
UA	APW08	C	4/26/2023	Silicon, dissolved	mg/L	8.30
UA	APW08	C	7/31/2023	Silicon, dissolved	mg/L	6.06
UA	APW08	C	6/13/2017	Sodium, total	mg/L	86.0
UA	APW08	C	8/18/2018	Sodium, total	mg/L	85.0
UA	APW08	C	2/5/2020	Sodium, total	mg/L	92.0
UA	APW08	C	7/28/2020	Sodium, total	mg/L	91.0
UA	APW08	C	2/10/2021	Sodium, total	mg/L	86.0
UA	APW08	C	11/9/2021	Sodium, total	mg/L	86.0
UA	APW08	C	2/22/2022	Sodium, total	mg/L	93.0
UA	APW08	C	6/14/2022	Sodium, total	mg/L	79.0
UA	APW08	C	8/16/2022	Sodium, total	mg/L	93.0
UA	APW08	C	1/31/2023	Sodium, total	mg/L	91.0
UA	APW08	C	4/26/2023	Sodium, total	mg/L	91.0
UA	APW08	C	7/31/2023	Sodium, total	mg/L	85.2
UA	APW08	C	10/10/2023	Sodium, total	mg/L	87.4
UA	APW08	C	12/15/2015	Sulfate, total	mg/L	35.0
UA	APW08	C	1/21/2016	Sulfate, total	mg/L	34.0
UA	APW08	C	5/3/2016	Sulfate, total	mg/L	30.0
UA	APW08	C	8/2/2016	Sulfate, total	mg/L	35.0
UA	APW08	C	10/26/2016	Sulfate, total	mg/L	37.0
UA	APW08	C	1/25/2017	Sulfate, total	mg/L	36.0
UA	APW08	C	4/25/2017	Sulfate, total	mg/L	38.0
UA	APW08	C	6/13/2017	Sulfate, total	mg/L	38.0
UA	APW08	C	11/17/2017	Sulfate, total	mg/L	39.0
UA	APW08	C	5/18/2018	Sulfate, total	mg/L	37.0
UA	APW08	C	8/18/2018	Sulfate, total	mg/L	43.0
UA	APW08	C	11/9/2018	Sulfate, total	mg/L	42.0
UA	APW08	C	2/22/2019	Sulfate, total	mg/L	46.0
UA	APW08	C	8/23/2019	Sulfate, total	mg/L	48.0
UA	APW08	C	2/5/2020	Sulfate, total	mg/L	45.0
UA	APW08	C	7/28/2020	Sulfate, total	mg/L	47.0
UA	APW08	C	2/10/2021	Sulfate, total	mg/L	42.0
UA	APW08	C	11/9/2021	Sulfate, total	mg/L	42.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW08	C	2/22/2022	Sulfate, total	mg/L	49.0
UA	APW08	C	6/14/2022	Sulfate, total	mg/L	42.0
UA	APW08	C	8/16/2022	Sulfate, total	mg/L	44.0
UA	APW08	C	1/31/2023	Sulfate, total	mg/L	44.0
UA	APW08	C	4/26/2023	Sulfate, total	mg/L	48.0
UA	APW08	C	7/31/2023	Sulfate, total	mg/L	53.0
UA	APW08	C	10/10/2023	Sulfate, total	mg/L	57.0
UA	APW08	C	12/15/2015	Total Dissolved Solids	mg/L	560
UA	APW08	C	1/21/2016	Total Dissolved Solids	mg/L	510
UA	APW08	C	5/3/2016	Total Dissolved Solids	mg/L	560
UA	APW08	C	8/2/2016	Total Dissolved Solids	mg/L	520
UA	APW08	C	10/26/2016	Total Dissolved Solids	mg/L	600
UA	APW08	C	1/25/2017	Total Dissolved Solids	mg/L	600
UA	APW08	C	4/25/2017	Total Dissolved Solids	mg/L	590
UA	APW08	C	6/13/2017	Total Dissolved Solids	mg/L	600
UA	APW08	C	11/17/2017	Total Dissolved Solids	mg/L	490
UA	APW08	C	5/18/2018	Total Dissolved Solids	mg/L	520
UA	APW08	C	11/9/2018	Total Dissolved Solids	mg/L	580
UA	APW08	C	2/22/2019	Total Dissolved Solids	mg/L	600
UA	APW08	C	8/23/2019	Total Dissolved Solids	mg/L	570
UA	APW08	C	2/5/2020	Total Dissolved Solids	mg/L	700
UA	APW08	C	7/28/2020	Total Dissolved Solids	mg/L	620
UA	APW08	C	2/10/2021	Total Dissolved Solids	mg/L	550
UA	APW08	C	11/9/2021	Total Dissolved Solids	mg/L	620
UA	APW08	C	2/22/2022	Total Dissolved Solids	mg/L	660
UA	APW08	C	6/14/2022	Total Dissolved Solids	mg/L	620
UA	APW08	C	8/16/2022	Total Dissolved Solids	mg/L	670
UA	APW08	C	1/31/2023	Total Dissolved Solids	mg/L	600
UA	APW08	C	4/26/2023	Total Dissolved Solids	mg/L	640
UA	APW08	C	7/31/2023	Total Dissolved Solids	mg/L	600
UA	APW08	C	10/10/2023	Total Dissolved Solids	mg/L	615
UA	APW09	C	12/15/2015	pH (field)	SU	7.5
UA	APW09	C	1/20/2016	pH (field)	SU	7.6
UA	APW09	C	5/3/2016	pH (field)	SU	7.6
UA	APW09	C	8/2/2016	pH (field)	SU	7.2
UA	APW09	C	10/26/2016	pH (field)	SU	7.6
UA	APW09	C	1/25/2017	pH (field)	SU	7.5
UA	APW09	C	4/25/2017	pH (field)	SU	7.5
UA	APW09	C	6/13/2017	pH (field)	SU	7.5
UA	APW09	C	11/18/2017	pH (field)	SU	7.4
UA	APW09	C	5/18/2018	pH (field)	SU	7.4
UA	APW09	C	8/17/2018	pH (field)	SU	7.5
UA	APW09	C	11/9/2018	pH (field)	SU	7.4
UA	APW09	C	2/22/2019	pH (field)	SU	7.5
UA	APW09	C	8/23/2019	pH (field)	SU	7.4
UA	APW09	C	2/19/2020	pH (field)	SU	7.5

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	6/11/2020	pH (field)	SU	7.4
UA	APW09	C	7/28/2020	pH (field)	SU	7.4
UA	APW09	C	2/11/2021	pH (field)	SU	7.4
UA	APW09	C	11/9/2021	pH (field)	SU	6.7
UA	APW09	C	2/22/2022	pH (field)	SU	7.7
UA	APW09	C	6/15/2022	pH (field)	SU	7.6
UA	APW09	C	8/17/2022	pH (field)	SU	7.2
UA	APW09	C	1/31/2023	pH (field)	SU	7.6
UA	APW09	C	4/27/2023	pH (field)	SU	7.5
UA	APW09	C	7/31/2023	pH (field)	SU	7.2
UA	APW09	C	10/10/2023	pH (field)	SU	7.6
UA	APW09	C	12/15/2015	Oxidation Reduction Potential	mV	11.0
UA	APW09	C	1/20/2016	Oxidation Reduction Potential	mV	72.0
UA	APW09	C	5/3/2016	Oxidation Reduction Potential	mV	56.0
UA	APW09	C	8/2/2016	Oxidation Reduction Potential	mV	-106
UA	APW09	C	10/26/2016	Oxidation Reduction Potential	mV	-77.0
UA	APW09	C	1/25/2017	Oxidation Reduction Potential	mV	-140
UA	APW09	C	4/25/2017	Oxidation Reduction Potential	mV	-74.0
UA	APW09	C	6/13/2017	Oxidation Reduction Potential	mV	-67.0
UA	APW09	C	11/18/2017	Oxidation Reduction Potential	mV	-78.0
UA	APW09	C	5/18/2018	Oxidation Reduction Potential	mV	-71.0
UA	APW09	C	8/17/2018	Oxidation Reduction Potential	mV	-69.0
UA	APW09	C	11/9/2018	Oxidation Reduction Potential	mV	-72.0
UA	APW09	C	2/22/2019	Oxidation Reduction Potential	mV	-65.0
UA	APW09	C	8/23/2019	Oxidation Reduction Potential	mV	-60.0
UA	APW09	C	2/19/2020	Oxidation Reduction Potential	mV	-151
UA	APW09	C	6/11/2020	Oxidation Reduction Potential	mV	-152
UA	APW09	C	7/28/2020	Oxidation Reduction Potential	mV	-136
UA	APW09	C	2/11/2021	Oxidation Reduction Potential	mV	-28.1
UA	APW09	C	11/9/2021	Oxidation Reduction Potential	mV	52.1
UA	APW09	C	2/22/2022	Oxidation Reduction Potential	mV	103
UA	APW09	C	6/15/2022	Oxidation Reduction Potential	mV	-161
UA	APW09	C	8/17/2022	Oxidation Reduction Potential	mV	-88.9
UA	APW09	C	1/31/2023	Oxidation Reduction Potential	mV	-113
UA	APW09	C	4/27/2023	Oxidation Reduction Potential	mV	-137
UA	APW09	C	7/31/2023	Oxidation Reduction Potential	mV	91.0
UA	APW09	C	10/10/2023	Oxidation Reduction Potential	mV	-46.0
UA	APW09	C	12/15/2015	Eh	V	0.21
UA	APW09	C	1/20/2016	Eh	V	0.27
UA	APW09	C	5/3/2016	Eh	V	0.25
UA	APW09	C	8/2/2016	Eh	V	0.088
UA	APW09	C	10/26/2016	Eh	V	0.12
UA	APW09	C	1/25/2017	Eh	V	0.056
UA	APW09	C	4/25/2017	Eh	V	0.12
UA	APW09	C	6/13/2017	Eh	V	0.13
UA	APW09	C	11/18/2017	Eh	V	0.12

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	5/18/2018	Eh	V	0.12
UA	APW09	C	8/17/2018	Eh	V	0.13
UA	APW09	C	11/9/2018	Eh	V	0.12
UA	APW09	C	2/22/2019	Eh	V	0.13
UA	APW09	C	8/23/2019	Eh	V	0.13
UA	APW09	C	2/19/2020	Eh	V	0.046
UA	APW09	C	6/11/2020	Eh	V	0.043
UA	APW09	C	7/28/2020	Eh	V	0.057
UA	APW09	C	2/11/2021	Eh	V	0.17
UA	APW09	C	11/9/2021	Eh	V	0.25
UA	APW09	C	2/22/2022	Eh	V	0.30
UA	APW09	C	6/15/2022	Eh	V	0.032
UA	APW09	C	8/17/2022	Eh	V	0.10
UA	APW09	C	1/31/2023	Eh	V	0.086
UA	APW09	C	4/27/2023	Eh	V	0.057
UA	APW09	C	7/31/2023	Eh	V	0.28
UA	APW09	C	10/10/2023	Eh	V	0.15
UA	APW09	C	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	240
UA	APW09	C	8/17/2018	Alkalinity, bicarbonate	mg/L CaCO3	570
UA	APW09	C	2/19/2020	Alkalinity, bicarbonate	mg/L CaCO3	600
UA	APW09	C	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW09	C	2/11/2021	Alkalinity, bicarbonate	mg/L CaCO3	600
UA	APW09	C	11/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	590
UA	APW09	C	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	520
UA	APW09	C	6/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	580
UA	APW09	C	8/17/2022	Alkalinity, bicarbonate	mg/L CaCO3	600
UA	APW09	C	1/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW09	C	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	600
UA	APW09	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	617
UA	APW09	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	482
UA	APW09	C	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	8/17/2018	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	2/19/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	2/11/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	11/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	6/15/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	8/17/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	1/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW09	C	12/15/2015	Barium, total	mg/L	0.240
UA	APW09	C	1/20/2016	Barium, total	mg/L	0.240
UA	APW09	C	5/3/2016	Barium, total	mg/L	0.320

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	8/2/2016	Barium, total	mg/L	0.410
UA	APW09	C	10/26/2016	Barium, total	mg/L	0.470
UA	APW09	C	1/25/2017	Barium, total	mg/L	0.440
UA	APW09	C	4/25/2017	Barium, total	mg/L	0.380
UA	APW09	C	6/13/2017	Barium, total	mg/L	0.110
UA	APW09	C	6/15/2022	Barium, total	mg/L	0.470
UA	APW09	C	8/17/2022	Barium, total	mg/L	0.440
UA	APW09	C	1/31/2023	Barium, total	mg/L	0.470
UA	APW09	C	4/27/2023	Barium, total	mg/L	0.430
UA	APW09	C	7/31/2023	Barium, total	mg/L	0.564
UA	APW09	C	10/10/2023	Barium, total	mg/L	0.406
UA	APW09	C	12/15/2015	Calcium, total	mg/L	54.0
UA	APW09	C	1/20/2016	Calcium, total	mg/L	57.0
UA	APW09	C	5/3/2016	Calcium, total	mg/L	70.0
UA	APW09	C	8/2/2016	Calcium, total	mg/L	74.0
UA	APW09	C	10/26/2016	Calcium, total	mg/L	77.0
UA	APW09	C	1/25/2017	Calcium, total	mg/L	79.0
UA	APW09	C	4/25/2017	Calcium, total	mg/L	67.0
UA	APW09	C	6/13/2017	Calcium, total	mg/L	42.0
UA	APW09	C	11/18/2017	Calcium, total	mg/L	68.0
UA	APW09	C	5/18/2018	Calcium, total	mg/L	80.0
UA	APW09	C	8/17/2018	Calcium, total	mg/L	81.0
UA	APW09	C	11/9/2018	Calcium, total	mg/L	44.0
UA	APW09	C	2/22/2019	Calcium, total	mg/L	38.0
UA	APW09	C	8/23/2019	Calcium, total	mg/L	41.0
UA	APW09	C	2/19/2020	Calcium, total	mg/L	88.0
UA	APW09	C	7/28/2020	Calcium, total	mg/L	84.0
UA	APW09	C	2/11/2021	Calcium, total	mg/L	85.0
UA	APW09	C	11/9/2021	Calcium, total	mg/L	730
UA	APW09	C	2/22/2022	Calcium, total	mg/L	82.0
UA	APW09	C	6/15/2022	Calcium, total	mg/L	82.0
UA	APW09	C	8/17/2022	Calcium, total	mg/L	87.0
UA	APW09	C	1/31/2023	Calcium, total	mg/L	94.0
UA	APW09	C	4/27/2023	Calcium, total	mg/L	76.0
UA	APW09	C	7/31/2023	Calcium, total	mg/L	78.4
UA	APW09	C	10/10/2023	Calcium, total	mg/L	69.2
UA	APW09	C	12/15/2015	Chloride, total	mg/L	88.0
UA	APW09	C	1/20/2016	Chloride, total	mg/L	95.0
UA	APW09	C	5/3/2016	Chloride, total	mg/L	110
UA	APW09	C	8/2/2016	Chloride, total	mg/L	130
UA	APW09	C	10/26/2016	Chloride, total	mg/L	130
UA	APW09	C	1/25/2017	Chloride, total	mg/L	130
UA	APW09	C	4/25/2017	Chloride, total	mg/L	120
UA	APW09	C	6/13/2017	Chloride, total	mg/L	51.0
UA	APW09	C	11/18/2017	Chloride, total	mg/L	84.0
UA	APW09	C	5/18/2018	Chloride, total	mg/L	120

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	8/17/2018	Chloride, total	mg/L	130
UA	APW09	C	11/9/2018	Chloride, total	mg/L	44.0
UA	APW09	C	2/22/2019	Chloride, total	mg/L	47.0
UA	APW09	C	8/23/2019	Chloride, total	mg/L	51.0
UA	APW09	C	2/19/2020	Chloride, total	mg/L	130
UA	APW09	C	6/11/2020	Chloride, total	mg/L	130
UA	APW09	C	7/28/2020	Chloride, total	mg/L	140
UA	APW09	C	2/11/2021	Chloride, total	mg/L	140
UA	APW09	C	11/9/2021	Chloride, total	mg/L	110
UA	APW09	C	2/22/2022	Chloride, total	mg/L	140
UA	APW09	C	6/15/2022	Chloride, total	mg/L	130
UA	APW09	C	8/17/2022	Chloride, total	mg/L	140
UA	APW09	C	1/31/2023	Chloride, total	mg/L	130
UA	APW09	C	4/27/2023	Chloride, total	mg/L	130
UA	APW09	C	7/31/2023	Chloride, total	mg/L	134
UA	APW09	C	10/10/2023	Chloride, total	mg/L	94.0
UA	APW09	C	4/27/2023	Ferrous Iron, dissolved	mg/L	2.30
UA	APW09	C	7/31/2023	Ferrous Iron, dissolved	mg/L	6.37
UA	APW09	C	4/27/2023	Iron, dissolved	mg/L	2.50
UA	APW09	C	7/31/2023	Iron, dissolved	mg/L	3.20
UA	APW09	C	12/15/2015	Lithium, total	mg/L	<0.0001
UA	APW09	C	1/20/2016	Lithium, total	mg/L	<0.0001
UA	APW09	C	5/3/2016	Lithium, total	mg/L	<0.0001
UA	APW09	C	8/2/2016	Lithium, total	mg/L	<0.0001
UA	APW09	C	10/26/2016	Lithium, total	mg/L	<0.0001
UA	APW09	C	1/25/2017	Lithium, total	mg/L	<0.0001
UA	APW09	C	4/25/2017	Lithium, total	mg/L	<0.0001
UA	APW09	C	6/13/2017	Lithium, total	mg/L	<0.0001
UA	APW09	C	6/15/2022	Lithium, total	mg/L	<0.005
UA	APW09	C	8/17/2022	Lithium, total	mg/L	0.0100
UA	APW09	C	1/31/2023	Lithium, total	mg/L	0.00800
UA	APW09	C	4/27/2023	Lithium, total	mg/L	0.00720
UA	APW09	C	7/31/2023	Lithium, total	mg/L	0.00750
UA	APW09	C	10/10/2023	Lithium, total	mg/L	0.00660
UA	APW09	C	6/13/2017	Magnesium, total	mg/L	22.0
UA	APW09	C	8/17/2018	Magnesium, total	mg/L	38.0
UA	APW09	C	2/19/2020	Magnesium, total	mg/L	43.0
UA	APW09	C	7/28/2020	Magnesium, total	mg/L	42.0
UA	APW09	C	2/11/2021	Magnesium, total	mg/L	42.0
UA	APW09	C	11/9/2021	Magnesium, total	mg/L	180
UA	APW09	C	2/22/2022	Magnesium, total	mg/L	42.0
UA	APW09	C	6/15/2022	Magnesium, total	mg/L	41.0
UA	APW09	C	8/17/2022	Magnesium, total	mg/L	40.0
UA	APW09	C	1/31/2023	Magnesium, total	mg/L	44.0
UA	APW09	C	4/27/2023	Magnesium, total	mg/L	38.0
UA	APW09	C	7/31/2023	Magnesium, total	mg/L	39.3

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	10/10/2023	Magnesium, total	mg/L	32.7
UA	APW09	C	4/27/2023	Manganese, dissolved	mg/L	0.0260
UA	APW09	C	7/31/2023	Manganese, dissolved	mg/L	0.0294
UA	APW09	C	7/31/2023	Phosphate, dissolved	mg/L	2.27
UA	APW09	C	6/13/2017	Potassium, total	mg/L	3.20
UA	APW09	C	8/17/2018	Potassium, total	mg/L	1.90
UA	APW09	C	2/19/2020	Potassium, total	mg/L	2.10
UA	APW09	C	7/28/2020	Potassium, total	mg/L	1.70
UA	APW09	C	2/11/2021	Potassium, total	mg/L	1.90
UA	APW09	C	11/9/2021	Potassium, total	mg/L	7.10
UA	APW09	C	2/22/2022	Potassium, total	mg/L	1.80
UA	APW09	C	6/15/2022	Potassium, total	mg/L	1.80
UA	APW09	C	8/17/2022	Potassium, total	mg/L	1.90
UA	APW09	C	1/31/2023	Potassium, total	mg/L	2.20
UA	APW09	C	4/27/2023	Potassium, total	mg/L	1.70
UA	APW09	C	7/31/2023	Potassium, total	mg/L	1.83
UA	APW09	C	10/10/2023	Potassium, total	mg/L	3.43
UA	APW09	C	4/27/2023	Silicon, dissolved	mg/L	8.00
UA	APW09	C	7/31/2023	Silicon, dissolved	mg/L	5.95
UA	APW09	C	6/13/2017	Sodium, total	mg/L	70.0
UA	APW09	C	8/17/2018	Sodium, total	mg/L	180
UA	APW09	C	2/19/2020	Sodium, total	mg/L	210
UA	APW09	C	7/28/2020	Sodium, total	mg/L	190
UA	APW09	C	2/11/2021	Sodium, total	mg/L	200
UA	APW09	C	11/9/2021	Sodium, total	mg/L	180
UA	APW09	C	2/22/2022	Sodium, total	mg/L	200
UA	APW09	C	6/15/2022	Sodium, total	mg/L	180
UA	APW09	C	8/17/2022	Sodium, total	mg/L	190
UA	APW09	C	1/31/2023	Sodium, total	mg/L	200
UA	APW09	C	4/27/2023	Sodium, total	mg/L	190
UA	APW09	C	7/31/2023	Sodium, total	mg/L	191
UA	APW09	C	10/10/2023	Sodium, total	mg/L	151
UA	APW09	C	12/15/2015	Sulfate, total	mg/L	25.0
UA	APW09	C	1/20/2016	Sulfate, total	mg/L	27.0
UA	APW09	C	5/3/2016	Sulfate, total	mg/L	18.0
UA	APW09	C	8/2/2016	Sulfate, total	mg/L	4.20
UA	APW09	C	10/26/2016	Sulfate, total	mg/L	1.50
UA	APW09	C	1/25/2017	Sulfate, total	mg/L	<0.12
UA	APW09	C	4/25/2017	Sulfate, total	mg/L	1.10
UA	APW09	C	6/13/2017	Sulfate, total	mg/L	48.0
UA	APW09	C	11/18/2017	Sulfate, total	mg/L	4.50
UA	APW09	C	5/18/2018	Sulfate, total	mg/L	1.00
UA	APW09	C	8/17/2018	Sulfate, total	mg/L	2.40
UA	APW09	C	11/9/2018	Sulfate, total	mg/L	62.0
UA	APW09	C	2/22/2019	Sulfate, total	mg/L	61.0
UA	APW09	C	8/23/2019	Sulfate, total	mg/L	51.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW09	C	2/19/2020	Sulfate, total	mg/L	7.50
UA	APW09	C	7/28/2020	Sulfate, total	mg/L	3.20
UA	APW09	C	2/11/2021	Sulfate, total	mg/L	<1.8
UA	APW09	C	11/9/2021	Sulfate, total	mg/L	1,500
UA	APW09	C	2/22/2022	Sulfate, total	mg/L	8.40
UA	APW09	C	6/15/2022	Sulfate, total	mg/L	15.0
UA	APW09	C	8/17/2022	Sulfate, total	mg/L	9.70
UA	APW09	C	1/31/2023	Sulfate, total	mg/L	11.0
UA	APW09	C	4/27/2023	Sulfate, total	mg/L	9.40
UA	APW09	C	7/31/2023	Sulfate, total	mg/L	19.0
UA	APW09	C	10/10/2023	Sulfate, total	mg/L	32.0
UA	APW09	C	12/15/2015	Total Dissolved Solids	mg/L	630
UA	APW09	C	1/20/2016	Total Dissolved Solids	mg/L	540
UA	APW09	C	5/3/2016	Total Dissolved Solids	mg/L	590
UA	APW09	C	8/2/2016	Total Dissolved Solids	mg/L	640
UA	APW09	C	10/26/2016	Total Dissolved Solids	mg/L	770
UA	APW09	C	1/25/2017	Total Dissolved Solids	mg/L	740
UA	APW09	C	4/25/2017	Total Dissolved Solids	mg/L	840
UA	APW09	C	6/13/2017	Total Dissolved Solids	mg/L	300
UA	APW09	C	11/18/2017	Total Dissolved Solids	mg/L	720
UA	APW09	C	5/18/2018	Total Dissolved Solids	mg/L	710
UA	APW09	C	11/9/2018	Total Dissolved Solids	mg/L	300
UA	APW09	C	2/22/2019	Total Dissolved Solids	mg/L	320
UA	APW09	C	8/23/2019	Total Dissolved Solids	mg/L	360
UA	APW09	C	2/19/2020	Total Dissolved Solids	mg/L	790
UA	APW09	C	6/11/2020	Total Dissolved Solids	mg/L	870
UA	APW09	C	7/28/2020	Total Dissolved Solids	mg/L	810
UA	APW09	C	2/11/2021	Total Dissolved Solids	mg/L	840
UA	APW09	C	11/9/2021	Total Dissolved Solids	mg/L	3,200
UA	APW09	C	2/22/2022	Total Dissolved Solids	mg/L	820
UA	APW09	C	6/15/2022	Total Dissolved Solids	mg/L	800
UA	APW09	C	8/17/2022	Total Dissolved Solids	mg/L	860
UA	APW09	C	1/31/2023	Total Dissolved Solids	mg/L	760
UA	APW09	C	4/27/2023	Total Dissolved Solids	mg/L	840
UA	APW09	C	7/31/2023	Total Dissolved Solids	mg/L	805
UA	APW09	C	10/10/2023	Total Dissolved Solids	mg/L	760
UA	APW10	C	12/16/2015	pH (field)	SU	7.1
UA	APW10	C	1/20/2016	pH (field)	SU	7.2
UA	APW10	C	5/3/2016	pH (field)	SU	7.1
UA	APW10	C	8/2/2016	pH (field)	SU	7.1
UA	APW10	C	10/26/2016	pH (field)	SU	7.1
UA	APW10	C	1/25/2017	pH (field)	SU	7.1
UA	APW10	C	4/25/2017	pH (field)	SU	7.0
UA	APW10	C	6/13/2017	pH (field)	SU	6.9
UA	APW10	C	11/18/2017	pH (field)	SU	6.9
UA	APW10	C	5/18/2018	pH (field)	SU	7.2

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	8/17/2018	pH (field)	SU	6.9
UA	APW10	C	11/9/2018	pH (field)	SU	7.0
UA	APW10	C	2/22/2019	pH (field)	SU	6.9
UA	APW10	C	8/23/2019	pH (field)	SU	7.0
UA	APW10	C	2/5/2020	pH (field)	SU	7.1
UA	APW10	C	6/11/2020	pH (field)	SU	7.2
UA	APW10	C	7/28/2020	pH (field)	SU	7.1
UA	APW10	C	2/11/2021	pH (field)	SU	7.4
UA	APW10	C	6/17/2021	pH (field)	SU	7.3
UA	APW10	C	6/30/2021	pH (field)	SU	7.5
UA	APW10	C	7/29/2021	pH (field)	SU	7.5
UA	APW10	C	11/9/2021	pH (field)	SU	7.4
UA	APW10	C	2/22/2022	pH (field)	SU	7.3
UA	APW10	C	6/15/2022	pH (field)	SU	7.1
UA	APW10	C	8/17/2022	pH (field)	SU	7.2
UA	APW10	C	1/31/2023	pH (field)	SU	7.4
UA	APW10	C	4/27/2023	pH (field)	SU	7.4
UA	APW10	C	7/31/2023	pH (field)	SU	7.1
UA	APW10	C	10/10/2023	pH (field)	SU	7.3
UA	APW10	C	12/16/2015	Oxidation Reduction Potential	mV	-29.0
UA	APW10	C	1/20/2016	Oxidation Reduction Potential	mV	-21.0
UA	APW10	C	5/3/2016	Oxidation Reduction Potential	mV	-19.0
UA	APW10	C	8/2/2016	Oxidation Reduction Potential	mV	-18.0
UA	APW10	C	10/26/2016	Oxidation Reduction Potential	mV	38.0
UA	APW10	C	1/25/2017	Oxidation Reduction Potential	mV	-73.0
UA	APW10	C	6/13/2017	Oxidation Reduction Potential	mV	12.0
UA	APW10	C	11/18/2017	Oxidation Reduction Potential	mV	34.0
UA	APW10	C	5/18/2018	Oxidation Reduction Potential	mV	29.0
UA	APW10	C	8/17/2018	Oxidation Reduction Potential	mV	57.0
UA	APW10	C	11/9/2018	Oxidation Reduction Potential	mV	78.0
UA	APW10	C	2/22/2019	Oxidation Reduction Potential	mV	61.0
UA	APW10	C	8/23/2019	Oxidation Reduction Potential	mV	69.0
UA	APW10	C	2/5/2020	Oxidation Reduction Potential	mV	14.7
UA	APW10	C	6/11/2020	Oxidation Reduction Potential	mV	-207
UA	APW10	C	7/28/2020	Oxidation Reduction Potential	mV	-153
UA	APW10	C	2/11/2021	Oxidation Reduction Potential	mV	46.7
UA	APW10	C	6/17/2021	Oxidation Reduction Potential	mV	79.6
UA	APW10	C	6/30/2021	Oxidation Reduction Potential	mV	140
UA	APW10	C	7/29/2021	Oxidation Reduction Potential	mV	132
UA	APW10	C	11/9/2021	Oxidation Reduction Potential	mV	34.3
UA	APW10	C	2/22/2022	Oxidation Reduction Potential	mV	142
UA	APW10	C	6/15/2022	Oxidation Reduction Potential	mV	98.3
UA	APW10	C	8/17/2022	Oxidation Reduction Potential	mV	-14.1
UA	APW10	C	1/31/2023	Oxidation Reduction Potential	mV	50.0
UA	APW10	C	4/27/2023	Oxidation Reduction Potential	mV	77.5
UA	APW10	C	7/31/2023	Oxidation Reduction Potential	mV	104

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	10/10/2023	Oxidation Reduction Potential	mV	3.00
UA	APW10	C	12/16/2015	Eh	V	0.17
UA	APW10	C	1/20/2016	Eh	V	0.18
UA	APW10	C	5/3/2016	Eh	V	0.18
UA	APW10	C	8/2/2016	Eh	V	0.18
UA	APW10	C	10/26/2016	Eh	V	0.23
UA	APW10	C	1/25/2017	Eh	V	0.12
UA	APW10	C	6/13/2017	Eh	V	0.21
UA	APW10	C	11/18/2017	Eh	V	0.23
UA	APW10	C	5/18/2018	Eh	V	0.22
UA	APW10	C	8/17/2018	Eh	V	0.25
UA	APW10	C	11/9/2018	Eh	V	0.27
UA	APW10	C	2/22/2019	Eh	V	0.26
UA	APW10	C	8/23/2019	Eh	V	0.26
UA	APW10	C	2/5/2020	Eh	V	0.21
UA	APW10	C	6/11/2020	Eh	V	-0.012
UA	APW10	C	7/28/2020	Eh	V	0.038
UA	APW10	C	2/11/2021	Eh	V	0.25
UA	APW10	C	6/17/2021	Eh	V	0.27
UA	APW10	C	6/30/2021	Eh	V	0.33
UA	APW10	C	7/29/2021	Eh	V	0.32
UA	APW10	C	11/9/2021	Eh	V	0.23
UA	APW10	C	2/22/2022	Eh	V	0.34
UA	APW10	C	6/15/2022	Eh	V	0.29
UA	APW10	C	8/17/2022	Eh	V	0.18
UA	APW10	C	1/31/2023	Eh	V	0.25
UA	APW10	C	4/27/2023	Eh	V	0.27
UA	APW10	C	7/31/2023	Eh	V	0.30
UA	APW10	C	10/10/2023	Eh	V	0.20
UA	APW10	C	6/13/2017	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW10	C	8/17/2018	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW10	C	2/5/2020	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW10	C	7/28/2020	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW10	C	2/11/2021	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW10	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW10	C	7/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW10	C	11/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW10	C	2/22/2022	Alkalinity, bicarbonate	mg/L CaCO3	360
UA	APW10	C	6/15/2022	Alkalinity, bicarbonate	mg/L CaCO3	390
UA	APW10	C	8/17/2022	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW10	C	1/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	300
UA	APW10	C	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW10	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	416
UA	APW10	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	452
UA	APW10	C	6/13/2017	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	8/17/2018	Alkalinity, carbonate	mg/L CaCO3	0

Attachment 8. Aqueous Data
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Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	2/5/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	7/28/2020	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	2/11/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	7/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	11/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	2/22/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	6/15/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	8/17/2022	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	1/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW10	C	12/16/2015	Barium, total	mg/L	0.0380
UA	APW10	C	1/20/2016	Barium, total	mg/L	0.0420
UA	APW10	C	5/3/2016	Barium, total	mg/L	0.0400
UA	APW10	C	8/2/2016	Barium, total	mg/L	0.0370
UA	APW10	C	10/26/2016	Barium, total	mg/L	0.0400
UA	APW10	C	1/25/2017	Barium, total	mg/L	0.0350
UA	APW10	C	4/25/2017	Barium, total	mg/L	0.0310
UA	APW10	C	6/13/2017	Barium, total	mg/L	0.0270
UA	APW10	C	6/17/2021	Barium, total	mg/L	0.0260
UA	APW10	C	7/29/2021	Barium, total	mg/L	0.0260
UA	APW10	C	6/15/2022	Barium, total	mg/L	0.0260
UA	APW10	C	8/17/2022	Barium, total	mg/L	0.0380
UA	APW10	C	1/31/2023	Barium, total	mg/L	0.0590
UA	APW10	C	4/27/2023	Barium, total	mg/L	0.0260
UA	APW10	C	7/31/2023	Barium, total	mg/L	0.0326
UA	APW10	C	10/10/2023	Barium, total	mg/L	0.0397
UA	APW10	C	12/16/2015	Calcium, total	mg/L	120
UA	APW10	C	1/20/2016	Calcium, total	mg/L	120
UA	APW10	C	5/3/2016	Calcium, total	mg/L	140
UA	APW10	C	8/2/2016	Calcium, total	mg/L	140
UA	APW10	C	10/26/2016	Calcium, total	mg/L	120
UA	APW10	C	1/25/2017	Calcium, total	mg/L	160
UA	APW10	C	4/25/2017	Calcium, total	mg/L	120
UA	APW10	C	6/13/2017	Calcium, total	mg/L	110
UA	APW10	C	11/18/2017	Calcium, total	mg/L	120
UA	APW10	C	5/18/2018	Calcium, total	mg/L	130
UA	APW10	C	8/17/2018	Calcium, total	mg/L	130
UA	APW10	C	11/9/2018	Calcium, total	mg/L	140
UA	APW10	C	2/22/2019	Calcium, total	mg/L	110
UA	APW10	C	8/23/2019	Calcium, total	mg/L	130
UA	APW10	C	2/5/2020	Calcium, total	mg/L	140
UA	APW10	C	7/28/2020	Calcium, total	mg/L	140
UA	APW10	C	2/11/2021	Calcium, total	mg/L	150

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	6/17/2021	Calcium, total	mg/L	150
UA	APW10	C	7/29/2021	Calcium, total	mg/L	150
UA	APW10	C	11/9/2021	Calcium, total	mg/L	150
UA	APW10	C	2/22/2022	Calcium, total	mg/L	140
UA	APW10	C	6/15/2022	Calcium, total	mg/L	140
UA	APW10	C	8/17/2022	Calcium, total	mg/L	150
UA	APW10	C	1/31/2023	Calcium, total	mg/L	160
UA	APW10	C	4/27/2023	Calcium, total	mg/L	140
UA	APW10	C	7/31/2023	Calcium, total	mg/L	140
UA	APW10	C	10/10/2023	Calcium, total	mg/L	146
UA	APW10	C	12/16/2015	Chloride, total	mg/L	46.0
UA	APW10	C	1/20/2016	Chloride, total	mg/L	48.0
UA	APW10	C	5/3/2016	Chloride, total	mg/L	46.0
UA	APW10	C	8/2/2016	Chloride, total	mg/L	45.0
UA	APW10	C	10/26/2016	Chloride, total	mg/L	48.0
UA	APW10	C	1/25/2017	Chloride, total	mg/L	46.0
UA	APW10	C	4/25/2017	Chloride, total	mg/L	44.0
UA	APW10	C	6/13/2017	Chloride, total	mg/L	46.0
UA	APW10	C	11/18/2017	Chloride, total	mg/L	47.0
UA	APW10	C	5/18/2018	Chloride, total	mg/L	51.0
UA	APW10	C	8/17/2018	Chloride, total	mg/L	51.0
UA	APW10	C	11/9/2018	Chloride, total	mg/L	47.0
UA	APW10	C	2/22/2019	Chloride, total	mg/L	50.0
UA	APW10	C	8/23/2019	Chloride, total	mg/L	50.0
UA	APW10	C	2/5/2020	Chloride, total	mg/L	44.0
UA	APW10	C	7/28/2020	Chloride, total	mg/L	53.0
UA	APW10	C	2/11/2021	Chloride, total	mg/L	45.0
UA	APW10	C	6/17/2021	Chloride, total	mg/L	47.0
UA	APW10	C	7/29/2021	Chloride, total	mg/L	45.0
UA	APW10	C	11/9/2021	Chloride, total	mg/L	43.0
UA	APW10	C	2/22/2022	Chloride, total	mg/L	48.0
UA	APW10	C	6/15/2022	Chloride, total	mg/L	44.0
UA	APW10	C	8/17/2022	Chloride, total	mg/L	51.0
UA	APW10	C	1/31/2023	Chloride, total	mg/L	41.0
UA	APW10	C	4/27/2023	Chloride, total	mg/L	46.0
UA	APW10	C	7/31/2023	Chloride, total	mg/L	45.0
UA	APW10	C	10/10/2023	Chloride, total	mg/L	43.0
UA	APW10	C	4/27/2023	Ferrous Iron, dissolved	mg/L	<0.02
UA	APW10	C	7/31/2023	Ferrous Iron, dissolved	mg/L	3.61
UA	APW10	C	4/27/2023	Iron, dissolved	mg/L	0.0780
UA	APW10	C	7/31/2023	Iron, dissolved	mg/L	0.0949
UA	APW10	C	12/16/2015	Lithium, total	mg/L	0.0300
UA	APW10	C	1/20/2016	Lithium, total	mg/L	0.0210
UA	APW10	C	5/3/2016	Lithium, total	mg/L	0.0230
UA	APW10	C	8/2/2016	Lithium, total	mg/L	0.0260
UA	APW10	C	10/26/2016	Lithium, total	mg/L	0.0270

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	1/25/2017	Lithium, total	mg/L	0.0230
UA	APW10	C	4/25/2017	Lithium, total	mg/L	0.0260
UA	APW10	C	6/13/2017	Lithium, total	mg/L	0.0260
UA	APW10	C	6/17/2021	Lithium, total	mg/L	0.0220
UA	APW10	C	7/29/2021	Lithium, total	mg/L	0.0220
UA	APW10	C	6/15/2022	Lithium, total	mg/L	0.0200
UA	APW10	C	8/17/2022	Lithium, total	mg/L	0.0220
UA	APW10	C	1/31/2023	Lithium, total	mg/L	0.0200
UA	APW10	C	4/27/2023	Lithium, total	mg/L	0.0180
UA	APW10	C	7/31/2023	Lithium, total	mg/L	0.0215
UA	APW10	C	10/10/2023	Lithium, total	mg/L	0.0182
UA	APW10	C	6/13/2017	Magnesium, total	mg/L	67.0
UA	APW10	C	8/17/2018	Magnesium, total	mg/L	64.0
UA	APW10	C	2/5/2020	Magnesium, total	mg/L	72.0
UA	APW10	C	7/28/2020	Magnesium, total	mg/L	71.0
UA	APW10	C	2/11/2021	Magnesium, total	mg/L	70.0
UA	APW10	C	6/17/2021	Magnesium, total	mg/L	73.0
UA	APW10	C	7/29/2021	Magnesium, total	mg/L	70.0
UA	APW10	C	11/9/2021	Magnesium, total	mg/L	70.0
UA	APW10	C	2/22/2022	Magnesium, total	mg/L	71.0
UA	APW10	C	6/15/2022	Magnesium, total	mg/L	70.0
UA	APW10	C	8/17/2022	Magnesium, total	mg/L	69.0
UA	APW10	C	1/31/2023	Magnesium, total	mg/L	73.0
UA	APW10	C	4/27/2023	Magnesium, total	mg/L	68.0
UA	APW10	C	7/31/2023	Magnesium, total	mg/L	67.3
UA	APW10	C	10/10/2023	Magnesium, total	mg/L	65.7
UA	APW10	C	4/27/2023	Manganese, dissolved	mg/L	0.290
UA	APW10	C	7/31/2023	Manganese, dissolved	mg/L	0.350
UA	APW10	C	7/31/2023	Phosphate, dissolved	mg/L	<0.005
UA	APW10	C	6/13/2017	Potassium, total	mg/L	1.70
UA	APW10	C	8/17/2018	Potassium, total	mg/L	2.90
UA	APW10	C	2/5/2020	Potassium, total	mg/L	1.40
UA	APW10	C	7/28/2020	Potassium, total	mg/L	1.30
UA	APW10	C	2/11/2021	Potassium, total	mg/L	2.00
UA	APW10	C	6/17/2021	Potassium, total	mg/L	1.50
UA	APW10	C	7/29/2021	Potassium, total	mg/L	1.50
UA	APW10	C	11/9/2021	Potassium, total	mg/L	1.40
UA	APW10	C	2/22/2022	Potassium, total	mg/L	1.60
UA	APW10	C	6/15/2022	Potassium, total	mg/L	1.50
UA	APW10	C	8/17/2022	Potassium, total	mg/L	1.70
UA	APW10	C	1/31/2023	Potassium, total	mg/L	2.20
UA	APW10	C	4/27/2023	Potassium, total	mg/L	1.50
UA	APW10	C	7/31/2023	Potassium, total	mg/L	1.50
UA	APW10	C	10/10/2023	Potassium, total	mg/L	1.66
UA	APW10	C	4/27/2023	Silicon, dissolved	mg/L	9.70
UA	APW10	C	7/31/2023	Silicon, dissolved	mg/L	7.41

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	6/13/2017	Sodium, total	mg/L	120
UA	APW10	C	8/17/2018	Sodium, total	mg/L	120
UA	APW10	C	2/5/2020	Sodium, total	mg/L	130
UA	APW10	C	7/28/2020	Sodium, total	mg/L	120
UA	APW10	C	2/11/2021	Sodium, total	mg/L	120
UA	APW10	C	6/17/2021	Sodium, total	mg/L	120
UA	APW10	C	7/29/2021	Sodium, total	mg/L	120
UA	APW10	C	11/9/2021	Sodium, total	mg/L	120
UA	APW10	C	2/22/2022	Sodium, total	mg/L	130
UA	APW10	C	6/15/2022	Sodium, total	mg/L	110
UA	APW10	C	8/17/2022	Sodium, total	mg/L	120
UA	APW10	C	1/31/2023	Sodium, total	mg/L	120
UA	APW10	C	4/27/2023	Sodium, total	mg/L	120
UA	APW10	C	7/31/2023	Sodium, total	mg/L	112
UA	APW10	C	10/10/2023	Sodium, total	mg/L	124
UA	APW10	C	12/16/2015	Sulfate, total	mg/L	430
UA	APW10	C	1/20/2016	Sulfate, total	mg/L	410
UA	APW10	C	5/3/2016	Sulfate, total	mg/L	410
UA	APW10	C	8/2/2016	Sulfate, total	mg/L	410
UA	APW10	C	10/26/2016	Sulfate, total	mg/L	470
UA	APW10	C	1/25/2017	Sulfate, total	mg/L	430
UA	APW10	C	4/25/2017	Sulfate, total	mg/L	410
UA	APW10	C	6/13/2017	Sulfate, total	mg/L	410
UA	APW10	C	11/18/2017	Sulfate, total	mg/L	390
UA	APW10	C	5/18/2018	Sulfate, total	mg/L	440
UA	APW10	C	8/17/2018	Sulfate, total	mg/L	420
UA	APW10	C	11/9/2018	Sulfate, total	mg/L	410
UA	APW10	C	2/22/2019	Sulfate, total	mg/L	420
UA	APW10	C	8/23/2019	Sulfate, total	mg/L	390
UA	APW10	C	2/5/2020	Sulfate, total	mg/L	400
UA	APW10	C	7/28/2020	Sulfate, total	mg/L	410
UA	APW10	C	2/11/2021	Sulfate, total	mg/L	410
UA	APW10	C	6/17/2021	Sulfate, total	mg/L	540
UA	APW10	C	7/29/2021	Sulfate, total	mg/L	410
UA	APW10	C	11/9/2021	Sulfate, total	mg/L	410
UA	APW10	C	2/22/2022	Sulfate, total	mg/L	410
UA	APW10	C	6/15/2022	Sulfate, total	mg/L	400
UA	APW10	C	8/17/2022	Sulfate, total	mg/L	440
UA	APW10	C	1/31/2023	Sulfate, total	mg/L	390
UA	APW10	C	4/27/2023	Sulfate, total	mg/L	410
UA	APW10	C	7/31/2023	Sulfate, total	mg/L	421
UA	APW10	C	10/10/2023	Sulfate, total	mg/L	399
UA	APW10	C	12/16/2015	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	1/20/2016	Total Dissolved Solids	mg/L	950
UA	APW10	C	5/3/2016	Total Dissolved Solids	mg/L	930
UA	APW10	C	8/2/2016	Total Dissolved Solids	mg/L	840

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW10	C	10/26/2016	Total Dissolved Solids	mg/L	960
UA	APW10	C	1/25/2017	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	4/25/2017	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	6/13/2017	Total Dissolved Solids	mg/L	920
UA	APW10	C	11/18/2017	Total Dissolved Solids	mg/L	910
UA	APW10	C	5/18/2018	Total Dissolved Solids	mg/L	900
UA	APW10	C	11/9/2018	Total Dissolved Solids	mg/L	900
UA	APW10	C	2/22/2019	Total Dissolved Solids	mg/L	990
UA	APW10	C	8/23/2019	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	2/5/2020	Total Dissolved Solids	mg/L	1,200
UA	APW10	C	6/11/2020	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	7/28/2020	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	2/11/2021	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	6/17/2021	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	6/30/2021	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	7/29/2021	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	11/9/2021	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	2/22/2022	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	6/15/2022	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	8/17/2022	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	1/31/2023	Total Dissolved Solids	mg/L	1,000
UA	APW10	C	4/27/2023	Total Dissolved Solids	mg/L	1,100
UA	APW10	C	7/31/2023	Total Dissolved Solids	mg/L	1,060
UA	APW10	C	10/10/2023	Total Dissolved Solids	mg/L	1,050
UA	APW11	C	2/18/2021	pH (field)	SU	6.1
UA	APW11	C	3/9/2021	pH (field)	SU	7.2
UA	APW11	C	3/29/2021	pH (field)	SU	6.6
UA	APW11	C	4/28/2021	pH (field)	SU	7.1
UA	APW11	C	5/24/2021	pH (field)	SU	7.4
UA	APW11	C	6/16/2021	pH (field)	SU	7.2
UA	APW11	C	6/30/2021	pH (field)	SU	7.1
UA	APW11	C	7/15/2021	pH (field)	SU	7.2
UA	APW11	C	3/15/2023	pH (field)	SU	7.2
UA	APW11	C	4/26/2023	pH (field)	SU	7.2
UA	APW11	C	7/24/2023	pH (field)	SU	7.2
UA	APW11	C	10/10/2023	pH (field)	SU	7.5
UA	APW11	C	2/18/2021	Oxidation Reduction Potential	mV	125
UA	APW11	C	3/9/2021	Oxidation Reduction Potential	mV	-56.2
UA	APW11	C	3/29/2021	Oxidation Reduction Potential	mV	2.60
UA	APW11	C	4/28/2021	Oxidation Reduction Potential	mV	-51.6
UA	APW11	C	5/24/2021	Oxidation Reduction Potential	mV	-82.4
UA	APW11	C	6/16/2021	Oxidation Reduction Potential	mV	-41.2
UA	APW11	C	6/30/2021	Oxidation Reduction Potential	mV	-37.2
UA	APW11	C	7/15/2021	Oxidation Reduction Potential	mV	-24.4
UA	APW11	C	4/26/2023	Oxidation Reduction Potential	mV	-17.8
UA	APW11	C	7/24/2023	Oxidation Reduction Potential	mV	-54.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW11	C	10/10/2023	Oxidation Reduction Potential	mV	-117
UA	APW11	C	2/18/2021	Eh	V	0.32
UA	APW11	C	3/9/2021	Eh	V	0.14
UA	APW11	C	3/29/2021	Eh	V	0.20
UA	APW11	C	4/28/2021	Eh	V	0.14
UA	APW11	C	5/24/2021	Eh	V	0.11
UA	APW11	C	6/16/2021	Eh	V	0.15
UA	APW11	C	6/30/2021	Eh	V	0.16
UA	APW11	C	7/15/2021	Eh	V	0.17
UA	APW11	C	4/26/2023	Eh	V	0.18
UA	APW11	C	7/24/2023	Eh	V	0.14
UA	APW11	C	10/10/2023	Eh	V	0.078
UA	APW11	C	2/18/2021	Alkalinity, bicarbonate	mg/L CaCO3	320
UA	APW11	C	3/9/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW11	C	3/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW11	C	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW11	C	5/24/2021	Alkalinity, bicarbonate	mg/L CaCO3	820
UA	APW11	C	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW11	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	400
UA	APW11	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW11	C	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	420
UA	APW11	C	4/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	350
UA	APW11	C	7/24/2023	Alkalinity, bicarbonate	mg/L CaCO3	427
UA	APW11	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	426
UA	APW11	C	2/18/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	3/9/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	3/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	5/24/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	4/26/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	7/24/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW11	C	2/18/2021	Barium, total	mg/L	0.160
UA	APW11	C	3/9/2021	Barium, total	mg/L	0.0770
UA	APW11	C	3/29/2021	Barium, total	mg/L	0.0710
UA	APW11	C	4/28/2021	Barium, total	mg/L	0.0480
UA	APW11	C	5/24/2021	Barium, total	mg/L	0.0500
UA	APW11	C	6/16/2021	Barium, total	mg/L	0.0470
UA	APW11	C	6/30/2021	Barium, total	mg/L	0.0420
UA	APW11	C	7/15/2021	Barium, total	mg/L	0.0420
UA	APW11	C	3/15/2023	Barium, total	mg/L	0.0450
UA	APW11	C	4/26/2023	Barium, total	mg/L	0.0430

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW11	C	7/24/2023	Barium, total	mg/L	0.0492
UA	APW11	C	10/10/2023	Barium, total	mg/L	0.0448
UA	APW11	C	2/18/2021	Calcium, total	mg/L	96.0
UA	APW11	C	3/9/2021	Calcium, total	mg/L	120
UA	APW11	C	3/29/2021	Calcium, total	mg/L	130
UA	APW11	C	4/28/2021	Calcium, total	mg/L	120
UA	APW11	C	5/24/2021	Calcium, total	mg/L	130
UA	APW11	C	6/16/2021	Calcium, total	mg/L	130
UA	APW11	C	6/30/2021	Calcium, total	mg/L	120
UA	APW11	C	7/15/2021	Calcium, total	mg/L	120
UA	APW11	C	3/15/2023	Calcium, total	mg/L	110
UA	APW11	C	4/26/2023	Calcium, total	mg/L	120
UA	APW11	C	7/24/2023	Calcium, total	mg/L	122
UA	APW11	C	10/10/2023	Calcium, total	mg/L	126
UA	APW11	C	2/18/2021	Chloride, total	mg/L	47.0
UA	APW11	C	3/9/2021	Chloride, total	mg/L	26.0
UA	APW11	C	3/29/2021	Chloride, total	mg/L	26.0
UA	APW11	C	4/28/2021	Chloride, total	mg/L	26.0
UA	APW11	C	5/24/2021	Chloride, total	mg/L	27.0
UA	APW11	C	6/16/2021	Chloride, total	mg/L	26.0
UA	APW11	C	6/30/2021	Chloride, total	mg/L	33.0
UA	APW11	C	7/15/2021	Chloride, total	mg/L	31.0
UA	APW11	C	3/15/2023	Chloride, total	mg/L	23.0
UA	APW11	C	4/26/2023	Chloride, total	mg/L	26.0
UA	APW11	C	7/24/2023	Chloride, total	mg/L	25.0
UA	APW11	C	10/10/2023	Chloride, total	mg/L	26.0
UA	APW11	C	4/26/2023	Ferrous Iron, dissolved	mg/L	0.920
UA	APW11	C	7/24/2023	Ferrous Iron, dissolved	mg/L	1.04
UA	APW11	C	4/26/2023	Iron, dissolved	mg/L	0.940
UA	APW11	C	7/24/2023	Iron, dissolved	mg/L	1.08
UA	APW11	C	2/18/2021	Lithium, total	mg/L	0.0210
UA	APW11	C	3/9/2021	Lithium, total	mg/L	0.0240
UA	APW11	C	3/29/2021	Lithium, total	mg/L	0.0280
UA	APW11	C	4/28/2021	Lithium, total	mg/L	0.0210
UA	APW11	C	5/24/2021	Lithium, total	mg/L	0.0240
UA	APW11	C	6/16/2021	Lithium, total	mg/L	0.0240
UA	APW11	C	6/30/2021	Lithium, total	mg/L	0.0380
UA	APW11	C	7/15/2021	Lithium, total	mg/L	0.0300
UA	APW11	C	3/15/2023	Lithium, total	mg/L	0.0190
UA	APW11	C	4/26/2023	Lithium, total	mg/L	0.0200
UA	APW11	C	7/24/2023	Lithium, total	mg/L	0.0199
UA	APW11	C	10/10/2023	Lithium, total	mg/L	0.0201
UA	APW11	C	2/18/2021	Magnesium, total	mg/L	50.0
UA	APW11	C	3/9/2021	Magnesium, total	mg/L	54.0
UA	APW11	C	3/29/2021	Magnesium, total	mg/L	53.0
UA	APW11	C	4/28/2021	Magnesium, total	mg/L	58.0

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW11	C	5/24/2021	Magnesium, total	mg/L	58.0
UA	APW11	C	6/16/2021	Magnesium, total	mg/L	58.0
UA	APW11	C	6/30/2021	Magnesium, total	mg/L	57.0
UA	APW11	C	7/15/2021	Magnesium, total	mg/L	55.0
UA	APW11	C	3/15/2023	Magnesium, total	mg/L	55.0
UA	APW11	C	4/26/2023	Magnesium, total	mg/L	57.0
UA	APW11	C	7/24/2023	Magnesium, total	mg/L	52.7
UA	APW11	C	10/10/2023	Magnesium, total	mg/L	53.6
UA	APW11	C	4/26/2023	Manganese, dissolved	mg/L	0.840
UA	APW11	C	7/24/2023	Manganese, dissolved	mg/L	0.947
UA	APW11	C	7/24/2023	Phosphate, dissolved	mg/L	0.0210
UA	APW11	C	2/18/2021	Potassium, total	mg/L	4.10
UA	APW11	C	3/9/2021	Potassium, total	mg/L	2.60
UA	APW11	C	3/29/2021	Potassium, total	mg/L	2.30
UA	APW11	C	4/28/2021	Potassium, total	mg/L	1.50
UA	APW11	C	5/24/2021	Potassium, total	mg/L	1.70
UA	APW11	C	6/16/2021	Potassium, total	mg/L	1.80
UA	APW11	C	6/30/2021	Potassium, total	mg/L	1.50
UA	APW11	C	7/15/2021	Potassium, total	mg/L	1.40
UA	APW11	C	3/15/2023	Potassium, total	mg/L	1.50
UA	APW11	C	4/26/2023	Potassium, total	mg/L	1.90
UA	APW11	C	7/24/2023	Potassium, total	mg/L	2.10
UA	APW11	C	10/10/2023	Potassium, total	mg/L	1.62
UA	APW11	C	4/26/2023	Silicon, dissolved	mg/L	10.0
UA	APW11	C	7/24/2023	Silicon, dissolved	mg/L	9.54
UA	APW11	C	2/18/2021	Sodium, total	mg/L	110
UA	APW11	C	3/9/2021	Sodium, total	mg/L	110
UA	APW11	C	3/29/2021	Sodium, total	mg/L	91.0
UA	APW11	C	4/28/2021	Sodium, total	mg/L	100
UA	APW11	C	5/24/2021	Sodium, total	mg/L	110
UA	APW11	C	6/16/2021	Sodium, total	mg/L	100
UA	APW11	C	6/30/2021	Sodium, total	mg/L	100
UA	APW11	C	7/15/2021	Sodium, total	mg/L	97.0
UA	APW11	C	3/15/2023	Sodium, total	mg/L	93.0
UA	APW11	C	4/26/2023	Sodium, total	mg/L	93.0
UA	APW11	C	7/24/2023	Sodium, total	mg/L	89.5
UA	APW11	C	10/10/2023	Sodium, total	mg/L	92.1
UA	APW11	C	2/18/2021	Sulfate, total	mg/L	280
UA	APW11	C	3/9/2021	Sulfate, total	mg/L	290
UA	APW11	C	3/29/2021	Sulfate, total	mg/L	270
UA	APW11	C	4/28/2021	Sulfate, total	mg/L	280
UA	APW11	C	5/24/2021	Sulfate, total	mg/L	300
UA	APW11	C	6/16/2021	Sulfate, total	mg/L	290
UA	APW11	C	6/30/2021	Sulfate, total	mg/L	280
UA	APW11	C	7/15/2021	Sulfate, total	mg/L	140
UA	APW11	C	3/15/2023	Sulfate, total	mg/L	270

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW11	C	4/26/2023	Sulfate, total	mg/L	260
UA	APW11	C	7/24/2023	Sulfate, total	mg/L	268
UA	APW11	C	10/10/2023	Sulfate, total	mg/L	277
UA	APW11	C	2/18/2021	Total Dissolved Solids	mg/L	780
UA	APW11	C	3/9/2021	Total Dissolved Solids	mg/L	940
UA	APW11	C	3/29/2021	Total Dissolved Solids	mg/L	820
UA	APW11	C	4/28/2021	Total Dissolved Solids	mg/L	920
UA	APW11	C	5/24/2021	Total Dissolved Solids	mg/L	850
UA	APW11	C	6/16/2021	Total Dissolved Solids	mg/L	850
UA	APW11	C	6/30/2021	Total Dissolved Solids	mg/L	860
UA	APW11	C	7/15/2021	Total Dissolved Solids	mg/L	810
UA	APW11	C	3/15/2023	Total Dissolved Solids	mg/L	820
UA	APW11	C	4/26/2023	Total Dissolved Solids	mg/L	920
UA	APW11	C	7/24/2023	Total Dissolved Solids	mg/L	840
UA	APW11	C	10/10/2023	Total Dissolved Solids	mg/L	835
UA	APW13	C	2/22/2021	pH (field)	SU	7.1
UA	APW13	C	3/10/2021	pH (field)	SU	7.2
UA	APW13	C	3/31/2021	pH (field)	SU	6.4
UA	APW13	C	4/29/2021	pH (field)	SU	7.2
UA	APW13	C	5/25/2021	pH (field)	SU	7.3
UA	APW13	C	6/17/2021	pH (field)	SU	7.2
UA	APW13	C	6/30/2021	pH (field)	SU	7.3
UA	APW13	C	7/15/2021	pH (field)	SU	7.3
UA	APW13	C	3/14/2023	pH (field)	SU	7.2
UA	APW13	C	4/27/2023	pH (field)	SU	7.3
UA	APW13	C	7/31/2023	pH (field)	SU	6.9
UA	APW13	C	10/10/2023	pH (field)	SU	7.2
UA	APW13	C	2/22/2021	Oxidation Reduction Potential	mV	-102
UA	APW13	C	3/10/2021	Oxidation Reduction Potential	mV	-80.2
UA	APW13	C	3/31/2021	Oxidation Reduction Potential	mV	-9.40
UA	APW13	C	4/29/2021	Oxidation Reduction Potential	mV	-96.2
UA	APW13	C	5/25/2021	Oxidation Reduction Potential	mV	-95.6
UA	APW13	C	6/17/2021	Oxidation Reduction Potential	mV	-75.3
UA	APW13	C	6/30/2021	Oxidation Reduction Potential	mV	-78.8
UA	APW13	C	7/15/2021	Oxidation Reduction Potential	mV	-90.0
UA	APW13	C	4/27/2023	Oxidation Reduction Potential	mV	-25.3
UA	APW13	C	7/31/2023	Oxidation Reduction Potential	mV	109
UA	APW13	C	10/10/2023	Oxidation Reduction Potential	mV	-31.0
UA	APW13	C	2/22/2021	Eh	V	0.095
UA	APW13	C	3/10/2021	Eh	V	0.12
UA	APW13	C	3/31/2021	Eh	V	0.19
UA	APW13	C	4/29/2021	Eh	V	0.099
UA	APW13	C	5/25/2021	Eh	V	0.097
UA	APW13	C	6/17/2021	Eh	V	0.12
UA	APW13	C	6/30/2021	Eh	V	0.11
UA	APW13	C	7/15/2021	Eh	V	0.10

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW13	C	4/27/2023	Eh	V	0.17
UA	APW13	C	7/31/2023	Eh	V	0.30
UA	APW13	C	10/10/2023	Eh	V	0.17
UA	APW13	C	2/22/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW13	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW13	C	3/31/2021	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW13	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW13	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW13	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	510
UA	APW13	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW13	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW13	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW13	C	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	490
UA	APW13	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	504
UA	APW13	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	522
UA	APW13	C	2/22/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	3/31/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW13	C	2/22/2021	Barium, total	mg/L	0.0550
UA	APW13	C	3/10/2021	Barium, total	mg/L	0.0540
UA	APW13	C	3/31/2021	Barium, total	mg/L	0.0570
UA	APW13	C	4/29/2021	Barium, total	mg/L	0.0500
UA	APW13	C	5/25/2021	Barium, total	mg/L	0.0510
UA	APW13	C	6/17/2021	Barium, total	mg/L	0.0510
UA	APW13	C	6/30/2021	Barium, total	mg/L	0.0510
UA	APW13	C	7/15/2021	Barium, total	mg/L	0.0500
UA	APW13	C	3/14/2023	Barium, total	mg/L	0.0570
UA	APW13	C	4/27/2023	Barium, total	mg/L	0.0500
UA	APW13	C	7/31/2023	Barium, total	mg/L	0.0720
UA	APW13	C	10/10/2023	Barium, total	mg/L	0.0642
UA	APW13	C	2/22/2021	Calcium, total	mg/L	110
UA	APW13	C	3/10/2021	Calcium, total	mg/L	120
UA	APW13	C	3/31/2021	Calcium, total	mg/L	110
UA	APW13	C	4/29/2021	Calcium, total	mg/L	110
UA	APW13	C	5/25/2021	Calcium, total	mg/L	120
UA	APW13	C	6/17/2021	Calcium, total	mg/L	130
UA	APW13	C	6/30/2021	Calcium, total	mg/L	120

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW13	C	7/15/2021	Calcium, total	mg/L	110
UA	APW13	C	3/14/2023	Calcium, total	mg/L	120
UA	APW13	C	4/27/2023	Calcium, total	mg/L	120
UA	APW13	C	7/31/2023	Calcium, total	mg/L	121
UA	APW13	C	10/10/2023	Calcium, total	mg/L	120
UA	APW13	C	2/22/2021	Chloride, total	mg/L	57.0
UA	APW13	C	3/10/2021	Chloride, total	mg/L	71.0
UA	APW13	C	3/31/2021	Chloride, total	mg/L	46.0
UA	APW13	C	4/29/2021	Chloride, total	mg/L	48.0
UA	APW13	C	5/25/2021	Chloride, total	mg/L	64.0
UA	APW13	C	6/17/2021	Chloride, total	mg/L	53.0
UA	APW13	C	6/30/2021	Chloride, total	mg/L	45.0
UA	APW13	C	7/15/2021	Chloride, total	mg/L	55.0
UA	APW13	C	3/14/2023	Chloride, total	mg/L	47.0
UA	APW13	C	4/27/2023	Chloride, total	mg/L	51.0
UA	APW13	C	7/31/2023	Chloride, total	mg/L	48.0
UA	APW13	C	10/10/2023	Chloride, total	mg/L	53.0
UA	APW13	C	4/27/2023	Ferrous Iron, dissolved	mg/L	1.30
UA	APW13	C	7/31/2023	Ferrous Iron, dissolved	mg/L	4.84
UA	APW13	C	4/27/2023	Iron, dissolved	mg/L	1.30
UA	APW13	C	7/31/2023	Iron, dissolved	mg/L	1.44
UA	APW13	C	2/22/2021	Lithium, total	mg/L	0.0420
UA	APW13	C	3/10/2021	Lithium, total	mg/L	0.0440
UA	APW13	C	3/31/2021	Lithium, total	mg/L	0.0410
UA	APW13	C	4/29/2021	Lithium, total	mg/L	0.0320
UA	APW13	C	5/25/2021	Lithium, total	mg/L	0.0300
UA	APW13	C	6/17/2021	Lithium, total	mg/L	0.0270
UA	APW13	C	6/30/2021	Lithium, total	mg/L	0.0540
UA	APW13	C	7/15/2021	Lithium, total	mg/L	0.0360
UA	APW13	C	3/14/2023	Lithium, total	mg/L	0.0250
UA	APW13	C	4/27/2023	Lithium, total	mg/L	0.0210
UA	APW13	C	7/31/2023	Lithium, total	mg/L	0.0230
UA	APW13	C	10/10/2023	Lithium, total	mg/L	0.0240
UA	APW13	C	2/22/2021	Magnesium, total	mg/L	58.0
UA	APW13	C	3/10/2021	Magnesium, total	mg/L	61.0
UA	APW13	C	3/31/2021	Magnesium, total	mg/L	56.0
UA	APW13	C	4/29/2021	Magnesium, total	mg/L	60.0
UA	APW13	C	5/25/2021	Magnesium, total	mg/L	60.0
UA	APW13	C	6/17/2021	Magnesium, total	mg/L	65.0
UA	APW13	C	6/30/2021	Magnesium, total	mg/L	61.0
UA	APW13	C	7/15/2021	Magnesium, total	mg/L	62.0
UA	APW13	C	3/14/2023	Magnesium, total	mg/L	68.0
UA	APW13	C	4/27/2023	Magnesium, total	mg/L	61.0
UA	APW13	C	7/31/2023	Magnesium, total	mg/L	61.7
UA	APW13	C	10/10/2023	Magnesium, total	mg/L	57.5
UA	APW13	C	4/27/2023	Manganese, dissolved	mg/L	0.580

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW13	C	7/31/2023	Manganese, dissolved	mg/L	0.598
UA	APW13	C	7/31/2023	Phosphate, dissolved	mg/L	<0.005
UA	APW13	C	2/22/2021	Potassium, total	mg/L	2.10
UA	APW13	C	3/10/2021	Potassium, total	mg/L	2.20
UA	APW13	C	3/31/2021	Potassium, total	mg/L	2.10
UA	APW13	C	4/29/2021	Potassium, total	mg/L	1.90
UA	APW13	C	5/25/2021	Potassium, total	mg/L	1.80
UA	APW13	C	6/17/2021	Potassium, total	mg/L	1.90
UA	APW13	C	6/30/2021	Potassium, total	mg/L	1.80
UA	APW13	C	7/15/2021	Potassium, total	mg/L	1.70
UA	APW13	C	3/14/2023	Potassium, total	mg/L	2.10
UA	APW13	C	4/27/2023	Potassium, total	mg/L	1.80
UA	APW13	C	7/31/2023	Potassium, total	mg/L	1.94
UA	APW13	C	10/10/2023	Potassium, total	mg/L	1.93
UA	APW13	C	4/27/2023	Silicon, dissolved	mg/L	11.0
UA	APW13	C	7/31/2023	Silicon, dissolved	mg/L	8.15
UA	APW13	C	2/22/2021	Sodium, total	mg/L	120
UA	APW13	C	3/10/2021	Sodium, total	mg/L	120
UA	APW13	C	3/31/2021	Sodium, total	mg/L	120
UA	APW13	C	4/29/2021	Sodium, total	mg/L	130
UA	APW13	C	5/25/2021	Sodium, total	mg/L	110
UA	APW13	C	6/17/2021	Sodium, total	mg/L	120
UA	APW13	C	6/30/2021	Sodium, total	mg/L	120
UA	APW13	C	7/15/2021	Sodium, total	mg/L	120
UA	APW13	C	3/14/2023	Sodium, total	mg/L	140
UA	APW13	C	4/27/2023	Sodium, total	mg/L	120
UA	APW13	C	7/31/2023	Sodium, total	mg/L	122
UA	APW13	C	10/10/2023	Sodium, total	mg/L	124
UA	APW13	C	2/22/2021	Sulfate, total	mg/L	220
UA	APW13	C	3/10/2021	Sulfate, total	mg/L	210
UA	APW13	C	3/31/2021	Sulfate, total	mg/L	210
UA	APW13	C	4/29/2021	Sulfate, total	mg/L	210
UA	APW13	C	5/25/2021	Sulfate, total	mg/L	220
UA	APW13	C	6/17/2021	Sulfate, total	mg/L	220
UA	APW13	C	6/30/2021	Sulfate, total	mg/L	230
UA	APW13	C	7/15/2021	Sulfate, total	mg/L	210
UA	APW13	C	3/14/2023	Sulfate, total	mg/L	240
UA	APW13	C	4/27/2023	Sulfate, total	mg/L	250
UA	APW13	C	7/31/2023	Sulfate, total	mg/L	233
UA	APW13	C	10/10/2023	Sulfate, total	mg/L	234
UA	APW13	C	2/22/2021	Total Dissolved Solids	mg/L	760
UA	APW13	C	3/10/2021	Total Dissolved Solids	mg/L	850
UA	APW13	C	3/31/2021	Total Dissolved Solids	mg/L	880
UA	APW13	C	4/29/2021	Total Dissolved Solids	mg/L	840
UA	APW13	C	5/25/2021	Total Dissolved Solids	mg/L	880
UA	APW13	C	6/17/2021	Total Dissolved Solids	mg/L	830

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW13	C	6/30/2021	Total Dissolved Solids	mg/L	790
UA	APW13	C	7/15/2021	Total Dissolved Solids	mg/L	820
UA	APW13	C	3/14/2023	Total Dissolved Solids	mg/L	890
UA	APW13	C	4/27/2023	Total Dissolved Solids	mg/L	940
UA	APW13	C	7/31/2023	Total Dissolved Solids	mg/L	875
UA	APW13	C	10/10/2023	Total Dissolved Solids	mg/L	936
UA	APW14	C	2/22/2021	pH (field)	SU	7.5
UA	APW14	C	3/10/2021	pH (field)	SU	7.4
UA	APW14	C	3/31/2021	pH (field)	SU	6.5
UA	APW14	C	4/28/2021	pH (field)	SU	7.4
UA	APW14	C	5/25/2021	pH (field)	SU	7.5
UA	APW14	C	6/17/2021	pH (field)	SU	7.4
UA	APW14	C	6/30/2021	pH (field)	SU	7.5
UA	APW14	C	7/15/2021	pH (field)	SU	7.4
UA	APW14	C	3/14/2023	pH (field)	SU	7.4
UA	APW14	C	4/28/2023	pH (field)	SU	7.3
UA	APW14	C	7/31/2023	pH (field)	SU	7.0
UA	APW14	C	10/10/2023	pH (field)	SU	7.3
UA	APW14	C	2/22/2021	Oxidation Reduction Potential	mV	-113
UA	APW14	C	3/10/2021	Oxidation Reduction Potential	mV	-104
UA	APW14	C	3/31/2021	Oxidation Reduction Potential	mV	-46.7
UA	APW14	C	4/28/2021	Oxidation Reduction Potential	mV	-120
UA	APW14	C	5/25/2021	Oxidation Reduction Potential	mV	-145
UA	APW14	C	6/17/2021	Oxidation Reduction Potential	mV	-97.8
UA	APW14	C	6/30/2021	Oxidation Reduction Potential	mV	-123
UA	APW14	C	7/15/2021	Oxidation Reduction Potential	mV	-144
UA	APW14	C	4/28/2023	Oxidation Reduction Potential	mV	-95.0
UA	APW14	C	7/31/2023	Oxidation Reduction Potential	mV	117
UA	APW14	C	10/10/2023	Oxidation Reduction Potential	mV	-68.0
UA	APW14	C	2/22/2021	Eh	V	0.084
UA	APW14	C	3/10/2021	Eh	V	0.092
UA	APW14	C	3/31/2021	Eh	V	0.15
UA	APW14	C	4/28/2021	Eh	V	0.074
UA	APW14	C	5/25/2021	Eh	V	0.047
UA	APW14	C	6/17/2021	Eh	V	0.096
UA	APW14	C	6/30/2021	Eh	V	0.071
UA	APW14	C	7/15/2021	Eh	V	0.048
UA	APW14	C	4/28/2023	Eh	V	0.10
UA	APW14	C	7/31/2023	Eh	V	0.31
UA	APW14	C	10/10/2023	Eh	V	0.13
UA	APW14	C	2/22/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UA	APW14	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW14	C	3/31/2021	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW14	C	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW14	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	920
UA	APW14	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	490

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW14	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW14	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW14	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW14	C	4/28/2023	Alkalinity, bicarbonate	mg/L CaCO3	460
UA	APW14	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW14	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	484
UA	APW14	C	2/22/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	3/31/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	4/28/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW14	C	2/22/2021	Barium, total	mg/L	0.140
UA	APW14	C	3/10/2021	Barium, total	mg/L	0.0990
UA	APW14	C	3/31/2021	Barium, total	mg/L	0.0920
UA	APW14	C	4/28/2021	Barium, total	mg/L	0.100
UA	APW14	C	5/25/2021	Barium, total	mg/L	0.0980
UA	APW14	C	6/17/2021	Barium, total	mg/L	0.0860
UA	APW14	C	6/30/2021	Barium, total	mg/L	0.0820
UA	APW14	C	7/15/2021	Barium, total	mg/L	0.0700
UA	APW14	C	3/14/2023	Barium, total	mg/L	0.110
UA	APW14	C	4/28/2023	Barium, total	mg/L	0.0650
UA	APW14	C	7/31/2023	Barium, total	mg/L	0.0649
UA	APW14	C	10/10/2023	Barium, total	mg/L	0.0758
UA	APW14	C	2/22/2021	Calcium, total	mg/L	120
UA	APW14	C	3/10/2021	Calcium, total	mg/L	130
UA	APW14	C	3/31/2021	Calcium, total	mg/L	130
UA	APW14	C	4/28/2021	Calcium, total	mg/L	130
UA	APW14	C	5/25/2021	Calcium, total	mg/L	130
UA	APW14	C	6/17/2021	Calcium, total	mg/L	140
UA	APW14	C	6/30/2021	Calcium, total	mg/L	150
UA	APW14	C	7/15/2021	Calcium, total	mg/L	130
UA	APW14	C	3/14/2023	Calcium, total	mg/L	140
UA	APW14	C	4/28/2023	Calcium, total	mg/L	130
UA	APW14	C	7/31/2023	Calcium, total	mg/L	133
UA	APW14	C	10/10/2023	Calcium, total	mg/L	138
UA	APW14	C	2/22/2021	Chloride, total	mg/L	55.0
UA	APW14	C	3/10/2021	Chloride, total	mg/L	65.0
UA	APW14	C	3/31/2021	Chloride, total	mg/L	46.0
UA	APW14	C	4/28/2021	Chloride, total	mg/L	44.0

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW14	C	5/25/2021	Chloride, total	mg/L	43.0
UA	APW14	C	6/17/2021	Chloride, total	mg/L	45.0
UA	APW14	C	6/30/2021	Chloride, total	mg/L	49.0
UA	APW14	C	7/15/2021	Chloride, total	mg/L	53.0
UA	APW14	C	3/14/2023	Chloride, total	mg/L	39.0
UA	APW14	C	4/28/2023	Chloride, total	mg/L	46.0
UA	APW14	C	7/31/2023	Chloride, total	mg/L	42.0
UA	APW14	C	10/10/2023	Chloride, total	mg/L	41.0
UA	APW14	C	4/28/2023	Ferrous Iron, dissolved	mg/L	3.80
UA	APW14	C	7/31/2023	Ferrous Iron, dissolved	mg/L	<0.1
UA	APW14	C	4/28/2023	Iron, dissolved	mg/L	3.60
UA	APW14	C	7/31/2023	Iron, dissolved	mg/L	3.13
UA	APW14	C	2/22/2021	Lithium, total	mg/L	0.0510
UA	APW14	C	3/10/2021	Lithium, total	mg/L	0.0440
UA	APW14	C	3/31/2021	Lithium, total	mg/L	0.0340
UA	APW14	C	4/28/2021	Lithium, total	mg/L	0.0300
UA	APW14	C	5/25/2021	Lithium, total	mg/L	0.0290
UA	APW14	C	6/17/2021	Lithium, total	mg/L	0.0240
UA	APW14	C	6/30/2021	Lithium, total	mg/L	0.0470
UA	APW14	C	7/15/2021	Lithium, total	mg/L	0.0320
UA	APW14	C	3/14/2023	Lithium, total	mg/L	0.0180
UA	APW14	C	4/28/2023	Lithium, total	mg/L	0.0160
UA	APW14	C	7/31/2023	Lithium, total	mg/L	0.0207
UA	APW14	C	10/10/2023	Lithium, total	mg/L	0.0205
UA	APW14	C	2/22/2021	Magnesium, total	mg/L	58.0
UA	APW14	C	3/10/2021	Magnesium, total	mg/L	64.0
UA	APW14	C	3/31/2021	Magnesium, total	mg/L	61.0
UA	APW14	C	4/28/2021	Magnesium, total	mg/L	66.0
UA	APW14	C	5/25/2021	Magnesium, total	mg/L	63.0
UA	APW14	C	6/17/2021	Magnesium, total	mg/L	69.0
UA	APW14	C	6/30/2021	Magnesium, total	mg/L	76.0
UA	APW14	C	7/15/2021	Magnesium, total	mg/L	69.0
UA	APW14	C	3/14/2023	Magnesium, total	mg/L	74.0
UA	APW14	C	4/28/2023	Magnesium, total	mg/L	66.0
UA	APW14	C	7/31/2023	Magnesium, total	mg/L	67.6
UA	APW14	C	10/10/2023	Magnesium, total	mg/L	63.1
UA	APW14	C	4/28/2023	Manganese, dissolved	mg/L	0.220
UA	APW14	C	7/31/2023	Manganese, dissolved	mg/L	0.207
UA	APW14	C	7/31/2023	Phosphate, dissolved	mg/L	<0.005
UA	APW14	C	2/22/2021	Potassium, total	mg/L	5.30
UA	APW14	C	3/10/2021	Potassium, total	mg/L	4.00
UA	APW14	C	3/31/2021	Potassium, total	mg/L	3.20
UA	APW14	C	4/28/2021	Potassium, total	mg/L	4.00
UA	APW14	C	5/25/2021	Potassium, total	mg/L	3.10
UA	APW14	C	6/17/2021	Potassium, total	mg/L	2.80
UA	APW14	C	6/30/2021	Potassium, total	mg/L	3.00

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW14	C	7/15/2021	Potassium, total	mg/L	2.30
UA	APW14	C	3/14/2023	Potassium, total	mg/L	2.00
UA	APW14	C	4/28/2023	Potassium, total	mg/L	1.60
UA	APW14	C	7/31/2023	Potassium, total	mg/L	2.00
UA	APW14	C	10/10/2023	Potassium, total	mg/L	1.92
UA	APW14	C	4/28/2023	Silicon, dissolved	mg/L	9.20
UA	APW14	C	7/31/2023	Silicon, dissolved	mg/L	7.08
UA	APW14	C	2/22/2021	Sodium, total	mg/L	130
UA	APW14	C	3/10/2021	Sodium, total	mg/L	130
UA	APW14	C	3/31/2021	Sodium, total	mg/L	130
UA	APW14	C	4/28/2021	Sodium, total	mg/L	140
UA	APW14	C	5/25/2021	Sodium, total	mg/L	130
UA	APW14	C	6/17/2021	Sodium, total	mg/L	130
UA	APW14	C	6/30/2021	Sodium, total	mg/L	150
UA	APW14	C	7/15/2021	Sodium, total	mg/L	140
UA	APW14	C	3/14/2023	Sodium, total	mg/L	150
UA	APW14	C	4/28/2023	Sodium, total	mg/L	130
UA	APW14	C	7/31/2023	Sodium, total	mg/L	126
UA	APW14	C	10/10/2023	Sodium, total	mg/L	133
UA	APW14	C	2/22/2021	Sulfate, total	mg/L	320
UA	APW14	C	3/10/2021	Sulfate, total	mg/L	340
UA	APW14	C	3/31/2021	Sulfate, total	mg/L	330
UA	APW14	C	4/28/2021	Sulfate, total	mg/L	320
UA	APW14	C	5/25/2021	Sulfate, total	mg/L	320
UA	APW14	C	6/17/2021	Sulfate, total	mg/L	310
UA	APW14	C	6/30/2021	Sulfate, total	mg/L	330
UA	APW14	C	7/15/2021	Sulfate, total	mg/L	330
UA	APW14	C	3/14/2023	Sulfate, total	mg/L	330
UA	APW14	C	4/28/2023	Sulfate, total	mg/L	380
UA	APW14	C	7/31/2023	Sulfate, total	mg/L	370
UA	APW14	C	10/10/2023	Sulfate, total	mg/L	358
UA	APW14	C	2/22/2021	Total Dissolved Solids	mg/L	830
UA	APW14	C	3/10/2021	Total Dissolved Solids	mg/L	970
UA	APW14	C	3/31/2021	Total Dissolved Solids	mg/L	1,000
UA	APW14	C	4/28/2021	Total Dissolved Solids	mg/L	1,000
UA	APW14	C	5/25/2021	Total Dissolved Solids	mg/L	920
UA	APW14	C	6/17/2021	Total Dissolved Solids	mg/L	940
UA	APW14	C	6/30/2021	Total Dissolved Solids	mg/L	860
UA	APW14	C	7/15/2021	Total Dissolved Solids	mg/L	970
UA	APW14	C	3/14/2023	Total Dissolved Solids	mg/L	960
UA	APW14	C	4/28/2023	Total Dissolved Solids	mg/L	980
UA	APW14	C	7/31/2023	Total Dissolved Solids	mg/L	990
UA	APW14	C	10/10/2023	Total Dissolved Solids	mg/L	990
UA	APW15	C	2/23/2021	pH (field)	SU	7.0
UA	APW15	C	3/10/2021	pH (field)	SU	7.2
UA	APW15	C	3/31/2021	pH (field)	SU	6.5

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW15	C	4/28/2021	pH (field)	SU	7.2
UA	APW15	C	5/24/2021	pH (field)	SU	7.3
UA	APW15	C	6/17/2021	pH (field)	SU	7.3
UA	APW15	C	6/30/2021	pH (field)	SU	7.1
UA	APW15	C	7/14/2021	pH (field)	SU	7.2
UA	APW15	C	3/14/2023	pH (field)	SU	7.2
UA	APW15	C	4/26/2023	pH (field)	SU	7.2
UA	APW15	C	8/1/2023	pH (field)	SU	6.9
UA	APW15	C	10/10/2023	pH (field)	SU	7.1
UA	APW15	C	2/23/2021	Oxidation Reduction Potential	mV	-98.5
UA	APW15	C	3/10/2021	Oxidation Reduction Potential	mV	-108
UA	APW15	C	3/31/2021	Oxidation Reduction Potential	mV	-61.8
UA	APW15	C	4/28/2021	Oxidation Reduction Potential	mV	-122
UA	APW15	C	5/24/2021	Oxidation Reduction Potential	mV	-128
UA	APW15	C	6/17/2021	Oxidation Reduction Potential	mV	-136
UA	APW15	C	6/30/2021	Oxidation Reduction Potential	mV	-133
UA	APW15	C	7/14/2021	Oxidation Reduction Potential	mV	-142
UA	APW15	C	4/26/2023	Oxidation Reduction Potential	mV	-126
UA	APW15	C	8/1/2023	Oxidation Reduction Potential	mV	-62.0
UA	APW15	C	10/10/2023	Oxidation Reduction Potential	mV	-104
UA	APW15	C	2/23/2021	Eh	V	0.098
UA	APW15	C	3/10/2021	Eh	V	0.088
UA	APW15	C	3/31/2021	Eh	V	0.13
UA	APW15	C	4/28/2021	Eh	V	0.073
UA	APW15	C	5/24/2021	Eh	V	0.065
UA	APW15	C	6/17/2021	Eh	V	0.056
UA	APW15	C	6/30/2021	Eh	V	0.060
UA	APW15	C	7/14/2021	Eh	V	0.050
UA	APW15	C	4/26/2023	Eh	V	0.069
UA	APW15	C	8/1/2023	Eh	V	0.13
UA	APW15	C	10/10/2023	Eh	V	0.092
UA	APW15	C	2/23/2021	Alkalinity, bicarbonate	mg/L CaCO3	710
UA	APW15	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	700
UA	APW15	C	3/31/2021	Alkalinity, bicarbonate	mg/L CaCO3	710
UA	APW15	C	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	720
UA	APW15	C	5/24/2021	Alkalinity, bicarbonate	mg/L CaCO3	1,400
UA	APW15	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	710
UA	APW15	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	700
UA	APW15	C	7/14/2021	Alkalinity, bicarbonate	mg/L CaCO3	710
UA	APW15	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	710
UA	APW15	C	4/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	590
UA	APW15	C	8/1/2023	Alkalinity, bicarbonate	mg/L CaCO3	742
UA	APW15	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	760
UA	APW15	C	2/23/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	3/31/2021	Alkalinity, carbonate	mg/L CaCO3	0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW15	C	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	5/24/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	7/14/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	4/26/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	8/1/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW15	C	2/23/2021	Barium, total	mg/L	0.560
UA	APW15	C	3/10/2021	Barium, total	mg/L	0.610
UA	APW15	C	3/31/2021	Barium, total	mg/L	0.630
UA	APW15	C	4/28/2021	Barium, total	mg/L	0.600
UA	APW15	C	5/24/2021	Barium, total	mg/L	0.570
UA	APW15	C	6/17/2021	Barium, total	mg/L	0.600
UA	APW15	C	6/30/2021	Barium, total	mg/L	0.600
UA	APW15	C	7/14/2021	Barium, total	mg/L	0.600
UA	APW15	C	3/14/2023	Barium, total	mg/L	0.560
UA	APW15	C	4/26/2023	Barium, total	mg/L	0.530
UA	APW15	C	8/1/2023	Barium, total	mg/L	0.640
UA	APW15	C	10/10/2023	Barium, total	mg/L	0.708
UA	APW15	C	2/23/2021	Calcium, total	mg/L	93.0
UA	APW15	C	3/10/2021	Calcium, total	mg/L	100
UA	APW15	C	3/31/2021	Calcium, total	mg/L	100
UA	APW15	C	4/28/2021	Calcium, total	mg/L	96.0
UA	APW15	C	5/24/2021	Calcium, total	mg/L	98.0
UA	APW15	C	6/17/2021	Calcium, total	mg/L	95.0
UA	APW15	C	6/30/2021	Calcium, total	mg/L	98.0
UA	APW15	C	7/14/2021	Calcium, total	mg/L	96.0
UA	APW15	C	3/14/2023	Calcium, total	mg/L	99.0
UA	APW15	C	4/26/2023	Calcium, total	mg/L	91.0
UA	APW15	C	8/1/2023	Calcium, total	mg/L	100
UA	APW15	C	10/10/2023	Calcium, total	mg/L	96.0
UA	APW15	C	2/23/2021	Chloride, total	mg/L	260
UA	APW15	C	3/10/2021	Chloride, total	mg/L	250
UA	APW15	C	3/31/2021	Chloride, total	mg/L	240
UA	APW15	C	4/28/2021	Chloride, total	mg/L	230
UA	APW15	C	5/24/2021	Chloride, total	mg/L	230
UA	APW15	C	6/17/2021	Chloride, total	mg/L	240
UA	APW15	C	6/30/2021	Chloride, total	mg/L	230
UA	APW15	C	7/14/2021	Chloride, total	mg/L	130
UA	APW15	C	3/14/2023	Chloride, total	mg/L	230
UA	APW15	C	4/26/2023	Chloride, total	mg/L	270
UA	APW15	C	8/1/2023	Chloride, total	mg/L	235
UA	APW15	C	10/10/2023	Chloride, total	mg/L	227
UA	APW15	C	4/26/2023	Ferrous Iron, dissolved	mg/L	6.00

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW15	C	8/1/2023	Ferrous Iron, dissolved	mg/L	<0.1
UA	APW15	C	4/26/2023	Iron, dissolved	mg/L	9.00
UA	APW15	C	8/1/2023	Iron, dissolved	mg/L	10.5
UA	APW15	C	2/23/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	3/31/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	4/28/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	5/24/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	6/17/2021	Lithium, total	mg/L	0.0220
UA	APW15	C	6/30/2021	Lithium, total	mg/L	0.0220
UA	APW15	C	7/14/2021	Lithium, total	mg/L	<0.0099
UA	APW15	C	3/14/2023	Lithium, total	mg/L	0.00660
UA	APW15	C	4/26/2023	Lithium, total	mg/L	0.00640
UA	APW15	C	8/1/2023	Lithium, total	mg/L	0.00610
UA	APW15	C	10/10/2023	Lithium, total	mg/L	0.00730
UA	APW15	C	2/23/2021	Magnesium, total	mg/L	39.0
UA	APW15	C	3/10/2021	Magnesium, total	mg/L	43.0
UA	APW15	C	3/31/2021	Magnesium, total	mg/L	42.0
UA	APW15	C	4/28/2021	Magnesium, total	mg/L	41.0
UA	APW15	C	5/24/2021	Magnesium, total	mg/L	41.0
UA	APW15	C	6/17/2021	Magnesium, total	mg/L	37.0
UA	APW15	C	6/30/2021	Magnesium, total	mg/L	42.0
UA	APW15	C	7/14/2021	Magnesium, total	mg/L	41.0
UA	APW15	C	3/14/2023	Magnesium, total	mg/L	46.0
UA	APW15	C	4/26/2023	Magnesium, total	mg/L	38.0
UA	APW15	C	8/1/2023	Magnesium, total	mg/L	39.9
UA	APW15	C	10/10/2023	Magnesium, total	mg/L	37.4
UA	APW15	C	4/26/2023	Manganese, dissolved	mg/L	0.0830
UA	APW15	C	8/1/2023	Manganese, dissolved	mg/L	0.0865
UA	APW15	C	8/1/2023	Phosphate, dissolved	mg/L	1.44
UA	APW15	C	2/23/2021	Potassium, total	mg/L	3.10
UA	APW15	C	3/10/2021	Potassium, total	mg/L	3.50
UA	APW15	C	3/31/2021	Potassium, total	mg/L	3.40
UA	APW15	C	4/28/2021	Potassium, total	mg/L	3.30
UA	APW15	C	5/24/2021	Potassium, total	mg/L	3.20
UA	APW15	C	6/17/2021	Potassium, total	mg/L	2.90
UA	APW15	C	6/30/2021	Potassium, total	mg/L	2.80
UA	APW15	C	7/14/2021	Potassium, total	mg/L	2.80
UA	APW15	C	3/14/2023	Potassium, total	mg/L	3.20
UA	APW15	C	4/26/2023	Potassium, total	mg/L	3.00
UA	APW15	C	8/1/2023	Potassium, total	mg/L	3.35
UA	APW15	C	10/10/2023	Potassium, total	mg/L	3.67
UA	APW15	C	4/26/2023	Silicon, dissolved	mg/L	7.80
UA	APW15	C	8/1/2023	Silicon, dissolved	mg/L	7.02
UA	APW15	C	2/23/2021	Sodium, total	mg/L	260
UA	APW15	C	3/10/2021	Sodium, total	mg/L	280

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW15	C	3/31/2021	Sodium, total	mg/L	270
UA	APW15	C	4/28/2021	Sodium, total	mg/L	280
UA	APW15	C	5/24/2021	Sodium, total	mg/L	300
UA	APW15	C	6/17/2021	Sodium, total	mg/L	260
UA	APW15	C	6/30/2021	Sodium, total	mg/L	280
UA	APW15	C	7/14/2021	Sodium, total	mg/L	290
UA	APW15	C	3/14/2023	Sodium, total	mg/L	320
UA	APW15	C	4/26/2023	Sodium, total	mg/L	290
UA	APW15	C	8/1/2023	Sodium, total	mg/L	298
UA	APW15	C	10/10/2023	Sodium, total	mg/L	301
UA	APW15	C	2/23/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	3/10/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	3/31/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	4/28/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	5/24/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	6/17/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	6/30/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	7/14/2021	Sulfate, total	mg/L	<0.18
UA	APW15	C	3/14/2023	Sulfate, total	mg/L	0.600
UA	APW15	C	4/26/2023	Sulfate, total	mg/L	0.400
UA	APW15	C	8/1/2023	Sulfate, total	mg/L	16.0
UA	APW15	C	10/10/2023	Sulfate, total	mg/L	12.0
UA	APW15	C	2/23/2021	Total Dissolved Solids	mg/L	1,100
UA	APW15	C	3/10/2021	Total Dissolved Solids	mg/L	1,100
UA	APW15	C	3/31/2021	Total Dissolved Solids	mg/L	1,100
UA	APW15	C	4/28/2021	Total Dissolved Solids	mg/L	1,200
UA	APW15	C	5/24/2021	Total Dissolved Solids	mg/L	1,000
UA	APW15	C	6/17/2021	Total Dissolved Solids	mg/L	1,000
UA	APW15	C	6/30/2021	Total Dissolved Solids	mg/L	1,000
UA	APW15	C	7/14/2021	Total Dissolved Solids	mg/L	1,200
UA	APW15	C	3/14/2023	Total Dissolved Solids	mg/L	1,100
UA	APW15	C	4/26/2023	Total Dissolved Solids	mg/L	1,100
UA	APW15	C	8/1/2023	Total Dissolved Solids	mg/L	1,120
UA	APW15	C	10/10/2023	Total Dissolved Solids	mg/L	1,140
UA	APW16	C	2/23/2021	pH (field)	SU	7.4
UA	APW16	C	3/10/2021	pH (field)	SU	7.5
UA	APW16	C	3/30/2021	pH (field)	SU	7.0
UA	APW16	C	4/28/2021	pH (field)	SU	7.4
UA	APW16	C	5/24/2021	pH (field)	SU	7.6
UA	APW16	C	6/16/2021	pH (field)	SU	7.4
UA	APW16	C	6/30/2021	pH (field)	SU	7.0
UA	APW16	C	7/15/2021	pH (field)	SU	7.4
UA	APW16	C	3/15/2023	pH (field)	SU	7.4
UA	APW16	C	4/25/2023	pH (field)	SU	7.7
UA	APW16	C	7/31/2023	pH (field)	SU	7.1
UA	APW16	C	10/10/2023	pH (field)	SU	7.4

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW16	C	2/23/2021	Oxidation Reduction Potential	mV	-71.4
UA	APW16	C	3/10/2021	Oxidation Reduction Potential	mV	-132
UA	APW16	C	3/30/2021	Oxidation Reduction Potential	mV	-99.5
UA	APW16	C	4/28/2021	Oxidation Reduction Potential	mV	-129
UA	APW16	C	5/24/2021	Oxidation Reduction Potential	mV	-132
UA	APW16	C	6/16/2021	Oxidation Reduction Potential	mV	-123
UA	APW16	C	6/30/2021	Oxidation Reduction Potential	mV	-119
UA	APW16	C	7/15/2021	Oxidation Reduction Potential	mV	-143
UA	APW16	C	4/25/2023	Oxidation Reduction Potential	mV	-104
UA	APW16	C	7/31/2023	Oxidation Reduction Potential	mV	108
UA	APW16	C	10/10/2023	Oxidation Reduction Potential	mV	-70.0
UA	APW16	C	2/23/2021	Eh	V	0.13
UA	APW16	C	3/10/2021	Eh	V	0.064
UA	APW16	C	3/30/2021	Eh	V	0.097
UA	APW16	C	4/28/2021	Eh	V	0.066
UA	APW16	C	5/24/2021	Eh	V	0.063
UA	APW16	C	6/16/2021	Eh	V	0.071
UA	APW16	C	6/30/2021	Eh	V	0.075
UA	APW16	C	7/15/2021	Eh	V	0.049
UA	APW16	C	4/25/2023	Eh	V	0.092
UA	APW16	C	7/31/2023	Eh	V	0.30
UA	APW16	C	10/10/2023	Eh	V	0.13
UA	APW16	C	2/23/2021	Alkalinity, bicarbonate	mg/L CaCO3	610
UA	APW16	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	590
UA	APW16	C	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	640
UA	APW16	C	4/28/2021	Alkalinity, bicarbonate	mg/L CaCO3	650
UA	APW16	C	5/24/2021	Alkalinity, bicarbonate	mg/L CaCO3	1,300
UA	APW16	C	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	650
UA	APW16	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	510
UA	APW16	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	650
UA	APW16	C	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	650
UA	APW16	C	4/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	560
UA	APW16	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	628
UA	APW16	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	656
UA	APW16	C	2/23/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	4/28/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	5/24/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	4/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW16	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0

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Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW16	C	2/23/2021	Barium, total	mg/L	0.620
UA	APW16	C	3/10/2021	Barium, total	mg/L	0.660
UA	APW16	C	3/30/2021	Barium, total	mg/L	0.660
UA	APW16	C	4/28/2021	Barium, total	mg/L	0.620
UA	APW16	C	5/24/2021	Barium, total	mg/L	0.610
UA	APW16	C	6/16/2021	Barium, total	mg/L	0.570
UA	APW16	C	6/30/2021	Barium, total	mg/L	0.550
UA	APW16	C	7/15/2021	Barium, total	mg/L	0.560
UA	APW16	C	3/15/2023	Barium, total	mg/L	0.520
UA	APW16	C	4/25/2023	Barium, total	mg/L	0.540
UA	APW16	C	7/31/2023	Barium, total	mg/L	0.658
UA	APW16	C	10/10/2023	Barium, total	mg/L	0.597
UA	APW16	C	2/23/2021	Calcium, total	mg/L	92.0
UA	APW16	C	3/10/2021	Calcium, total	mg/L	99.0
UA	APW16	C	3/30/2021	Calcium, total	mg/L	97.0
UA	APW16	C	4/28/2021	Calcium, total	mg/L	96.0
UA	APW16	C	5/24/2021	Calcium, total	mg/L	100
UA	APW16	C	6/16/2021	Calcium, total	mg/L	100
UA	APW16	C	6/30/2021	Calcium, total	mg/L	96.0
UA	APW16	C	7/15/2021	Calcium, total	mg/L	95.0
UA	APW16	C	3/15/2023	Calcium, total	mg/L	95.0
UA	APW16	C	4/25/2023	Calcium, total	mg/L	96.0
UA	APW16	C	7/31/2023	Calcium, total	mg/L	94.0
UA	APW16	C	10/10/2023	Calcium, total	mg/L	92.9
UA	APW16	C	2/23/2021	Chloride, total	mg/L	71.0
UA	APW16	C	3/10/2021	Chloride, total	mg/L	71.0
UA	APW16	C	3/30/2021	Chloride, total	mg/L	71.0
UA	APW16	C	4/28/2021	Chloride, total	mg/L	75.0
UA	APW16	C	5/24/2021	Chloride, total	mg/L	74.0
UA	APW16	C	6/16/2021	Chloride, total	mg/L	73.0
UA	APW16	C	6/30/2021	Chloride, total	mg/L	59.0
UA	APW16	C	7/15/2021	Chloride, total	mg/L	77.0
UA	APW16	C	3/15/2023	Chloride, total	mg/L	65.0
UA	APW16	C	4/25/2023	Chloride, total	mg/L	71.0
UA	APW16	C	7/31/2023	Chloride, total	mg/L	64.0
UA	APW16	C	10/10/2023	Chloride, total	mg/L	69.0
UA	APW16	C	4/25/2023	Ferrous Iron, dissolved	mg/L	2.30
UA	APW16	C	7/31/2023	Ferrous Iron, dissolved	mg/L	5.59
UA	APW16	C	4/25/2023	Iron, dissolved	mg/L	2.00
UA	APW16	C	7/31/2023	Iron, dissolved	mg/L	2.89
UA	APW16	C	2/23/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	3/30/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	4/28/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	5/24/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	6/16/2021	Lithium, total	mg/L	<0.0099

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW16	C	6/30/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	7/15/2021	Lithium, total	mg/L	<0.0099
UA	APW16	C	3/15/2023	Lithium, total	mg/L	<0.005
UA	APW16	C	4/25/2023	Lithium, total	mg/L	<0.005
UA	APW16	C	7/31/2023	Lithium, total	mg/L	0.00250
UA	APW16	C	10/10/2023	Lithium, total	mg/L	0.00290
UA	APW16	C	2/23/2021	Magnesium, total	mg/L	43.0
UA	APW16	C	3/10/2021	Magnesium, total	mg/L	46.0
UA	APW16	C	3/30/2021	Magnesium, total	mg/L	43.0
UA	APW16	C	4/28/2021	Magnesium, total	mg/L	45.0
UA	APW16	C	5/24/2021	Magnesium, total	mg/L	46.0
UA	APW16	C	6/16/2021	Magnesium, total	mg/L	44.0
UA	APW16	C	6/30/2021	Magnesium, total	mg/L	44.0
UA	APW16	C	7/15/2021	Magnesium, total	mg/L	45.0
UA	APW16	C	3/15/2023	Magnesium, total	mg/L	48.0
UA	APW16	C	4/25/2023	Magnesium, total	mg/L	44.0
UA	APW16	C	7/31/2023	Magnesium, total	mg/L	42.7
UA	APW16	C	10/10/2023	Magnesium, total	mg/L	39.6
UA	APW16	C	4/25/2023	Manganese, dissolved	mg/L	0.0190
UA	APW16	C	7/31/2023	Manganese, dissolved	mg/L	0.0270
UA	APW16	C	7/31/2023	Phosphate, dissolved	mg/L	1.47
UA	APW16	C	2/23/2021	Potassium, total	mg/L	2.20
UA	APW16	C	3/10/2021	Potassium, total	mg/L	2.50
UA	APW16	C	3/30/2021	Potassium, total	mg/L	2.40
UA	APW16	C	4/28/2021	Potassium, total	mg/L	1.90
UA	APW16	C	5/24/2021	Potassium, total	mg/L	2.00
UA	APW16	C	6/16/2021	Potassium, total	mg/L	1.90
UA	APW16	C	6/30/2021	Potassium, total	mg/L	2.00
UA	APW16	C	7/15/2021	Potassium, total	mg/L	1.80
UA	APW16	C	3/15/2023	Potassium, total	mg/L	1.90
UA	APW16	C	4/25/2023	Potassium, total	mg/L	1.80
UA	APW16	C	7/31/2023	Potassium, total	mg/L	1.96
UA	APW16	C	10/10/2023	Potassium, total	mg/L	2.00
UA	APW16	C	4/25/2023	Silicon, dissolved	mg/L	6.70
UA	APW16	C	7/31/2023	Silicon, dissolved	mg/L	5.21
UA	APW16	C	2/23/2021	Sodium, total	mg/L	130
UA	APW16	C	3/10/2021	Sodium, total	mg/L	150
UA	APW16	C	3/30/2021	Sodium, total	mg/L	150
UA	APW16	C	4/28/2021	Sodium, total	mg/L	140
UA	APW16	C	5/24/2021	Sodium, total	mg/L	150
UA	APW16	C	6/16/2021	Sodium, total	mg/L	140
UA	APW16	C	6/30/2021	Sodium, total	mg/L	140
UA	APW16	C	7/15/2021	Sodium, total	mg/L	150
UA	APW16	C	3/15/2023	Sodium, total	mg/L	160
UA	APW16	C	4/25/2023	Sodium, total	mg/L	140
UA	APW16	C	7/31/2023	Sodium, total	mg/L	135

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Newton Power Plant
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW16	C	10/10/2023	Sodium, total	mg/L	138
UA	APW16	C	2/23/2021	Sulfate, total	mg/L	1.90
UA	APW16	C	3/10/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	3/30/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	4/28/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	5/24/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	6/16/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	6/30/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	7/15/2021	Sulfate, total	mg/L	<0.18
UA	APW16	C	3/15/2023	Sulfate, total	mg/L	0.930
UA	APW16	C	4/25/2023	Sulfate, total	mg/L	0.650
UA	APW16	C	7/31/2023	Sulfate, total	mg/L	14.0
UA	APW16	C	10/10/2023	Sulfate, total	mg/L	8.00
UA	APW16	C	2/23/2021	Total Dissolved Solids	mg/L	780
UA	APW16	C	3/10/2021	Total Dissolved Solids	mg/L	750
UA	APW16	C	3/30/2021	Total Dissolved Solids	mg/L	740
UA	APW16	C	4/28/2021	Total Dissolved Solids	mg/L	750
UA	APW16	C	5/24/2021	Total Dissolved Solids	mg/L	810
UA	APW16	C	6/16/2021	Total Dissolved Solids	mg/L	720
UA	APW16	C	6/30/2021	Total Dissolved Solids	mg/L	610
UA	APW16	C	7/15/2021	Total Dissolved Solids	mg/L	690
UA	APW16	C	3/15/2023	Total Dissolved Solids	mg/L	1,300
UA	APW16	C	4/25/2023	Total Dissolved Solids	mg/L	800
UA	APW16	C	7/31/2023	Total Dissolved Solids	mg/L	665
UA	APW16	C	10/10/2023	Total Dissolved Solids	mg/L	768
UA	APW17	C	2/23/2021	pH (field)	SU	7.4
UA	APW17	C	3/10/2021	pH (field)	SU	7.7
UA	APW17	C	3/30/2021	pH (field)	SU	7.1
UA	APW17	C	4/29/2021	pH (field)	SU	7.4
UA	APW17	C	5/24/2021	pH (field)	SU	7.4
UA	APW17	C	6/16/2021	pH (field)	SU	7.4
UA	APW17	C	6/30/2021	pH (field)	SU	7.4
UA	APW17	C	7/15/2021	pH (field)	SU	7.4
UA	APW17	C	3/15/2023	pH (field)	SU	7.5
UA	APW17	C	4/25/2023	pH (field)	SU	7.6
UA	APW17	C	7/25/2023	pH (field)	SU	6.9
UA	APW17	C	10/10/2023	pH (field)	SU	7.5
UA	APW17	C	2/23/2021	Oxidation Reduction Potential	mV	-22.5
UA	APW17	C	3/10/2021	Oxidation Reduction Potential	mV	-132
UA	APW17	C	3/30/2021	Oxidation Reduction Potential	mV	-87.2
UA	APW17	C	4/29/2021	Oxidation Reduction Potential	mV	-126
UA	APW17	C	5/24/2021	Oxidation Reduction Potential	mV	197
UA	APW17	C	6/16/2021	Oxidation Reduction Potential	mV	-130
UA	APW17	C	6/30/2021	Oxidation Reduction Potential	mV	-138
UA	APW17	C	7/15/2021	Oxidation Reduction Potential	mV	-110
UA	APW17	C	4/25/2023	Oxidation Reduction Potential	mV	-97.2

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW17	C	7/25/2023	Oxidation Reduction Potential	mV	50.0
UA	APW17	C	10/10/2023	Oxidation Reduction Potential	mV	-73.0
UA	APW17	C	2/23/2021	Eh	V	0.17
UA	APW17	C	3/10/2021	Eh	V	0.064
UA	APW17	C	3/30/2021	Eh	V	0.11
UA	APW17	C	4/29/2021	Eh	V	0.069
UA	APW17	C	5/24/2021	Eh	V	0.39
UA	APW17	C	6/16/2021	Eh	V	0.061
UA	APW17	C	6/30/2021	Eh	V	0.054
UA	APW17	C	7/15/2021	Eh	V	0.083
UA	APW17	C	4/25/2023	Eh	V	0.098
UA	APW17	C	7/25/2023	Eh	V	0.24
UA	APW17	C	10/10/2023	Eh	V	0.12
UA	APW17	C	2/23/2021	Alkalinity, bicarbonate	mg/L CaCO3	540
UA	APW17	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	610
UA	APW17	C	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	520
UA	APW17	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	540
UA	APW17	C	5/24/2021	Alkalinity, bicarbonate	mg/L CaCO3	1,000
UA	APW17	C	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	540
UA	APW17	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW17	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	520
UA	APW17	C	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	550
UA	APW17	C	4/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW17	C	7/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	534
UA	APW17	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	560
UA	APW17	C	2/23/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	5/24/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	4/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	7/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW17	C	2/23/2021	Barium, total	mg/L	0.540
UA	APW17	C	3/10/2021	Barium, total	mg/L	0.570
UA	APW17	C	3/30/2021	Barium, total	mg/L	0.630
UA	APW17	C	4/29/2021	Barium, total	mg/L	0.600
UA	APW17	C	5/24/2021	Barium, total	mg/L	0.590
UA	APW17	C	6/16/2021	Barium, total	mg/L	0.620
UA	APW17	C	6/30/2021	Barium, total	mg/L	0.610
UA	APW17	C	7/15/2021	Barium, total	mg/L	0.610
UA	APW17	C	3/15/2023	Barium, total	mg/L	0.600

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW17	C	4/25/2023	Barium, total	mg/L	0.550
UA	APW17	C	7/25/2023	Barium, total	mg/L	0.609
UA	APW17	C	10/10/2023	Barium, total	mg/L	0.741
UA	APW17	C	2/23/2021	Calcium, total	mg/L	100
UA	APW17	C	3/10/2021	Calcium, total	mg/L	110
UA	APW17	C	3/30/2021	Calcium, total	mg/L	110
UA	APW17	C	4/29/2021	Calcium, total	mg/L	120
UA	APW17	C	5/24/2021	Calcium, total	mg/L	110
UA	APW17	C	6/16/2021	Calcium, total	mg/L	120
UA	APW17	C	6/30/2021	Calcium, total	mg/L	110
UA	APW17	C	7/15/2021	Calcium, total	mg/L	110
UA	APW17	C	3/15/2023	Calcium, total	mg/L	110
UA	APW17	C	4/25/2023	Calcium, total	mg/L	110
UA	APW17	C	7/25/2023	Calcium, total	mg/L	106
UA	APW17	C	10/10/2023	Calcium, total	mg/L	107
UA	APW17	C	2/23/2021	Chloride, total	mg/L	64.0
UA	APW17	C	3/10/2021	Chloride, total	mg/L	60.0
UA	APW17	C	3/30/2021	Chloride, total	mg/L	57.0
UA	APW17	C	4/29/2021	Chloride, total	mg/L	55.0
UA	APW17	C	5/24/2021	Chloride, total	mg/L	88.0
UA	APW17	C	6/16/2021	Chloride, total	mg/L	54.0
UA	APW17	C	6/30/2021	Chloride, total	mg/L	49.0
UA	APW17	C	7/15/2021	Chloride, total	mg/L	31.0
UA	APW17	C	3/15/2023	Chloride, total	mg/L	51.0
UA	APW17	C	4/25/2023	Chloride, total	mg/L	56.0
UA	APW17	C	7/25/2023	Chloride, total	mg/L	53.0
UA	APW17	C	10/10/2023	Chloride, total	mg/L	59.0
UA	APW17	C	4/25/2023	Ferrous Iron, dissolved	mg/L	1.90
UA	APW17	C	7/25/2023	Ferrous Iron, dissolved	mg/L	3.20
UA	APW17	C	4/25/2023	Iron, dissolved	mg/L	1.90
UA	APW17	C	7/25/2023	Iron, dissolved	mg/L	2.18
UA	APW17	C	2/23/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	3/30/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	4/29/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	5/24/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	6/16/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	6/30/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	7/15/2021	Lithium, total	mg/L	<0.0099
UA	APW17	C	3/15/2023	Lithium, total	mg/L	<0.005
UA	APW17	C	4/25/2023	Lithium, total	mg/L	<0.005
UA	APW17	C	7/25/2023	Lithium, total	mg/L	0.00250
UA	APW17	C	10/10/2023	Lithium, total	mg/L	0.00240
UA	APW17	C	2/23/2021	Magnesium, total	mg/L	48.0
UA	APW17	C	3/10/2021	Magnesium, total	mg/L	49.0
UA	APW17	C	3/30/2021	Magnesium, total	mg/L	42.0

Attachment 8. Aqueous Data
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW17	C	4/29/2021	Magnesium, total	mg/L	50.0
UA	APW17	C	5/24/2021	Magnesium, total	mg/L	47.0
UA	APW17	C	6/16/2021	Magnesium, total	mg/L	50.0
UA	APW17	C	6/30/2021	Magnesium, total	mg/L	48.0
UA	APW17	C	7/15/2021	Magnesium, total	mg/L	48.0
UA	APW17	C	3/15/2023	Magnesium, total	mg/L	53.0
UA	APW17	C	4/25/2023	Magnesium, total	mg/L	47.0
UA	APW17	C	7/25/2023	Magnesium, total	mg/L	44.7
UA	APW17	C	10/10/2023	Magnesium, total	mg/L	42.3
UA	APW17	C	4/25/2023	Manganese, dissolved	mg/L	0.0250
UA	APW17	C	7/25/2023	Manganese, dissolved	mg/L	0.0191
UA	APW17	C	7/25/2023	Phosphate, dissolved	mg/L	1.60
UA	APW17	C	2/23/2021	Potassium, total	mg/L	2.20
UA	APW17	C	3/10/2021	Potassium, total	mg/L	2.20
UA	APW17	C	3/30/2021	Potassium, total	mg/L	1.90
UA	APW17	C	4/29/2021	Potassium, total	mg/L	1.90
UA	APW17	C	5/24/2021	Potassium, total	mg/L	1.80
UA	APW17	C	6/16/2021	Potassium, total	mg/L	1.80
UA	APW17	C	6/30/2021	Potassium, total	mg/L	1.70
UA	APW17	C	7/15/2021	Potassium, total	mg/L	1.80
UA	APW17	C	3/15/2023	Potassium, total	mg/L	1.80
UA	APW17	C	4/25/2023	Potassium, total	mg/L	1.60
UA	APW17	C	7/25/2023	Potassium, total	mg/L	1.83
UA	APW17	C	10/10/2023	Potassium, total	mg/L	1.90
UA	APW17	C	4/25/2023	Silicon, dissolved	mg/L	7.70
UA	APW17	C	7/25/2023	Silicon, dissolved	mg/L	6.71
UA	APW17	C	2/23/2021	Sodium, total	mg/L	89.0
UA	APW17	C	3/10/2021	Sodium, total	mg/L	91.0
UA	APW17	C	3/30/2021	Sodium, total	mg/L	82.0
UA	APW17	C	4/29/2021	Sodium, total	mg/L	97.0
UA	APW17	C	5/24/2021	Sodium, total	mg/L	91.0
UA	APW17	C	6/16/2021	Sodium, total	mg/L	95.0
UA	APW17	C	6/30/2021	Sodium, total	mg/L	94.0
UA	APW17	C	7/15/2021	Sodium, total	mg/L	96.0
UA	APW17	C	3/15/2023	Sodium, total	mg/L	100
UA	APW17	C	4/25/2023	Sodium, total	mg/L	93.0
UA	APW17	C	7/25/2023	Sodium, total	mg/L	90.1
UA	APW17	C	10/10/2023	Sodium, total	mg/L	89.1
UA	APW17	C	2/23/2021	Sulfate, total	mg/L	34.0
UA	APW17	C	3/10/2021	Sulfate, total	mg/L	30.0
UA	APW17	C	3/30/2021	Sulfate, total	mg/L	31.0
UA	APW17	C	4/29/2021	Sulfate, total	mg/L	36.0
UA	APW17	C	5/24/2021	Sulfate, total	mg/L	40.0
UA	APW17	C	6/16/2021	Sulfate, total	mg/L	40.0
UA	APW17	C	6/30/2021	Sulfate, total	mg/L	41.0
UA	APW17	C	7/15/2021	Sulfate, total	mg/L	<4.6

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW17	C	3/15/2023	Sulfate, total	mg/L	49.0
UA	APW17	C	4/25/2023	Sulfate, total	mg/L	52.0
UA	APW17	C	7/25/2023	Sulfate, total	mg/L	56.0
UA	APW17	C	10/10/2023	Sulfate, total	mg/L	64.0
UA	APW17	C	2/23/2021	Total Dissolved Solids	mg/L	680
UA	APW17	C	3/10/2021	Total Dissolved Solids	mg/L	650
UA	APW17	C	3/30/2021	Total Dissolved Solids	mg/L	620
UA	APW17	C	4/29/2021	Total Dissolved Solids	mg/L	630
UA	APW17	C	5/24/2021	Total Dissolved Solids	mg/L	670
UA	APW17	C	6/16/2021	Total Dissolved Solids	mg/L	640
UA	APW17	C	6/30/2021	Total Dissolved Solids	mg/L	630
UA	APW17	C	7/15/2021	Total Dissolved Solids	mg/L	650
UA	APW17	C	3/15/2023	Total Dissolved Solids	mg/L	660
UA	APW17	C	4/25/2023	Total Dissolved Solids	mg/L	700
UA	APW17	C	7/25/2023	Total Dissolved Solids	mg/L	670
UA	APW17	C	10/10/2023	Total Dissolved Solids	mg/L	692
UA	APW18	C	2/23/2021	pH (field)	SU	7.9
UA	APW18	C	3/10/2021	pH (field)	SU	7.8
UA	APW18	C	3/30/2021	pH (field)	SU	7.3
UA	APW18	C	4/29/2021	pH (field)	SU	7.6
UA	APW18	C	5/24/2021	pH (field)	SU	7.6
UA	APW18	C	6/16/2021	pH (field)	SU	7.6
UA	APW18	C	6/30/2021	pH (field)	SU	7.6
UA	APW18	C	7/15/2021	pH (field)	SU	7.6
UA	APW18	C	3/15/2023	pH (field)	SU	7.8
UA	APW18	C	4/25/2023	pH (field)	SU	7.8
UA	APW18	C	7/25/2023	pH (field)	SU	7.2
UA	APW18	C	10/10/2023	pH (field)	SU	8.1
UA	APW18	C	2/23/2021	Oxidation Reduction Potential	mV	-141
UA	APW18	C	3/10/2021	Oxidation Reduction Potential	mV	-150
UA	APW18	C	3/30/2021	Oxidation Reduction Potential	mV	-110
UA	APW18	C	4/29/2021	Oxidation Reduction Potential	mV	-154
UA	APW18	C	5/24/2021	Oxidation Reduction Potential	mV	120
UA	APW18	C	6/16/2021	Oxidation Reduction Potential	mV	-171
UA	APW18	C	6/30/2021	Oxidation Reduction Potential	mV	-182
UA	APW18	C	7/15/2021	Oxidation Reduction Potential	mV	-154
UA	APW18	C	4/25/2023	Oxidation Reduction Potential	mV	-137
UA	APW18	C	7/25/2023	Oxidation Reduction Potential	mV	48.0
UA	APW18	C	10/10/2023	Oxidation Reduction Potential	mV	-100
UA	APW18	C	2/23/2021	Eh	V	0.055
UA	APW18	C	3/10/2021	Eh	V	0.046
UA	APW18	C	3/30/2021	Eh	V	0.086
UA	APW18	C	4/29/2021	Eh	V	0.041
UA	APW18	C	5/24/2021	Eh	V	0.31
UA	APW18	C	6/16/2021	Eh	V	0.019
UA	APW18	C	6/30/2021	Eh	V	0.0089

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW18	C	7/15/2021	Eh	V	0.038
UA	APW18	C	4/25/2023	Eh	V	0.058
UA	APW18	C	7/25/2023	Eh	V	0.24
UA	APW18	C	10/10/2023	Eh	V	0.097
UA	APW18	C	2/23/2021	Alkalinity, bicarbonate	mg/L CaCO3	380
UA	APW18	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UA	APW18	C	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW18	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW18	C	5/24/2021	Alkalinity, bicarbonate	mg/L CaCO3	950
UA	APW18	C	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW18	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UA	APW18	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW18	C	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	500
UA	APW18	C	4/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	440
UA	APW18	C	7/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	517
UA	APW18	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	530
UA	APW18	C	2/23/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	5/24/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	4/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	7/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UA	APW18	C	2/23/2021	Barium, total	mg/L	0.180
UA	APW18	C	3/10/2021	Barium, total	mg/L	0.360
UA	APW18	C	3/30/2021	Barium, total	mg/L	0.340
UA	APW18	C	4/29/2021	Barium, total	mg/L	0.340
UA	APW18	C	5/24/2021	Barium, total	mg/L	0.350
UA	APW18	C	6/16/2021	Barium, total	mg/L	0.360
UA	APW18	C	6/30/2021	Barium, total	mg/L	0.360
UA	APW18	C	7/15/2021	Barium, total	mg/L	0.330
UA	APW18	C	3/15/2023	Barium, total	mg/L	0.360
UA	APW18	C	4/25/2023	Barium, total	mg/L	0.350
UA	APW18	C	7/25/2023	Barium, total	mg/L	0.368
UA	APW18	C	10/10/2023	Barium, total	mg/L	0.443
UA	APW18	C	2/23/2021	Calcium, total	mg/L	49.0
UA	APW18	C	3/10/2021	Calcium, total	mg/L	62.0
UA	APW18	C	3/30/2021	Calcium, total	mg/L	60.0
UA	APW18	C	4/29/2021	Calcium, total	mg/L	60.0
UA	APW18	C	5/24/2021	Calcium, total	mg/L	59.0
UA	APW18	C	6/16/2021	Calcium, total	mg/L	64.0

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW18	C	6/30/2021	Calcium, total	mg/L	60.0
UA	APW18	C	7/15/2021	Calcium, total	mg/L	64.0
UA	APW18	C	3/15/2023	Calcium, total	mg/L	75.0
UA	APW18	C	4/25/2023	Calcium, total	mg/L	75.0
UA	APW18	C	7/25/2023	Calcium, total	mg/L	73.2
UA	APW18	C	10/10/2023	Calcium, total	mg/L	75.5
UA	APW18	C	2/23/2021	Chloride, total	mg/L	79.0
UA	APW18	C	3/10/2021	Chloride, total	mg/L	42.0
UA	APW18	C	3/30/2021	Chloride, total	mg/L	35.0
UA	APW18	C	4/29/2021	Chloride, total	mg/L	40.0
UA	APW18	C	5/24/2021	Chloride, total	mg/L	35.0
UA	APW18	C	6/16/2021	Chloride, total	mg/L	29.0
UA	APW18	C	6/30/2021	Chloride, total	mg/L	28.0
UA	APW18	C	7/15/2021	Chloride, total	mg/L	31.0
UA	APW18	C	3/15/2023	Chloride, total	mg/L	23.0
UA	APW18	C	4/25/2023	Chloride, total	mg/L	24.0
UA	APW18	C	7/25/2023	Chloride, total	mg/L	26.0
UA	APW18	C	10/10/2023	Chloride, total	mg/L	23.0
UA	APW18	C	4/25/2023	Ferrous Iron, dissolved	mg/L	1.30
UA	APW18	C	7/25/2023	Ferrous Iron, dissolved	mg/L	1.42
UA	APW18	C	4/25/2023	Iron, dissolved	mg/L	1.40
UA	APW18	C	7/25/2023	Iron, dissolved	mg/L	1.40
UA	APW18	C	2/23/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	3/10/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	3/30/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	4/29/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	5/24/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	6/16/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	6/30/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	7/15/2021	Lithium, total	mg/L	<0.0099
UA	APW18	C	3/15/2023	Lithium, total	mg/L	<0.005
UA	APW18	C	4/25/2023	Lithium, total	mg/L	0.00520
UA	APW18	C	7/25/2023	Lithium, total	mg/L	0.00520
UA	APW18	C	10/10/2023	Lithium, total	mg/L	0.00520
UA	APW18	C	2/23/2021	Magnesium, total	mg/L	25.0
UA	APW18	C	3/10/2021	Magnesium, total	mg/L	33.0
UA	APW18	C	3/30/2021	Magnesium, total	mg/L	32.0
UA	APW18	C	4/29/2021	Magnesium, total	mg/L	35.0
UA	APW18	C	5/24/2021	Magnesium, total	mg/L	35.0
UA	APW18	C	6/16/2021	Magnesium, total	mg/L	37.0
UA	APW18	C	6/30/2021	Magnesium, total	mg/L	38.0
UA	APW18	C	7/15/2021	Magnesium, total	mg/L	39.0
UA	APW18	C	3/15/2023	Magnesium, total	mg/L	44.0
UA	APW18	C	4/25/2023	Magnesium, total	mg/L	40.0
UA	APW18	C	7/25/2023	Magnesium, total	mg/L	36.8
UA	APW18	C	10/10/2023	Magnesium, total	mg/L	37.6

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW18	C	4/25/2023	Manganese, dissolved	mg/L	0.0480
UA	APW18	C	7/25/2023	Manganese, dissolved	mg/L	0.0453
UA	APW18	C	7/25/2023	Phosphate, dissolved	mg/L	0.860
UA	APW18	C	2/23/2021	Potassium, total	mg/L	14.0
UA	APW18	C	3/10/2021	Potassium, total	mg/L	11.0
UA	APW18	C	3/30/2021	Potassium, total	mg/L	10.0
UA	APW18	C	4/29/2021	Potassium, total	mg/L	11.0
UA	APW18	C	5/24/2021	Potassium, total	mg/L	10.0
UA	APW18	C	6/16/2021	Potassium, total	mg/L	8.80
UA	APW18	C	6/30/2021	Potassium, total	mg/L	7.60
UA	APW18	C	7/15/2021	Potassium, total	mg/L	8.10
UA	APW18	C	3/15/2023	Potassium, total	mg/L	3.20
UA	APW18	C	4/25/2023	Potassium, total	mg/L	2.60
UA	APW18	C	7/25/2023	Potassium, total	mg/L	2.76
UA	APW18	C	10/10/2023	Potassium, total	mg/L	2.34
UA	APW18	C	4/25/2023	Silicon, dissolved	mg/L	6.70
UA	APW18	C	7/25/2023	Silicon, dissolved	mg/L	6.08
UA	APW18	C	2/23/2021	Sodium, total	mg/L	130
UA	APW18	C	3/10/2021	Sodium, total	mg/L	120
UA	APW18	C	3/30/2021	Sodium, total	mg/L	120
UA	APW18	C	4/29/2021	Sodium, total	mg/L	140
UA	APW18	C	5/24/2021	Sodium, total	mg/L	120
UA	APW18	C	6/16/2021	Sodium, total	mg/L	120
UA	APW18	C	6/30/2021	Sodium, total	mg/L	120
UA	APW18	C	7/15/2021	Sodium, total	mg/L	120
UA	APW18	C	3/15/2023	Sodium, total	mg/L	120
UA	APW18	C	4/25/2023	Sodium, total	mg/L	110
UA	APW18	C	7/25/2023	Sodium, total	mg/L	107
UA	APW18	C	10/10/2023	Sodium, total	mg/L	104
UA	APW18	C	2/23/2021	Sulfate, total	mg/L	26.0
UA	APW18	C	3/10/2021	Sulfate, total	mg/L	12.0
UA	APW18	C	3/30/2021	Sulfate, total	mg/L	9.40
UA	APW18	C	4/29/2021	Sulfate, total	mg/L	<0.18
UA	APW18	C	5/24/2021	Sulfate, total	mg/L	<0.18
UA	APW18	C	6/16/2021	Sulfate, total	mg/L	4.80
UA	APW18	C	6/30/2021	Sulfate, total	mg/L	2.20
UA	APW18	C	7/15/2021	Sulfate, total	mg/L	1.90
UA	APW18	C	3/15/2023	Sulfate, total	mg/L	51.0
UA	APW18	C	4/25/2023	Sulfate, total	mg/L	52.0
UA	APW18	C	7/25/2023	Sulfate, total	mg/L	49.0
UA	APW18	C	10/10/2023	Sulfate, total	mg/L	49.0
UA	APW18	C	2/23/2021	Total Dissolved Solids	mg/L	560
UA	APW18	C	3/10/2021	Total Dissolved Solids	mg/L	610
UA	APW18	C	3/30/2021	Total Dissolved Solids	mg/L	580
UA	APW18	C	4/29/2021	Total Dissolved Solids	mg/L	490
UA	APW18	C	5/24/2021	Total Dissolved Solids	mg/L	650

Attachment 8. Aqueous Data
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UA	APW18	C	6/16/2021	Total Dissolved Solids	mg/L	550
UA	APW18	C	6/30/2021	Total Dissolved Solids	mg/L	450
UA	APW18	C	7/15/2021	Total Dissolved Solids	mg/L	520
UA	APW18	C	3/15/2023	Total Dissolved Solids	mg/L	630
UA	APW18	C	4/25/2023	Total Dissolved Solids	mg/L	660
UA	APW18	C	7/25/2023	Total Dissolved Solids	mg/L	535
UA	APW18	C	10/10/2023	Total Dissolved Solids	mg/L	614
UD	APW02	C	11/30/2010	pH (field)	SU	5.4
UD	APW02	C	2/8/2011	pH (field)	SU	6.9
UD	APW02	C	5/4/2011	pH (field)	SU	6.8
UD	APW02	C	7/12/2011	pH (field)	SU	6.8
UD	APW02	C	10/11/2011	pH (field)	SU	6.9
UD	APW02	C	1/31/2012	pH (field)	SU	6.9
UD	APW02	C	4/10/2012	pH (field)	SU	6.8
UD	APW02	C	7/17/2012	pH (field)	SU	6.9
UD	APW02	C	3/14/2014	pH (field)	SU	6.9
UD	APW02	C	4/9/2014	pH (field)	SU	6.9
UD	APW02	C	8/14/2014	pH (field)	SU	6.9
UD	APW02	C	10/17/2014	pH (field)	SU	7.1
UD	APW02	C	1/13/2015	pH (field)	SU	6.9
UD	APW02	C	4/21/2015	pH (field)	SU	6.9
UD	APW02	C	7/15/2015	pH (field)	SU	7.0
UD	APW02	C	10/7/2015	pH (field)	SU	6.7
UD	APW02	C	10/27/2020	pH (field)	SU	7.0
UD	APW02	C	2/10/2021	pH (field)	SU	6.7
UD	APW02	C	2/17/2021	pH (field)	SU	6.6
UD	APW02	C	3/10/2021	pH (field)	SU	7.0
UD	APW02	C	3/30/2021	pH (field)	SU	6.6
UD	APW02	C	4/29/2021	pH (field)	SU	6.7
UD	APW02	C	5/25/2021	pH (field)	SU	6.7
UD	APW02	C	6/16/2021	pH (field)	SU	6.6
UD	APW02	C	6/30/2021	pH (field)	SU	6.6
UD	APW02	C	7/15/2021	pH (field)	SU	6.6
UD	APW02	C	11/9/2021	pH (field)	SU	6.7
UD	APW02	C	2/22/2022	pH (field)	SU	6.8
UD	APW02	C	5/24/2022	pH (field)	SU	7.0
UD	APW02	C	8/17/2022	pH (field)	SU	6.8
UD	APW02	C	11/1/2022	pH (field)	SU	6.9
UD	APW02	C	2/1/2023	pH (field)	SU	7.0
UD	APW02	C	3/15/2023	pH (field)	SU	6.8
UD	APW02	C	4/27/2023	pH (field)	SU	6.7
UD	APW02	C	8/17/2023	pH (field)	SU	6.7
UD	APW02	C	10/10/2023	pH (field)	SU	6.7
UD	APW02	C	2/17/2021	Oxidation Reduction Potential	mV	90.3
UD	APW02	C	3/10/2021	Oxidation Reduction Potential	mV	62.6
UD	APW02	C	3/30/2021	Oxidation Reduction Potential	mV	82.0

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	4/29/2021	Oxidation Reduction Potential	mV	164
UD	APW02	C	5/25/2021	Oxidation Reduction Potential	mV	116
UD	APW02	C	6/16/2021	Oxidation Reduction Potential	mV	52.9
UD	APW02	C	6/30/2021	Oxidation Reduction Potential	mV	82.3
UD	APW02	C	7/15/2021	Oxidation Reduction Potential	mV	57.6
UD	APW02	C	2/22/2022	Oxidation Reduction Potential	mV	27.6
UD	APW02	C	5/24/2022	Oxidation Reduction Potential	mV	-5.10
UD	APW02	C	8/17/2022	Oxidation Reduction Potential	mV	63.7
UD	APW02	C	11/1/2022	Oxidation Reduction Potential	mV	-5.00
UD	APW02	C	2/1/2023	Oxidation Reduction Potential	mV	86.0
UD	APW02	C	4/27/2023	Oxidation Reduction Potential	mV	80.8
UD	APW02	C	8/17/2023	Oxidation Reduction Potential	mV	93.0
UD	APW02	C	10/10/2023	Oxidation Reduction Potential	mV	11.0
UD	APW02	C	2/17/2021	Eh	V	0.29
UD	APW02	C	3/10/2021	Eh	V	0.26
UD	APW02	C	3/30/2021	Eh	V	0.28
UD	APW02	C	4/29/2021	Eh	V	0.36
UD	APW02	C	5/25/2021	Eh	V	0.30
UD	APW02	C	6/16/2021	Eh	V	0.24
UD	APW02	C	6/30/2021	Eh	V	0.27
UD	APW02	C	7/15/2021	Eh	V	0.24
UD	APW02	C	2/22/2022	Eh	V	0.22
UD	APW02	C	5/24/2022	Eh	V	0.19
UD	APW02	C	8/17/2022	Eh	V	0.26
UD	APW02	C	11/1/2022	Eh	V	0.19
UD	APW02	C	2/1/2023	Eh	V	0.28
UD	APW02	C	4/27/2023	Eh	V	0.28
UD	APW02	C	8/17/2023	Eh	V	0.29
UD	APW02	C	10/10/2023	Eh	V	0.20
UD	APW02	C	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UD	APW02	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	610
UD	APW02	C	3/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	620
UD	APW02	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	610
UD	APW02	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	1,300
UD	APW02	C	6/16/2021	Alkalinity, bicarbonate	mg/L CaCO3	650
UD	APW02	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	640
UD	APW02	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	640
UD	APW02	C	3/15/2023	Alkalinity, bicarbonate	mg/L CaCO3	640
UD	APW02	C	4/27/2023	Alkalinity, bicarbonate	mg/L CaCO3	640
UD	APW02	C	8/17/2023	Alkalinity, bicarbonate	mg/L CaCO3	614
UD	APW02	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	648
UD	APW02	C	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	3/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0

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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	6/16/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	3/15/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	4/27/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	8/17/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW02	C	2/17/2021	Barium, total	mg/L	0.00840
UD	APW02	C	3/10/2021	Barium, total	mg/L	0.00910
UD	APW02	C	3/30/2021	Barium, total	mg/L	0.00750
UD	APW02	C	4/29/2021	Barium, total	mg/L	0.0130
UD	APW02	C	5/25/2021	Barium, total	mg/L	0.0150
UD	APW02	C	6/16/2021	Barium, total	mg/L	0.0220
UD	APW02	C	6/30/2021	Barium, total	mg/L	0.0360
UD	APW02	C	7/15/2021	Barium, total	mg/L	0.0250
UD	APW02	C	3/15/2023	Barium, total	mg/L	0.0200
UD	APW02	C	4/27/2023	Barium, total	mg/L	0.0240
UD	APW02	C	8/17/2023	Barium, total	mg/L	0.00760
UD	APW02	C	10/10/2023	Barium, total	mg/L	0.0136
UD	APW02	C	2/17/2021	Calcium, total	mg/L	430
UD	APW02	C	3/10/2021	Calcium, total	mg/L	530
UD	APW02	C	3/30/2021	Calcium, total	mg/L	490
UD	APW02	C	4/29/2021	Calcium, total	mg/L	490
UD	APW02	C	5/25/2021	Calcium, total	mg/L	520
UD	APW02	C	6/16/2021	Calcium, total	mg/L	540
UD	APW02	C	6/30/2021	Calcium, total	mg/L	510
UD	APW02	C	7/15/2021	Calcium, total	mg/L	480
UD	APW02	C	3/15/2023	Calcium, total	mg/L	490
UD	APW02	C	4/27/2023	Calcium, total	mg/L	460
UD	APW02	C	8/17/2023	Calcium, total	mg/L	475
UD	APW02	C	10/10/2023	Calcium, total	mg/L	506
UD	APW02	C	2/17/2021	Chloride, total	mg/L	84.0
UD	APW02	C	3/10/2021	Chloride, total	mg/L	120
UD	APW02	C	3/30/2021	Chloride, total	mg/L	110
UD	APW02	C	4/29/2021	Chloride, total	mg/L	130
UD	APW02	C	5/25/2021	Chloride, total	mg/L	120
UD	APW02	C	6/16/2021	Chloride, total	mg/L	110
UD	APW02	C	6/30/2021	Chloride, total	mg/L	110
UD	APW02	C	7/15/2021	Chloride, total	mg/L	120
UD	APW02	C	3/15/2023	Chloride, total	mg/L	100
UD	APW02	C	4/27/2023	Chloride, total	mg/L	110
UD	APW02	C	8/17/2023	Chloride, total	mg/L	102
UD	APW02	C	10/10/2023	Chloride, total	mg/L	100
UD	APW02	C	4/27/2023	Ferrous Iron, dissolved	mg/L	<0.02
UD	APW02	C	8/17/2023	Ferrous Iron, dissolved	mg/L	<0.1
UD	APW02	C	11/30/2010	Iron, dissolved	mg/L	0.121

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	2/8/2011	Iron, dissolved	mg/L	<0.01
UD	APW02	C	5/4/2011	Iron, dissolved	mg/L	0.140
UD	APW02	C	7/12/2011	Iron, dissolved	mg/L	0.0190
UD	APW02	C	10/11/2011	Iron, dissolved	mg/L	<0.01
UD	APW02	C	1/31/2012	Iron, dissolved	mg/L	<0.01
UD	APW02	C	4/10/2012	Iron, dissolved	mg/L	0.120
UD	APW02	C	7/17/2012	Iron, dissolved	mg/L	0.0140
UD	APW02	C	4/27/2023	Iron, dissolved	mg/L	0.140
UD	APW02	C	8/17/2023	Iron, dissolved	mg/L	0.0210
UD	APW02	C	2/17/2021	Lithium, total	mg/L	0.0790
UD	APW02	C	3/10/2021	Lithium, total	mg/L	0.110
UD	APW02	C	3/30/2021	Lithium, total	mg/L	0.120
UD	APW02	C	4/29/2021	Lithium, total	mg/L	0.110
UD	APW02	C	5/25/2021	Lithium, total	mg/L	0.120
UD	APW02	C	6/16/2021	Lithium, total	mg/L	0.120
UD	APW02	C	6/30/2021	Lithium, total	mg/L	0.300
UD	APW02	C	7/15/2021	Lithium, total	mg/L	0.210
UD	APW02	C	3/15/2023	Lithium, total	mg/L	0.100
UD	APW02	C	4/27/2023	Lithium, total	mg/L	0.0980
UD	APW02	C	8/17/2023	Lithium, total	mg/L	0.190
UD	APW02	C	10/10/2023	Lithium, total	mg/L	0.105
UD	APW02	C	2/17/2021	Magnesium, total	mg/L	380
UD	APW02	C	3/10/2021	Magnesium, total	mg/L	490
UD	APW02	C	3/30/2021	Magnesium, total	mg/L	420
UD	APW02	C	4/29/2021	Magnesium, total	mg/L	470
UD	APW02	C	5/25/2021	Magnesium, total	mg/L	430
UD	APW02	C	6/16/2021	Magnesium, total	mg/L	470
UD	APW02	C	6/30/2021	Magnesium, total	mg/L	460
UD	APW02	C	7/15/2021	Magnesium, total	mg/L	440
UD	APW02	C	3/15/2023	Magnesium, total	mg/L	480
UD	APW02	C	4/27/2023	Magnesium, total	mg/L	430
UD	APW02	C	8/17/2023	Magnesium, total	mg/L	429
UD	APW02	C	10/10/2023	Magnesium, total	mg/L	471
UD	APW02	C	11/30/2010	Manganese, dissolved	mg/L	0.907
UD	APW02	C	2/8/2011	Manganese, dissolved	mg/L	0.170
UD	APW02	C	5/4/2011	Manganese, dissolved	mg/L	0.240
UD	APW02	C	7/12/2011	Manganese, dissolved	mg/L	0.630
UD	APW02	C	10/11/2011	Manganese, dissolved	mg/L	0.910
UD	APW02	C	1/31/2012	Manganese, dissolved	mg/L	0.710
UD	APW02	C	4/10/2012	Manganese, dissolved	mg/L	0.450
UD	APW02	C	7/17/2012	Manganese, dissolved	mg/L	0.650
UD	APW02	C	3/14/2014	Manganese, dissolved	mg/L	0.0740
UD	APW02	C	4/9/2014	Manganese, dissolved	mg/L	0.170
UD	APW02	C	8/14/2014	Manganese, dissolved	mg/L	0.430
UD	APW02	C	10/17/2014	Manganese, dissolved	mg/L	0.130
UD	APW02	C	1/13/2015	Manganese, dissolved	mg/L	0.120

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	4/21/2015	Manganese, dissolved	mg/L	0.0610
UD	APW02	C	7/15/2015	Manganese, dissolved	mg/L	0.390
UD	APW02	C	10/7/2015	Manganese, dissolved	mg/L	1.20
UD	APW02	C	1/19/2016	Manganese, dissolved	mg/L	0.0610
UD	APW02	C	4/26/2016	Manganese, dissolved	mg/L	0.0240
UD	APW02	C	7/26/2016	Manganese, dissolved	mg/L	0.140
UD	APW02	C	10/18/2016	Manganese, dissolved	mg/L	0.210
UD	APW02	C	1/20/2017	Manganese, dissolved	mg/L	0.00890
UD	APW02	C	4/18/2017	Manganese, dissolved	mg/L	0.160
UD	APW02	C	8/3/2017	Manganese, dissolved	mg/L	0.470
UD	APW02	C	11/18/2017	Manganese, dissolved	mg/L	0.270
UD	APW02	C	2/23/2018	Manganese, dissolved	mg/L	0.0150
UD	APW02	C	5/21/2018	Manganese, dissolved	mg/L	0.310
UD	APW02	C	8/23/2018	Manganese, dissolved	mg/L	1.40
UD	APW02	C	1/11/2019	Manganese, dissolved	mg/L	0.0330
UD	APW02	C	2/19/2019	Manganese, dissolved	mg/L	0.0380
UD	APW02	C	5/21/2019	Manganese, dissolved	mg/L	0.780
UD	APW02	C	8/23/2019	Manganese, dissolved	mg/L	0.340
UD	APW02	C	11/19/2019	Manganese, dissolved	mg/L	0.430
UD	APW02	C	2/4/2020	Manganese, dissolved	mg/L	0.00440
UD	APW02	C	5/21/2020	Manganese, dissolved	mg/L	0.210
UD	APW02	C	7/30/2020	Manganese, dissolved	mg/L	0.980
UD	APW02	C	10/27/2020	Manganese, dissolved	mg/L	0.600
UD	APW02	C	2/10/2021	Manganese, dissolved	mg/L	0.120
UD	APW02	C	5/25/2021	Manganese, dissolved	mg/L	0.470
UD	APW02	C	11/9/2021	Manganese, dissolved	mg/L	0.590
UD	APW02	C	2/22/2022	Manganese, dissolved	mg/L	0.0110
UD	APW02	C	5/24/2022	Manganese, dissolved	mg/L	0.200
UD	APW02	C	8/17/2022	Manganese, dissolved	mg/L	0.380
UD	APW02	C	11/1/2022	Manganese, dissolved	mg/L	0.580
UD	APW02	C	2/1/2023	Manganese, dissolved	mg/L	0.0600
UD	APW02	C	4/27/2023	Manganese, dissolved	mg/L	0.650
UD	APW02	C	8/17/2023	Manganese, dissolved	mg/L	0.120
UD	APW02	C	10/10/2023	Manganese, dissolved	mg/L	0.224
UD	APW02	C	8/17/2023	Phosphate, dissolved	mg/L	<0.005
UD	APW02	C	2/17/2021	Potassium, total	mg/L	3.90
UD	APW02	C	3/10/2021	Potassium, total	mg/L	6.70
UD	APW02	C	3/30/2021	Potassium, total	mg/L	6.00
UD	APW02	C	4/29/2021	Potassium, total	mg/L	5.70
UD	APW02	C	5/25/2021	Potassium, total	mg/L	6.50
UD	APW02	C	6/16/2021	Potassium, total	mg/L	6.60
UD	APW02	C	6/30/2021	Potassium, total	mg/L	6.10
UD	APW02	C	7/15/2021	Potassium, total	mg/L	6.70
UD	APW02	C	3/15/2023	Potassium, total	mg/L	6.20
UD	APW02	C	4/27/2023	Potassium, total	mg/L	5.80
UD	APW02	C	8/17/2023	Potassium, total	mg/L	6.43

Attachment 8. Aqueous Data
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	10/10/2023	Potassium, total	mg/L	7.07
UD	APW02	C	4/27/2023	Silicon, dissolved	mg/L	8.20
UD	APW02	C	8/17/2023	Silicon, dissolved	mg/L	7.86
UD	APW02	C	2/17/2021	Sodium, total	mg/L	400
UD	APW02	C	3/10/2021	Sodium, total	mg/L	410
UD	APW02	C	3/30/2021	Sodium, total	mg/L	360
UD	APW02	C	4/29/2021	Sodium, total	mg/L	380
UD	APW02	C	5/25/2021	Sodium, total	mg/L	350
UD	APW02	C	6/16/2021	Sodium, total	mg/L	370
UD	APW02	C	6/30/2021	Sodium, total	mg/L	380
UD	APW02	C	7/15/2021	Sodium, total	mg/L	360
UD	APW02	C	3/15/2023	Sodium, total	mg/L	410
UD	APW02	C	4/27/2023	Sodium, total	mg/L	360
UD	APW02	C	8/17/2023	Sodium, total	mg/L	394
UD	APW02	C	10/10/2023	Sodium, total	mg/L	441
UD	APW02	C	2/17/2021	Sulfate, total	mg/L	2,900
UD	APW02	C	3/10/2021	Sulfate, total	mg/L	3,200
UD	APW02	C	3/30/2021	Sulfate, total	mg/L	3,100
UD	APW02	C	4/29/2021	Sulfate, total	mg/L	1,500
UD	APW02	C	5/25/2021	Sulfate, total	mg/L	3,200
UD	APW02	C	6/16/2021	Sulfate, total	mg/L	3,100
UD	APW02	C	6/30/2021	Sulfate, total	mg/L	3,200
UD	APW02	C	7/15/2021	Sulfate, total	mg/L	3,100
UD	APW02	C	3/15/2023	Sulfate, total	mg/L	3,000
UD	APW02	C	4/27/2023	Sulfate, total	mg/L	3,100
UD	APW02	C	8/17/2023	Sulfate, total	mg/L	2,860
UD	APW02	C	10/10/2023	Sulfate, total	mg/L	2,900
UD	APW02	C	11/30/2010	Total Dissolved Solids	mg/L	1,910
UD	APW02	C	2/8/2011	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	5/4/2011	Total Dissolved Solids	mg/L	5,100
UD	APW02	C	7/12/2011	Total Dissolved Solids	mg/L	5,100
UD	APW02	C	10/11/2011	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	1/31/2012	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	4/10/2012	Total Dissolved Solids	mg/L	4,900
UD	APW02	C	7/17/2012	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	3/14/2014	Total Dissolved Solids	mg/L	4,900
UD	APW02	C	4/9/2014	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	8/14/2014	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	10/17/2014	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	1/13/2015	Total Dissolved Solids	mg/L	4,800
UD	APW02	C	4/21/2015	Total Dissolved Solids	mg/L	5,300
UD	APW02	C	7/15/2015	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	10/7/2015	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	10/27/2020	Total Dissolved Solids	mg/L	5,300
UD	APW02	C	2/10/2021	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	2/17/2021	Total Dissolved Solids	mg/L	4,800

Attachment 8. Aqueous Data
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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW02	C	3/10/2021	Total Dissolved Solids	mg/L	5,100
UD	APW02	C	3/30/2021	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	4/29/2021	Total Dissolved Solids	mg/L	5,100
UD	APW02	C	5/25/2021	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	6/16/2021	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	6/30/2021	Total Dissolved Solids	mg/L	4,900
UD	APW02	C	7/15/2021	Total Dissolved Solids	mg/L	5,400
UD	APW02	C	11/9/2021	Total Dissolved Solids	mg/L	5,400
UD	APW02	C	2/22/2022	Total Dissolved Solids	mg/L	5,000
UD	APW02	C	5/24/2022	Total Dissolved Solids	mg/L	5,300
UD	APW02	C	8/17/2022	Total Dissolved Solids	mg/L	5,500
UD	APW02	C	11/1/2022	Total Dissolved Solids	mg/L	5,400
UD	APW02	C	2/1/2023	Total Dissolved Solids	mg/L	5,500
UD	APW02	C	3/15/2023	Total Dissolved Solids	mg/L	5,200
UD	APW02	C	4/27/2023	Total Dissolved Solids	mg/L	5,400
UD	APW02	C	8/17/2023	Total Dissolved Solids	mg/L	3,660
UD	APW02	C	10/10/2023	Total Dissolved Solids	mg/L	3,890
UD	APW03	C	11/30/2010	pH (field)	SU	6.1
UD	APW03	C	2/8/2011	pH (field)	SU	7.3
UD	APW03	C	5/4/2011	pH (field)	SU	7.3
UD	APW03	C	7/12/2011	pH (field)	SU	7.3
UD	APW03	C	10/11/2011	pH (field)	SU	7.2
UD	APW03	C	1/31/2012	pH (field)	SU	7.2
UD	APW03	C	4/10/2012	pH (field)	SU	7.3
UD	APW03	C	7/17/2012	pH (field)	SU	7.2
UD	APW03	C	3/14/2014	pH (field)	SU	7.2
UD	APW03	C	4/9/2014	pH (field)	SU	7.4
UD	APW03	C	8/14/2014	pH (field)	SU	7.3
UD	APW03	C	10/17/2014	pH (field)	SU	7.7
UD	APW03	C	1/13/2015	pH (field)	SU	7.4
UD	APW03	C	4/20/2015	pH (field)	SU	7.0
UD	APW03	C	7/15/2015	pH (field)	SU	6.9
UD	APW03	C	10/7/2015	pH (field)	SU	7.3
UD	APW03	C	10/27/2020	pH (field)	SU	7.2
UD	APW03	C	2/10/2021	pH (field)	SU	7.2
UD	APW03	C	2/18/2021	pH (field)	SU	6.7
UD	APW03	C	3/10/2021	pH (field)	SU	7.2
UD	APW03	C	3/31/2021	pH (field)	SU	6.3
UD	APW03	C	4/29/2021	pH (field)	SU	7.0
UD	APW03	C	5/25/2021	pH (field)	SU	7.0
UD	APW03	C	6/17/2021	pH (field)	SU	7.0
UD	APW03	C	6/30/2021	pH (field)	SU	7.0
UD	APW03	C	7/15/2021	pH (field)	SU	6.9
UD	APW03	C	11/9/2021	pH (field)	SU	7.0
UD	APW03	C	2/22/2022	pH (field)	SU	7.1
UD	APW03	C	5/24/2022	pH (field)	SU	7.1

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	8/17/2022	pH (field)	SU	7.1
UD	APW03	C	11/1/2022	pH (field)	SU	7.3
UD	APW03	C	2/1/2023	pH (field)	SU	7.8
UD	APW03	C	3/14/2023	pH (field)	SU	7.0
UD	APW03	C	4/25/2023	pH (field)	SU	7.0
UD	APW03	C	7/31/2023	pH (field)	SU	6.8
UD	APW03	C	10/10/2023	pH (field)	SU	6.9
UD	APW03	C	2/18/2021	Oxidation Reduction Potential	mV	225
UD	APW03	C	3/10/2021	Oxidation Reduction Potential	mV	30.7
UD	APW03	C	3/31/2021	Oxidation Reduction Potential	mV	28.9
UD	APW03	C	4/29/2021	Oxidation Reduction Potential	mV	114
UD	APW03	C	5/25/2021	Oxidation Reduction Potential	mV	132
UD	APW03	C	6/17/2021	Oxidation Reduction Potential	mV	166
UD	APW03	C	6/30/2021	Oxidation Reduction Potential	mV	37.8
UD	APW03	C	7/15/2021	Oxidation Reduction Potential	mV	-28.6
UD	APW03	C	2/22/2022	Oxidation Reduction Potential	mV	110
UD	APW03	C	5/24/2022	Oxidation Reduction Potential	mV	26.7
UD	APW03	C	8/17/2022	Oxidation Reduction Potential	mV	5.80
UD	APW03	C	11/1/2022	Oxidation Reduction Potential	mV	36.0
UD	APW03	C	2/1/2023	Oxidation Reduction Potential	mV	-31.0
UD	APW03	C	4/25/2023	Oxidation Reduction Potential	mV	141
UD	APW03	C	7/31/2023	Oxidation Reduction Potential	mV	64.0
UD	APW03	C	10/10/2023	Oxidation Reduction Potential	mV	-10.0
UD	APW03	C	2/18/2021	Eh	V	0.43
UD	APW03	C	3/10/2021	Eh	V	0.23
UD	APW03	C	3/31/2021	Eh	V	0.23
UD	APW03	C	4/29/2021	Eh	V	0.31
UD	APW03	C	5/25/2021	Eh	V	0.32
UD	APW03	C	6/17/2021	Eh	V	0.36
UD	APW03	C	6/30/2021	Eh	V	0.23
UD	APW03	C	7/15/2021	Eh	V	0.15
UD	APW03	C	2/22/2022	Eh	V	0.31
UD	APW03	C	5/24/2022	Eh	V	0.22
UD	APW03	C	8/17/2022	Eh	V	0.19
UD	APW03	C	11/1/2022	Eh	V	0.23
UD	APW03	C	2/1/2023	Eh	V	0.17
UD	APW03	C	4/25/2023	Eh	V	0.34
UD	APW03	C	7/31/2023	Eh	V	0.26
UD	APW03	C	10/10/2023	Eh	V	0.18
UD	APW03	C	2/18/2021	Alkalinity, bicarbonate	mg/L CaCO3	420
UD	APW03	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	440
UD	APW03	C	3/31/2021	Alkalinity, bicarbonate	mg/L CaCO3	400
UD	APW03	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UD	APW03	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	820
UD	APW03	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	420
UD	APW03	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	390

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	410
UD	APW03	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	480
UD	APW03	C	4/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	390
UD	APW03	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	446
UD	APW03	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	480
UD	APW03	C	2/18/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	3/31/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	4/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW03	C	2/18/2021	Barium, total	mg/L	0.0770
UD	APW03	C	3/10/2021	Barium, total	mg/L	0.0730
UD	APW03	C	3/31/2021	Barium, total	mg/L	0.0700
UD	APW03	C	4/29/2021	Barium, total	mg/L	0.0680
UD	APW03	C	5/25/2021	Barium, total	mg/L	0.0630
UD	APW03	C	6/17/2021	Barium, total	mg/L	0.0810
UD	APW03	C	6/30/2021	Barium, total	mg/L	0.0590
UD	APW03	C	7/15/2021	Barium, total	mg/L	0.0670
UD	APW03	C	3/14/2023	Barium, total	mg/L	0.0730
UD	APW03	C	4/25/2023	Barium, total	mg/L	0.0780
UD	APW03	C	7/31/2023	Barium, total	mg/L	0.0942
UD	APW03	C	10/10/2023	Barium, total	mg/L	0.110
UD	APW03	C	2/18/2021	Calcium, total	mg/L	120
UD	APW03	C	3/10/2021	Calcium, total	mg/L	110
UD	APW03	C	3/31/2021	Calcium, total	mg/L	110
UD	APW03	C	4/29/2021	Calcium, total	mg/L	110
UD	APW03	C	5/25/2021	Calcium, total	mg/L	110
UD	APW03	C	6/17/2021	Calcium, total	mg/L	120
UD	APW03	C	6/30/2021	Calcium, total	mg/L	110
UD	APW03	C	7/15/2021	Calcium, total	mg/L	110
UD	APW03	C	3/14/2023	Calcium, total	mg/L	96.0
UD	APW03	C	4/25/2023	Calcium, total	mg/L	96.0
UD	APW03	C	7/31/2023	Calcium, total	mg/L	96.5
UD	APW03	C	10/10/2023	Calcium, total	mg/L	92.5
UD	APW03	C	2/18/2021	Chloride, total	mg/L	8.10
UD	APW03	C	3/10/2021	Chloride, total	mg/L	8.70
UD	APW03	C	3/31/2021	Chloride, total	mg/L	8.60
UD	APW03	C	4/29/2021	Chloride, total	mg/L	8.20
UD	APW03	C	5/25/2021	Chloride, total	mg/L	8.00

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	6/17/2021	Chloride, total	mg/L	8.30
UD	APW03	C	6/30/2021	Chloride, total	mg/L	11.0
UD	APW03	C	7/15/2021	Chloride, total	mg/L	8.50
UD	APW03	C	3/14/2023	Chloride, total	mg/L	7.10
UD	APW03	C	4/25/2023	Chloride, total	mg/L	6.90
UD	APW03	C	7/31/2023	Chloride, total	mg/L	10.0
UD	APW03	C	10/10/2023	Chloride, total	mg/L	7.00
UD	APW03	C	4/25/2023	Ferrous Iron, dissolved	mg/L	<0.02
UD	APW03	C	7/31/2023	Ferrous Iron, dissolved	mg/L	3.80
UD	APW03	C	11/30/2010	Iron, dissolved	mg/L	0
UD	APW03	C	2/8/2011	Iron, dissolved	mg/L	<0.01
UD	APW03	C	5/4/2011	Iron, dissolved	mg/L	0.0340
UD	APW03	C	7/12/2011	Iron, dissolved	mg/L	<0.01
UD	APW03	C	10/11/2011	Iron, dissolved	mg/L	<0.01
UD	APW03	C	1/31/2012	Iron, dissolved	mg/L	<0.01
UD	APW03	C	4/10/2012	Iron, dissolved	mg/L	0.0460
UD	APW03	C	7/17/2012	Iron, dissolved	mg/L	<0.01
UD	APW03	C	4/25/2023	Iron, dissolved	mg/L	0.00680
UD	APW03	C	7/31/2023	Iron, dissolved	mg/L	0.0342
UD	APW03	C	2/18/2021	Lithium, total	mg/L	0.0220
UD	APW03	C	3/10/2021	Lithium, total	mg/L	0.0240
UD	APW03	C	3/31/2021	Lithium, total	mg/L	<0.0099
UD	APW03	C	4/29/2021	Lithium, total	mg/L	<0.0099
UD	APW03	C	5/25/2021	Lithium, total	mg/L	0.0230
UD	APW03	C	6/17/2021	Lithium, total	mg/L	0.0200
UD	APW03	C	6/30/2021	Lithium, total	mg/L	0.0350
UD	APW03	C	7/15/2021	Lithium, total	mg/L	0.0300
UD	APW03	C	3/14/2023	Lithium, total	mg/L	0.00960
UD	APW03	C	4/25/2023	Lithium, total	mg/L	0.0100
UD	APW03	C	7/31/2023	Lithium, total	mg/L	0.0139
UD	APW03	C	10/10/2023	Lithium, total	mg/L	0.0111
UD	APW03	C	2/18/2021	Magnesium, total	mg/L	63.0
UD	APW03	C	3/10/2021	Magnesium, total	mg/L	63.0
UD	APW03	C	3/31/2021	Magnesium, total	mg/L	61.0
UD	APW03	C	4/29/2021	Magnesium, total	mg/L	65.0
UD	APW03	C	5/25/2021	Magnesium, total	mg/L	62.0
UD	APW03	C	6/17/2021	Magnesium, total	mg/L	65.0
UD	APW03	C	6/30/2021	Magnesium, total	mg/L	62.0
UD	APW03	C	7/15/2021	Magnesium, total	mg/L	64.0
UD	APW03	C	3/14/2023	Magnesium, total	mg/L	63.0
UD	APW03	C	4/25/2023	Magnesium, total	mg/L	58.0
UD	APW03	C	7/31/2023	Magnesium, total	mg/L	54.3
UD	APW03	C	10/10/2023	Magnesium, total	mg/L	52.7
UD	APW03	C	11/30/2010	Manganese, dissolved	mg/L	0.113
UD	APW03	C	2/8/2011	Manganese, dissolved	mg/L	0.0880
UD	APW03	C	5/4/2011	Manganese, dissolved	mg/L	0.0490

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	7/12/2011	Manganese, dissolved	mg/L	0.0440
UD	APW03	C	10/11/2011	Manganese, dissolved	mg/L	0.0240
UD	APW03	C	1/31/2012	Manganese, dissolved	mg/L	0.0320
UD	APW03	C	4/10/2012	Manganese, dissolved	mg/L	0.0490
UD	APW03	C	7/17/2012	Manganese, dissolved	mg/L	0.0180
UD	APW03	C	3/14/2014	Manganese, dissolved	mg/L	0.0240
UD	APW03	C	4/9/2014	Manganese, dissolved	mg/L	0.0280
UD	APW03	C	8/14/2014	Manganese, dissolved	mg/L	0.410
UD	APW03	C	10/17/2014	Manganese, dissolved	mg/L	0.0160
UD	APW03	C	1/13/2015	Manganese, dissolved	mg/L	0.0350
UD	APW03	C	4/20/2015	Manganese, dissolved	mg/L	0.0430
UD	APW03	C	7/15/2015	Manganese, dissolved	mg/L	0.0440
UD	APW03	C	10/7/2015	Manganese, dissolved	mg/L	0.0600
UD	APW03	C	1/19/2016	Manganese, dissolved	mg/L	0.0190
UD	APW03	C	4/26/2016	Manganese, dissolved	mg/L	0.0120
UD	APW03	C	7/26/2016	Manganese, dissolved	mg/L	0.0220
UD	APW03	C	10/18/2016	Manganese, dissolved	mg/L	0.0190
UD	APW03	C	1/20/2017	Manganese, dissolved	mg/L	0.0190
UD	APW03	C	4/18/2017	Manganese, dissolved	mg/L	0.0250
UD	APW03	C	8/3/2017	Manganese, dissolved	mg/L	0.0270
UD	APW03	C	11/18/2017	Manganese, dissolved	mg/L	0.0940
UD	APW03	C	2/23/2018	Manganese, dissolved	mg/L	0.0180
UD	APW03	C	5/21/2018	Manganese, dissolved	mg/L	0.0440
UD	APW03	C	8/16/2018	Manganese, dissolved	mg/L	0.0240
UD	APW03	C	1/11/2019	Manganese, dissolved	mg/L	0.0420
UD	APW03	C	2/20/2019	Manganese, dissolved	mg/L	0.0220
UD	APW03	C	5/21/2019	Manganese, dissolved	mg/L	0.0870
UD	APW03	C	8/23/2019	Manganese, dissolved	mg/L	0.0400
UD	APW03	C	11/19/2019	Manganese, dissolved	mg/L	0.0280
UD	APW03	C	2/4/2020	Manganese, dissolved	mg/L	0.0210
UD	APW03	C	5/21/2020	Manganese, dissolved	mg/L	0.0110
UD	APW03	C	7/30/2020	Manganese, dissolved	mg/L	0.0180
UD	APW03	C	10/27/2020	Manganese, dissolved	mg/L	0.0170
UD	APW03	C	2/10/2021	Manganese, dissolved	mg/L	0.00540
UD	APW03	C	5/25/2021	Manganese, dissolved	mg/L	0.00840
UD	APW03	C	11/9/2021	Manganese, dissolved	mg/L	0.0460
UD	APW03	C	2/22/2022	Manganese, dissolved	mg/L	0.0150
UD	APW03	C	5/24/2022	Manganese, dissolved	mg/L	0.0160
UD	APW03	C	8/17/2022	Manganese, dissolved	mg/L	0.0320
UD	APW03	C	11/1/2022	Manganese, dissolved	mg/L	0.0190
UD	APW03	C	2/1/2023	Manganese, dissolved	mg/L	0.0170
UD	APW03	C	4/25/2023	Manganese, dissolved	mg/L	0.0350
UD	APW03	C	7/31/2023	Manganese, dissolved	mg/L	0.0363
UD	APW03	C	10/10/2023	Manganese, dissolved	mg/L	0.0176
UD	APW03	C	7/31/2023	Phosphate, dissolved	mg/L	0.157
UD	APW03	C	2/18/2021	Potassium, total	mg/L	0.930

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	3/10/2021	Potassium, total	mg/L	0.810
UD	APW03	C	3/31/2021	Potassium, total	mg/L	0.980
UD	APW03	C	4/29/2021	Potassium, total	mg/L	0.670
UD	APW03	C	5/25/2021	Potassium, total	mg/L	0.730
UD	APW03	C	6/17/2021	Potassium, total	mg/L	0.840
UD	APW03	C	6/30/2021	Potassium, total	mg/L	0.810
UD	APW03	C	7/15/2021	Potassium, total	mg/L	0.860
UD	APW03	C	3/14/2023	Potassium, total	mg/L	0.370
UD	APW03	C	4/25/2023	Potassium, total	mg/L	0.310
UD	APW03	C	7/31/2023	Potassium, total	mg/L	0.602
UD	APW03	C	10/10/2023	Potassium, total	mg/L	0.463
UD	APW03	C	4/25/2023	Silicon, dissolved	mg/L	14.0
UD	APW03	C	7/31/2023	Silicon, dissolved	mg/L	11.8
UD	APW03	C	2/18/2021	Sodium, total	mg/L	52.0
UD	APW03	C	3/10/2021	Sodium, total	mg/L	49.0
UD	APW03	C	3/31/2021	Sodium, total	mg/L	52.0
UD	APW03	C	4/29/2021	Sodium, total	mg/L	55.0
UD	APW03	C	5/25/2021	Sodium, total	mg/L	50.0
UD	APW03	C	6/17/2021	Sodium, total	mg/L	52.0
UD	APW03	C	6/30/2021	Sodium, total	mg/L	52.0
UD	APW03	C	7/15/2021	Sodium, total	mg/L	55.0
UD	APW03	C	3/14/2023	Sodium, total	mg/L	67.0
UD	APW03	C	4/25/2023	Sodium, total	mg/L	61.0
UD	APW03	C	7/31/2023	Sodium, total	mg/L	56.2
UD	APW03	C	10/10/2023	Sodium, total	mg/L	61.8
UD	APW03	C	2/18/2021	Sulfate, total	mg/L	180
UD	APW03	C	3/10/2021	Sulfate, total	mg/L	180
UD	APW03	C	3/31/2021	Sulfate, total	mg/L	170
UD	APW03	C	4/29/2021	Sulfate, total	mg/L	170
UD	APW03	C	5/25/2021	Sulfate, total	mg/L	170
UD	APW03	C	6/17/2021	Sulfate, total	mg/L	170
UD	APW03	C	6/30/2021	Sulfate, total	mg/L	160
UD	APW03	C	7/15/2021	Sulfate, total	mg/L	190
UD	APW03	C	3/14/2023	Sulfate, total	mg/L	110
UD	APW03	C	4/25/2023	Sulfate, total	mg/L	120
UD	APW03	C	7/31/2023	Sulfate, total	mg/L	118
UD	APW03	C	10/10/2023	Sulfate, total	mg/L	113
UD	APW03	C	11/30/2010	Total Dissolved Solids	mg/L	647
UD	APW03	C	2/8/2011	Total Dissolved Solids	mg/L	590
UD	APW03	C	5/4/2011	Total Dissolved Solids	mg/L	640
UD	APW03	C	7/12/2011	Total Dissolved Solids	mg/L	600
UD	APW03	C	10/11/2011	Total Dissolved Solids	mg/L	610
UD	APW03	C	1/31/2012	Total Dissolved Solids	mg/L	560
UD	APW03	C	4/10/2012	Total Dissolved Solids	mg/L	570
UD	APW03	C	7/17/2012	Total Dissolved Solids	mg/L	590
UD	APW03	C	3/14/2014	Total Dissolved Solids	mg/L	580

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW03	C	4/9/2014	Total Dissolved Solids	mg/L	540
UD	APW03	C	8/14/2014	Total Dissolved Solids	mg/L	800
UD	APW03	C	10/17/2014	Total Dissolved Solids	mg/L	580
UD	APW03	C	1/13/2015	Total Dissolved Solids	mg/L	3,000
UD	APW03	C	4/20/2015	Total Dissolved Solids	mg/L	580
UD	APW03	C	7/15/2015	Total Dissolved Solids	mg/L	580
UD	APW03	C	10/7/2015	Total Dissolved Solids	mg/L	680
UD	APW03	C	10/27/2020	Total Dissolved Solids	mg/L	690
UD	APW03	C	2/10/2021	Total Dissolved Solids	mg/L	660
UD	APW03	C	2/18/2021	Total Dissolved Solids	mg/L	620
UD	APW03	C	3/10/2021	Total Dissolved Solids	mg/L	720
UD	APW03	C	3/31/2021	Total Dissolved Solids	mg/L	720
UD	APW03	C	4/29/2021	Total Dissolved Solids	mg/L	660
UD	APW03	C	5/25/2021	Total Dissolved Solids	mg/L	760
UD	APW03	C	6/17/2021	Total Dissolved Solids	mg/L	660
UD	APW03	C	6/30/2021	Total Dissolved Solids	mg/L	600
UD	APW03	C	7/15/2021	Total Dissolved Solids	mg/L	710
UD	APW03	C	11/9/2021	Total Dissolved Solids	mg/L	700
UD	APW03	C	2/22/2022	Total Dissolved Solids	mg/L	580
UD	APW03	C	5/24/2022	Total Dissolved Solids	mg/L	650
UD	APW03	C	8/17/2022	Total Dissolved Solids	mg/L	520
UD	APW03	C	11/1/2022	Total Dissolved Solids	mg/L	640
UD	APW03	C	2/1/2023	Total Dissolved Solids	mg/L	720
UD	APW03	C	3/14/2023	Total Dissolved Solids	mg/L	800
UD	APW03	C	4/25/2023	Total Dissolved Solids	mg/L	740
UD	APW03	C	7/31/2023	Total Dissolved Solids	mg/L	620
UD	APW03	C	10/10/2023	Total Dissolved Solids	mg/L	628
UD	APW04	C	11/30/2010	pH (field)	SU	5.7
UD	APW04	C	2/8/2011	pH (field)	SU	7.1
UD	APW04	C	5/4/2011	pH (field)	SU	6.9
UD	APW04	C	7/12/2011	pH (field)	SU	7.0
UD	APW04	C	10/11/2011	pH (field)	SU	7.1
UD	APW04	C	1/31/2012	pH (field)	SU	7.0
UD	APW04	C	4/10/2012	pH (field)	SU	7.0
UD	APW04	C	7/17/2012	pH (field)	SU	7.0
UD	APW04	C	3/14/2014	pH (field)	SU	7.1
UD	APW04	C	4/9/2014	pH (field)	SU	7.3
UD	APW04	C	8/14/2014	pH (field)	SU	6.5
UD	APW04	C	10/17/2014	pH (field)	SU	7.3
UD	APW04	C	1/13/2015	pH (field)	SU	7.2
UD	APW04	C	4/20/2015	pH (field)	SU	7.0
UD	APW04	C	7/15/2015	pH (field)	SU	7.0
UD	APW04	C	10/7/2015	pH (field)	SU	7.0
UD	APW04	C	10/27/2020	pH (field)	SU	7.0
UD	APW04	C	2/10/2021	pH (field)	SU	7.1
UD	APW04	C	2/18/2021	pH (field)	SU	6.5

Attachment 8. Aqueous Data
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Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	3/11/2021	pH (field)	SU	6.9
UD	APW04	C	3/31/2021	pH (field)	SU	6.1
UD	APW04	C	4/29/2021	pH (field)	SU	6.9
UD	APW04	C	5/25/2021	pH (field)	SU	6.9
UD	APW04	C	6/17/2021	pH (field)	SU	6.8
UD	APW04	C	6/30/2021	pH (field)	SU	6.8
UD	APW04	C	7/15/2021	pH (field)	SU	6.8
UD	APW04	C	11/9/2021	pH (field)	SU	6.9
UD	APW04	C	2/22/2022	pH (field)	SU	7.0
UD	APW04	C	5/24/2022	pH (field)	SU	7.2
UD	APW04	C	8/17/2022	pH (field)	SU	6.6
UD	APW04	C	11/1/2022	pH (field)	SU	7.2
UD	APW04	C	2/2/2023	pH (field)	SU	8.4
UD	APW04	C	3/14/2023	pH (field)	SU	7.4
UD	APW04	C	4/25/2023	pH (field)	SU	6.9
UD	APW04	C	7/31/2023	pH (field)	SU	6.6
UD	APW04	C	10/10/2023	pH (field)	SU	6.8
UD	APW04	C	2/18/2021	Oxidation Reduction Potential	mV	217
UD	APW04	C	3/11/2021	Oxidation Reduction Potential	mV	224
UD	APW04	C	3/31/2021	Oxidation Reduction Potential	mV	55.0
UD	APW04	C	4/29/2021	Oxidation Reduction Potential	mV	140
UD	APW04	C	5/25/2021	Oxidation Reduction Potential	mV	166
UD	APW04	C	6/17/2021	Oxidation Reduction Potential	mV	169
UD	APW04	C	6/30/2021	Oxidation Reduction Potential	mV	141
UD	APW04	C	7/15/2021	Oxidation Reduction Potential	mV	78.1
UD	APW04	C	2/22/2022	Oxidation Reduction Potential	mV	135
UD	APW04	C	5/24/2022	Oxidation Reduction Potential	mV	41.4
UD	APW04	C	8/17/2022	Oxidation Reduction Potential	mV	46.8
UD	APW04	C	11/1/2022	Oxidation Reduction Potential	mV	80.0
UD	APW04	C	2/2/2023	Oxidation Reduction Potential	mV	34.0
UD	APW04	C	4/25/2023	Oxidation Reduction Potential	mV	171
UD	APW04	C	7/31/2023	Oxidation Reduction Potential	mV	92.0
UD	APW04	C	10/10/2023	Oxidation Reduction Potential	mV	19.0
UD	APW04	C	2/18/2021	Eh	V	0.42
UD	APW04	C	3/11/2021	Eh	V	0.42
UD	APW04	C	3/31/2021	Eh	V	0.25
UD	APW04	C	4/29/2021	Eh	V	0.33
UD	APW04	C	5/25/2021	Eh	V	0.36
UD	APW04	C	6/17/2021	Eh	V	0.36
UD	APW04	C	6/30/2021	Eh	V	0.33
UD	APW04	C	7/15/2021	Eh	V	0.26
UD	APW04	C	2/22/2022	Eh	V	0.33
UD	APW04	C	5/24/2022	Eh	V	0.24
UD	APW04	C	8/17/2022	Eh	V	0.24
UD	APW04	C	11/1/2022	Eh	V	0.27
UD	APW04	C	2/2/2023	Eh	V	0.23

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Geochemical Conceptual Site Model
Newton Primary Ash Pond
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Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	4/25/2023	Eh	V	0.37
UD	APW04	C	7/31/2023	Eh	V	0.28
UD	APW04	C	10/10/2023	Eh	V	0.21
UD	APW04	C	2/18/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UD	APW04	C	3/11/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UD	APW04	C	3/31/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UD	APW04	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	450
UD	APW04	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	920
UD	APW04	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UD	APW04	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	460
UD	APW04	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	480
UD	APW04	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	490
UD	APW04	C	4/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	440
UD	APW04	C	7/31/2023	Alkalinity, bicarbonate	mg/L CaCO3	511
UD	APW04	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	528
UD	APW04	C	2/18/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	3/11/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	3/31/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	5/25/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	6/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	6/30/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	7/15/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	3/14/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	4/25/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	7/31/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	10/10/2023	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW04	C	2/18/2021	Barium, total	mg/L	0.0210
UD	APW04	C	3/11/2021	Barium, total	mg/L	0.0220
UD	APW04	C	3/31/2021	Barium, total	mg/L	0.0180
UD	APW04	C	4/29/2021	Barium, total	mg/L	0.0130
UD	APW04	C	5/25/2021	Barium, total	mg/L	0.0260
UD	APW04	C	6/17/2021	Barium, total	mg/L	0.0260
UD	APW04	C	6/30/2021	Barium, total	mg/L	0.0320
UD	APW04	C	7/15/2021	Barium, total	mg/L	0.0250
UD	APW04	C	3/14/2023	Barium, total	mg/L	0.0370
UD	APW04	C	4/25/2023	Barium, total	mg/L	0.0220
UD	APW04	C	7/31/2023	Barium, total	mg/L	0.0247
UD	APW04	C	10/10/2023	Barium, total	mg/L	0.0200
UD	APW04	C	2/18/2021	Calcium, total	mg/L	230
UD	APW04	C	3/11/2021	Calcium, total	mg/L	220
UD	APW04	C	3/31/2021	Calcium, total	mg/L	210
UD	APW04	C	4/29/2021	Calcium, total	mg/L	220
UD	APW04	C	5/25/2021	Calcium, total	mg/L	220
UD	APW04	C	6/17/2021	Calcium, total	mg/L	240
UD	APW04	C	6/30/2021	Calcium, total	mg/L	220

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HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	7/15/2021	Calcium, total	mg/L	210
UD	APW04	C	3/14/2023	Calcium, total	mg/L	220
UD	APW04	C	4/25/2023	Calcium, total	mg/L	210
UD	APW04	C	7/31/2023	Calcium, total	mg/L	211
UD	APW04	C	10/10/2023	Calcium, total	mg/L	206
UD	APW04	C	2/18/2021	Chloride, total	mg/L	36.0
UD	APW04	C	3/11/2021	Chloride, total	mg/L	33.0
UD	APW04	C	3/31/2021	Chloride, total	mg/L	37.0
UD	APW04	C	4/29/2021	Chloride, total	mg/L	29.0
UD	APW04	C	5/25/2021	Chloride, total	mg/L	32.0
UD	APW04	C	6/17/2021	Chloride, total	mg/L	29.0
UD	APW04	C	6/30/2021	Chloride, total	mg/L	27.0
UD	APW04	C	7/15/2021	Chloride, total	mg/L	34.0
UD	APW04	C	3/14/2023	Chloride, total	mg/L	31.0
UD	APW04	C	4/25/2023	Chloride, total	mg/L	34.0
UD	APW04	C	7/31/2023	Chloride, total	mg/L	36.0
UD	APW04	C	10/10/2023	Chloride, total	mg/L	34.0
UD	APW04	C	4/25/2023	Ferrous Iron, dissolved	mg/L	<0.02
UD	APW04	C	7/31/2023	Ferrous Iron, dissolved	mg/L	3.54
UD	APW04	C	11/30/2010	Iron, dissolved	mg/L	0
UD	APW04	C	2/8/2011	Iron, dissolved	mg/L	<0.01
UD	APW04	C	5/4/2011	Iron, dissolved	mg/L	0.0610
UD	APW04	C	7/12/2011	Iron, dissolved	mg/L	<0.01
UD	APW04	C	10/11/2011	Iron, dissolved	mg/L	<0.01
UD	APW04	C	1/31/2012	Iron, dissolved	mg/L	<0.01
UD	APW04	C	4/10/2012	Iron, dissolved	mg/L	0.0360
UD	APW04	C	7/17/2012	Iron, dissolved	mg/L	<0.01
UD	APW04	C	4/25/2023	Iron, dissolved	mg/L	0.00950
UD	APW04	C	7/31/2023	Iron, dissolved	mg/L	0.0280
UD	APW04	C	2/18/2021	Lithium, total	mg/L	0.0220
UD	APW04	C	3/11/2021	Lithium, total	mg/L	0.0240
UD	APW04	C	3/31/2021	Lithium, total	mg/L	0.0210
UD	APW04	C	4/29/2021	Lithium, total	mg/L	<0.0099
UD	APW04	C	5/25/2021	Lithium, total	mg/L	0.0210
UD	APW04	C	6/17/2021	Lithium, total	mg/L	0.0210
UD	APW04	C	6/30/2021	Lithium, total	mg/L	0.0450
UD	APW04	C	7/15/2021	Lithium, total	mg/L	0.0340
UD	APW04	C	3/14/2023	Lithium, total	mg/L	0.0190
UD	APW04	C	4/25/2023	Lithium, total	mg/L	0.0180
UD	APW04	C	7/31/2023	Lithium, total	mg/L	0.0225
UD	APW04	C	10/10/2023	Lithium, total	mg/L	0.0218
UD	APW04	C	2/18/2021	Magnesium, total	mg/L	180
UD	APW04	C	3/11/2021	Magnesium, total	mg/L	180
UD	APW04	C	3/31/2021	Magnesium, total	mg/L	170
UD	APW04	C	4/29/2021	Magnesium, total	mg/L	180
UD	APW04	C	5/25/2021	Magnesium, total	mg/L	170

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	6/17/2021	Magnesium, total	mg/L	190
UD	APW04	C	6/30/2021	Magnesium, total	mg/L	170
UD	APW04	C	7/15/2021	Magnesium, total	mg/L	170
UD	APW04	C	3/14/2023	Magnesium, total	mg/L	200
UD	APW04	C	4/25/2023	Magnesium, total	mg/L	170
UD	APW04	C	7/31/2023	Magnesium, total	mg/L	174
UD	APW04	C	10/10/2023	Magnesium, total	mg/L	167
UD	APW04	C	11/30/2010	Manganese, dissolved	mg/L	0.176
UD	APW04	C	2/8/2011	Manganese, dissolved	mg/L	0.210
UD	APW04	C	5/4/2011	Manganese, dissolved	mg/L	0.240
UD	APW04	C	7/12/2011	Manganese, dissolved	mg/L	0.260
UD	APW04	C	10/11/2011	Manganese, dissolved	mg/L	0.270
UD	APW04	C	1/31/2012	Manganese, dissolved	mg/L	0.220
UD	APW04	C	4/10/2012	Manganese, dissolved	mg/L	0.250
UD	APW04	C	7/17/2012	Manganese, dissolved	mg/L	0.140
UD	APW04	C	3/14/2014	Manganese, dissolved	mg/L	0.250
UD	APW04	C	4/9/2014	Manganese, dissolved	mg/L	0.250
UD	APW04	C	8/14/2014	Manganese, dissolved	mg/L	0.290
UD	APW04	C	10/17/2014	Manganese, dissolved	mg/L	1.30
UD	APW04	C	1/13/2015	Manganese, dissolved	mg/L	0.210
UD	APW04	C	4/20/2015	Manganese, dissolved	mg/L	0.280
UD	APW04	C	7/15/2015	Manganese, dissolved	mg/L	0.250
UD	APW04	C	10/7/2015	Manganese, dissolved	mg/L	0.420
UD	APW04	C	1/19/2016	Manganese, dissolved	mg/L	0.110
UD	APW04	C	4/26/2016	Manganese, dissolved	mg/L	0.110
UD	APW04	C	7/26/2016	Manganese, dissolved	mg/L	0.340
UD	APW04	C	10/18/2016	Manganese, dissolved	mg/L	0.330
UD	APW04	C	1/20/2017	Manganese, dissolved	mg/L	0.140
UD	APW04	C	4/18/2017	Manganese, dissolved	mg/L	0.280
UD	APW04	C	8/3/2017	Manganese, dissolved	mg/L	0.330
UD	APW04	C	11/18/2017	Manganese, dissolved	mg/L	0.970
UD	APW04	C	2/23/2018	Manganese, dissolved	mg/L	0.200
UD	APW04	C	5/21/2018	Manganese, dissolved	mg/L	0.170
UD	APW04	C	8/16/2018	Manganese, dissolved	mg/L	0.630
UD	APW04	C	1/11/2019	Manganese, dissolved	mg/L	0.100
UD	APW04	C	2/20/2019	Manganese, dissolved	mg/L	0.100
UD	APW04	C	5/21/2019	Manganese, dissolved	mg/L	0.280
UD	APW04	C	8/23/2019	Manganese, dissolved	mg/L	0.140
UD	APW04	C	11/19/2019	Manganese, dissolved	mg/L	1.20
UD	APW04	C	2/4/2020	Manganese, dissolved	mg/L	0.790
UD	APW04	C	5/21/2020	Manganese, dissolved	mg/L	0.120
UD	APW04	C	7/30/2020	Manganese, dissolved	mg/L	1.20
UD	APW04	C	10/27/2020	Manganese, dissolved	mg/L	0.0790
UD	APW04	C	2/10/2021	Manganese, dissolved	mg/L	0.0570
UD	APW04	C	5/25/2021	Manganese, dissolved	mg/L	0.350
UD	APW04	C	11/9/2021	Manganese, dissolved	mg/L	0.260

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	2/22/2022	Manganese, dissolved	mg/L	0.190
UD	APW04	C	5/24/2022	Manganese, dissolved	mg/L	0.300
UD	APW04	C	8/17/2022	Manganese, dissolved	mg/L	0.420
UD	APW04	C	11/1/2022	Manganese, dissolved	mg/L	0.310
UD	APW04	C	2/2/2023	Manganese, dissolved	mg/L	0.400
UD	APW04	C	4/25/2023	Manganese, dissolved	mg/L	0.370
UD	APW04	C	7/31/2023	Manganese, dissolved	mg/L	0.499
UD	APW04	C	10/10/2023	Manganese, dissolved	mg/L	0.357
UD	APW04	C	7/31/2023	Phosphate, dissolved	mg/L	0.0150
UD	APW04	C	2/18/2021	Potassium, total	mg/L	1.50
UD	APW04	C	3/11/2021	Potassium, total	mg/L	1.50
UD	APW04	C	3/31/2021	Potassium, total	mg/L	1.30
UD	APW04	C	4/29/2021	Potassium, total	mg/L	1.20
UD	APW04	C	5/25/2021	Potassium, total	mg/L	1.60
UD	APW04	C	6/17/2021	Potassium, total	mg/L	1.50
UD	APW04	C	6/30/2021	Potassium, total	mg/L	1.30
UD	APW04	C	7/15/2021	Potassium, total	mg/L	1.50
UD	APW04	C	3/14/2023	Potassium, total	mg/L	1.80
UD	APW04	C	4/25/2023	Potassium, total	mg/L	1.30
UD	APW04	C	7/31/2023	Potassium, total	mg/L	1.72
UD	APW04	C	10/10/2023	Potassium, total	mg/L	1.76
UD	APW04	C	4/25/2023	Silicon, dissolved	mg/L	8.90
UD	APW04	C	7/31/2023	Silicon, dissolved	mg/L	7.61
UD	APW04	C	2/18/2021	Sodium, total	mg/L	93.0
UD	APW04	C	3/11/2021	Sodium, total	mg/L	92.0
UD	APW04	C	3/31/2021	Sodium, total	mg/L	93.0
UD	APW04	C	4/29/2021	Sodium, total	mg/L	96.0
UD	APW04	C	5/25/2021	Sodium, total	mg/L	90.0
UD	APW04	C	6/17/2021	Sodium, total	mg/L	97.0
UD	APW04	C	6/30/2021	Sodium, total	mg/L	95.0
UD	APW04	C	7/15/2021	Sodium, total	mg/L	94.0
UD	APW04	C	3/14/2023	Sodium, total	mg/L	110
UD	APW04	C	4/25/2023	Sodium, total	mg/L	90.0
UD	APW04	C	7/31/2023	Sodium, total	mg/L	90.6
UD	APW04	C	10/10/2023	Sodium, total	mg/L	92.1
UD	APW04	C	2/18/2021	Sulfate, total	mg/L	860
UD	APW04	C	3/11/2021	Sulfate, total	mg/L	970
UD	APW04	C	3/31/2021	Sulfate, total	mg/L	960
UD	APW04	C	4/29/2021	Sulfate, total	mg/L	990
UD	APW04	C	5/25/2021	Sulfate, total	mg/L	900
UD	APW04	C	6/17/2021	Sulfate, total	mg/L	950
UD	APW04	C	6/30/2021	Sulfate, total	mg/L	910
UD	APW04	C	7/15/2021	Sulfate, total	mg/L	920
UD	APW04	C	3/14/2023	Sulfate, total	mg/L	760
UD	APW04	C	4/25/2023	Sulfate, total	mg/L	840
UD	APW04	C	7/31/2023	Sulfate, total	mg/L	808

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW04	C	10/10/2023	Sulfate, total	mg/L	808
UD	APW04	C	11/30/2010	Total Dissolved Solids	mg/L	1,920
UD	APW04	C	2/8/2011	Total Dissolved Solids	mg/L	2,300
UD	APW04	C	5/4/2011	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	7/12/2011	Total Dissolved Solids	mg/L	2,300
UD	APW04	C	10/11/2011	Total Dissolved Solids	mg/L	2,200
UD	APW04	C	1/31/2012	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	4/10/2012	Total Dissolved Solids	mg/L	2,200
UD	APW04	C	7/17/2012	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	3/14/2014	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	4/9/2014	Total Dissolved Solids	mg/L	2,300
UD	APW04	C	8/14/2014	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	10/17/2014	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	1/13/2015	Total Dissolved Solids	mg/L	2,300
UD	APW04	C	4/20/2015	Total Dissolved Solids	mg/L	3,100
UD	APW04	C	7/15/2015	Total Dissolved Solids	mg/L	2,400
UD	APW04	C	10/7/2015	Total Dissolved Solids	mg/L	2,300
UD	APW04	C	10/27/2020	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	2/10/2021	Total Dissolved Solids	mg/L	1,700
UD	APW04	C	2/18/2021	Total Dissolved Solids	mg/L	1,700
UD	APW04	C	3/11/2021	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	3/31/2021	Total Dissolved Solids	mg/L	2,000
UD	APW04	C	4/29/2021	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	5/25/2021	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	6/17/2021	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	6/30/2021	Total Dissolved Solids	mg/L	1,700
UD	APW04	C	7/15/2021	Total Dissolved Solids	mg/L	1,900
UD	APW04	C	11/9/2021	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	2/22/2022	Total Dissolved Solids	mg/L	1,700
UD	APW04	C	5/24/2022	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	8/17/2022	Total Dissolved Solids	mg/L	1,600
UD	APW04	C	11/1/2022	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	2/2/2023	Total Dissolved Solids	mg/L	1,900
UD	APW04	C	3/14/2023	Total Dissolved Solids	mg/L	1,600
UD	APW04	C	4/25/2023	Total Dissolved Solids	mg/L	1,800
UD	APW04	C	7/31/2023	Total Dissolved Solids	mg/L	1,770
UD	APW04	C	10/10/2023	Total Dissolved Solids	mg/L	1,710
UD	APW05S	C	2/17/2021	pH (field)	SU	6.6
UD	APW05S	C	3/10/2021	pH (field)	SU	7.0
UD	APW05S	C	4/29/2021	pH (field)	SU	6.8
UD	APW05S	C	5/25/2021	pH (field)	SU	6.9
UD	APW05S	C	6/17/2021	pH (field)	SU	6.8
UD	APW05S	C	6/30/2021	pH (field)	SU	6.7
UD	APW05S	C	7/15/2021	pH (field)	SU	6.8
UD	APW05S	C	3/14/2023	pH (field)	SU	7.1
UD	APW05S	C	4/26/2023	pH (field)	SU	6.6

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW05S	C	7/25/2023	pH (field)	SU	6.9
UD	APW05S	C	10/10/2023	pH (field)	SU	6.7
UD	APW05S	C	2/17/2021	Oxidation Reduction Potential	mV	202
UD	APW05S	C	3/10/2021	Oxidation Reduction Potential	mV	16.3
UD	APW05S	C	4/29/2021	Oxidation Reduction Potential	mV	4.70
UD	APW05S	C	5/25/2021	Oxidation Reduction Potential	mV	-37.0
UD	APW05S	C	6/17/2021	Oxidation Reduction Potential	mV	-8.80
UD	APW05S	C	6/30/2021	Oxidation Reduction Potential	mV	2.80
UD	APW05S	C	7/15/2021	Oxidation Reduction Potential	mV	-35.6
UD	APW05S	C	4/26/2023	Oxidation Reduction Potential	mV	97.0
UD	APW05S	C	7/25/2023	Oxidation Reduction Potential	mV	36.0
UD	APW05S	C	10/10/2023	Oxidation Reduction Potential	mV	-2.00
UD	APW05S	C	2/17/2021	Eh	V	0.40
UD	APW05S	C	3/10/2021	Eh	V	0.21
UD	APW05S	C	4/29/2021	Eh	V	0.20
UD	APW05S	C	5/25/2021	Eh	V	0.15
UD	APW05S	C	6/17/2021	Eh	V	0.18
UD	APW05S	C	6/30/2021	Eh	V	0.19
UD	APW05S	C	7/15/2021	Eh	V	0.15
UD	APW05S	C	4/26/2023	Eh	V	0.29
UD	APW05S	C	7/25/2023	Eh	V	0.23
UD	APW05S	C	10/10/2023	Eh	V	0.19
UD	APW05S	C	2/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	540
UD	APW05S	C	3/10/2021	Alkalinity, bicarbonate	mg/L CaCO3	560
UD	APW05S	C	4/29/2021	Alkalinity, bicarbonate	mg/L CaCO3	490
UD	APW05S	C	5/25/2021	Alkalinity, bicarbonate	mg/L CaCO3	1,100
UD	APW05S	C	6/17/2021	Alkalinity, bicarbonate	mg/L CaCO3	540
UD	APW05S	C	6/30/2021	Alkalinity, bicarbonate	mg/L CaCO3	490
UD	APW05S	C	7/15/2021	Alkalinity, bicarbonate	mg/L CaCO3	520
UD	APW05S	C	3/14/2023	Alkalinity, bicarbonate	mg/L CaCO3	550
UD	APW05S	C	4/26/2023	Alkalinity, bicarbonate	mg/L CaCO3	520
UD	APW05S	C	7/25/2023	Alkalinity, bicarbonate	mg/L CaCO3	541
UD	APW05S	C	10/10/2023	Alkalinity, bicarbonate	mg/L CaCO3	558
UD	APW05S	C	2/17/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	3/10/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	4/29/2021	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44341	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44364	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44377	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44392	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44999	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	45042	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	45132	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	45209	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW05S	C	44244	Barium, total	mg/L	0.0480
UD	APW05S	C	44265	Barium, total	mg/L	0.0510

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW05S	C	44315	Barium, total	mg/L	0.0480
UD	APW05S	C	44341	Barium, total	mg/L	0.0530
UD	APW05S	C	44364	Barium, total	mg/L	0.0510
UD	APW05S	C	44377	Barium, total	mg/L	0.0510
UD	APW05S	C	44392	Barium, total	mg/L	0.0500
UD	APW05S	C	44999	Barium, total	mg/L	0.0920
UD	APW05S	C	45042	Barium, total	mg/L	0.0350
UD	APW05S	C	45132	Barium, total	mg/L	0.0328
UD	APW05S	C	45209	Barium, total	mg/L	0.0478
UD	APW05S	C	44244	Calcium, total	mg/L	390
UD	APW05S	C	44265	Calcium, total	mg/L	420
UD	APW05S	C	44315	Calcium, total	mg/L	420
UD	APW05S	C	44341	Calcium, total	mg/L	420
UD	APW05S	C	44364	Calcium, total	mg/L	410
UD	APW05S	C	44377	Calcium, total	mg/L	380
UD	APW05S	C	44392	Calcium, total	mg/L	370
UD	APW05S	C	44999	Calcium, total	mg/L	430
UD	APW05S	C	45042	Calcium, total	mg/L	390
UD	APW05S	C	45132	Calcium, total	mg/L	355
UD	APW05S	C	45209	Calcium, total	mg/L	373
UD	APW05S	C	44244	Chloride, total	mg/L	550
UD	APW05S	C	44265	Chloride, total	mg/L	190
UD	APW05S	C	44315	Chloride, total	mg/L	200
UD	APW05S	C	44341	Chloride, total	mg/L	210
UD	APW05S	C	44364	Chloride, total	mg/L	190
UD	APW05S	C	44377	Chloride, total	mg/L	180
UD	APW05S	C	44392	Chloride, total	mg/L	260
UD	APW05S	C	44999	Chloride, total	mg/L	200
UD	APW05S	C	45042	Chloride, total	mg/L	200
UD	APW05S	C	45132	Chloride, total	mg/L	123
UD	APW05S	C	45209	Chloride, total	mg/L	112
UD	APW05S	C	45042	Ferrous Iron, dissolved	mg/L	0.260
UD	APW05S	C	45132	Ferrous Iron, dissolved	mg/L	0.164
UD	APW05S	C	45042	Iron, dissolved	mg/L	0.110
UD	APW05S	C	45132	Iron, dissolved	mg/L	0.0562
UD	APW05S	C	44244	Lithium, total	mg/L	0.0430
UD	APW05S	C	44265	Lithium, total	mg/L	0.0420
UD	APW05S	C	44315	Lithium, total	mg/L	0.0390
UD	APW05S	C	44341	Lithium, total	mg/L	0.0420
UD	APW05S	C	44364	Lithium, total	mg/L	0.0380
UD	APW05S	C	44377	Lithium, total	mg/L	0.0910
UD	APW05S	C	44392	Lithium, total	mg/L	0.0670
UD	APW05S	C	44999	Lithium, total	mg/L	0.0370
UD	APW05S	C	45042	Lithium, total	mg/L	0.0330
UD	APW05S	C	45132	Lithium, total	mg/L	0.0350
UD	APW05S	C	45209	Lithium, total	mg/L	0.0328

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW05S	C	44244	Magnesium, total	mg/L	290
UD	APW05S	C	44265	Magnesium, total	mg/L	300
UD	APW05S	C	44315	Magnesium, total	mg/L	320
UD	APW05S	C	44341	Magnesium, total	mg/L	300
UD	APW05S	C	44364	Magnesium, total	mg/L	300
UD	APW05S	C	44377	Magnesium, total	mg/L	290
UD	APW05S	C	44392	Magnesium, total	mg/L	290
UD	APW05S	C	44999	Magnesium, total	mg/L	350
UD	APW05S	C	45042	Magnesium, total	mg/L	300
UD	APW05S	C	45132	Magnesium, total	mg/L	282
UD	APW05S	C	45209	Magnesium, total	mg/L	295
UD	APW05S	C	45042	Manganese, dissolved	mg/L	0.480
UD	APW05S	C	45132	Manganese, dissolved	mg/L	0.418
UD	APW05S	C	45132	Phosphate, dissolved	mg/L	0.0210
UD	APW05S	C	44244	Potassium, total	mg/L	2.10
UD	APW05S	C	44265	Potassium, total	mg/L	2.00
UD	APW05S	C	44315	Potassium, total	mg/L	1.90
UD	APW05S	C	44341	Potassium, total	mg/L	1.90
UD	APW05S	C	44364	Potassium, total	mg/L	2.10
UD	APW05S	C	44377	Potassium, total	mg/L	1.90
UD	APW05S	C	44392	Potassium, total	mg/L	1.90
UD	APW05S	C	44999	Potassium, total	mg/L	2.50
UD	APW05S	C	45042	Potassium, total	mg/L	1.80
UD	APW05S	C	45132	Potassium, total	mg/L	2.17
UD	APW05S	C	45209	Potassium, total	mg/L	2.41
UD	APW05S	C	45042	Silicon, dissolved	mg/L	11.0
UD	APW05S	C	45132	Silicon, dissolved	mg/L	10.3
UD	APW05S	C	44244	Sodium, total	mg/L	250
UD	APW05S	C	44265	Sodium, total	mg/L	250
UD	APW05S	C	44315	Sodium, total	mg/L	280
UD	APW05S	C	44341	Sodium, total	mg/L	250
UD	APW05S	C	44364	Sodium, total	mg/L	240
UD	APW05S	C	44377	Sodium, total	mg/L	250
UD	APW05S	C	44392	Sodium, total	mg/L	250
UD	APW05S	C	44999	Sodium, total	mg/L	310
UD	APW05S	C	45042	Sodium, total	mg/L	260
UD	APW05S	C	45132	Sodium, total	mg/L	257
UD	APW05S	C	45209	Sodium, total	mg/L	252
UD	APW05S	C	44244	Sulfate, total	mg/L	640
UD	APW05S	C	44265	Sulfate, total	mg/L	200
UD	APW05S	C	44315	Sulfate, total	mg/L	2,000
UD	APW05S	C	44341	Sulfate, total	mg/L	2,100
UD	APW05S	C	44364	Sulfate, total	mg/L	2,100
UD	APW05S	C	44377	Sulfate, total	mg/L	1,900
UD	APW05S	C	44392	Sulfate, total	mg/L	2,000
UD	APW05S	C	44999	Sulfate, total	mg/L	1,900

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW05S	C	45042	Sulfate, total	mg/L	2,100
UD	APW05S	C	45132	Sulfate, total	mg/L	1,790
UD	APW05S	C	45209	Sulfate, total	mg/L	1,700
UD	APW05S	C	44244	Total Dissolved Solids	mg/L	3,700
UD	APW05S	C	44265	Total Dissolved Solids	mg/L	3,600
UD	APW05S	C	44315	Total Dissolved Solids	mg/L	3,800
UD	APW05S	C	44341	Total Dissolved Solids	mg/L	3,500
UD	APW05S	C	44364	Total Dissolved Solids	mg/L	3,600
UD	APW05S	C	44377	Total Dissolved Solids	mg/L	3,200
UD	APW05S	C	44392	Total Dissolved Solids	mg/L	3,800
UD	APW05S	C	44999	Total Dissolved Solids	mg/L	4,000
UD	APW05S	C	45042	Total Dissolved Solids	mg/L	3,800
UD	APW05S	C	45132	Total Dissolved Solids	mg/L	3,200
UD	APW05S	C	45209	Total Dissolved Solids	mg/L	3,240
UD	APW12	C	44244	pH (field)	SU	6.2
UD	APW12	C	44264	pH (field)	SU	6.5
UD	APW12	C	44284	pH (field)	SU	6.0
UD	APW12	C	44314	pH (field)	SU	6.4
UD	APW12	C	44341	pH (field)	SU	6.5
UD	APW12	C	44363	pH (field)	SU	6.4
UD	APW12	C	44377	pH (field)	SU	6.3
UD	APW12	C	44392	pH (field)	SU	6.5
UD	APW12	C	45000	pH (field)	SU	6.5
UD	APW12	C	45042	pH (field)	SU	6.5
UD	APW12	C	45131	pH (field)	SU	6.4
UD	APW12	C	45210	pH (field)	SU	6.1
UD	APW12	C	44244	Oxidation Reduction Potential	mV	27.2
UD	APW12	C	44264	Oxidation Reduction Potential	mV	45.5
UD	APW12	C	44284	Oxidation Reduction Potential	mV	117
UD	APW12	C	44314	Oxidation Reduction Potential	mV	11.2
UD	APW12	C	44341	Oxidation Reduction Potential	mV	49.5
UD	APW12	C	44363	Oxidation Reduction Potential	mV	9.90
UD	APW12	C	44377	Oxidation Reduction Potential	mV	115
UD	APW12	C	44392	Oxidation Reduction Potential	mV	22.8
UD	APW12	C	45042	Oxidation Reduction Potential	mV	107
UD	APW12	C	45131	Oxidation Reduction Potential	mV	47.0
UD	APW12	C	45210	Oxidation Reduction Potential	mV	6.00
UD	APW12	C	44244	Eh	V	0.23
UD	APW12	C	44264	Eh	V	0.24
UD	APW12	C	44284	Eh	V	0.31
UD	APW12	C	44314	Eh	V	0.21
UD	APW12	C	44341	Eh	V	0.24
UD	APW12	C	44363	Eh	V	0.20
UD	APW12	C	44377	Eh	V	0.31
UD	APW12	C	44392	Eh	V	0.22
UD	APW12	C	45042	Eh	V	0.30

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW12	C	45131	Eh	V	0.24
UD	APW12	C	45210	Eh	V	0.20
UD	APW12	C	44244	Alkalinity, bicarbonate	mg/L CaCO3	690
UD	APW12	C	44264	Alkalinity, bicarbonate	mg/L CaCO3	680
UD	APW12	C	44284	Alkalinity, bicarbonate	mg/L CaCO3	680
UD	APW12	C	44314	Alkalinity, bicarbonate	mg/L CaCO3	700
UD	APW12	C	44341	Alkalinity, bicarbonate	mg/L CaCO3	680
UD	APW12	C	44363	Alkalinity, bicarbonate	mg/L CaCO3	680
UD	APW12	C	44377	Alkalinity, bicarbonate	mg/L CaCO3	620
UD	APW12	C	44392	Alkalinity, bicarbonate	mg/L CaCO3	660
UD	APW12	C	45000	Alkalinity, bicarbonate	mg/L CaCO3	650
UD	APW12	C	45042	Alkalinity, bicarbonate	mg/L CaCO3	520
UD	APW12	C	45131	Alkalinity, bicarbonate	mg/L CaCO3	614
UD	APW12	C	45210	Alkalinity, bicarbonate	mg/L CaCO3	656
UD	APW12	C	44244	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44264	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44284	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44314	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44341	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44363	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44377	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44392	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	45000	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	45042	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	45131	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	45210	Alkalinity, carbonate	mg/L CaCO3	0
UD	APW12	C	44244	Barium, total	mg/L	0.0580
UD	APW12	C	44264	Barium, total	mg/L	0.0500
UD	APW12	C	44284	Barium, total	mg/L	0.0460
UD	APW12	C	44314	Barium, total	mg/L	0.0380
UD	APW12	C	44341	Barium, total	mg/L	0.0380
UD	APW12	C	44363	Barium, total	mg/L	0.0390
UD	APW12	C	44377	Barium, total	mg/L	0.0400
UD	APW12	C	44392	Barium, total	mg/L	0.0330
UD	APW12	C	45000	Barium, total	mg/L	0.0380
UD	APW12	C	45042	Barium, total	mg/L	0.0280
UD	APW12	C	45131	Barium, total	mg/L	0.0317
UD	APW12	C	45210	Barium, total	mg/L	0.0345
UD	APW12	C	44244	Calcium, total	mg/L	230
UD	APW12	C	44264	Calcium, total	mg/L	230
UD	APW12	C	44284	Calcium, total	mg/L	220
UD	APW12	C	44314	Calcium, total	mg/L	210
UD	APW12	C	44341	Calcium, total	mg/L	220
UD	APW12	C	44363	Calcium, total	mg/L	210
UD	APW12	C	44377	Calcium, total	mg/L	190
UD	APW12	C	44392	Calcium, total	mg/L	210

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW12	C	45000	Calcium, total	mg/L	230
UD	APW12	C	45042	Calcium, total	mg/L	230
UD	APW12	C	45131	Calcium, total	mg/L	245
UD	APW12	C	45210	Calcium, total	mg/L	275
UD	APW12	C	44244	Chloride, total	mg/L	27.0
UD	APW12	C	44264	Chloride, total	mg/L	27.0
UD	APW12	C	44284	Chloride, total	mg/L	28.0
UD	APW12	C	44314	Chloride, total	mg/L	23.0
UD	APW12	C	44341	Chloride, total	mg/L	23.0
UD	APW12	C	44363	Chloride, total	mg/L	20.0
UD	APW12	C	44377	Chloride, total	mg/L	20.0
UD	APW12	C	44392	Chloride, total	mg/L	26.0
UD	APW12	C	45000	Chloride, total	mg/L	22.0
UD	APW12	C	45042	Chloride, total	mg/L	23.0
UD	APW12	C	45131	Chloride, total	mg/L	25.0
UD	APW12	C	45210	Chloride, total	mg/L	31.0
UD	APW12	C	45042	Ferrous Iron, dissolved	mg/L	<0.02
UD	APW12	C	45131	Ferrous Iron, dissolved	mg/L	0.362
UD	APW12	C	45042	Iron, dissolved	mg/L	0.160
UD	APW12	C	45131	Iron, dissolved	mg/L	0.211
UD	APW12	C	44244	Lithium, total	mg/L	0.0330
UD	APW12	C	44264	Lithium, total	mg/L	0.0280
UD	APW12	C	44284	Lithium, total	mg/L	0.0290
UD	APW12	C	44314	Lithium, total	mg/L	0.0260
UD	APW12	C	44341	Lithium, total	mg/L	0.0290
UD	APW12	C	44363	Lithium, total	mg/L	0.0260
UD	APW12	C	44377	Lithium, total	mg/L	0.0460
UD	APW12	C	44392	Lithium, total	mg/L	0.0450
UD	APW12	C	45000	Lithium, total	mg/L	0.0240
UD	APW12	C	45042	Lithium, total	mg/L	0.0240
UD	APW12	C	45131	Lithium, total	mg/L	0.0275
UD	APW12	C	45210	Lithium, total	mg/L	0.0365
UD	APW12	C	44244	Magnesium, total	mg/L	94.0
UD	APW12	C	44264	Magnesium, total	mg/L	97.0
UD	APW12	C	44284	Magnesium, total	mg/L	86.0
UD	APW12	C	44314	Magnesium, total	mg/L	95.0
UD	APW12	C	44341	Magnesium, total	mg/L	94.0
UD	APW12	C	44363	Magnesium, total	mg/L	89.0
UD	APW12	C	44377	Magnesium, total	mg/L	84.0
UD	APW12	C	44392	Magnesium, total	mg/L	99.0
UD	APW12	C	45000	Magnesium, total	mg/L	120
UD	APW12	C	45042	Magnesium, total	mg/L	110
UD	APW12	C	45131	Magnesium, total	mg/L	114
UD	APW12	C	45210	Magnesium, total	mg/L	127
UD	APW12	C	45042	Manganese, dissolved	mg/L	1.30
UD	APW12	C	45131	Manganese, dissolved	mg/L	1.40

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW12	C	45131	Phosphate, dissolved	mg/L	<0.005
UD	APW12	C	44244	Potassium, total	mg/L	6.00
UD	APW12	C	44264	Potassium, total	mg/L	3.20
UD	APW12	C	44284	Potassium, total	mg/L	2.10
UD	APW12	C	44314	Potassium, total	mg/L	1.10
UD	APW12	C	44341	Potassium, total	mg/L	1.10
UD	APW12	C	44363	Potassium, total	mg/L	0.950
UD	APW12	C	44377	Potassium, total	mg/L	1.20
UD	APW12	C	44392	Potassium, total	mg/L	1.00
UD	APW12	C	45000	Potassium, total	mg/L	1.10
UD	APW12	C	45042	Potassium, total	mg/L	0.940
UD	APW12	C	45131	Potassium, total	mg/L	1.18
UD	APW12	C	45210	Potassium, total	mg/L	1.29
UD	APW12	C	45042	Silicon, dissolved	mg/L	18.0
UD	APW12	C	45131	Silicon, dissolved	mg/L	15.8
UD	APW12	C	44244	Sodium, total	mg/L	130
UD	APW12	C	44264	Sodium, total	mg/L	110
UD	APW12	C	44284	Sodium, total	mg/L	94.0
UD	APW12	C	44314	Sodium, total	mg/L	97.0
UD	APW12	C	44341	Sodium, total	mg/L	98.0
UD	APW12	C	44363	Sodium, total	mg/L	81.0
UD	APW12	C	44377	Sodium, total	mg/L	77.0
UD	APW12	C	44392	Sodium, total	mg/L	110
UD	APW12	C	45000	Sodium, total	mg/L	130
UD	APW12	C	45042	Sodium, total	mg/L	120
UD	APW12	C	45131	Sodium, total	mg/L	129
UD	APW12	C	45210	Sodium, total	mg/L	151
UD	APW12	C	44244	Sulfate, total	mg/L	390
UD	APW12	C	44264	Sulfate, total	mg/L	480
UD	APW12	C	44284	Sulfate, total	mg/L	440
UD	APW12	C	44314	Sulfate, total	mg/L	390
UD	APW12	C	44341	Sulfate, total	mg/L	390
UD	APW12	C	44363	Sulfate, total	mg/L	290
UD	APW12	C	44377	Sulfate, total	mg/L	310
UD	APW12	C	44392	Sulfate, total	mg/L	440
UD	APW12	C	45000	Sulfate, total	mg/L	56.0
UD	APW12	C	45042	Sulfate, total	mg/L	540
UD	APW12	C	45131	Sulfate, total	mg/L	655
UD	APW12	C	45210	Sulfate, total	mg/L	712
UD	APW12	C	44244	Total Dissolved Solids	mg/L	1,300
UD	APW12	C	44264	Total Dissolved Solids	mg/L	1,300
UD	APW12	C	44284	Total Dissolved Solids	mg/L	1,400
UD	APW12	C	44314	Total Dissolved Solids	mg/L	1,300
UD	APW12	C	44341	Total Dissolved Solids	mg/L	1,300
UD	APW12	C	44363	Total Dissolved Solids	mg/L	1,100
UD	APW12	C	44377	Total Dissolved Solids	mg/L	990

Attachment 8. Aqueous Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

HSU	Location	Well Type	Date	Parameter	Unit	Result
UD	APW12	C	44392	Total Dissolved Solids	mg/L	1,300
UD	APW12	C	45000	Total Dissolved Solids	mg/L	1,400
UD	APW12	C	45042	Total Dissolved Solids	mg/L	1,500
UD	APW12	C	45131	Total Dissolved Solids	mg/L	1,700
UD	APW12	C	45210	Total Dissolved Solids	mg/L	1,740

Notes:
< = result is less than the detection limit
B = background well
C = compliance well
HSU = hydrostratigraphic unit
CCR = coal combustion residual
UA = uppermost aquifer
UD = uppermost drift
mg/L = milligrams per liter
V = volts

ATTACHMENT 9
PRINCIPAL COMPONENTS ANALYSIS (PCA)
INPUT DATA

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW02	2/17/2021	Arsenic	0.0316	FALSE	TRUE
APW02	2/17/2021	Barium	0.0084	FALSE	FALSE
APW02	2/17/2021	Boron	0.091	FALSE	FALSE
APW02	2/17/2021	Calcium	430	FALSE	FALSE
APW02	2/17/2021	Chloride	84	FALSE	FALSE
APW02	2/17/2021	Fluoride	0.5	FALSE	TRUE
APW02	2/17/2021	Iron	0.88	FALSE	FALSE
APW02	2/17/2021	Lithium	0.079	FALSE	FALSE
APW02	2/17/2021	Magnesium	380	FALSE	FALSE
APW02	2/17/2021	Manganese	0.11	FALSE	FALSE
APW02	2/17/2021	Molybdenum	0.0316	FALSE	TRUE
APW02	2/17/2021	Potassium	3.9	FALSE	FALSE
APW02	2/17/2021	Sodium	400	FALSE	FALSE
APW02	2/17/2021	Sulfate	2900	FALSE	FALSE
APW02	2/17/2021	H+	0.000000251	FALSE	FALSE
APW02	2/17/2021	Alkalinity	14.2	FALSE	FALSE
APW02	4/29/2021	Arsenic	0.0316	FALSE	TRUE
APW02	4/29/2021	Barium	0.013	FALSE	FALSE
APW02	4/29/2021	Boron	0.12	FALSE	FALSE
APW02	4/29/2021	Calcium	490	FALSE	FALSE
APW02	4/29/2021	Chloride	130	FALSE	FALSE
APW02	4/29/2021	Fluoride	0.5	FALSE	TRUE
APW02	4/29/2021	Iron	0.67	FALSE	FALSE
APW02	4/29/2021	Lithium	0.11	FALSE	FALSE
APW02	4/29/2021	Magnesium	470	FALSE	FALSE
APW02	4/29/2021	Manganese	0.28	FALSE	FALSE
APW02	4/29/2021	Molybdenum	0.0316	FALSE	TRUE
APW02	4/29/2021	Potassium	5.7	FALSE	FALSE
APW02	4/29/2021	Sodium	380	FALSE	FALSE
APW02	4/29/2021	Sulfate	1500	FALSE	FALSE
APW02	4/29/2021	H+	0.000000209	FALSE	FALSE
APW02	4/29/2021	Alkalinity	16.2	FALSE	FALSE
APW02	6/30/2021	Arsenic	0.0316	FALSE	TRUE
APW02	6/30/2021	Barium	0.036	FALSE	FALSE
APW02	6/30/2021	Boron	0.49	FALSE	FALSE
APW02	6/30/2021	Calcium	510	FALSE	FALSE
APW02	6/30/2021	Chloride	110	FALSE	FALSE
APW02	6/30/2021	Fluoride	0.5	FALSE	TRUE
APW02	6/30/2021	Iron	1.4	FALSE	FALSE
APW02	6/30/2021	Lithium	0.3	FALSE	FALSE
APW02	6/30/2021	Magnesium	460	FALSE	FALSE
APW02	6/30/2021	Manganese	0.58	FALSE	FALSE
APW02	6/30/2021	Molybdenum	0.0316	FALSE	TRUE
APW02	6/30/2021	Potassium	6.1	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW02	6/30/2021	Sodium	380	FALSE	FALSE
APW02	6/30/2021	Sulfate	3200	FALSE	FALSE
APW02	6/30/2021	H+	0.000000263	FALSE	FALSE
APW02	6/30/2021	Alkalinity	16.6	FALSE	FALSE
APW02	7/15/2021	Arsenic	0.0316	FALSE	TRUE
APW02	7/15/2021	Barium	0.025	FALSE	FALSE
APW02	7/15/2021	Boron	0.14	FALSE	FALSE
APW02	7/15/2021	Calcium	480	FALSE	FALSE
APW02	7/15/2021	Chloride	120	FALSE	FALSE
APW02	7/15/2021	Fluoride	0.5	FALSE	TRUE
APW02	7/15/2021	Iron	0.91	FALSE	FALSE
APW02	7/15/2021	Lithium	0.21	FALSE	FALSE
APW02	7/15/2021	Magnesium	440	FALSE	FALSE
APW02	7/15/2021	Manganese	0.9	FALSE	FALSE
APW02	7/15/2021	Molybdenum	0.0316	FALSE	TRUE
APW02	7/15/2021	Potassium	6.7	FALSE	FALSE
APW02	7/15/2021	Sodium	360	FALSE	FALSE
APW02	7/15/2021	Sulfate	3100	FALSE	FALSE
APW02	7/15/2021	H+	0.000000282	FALSE	FALSE
APW02	7/15/2021	Alkalinity	16.6	FALSE	FALSE
APW02	4/27/2023	Arsenic	0.0014	FALSE	FALSE
APW02	4/27/2023	Barium	0.024	FALSE	FALSE
APW02	4/27/2023	Boron	0.12	FALSE	FALSE
APW02	4/27/2023	Calcium	460	FALSE	FALSE
APW02	4/27/2023	Chloride	110	FALSE	FALSE
APW02	4/27/2023	Fluoride	0.172	FALSE	FALSE
APW02	4/27/2023	Iron	0.82	FALSE	FALSE
APW02	4/27/2023	Lithium	0.098	FALSE	FALSE
APW02	4/27/2023	Magnesium	430	FALSE	FALSE
APW02	4/27/2023	Manganese	0.71	FALSE	FALSE
APW02	4/27/2023	Molybdenum	0.0016	FALSE	FALSE
APW02	4/27/2023	Potassium	5.8	FALSE	FALSE
APW02	4/27/2023	Sodium	360	FALSE	FALSE
APW02	4/27/2023	Sulfate	3100	FALSE	FALSE
APW02	4/27/2023	H+	0.000000195	FALSE	FALSE
APW02	4/27/2023	Alkalinity	16.6	FALSE	FALSE
APW02	8/17/2023	Arsenic	0.0009	FALSE	FALSE
APW02	8/17/2023	Barium	0.0076	FALSE	FALSE
APW02	8/17/2023	Boron	0.189	FALSE	FALSE
APW02	8/17/2023	Calcium	475	FALSE	FALSE
APW02	8/17/2023	Chloride	102	FALSE	FALSE
APW02	8/17/2023	Fluoride	0.21	FALSE	FALSE
APW02	8/17/2023	Iron	0.76	FALSE	FALSE
APW02	8/17/2023	Lithium	0.19	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW02	8/17/2023	Magnesium	429	FALSE	FALSE
APW02	8/17/2023	Manganese	0.287	FALSE	FALSE
APW02	8/17/2023	Molybdenum	0.0015	FALSE	FALSE
APW02	8/17/2023	Potassium	6.43	FALSE	FALSE
APW02	8/17/2023	Sodium	394	FALSE	FALSE
APW02	8/17/2023	Sulfate	2860	FALSE	FALSE
APW02	8/17/2023	H+	0.000000191	FALSE	FALSE
APW02	8/17/2023	Alkalinity	16.3	FALSE	FALSE
APW02	10/10/2023	Arsenic	0.0006	FALSE	FALSE
APW02	10/10/2023	Barium	0.0136	FALSE	FALSE
APW02	10/10/2023	Boron	0.111	FALSE	FALSE
APW02	10/10/2023	Calcium	506	FALSE	FALSE
APW02	10/10/2023	Chloride	100	FALSE	FALSE
APW02	10/10/2023	Fluoride	0.23	FALSE	FALSE
APW02	10/10/2023	Iron	0.82	TRUE	NA
APW02	10/10/2023	Lithium	0.105	FALSE	FALSE
APW02	10/10/2023	Magnesium	471	FALSE	FALSE
APW02	10/10/2023	Manganese	0.287	TRUE	NA
APW02	10/10/2023	Molybdenum	0.0016	FALSE	FALSE
APW02	10/10/2023	Potassium	7.07	FALSE	FALSE
APW02	10/10/2023	Sodium	441	FALSE	FALSE
APW02	10/10/2023	Sulfate	2900	FALSE	FALSE
APW02	10/10/2023	H+	0.000000209	FALSE	FALSE
APW02	10/10/2023	Alkalinity	16.6	FALSE	FALSE
APW03	4/29/2021	Arsenic	0.0316	FALSE	TRUE
APW03	4/29/2021	Barium	0.068	FALSE	FALSE
APW03	4/29/2021	Boron	0.4	FALSE	FALSE
APW03	4/29/2021	Calcium	110	FALSE	FALSE
APW03	4/29/2021	Chloride	8.2	FALSE	FALSE
APW03	4/29/2021	Fluoride	0.5	FALSE	TRUE
APW03	4/29/2021	Iron	0.55	FALSE	FALSE
APW03	4/29/2021	Lithium	0.141	FALSE	TRUE
APW03	4/29/2021	Magnesium	65	FALSE	FALSE
APW03	4/29/2021	Manganese	0.014	FALSE	FALSE
APW03	4/29/2021	Molybdenum	0.0019	FALSE	FALSE
APW03	4/29/2021	Potassium	0.67	FALSE	FALSE
APW03	4/29/2021	Sodium	55	FALSE	FALSE
APW03	4/29/2021	Sulfate	170	FALSE	FALSE
APW03	4/29/2021	H+	0.0000001	FALSE	FALSE
APW03	4/29/2021	Alkalinity	14.4	FALSE	FALSE
APW03	5/25/2021	Arsenic	0.0316	FALSE	TRUE
APW03	5/25/2021	Barium	0.063	FALSE	FALSE
APW03	5/25/2021	Boron	0.38	FALSE	FALSE
APW03	5/25/2021	Calcium	110	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW03	5/25/2021	Chloride	8	FALSE	FALSE
APW03	5/25/2021	Fluoride	0.5	FALSE	TRUE
APW03	5/25/2021	Iron	0.56	FALSE	FALSE
APW03	5/25/2021	Lithium	0.023	FALSE	FALSE
APW03	5/25/2021	Magnesium	62	FALSE	FALSE
APW03	5/25/2021	Manganese	0.021	FALSE	FALSE
APW03	5/25/2021	Molybdenum	0.0015	FALSE	FALSE
APW03	5/25/2021	Potassium	0.73	FALSE	FALSE
APW03	5/25/2021	Sodium	50	FALSE	FALSE
APW03	5/25/2021	Sulfate	170	FALSE	FALSE
APW03	5/25/2021	H+	8.91E-08	FALSE	FALSE
APW03	5/25/2021	Alkalinity	18.4	FALSE	FALSE
APW03	6/17/2021	Arsenic	0.0316	FALSE	TRUE
APW03	6/17/2021	Barium	0.081	FALSE	FALSE
APW03	6/17/2021	Boron	0.45	FALSE	FALSE
APW03	6/17/2021	Calcium	120	FALSE	FALSE
APW03	6/17/2021	Chloride	8.3	FALSE	FALSE
APW03	6/17/2021	Fluoride	0.5	FALSE	TRUE
APW03	6/17/2021	Iron	1.3	FALSE	FALSE
APW03	6/17/2021	Lithium	0.02	FALSE	FALSE
APW03	6/17/2021	Magnesium	65	FALSE	FALSE
APW03	6/17/2021	Manganese	0.038	FALSE	FALSE
APW03	6/17/2021	Molybdenum	0.0014	FALSE	FALSE
APW03	6/17/2021	Potassium	0.84	FALSE	FALSE
APW03	6/17/2021	Sodium	52	FALSE	FALSE
APW03	6/17/2021	Sulfate	170	FALSE	FALSE
APW03	6/17/2021	H+	0.000000105	FALSE	FALSE
APW03	6/17/2021	Alkalinity	13.8	FALSE	FALSE
APW03	6/30/2021	Arsenic	0.0316	FALSE	TRUE
APW03	6/30/2021	Barium	0.059	FALSE	FALSE
APW03	6/30/2021	Boron	0.66	FALSE	FALSE
APW03	6/30/2021	Calcium	110	FALSE	FALSE
APW03	6/30/2021	Chloride	11	FALSE	FALSE
APW03	6/30/2021	Fluoride	0.5	FALSE	TRUE
APW03	6/30/2021	Iron	0.92	FALSE	FALSE
APW03	6/30/2021	Lithium	0.035	FALSE	FALSE
APW03	6/30/2021	Magnesium	62	FALSE	FALSE
APW03	6/30/2021	Manganese	0.044	FALSE	FALSE
APW03	6/30/2021	Molybdenum	0.0014	FALSE	FALSE
APW03	6/30/2021	Potassium	0.81	FALSE	FALSE
APW03	6/30/2021	Sodium	52	FALSE	FALSE
APW03	6/30/2021	Sulfate	160	FALSE	FALSE
APW03	6/30/2021	H+	9.33E-08	FALSE	FALSE
APW03	6/30/2021	Alkalinity	13.3	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW03	7/31/2023	Arsenic	0.0007	FALSE	FALSE
APW03	7/31/2023	Barium	0.0942	FALSE	FALSE
APW03	7/31/2023	Boron	0.538	FALSE	FALSE
APW03	7/31/2023	Calcium	96.5	FALSE	FALSE
APW03	7/31/2023	Chloride	10	FALSE	FALSE
APW03	7/31/2023	Fluoride	0.23	FALSE	FALSE
APW03	7/31/2023	Iron	0.18	FALSE	FALSE
APW03	7/31/2023	Lithium	0.0139	FALSE	FALSE
APW03	7/31/2023	Magnesium	54.3	FALSE	FALSE
APW03	7/31/2023	Manganese	0.044	FALSE	FALSE
APW03	7/31/2023	Molybdenum	0.0013	FALSE	FALSE
APW03	7/31/2023	Potassium	0.602	FALSE	FALSE
APW03	7/31/2023	Sodium	56.2	FALSE	FALSE
APW03	7/31/2023	Sulfate	118	FALSE	FALSE
APW03	7/31/2023	H+	0.000000162	FALSE	FALSE
APW03	7/31/2023	Alkalinity	14.1	FALSE	FALSE
APW03	10/10/2023	Arsenic	0.0007	FALSE	FALSE
APW03	10/10/2023	Barium	0.11	FALSE	FALSE
APW03	10/10/2023	Boron	0.44	FALSE	FALSE
APW03	10/10/2023	Calcium	92.5	FALSE	FALSE
APW03	10/10/2023	Chloride	7	FALSE	FALSE
APW03	10/10/2023	Fluoride	0.26	FALSE	FALSE
APW03	10/10/2023	Iron	0.56	TRUE	NA
APW03	10/10/2023	Lithium	0.0111	FALSE	FALSE
APW03	10/10/2023	Magnesium	52.7	FALSE	FALSE
APW03	10/10/2023	Manganese	0.038	TRUE	NA
APW03	10/10/2023	Molybdenum	0.0009	FALSE	FALSE
APW03	10/10/2023	Potassium	0.463	FALSE	FALSE
APW03	10/10/2023	Sodium	61.8	FALSE	FALSE
APW03	10/10/2023	Sulfate	113	FALSE	FALSE
APW03	10/10/2023	H+	0.000000123	FALSE	FALSE
APW03	10/10/2023	Alkalinity	14.6	FALSE	FALSE
APW04	4/29/2021	Arsenic	0.0316	FALSE	TRUE
APW04	4/29/2021	Barium	0.013	FALSE	FALSE
APW04	4/29/2021	Boron	0.023	FALSE	FALSE
APW04	4/29/2021	Calcium	220	FALSE	FALSE
APW04	4/29/2021	Chloride	29	FALSE	FALSE
APW04	4/29/2021	Fluoride	0.5	FALSE	TRUE
APW04	4/29/2021	Iron	0.57	FALSE	FALSE
APW04	4/29/2021	Lithium	0.141	FALSE	TRUE
APW04	4/29/2021	Magnesium	180	FALSE	FALSE
APW04	4/29/2021	Manganese	0.93	FALSE	FALSE
APW04	4/29/2021	Molybdenum	0.0316	FALSE	TRUE
APW04	4/29/2021	Potassium	1.2	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW04	4/29/2021	Sodium	96	FALSE	FALSE
APW04	4/29/2021	Sulfate	990	FALSE	FALSE
APW04	4/29/2021	H+	0.000000138	FALSE	FALSE
APW04	4/29/2021	Alkalinity	14.2	FALSE	FALSE
APW04	6/17/2021	Arsenic	0.0012	FALSE	FALSE
APW04	6/17/2021	Barium	0.026	FALSE	FALSE
APW04	6/17/2021	Boron	0.025	FALSE	FALSE
APW04	6/17/2021	Calcium	240	FALSE	FALSE
APW04	6/17/2021	Chloride	29	FALSE	FALSE
APW04	6/17/2021	Fluoride	0.5	FALSE	TRUE
APW04	6/17/2021	Iron	1.8	FALSE	FALSE
APW04	6/17/2021	Lithium	0.021	FALSE	FALSE
APW04	6/17/2021	Magnesium	190	FALSE	FALSE
APW04	6/17/2021	Manganese	1.8	FALSE	FALSE
APW04	6/17/2021	Molybdenum	0.0316	FALSE	TRUE
APW04	6/17/2021	Potassium	1.5	FALSE	FALSE
APW04	6/17/2021	Sodium	97	FALSE	FALSE
APW04	6/17/2021	Sulfate	950	FALSE	FALSE
APW04	6/17/2021	H+	0.000000155	FALSE	FALSE
APW04	6/17/2021	Alkalinity	14.6	FALSE	FALSE
APW04	6/30/2021	Arsenic	0.0316	FALSE	TRUE
APW04	6/30/2021	Barium	0.032	FALSE	FALSE
APW04	6/30/2021	Boron	0.21	FALSE	FALSE
APW04	6/30/2021	Calcium	220	FALSE	FALSE
APW04	6/30/2021	Chloride	27	FALSE	FALSE
APW04	6/30/2021	Fluoride	0.5	FALSE	TRUE
APW04	6/30/2021	Iron	1.4	FALSE	FALSE
APW04	6/30/2021	Lithium	0.045	FALSE	FALSE
APW04	6/30/2021	Magnesium	170	FALSE	FALSE
APW04	6/30/2021	Manganese	2	FALSE	FALSE
APW04	6/30/2021	Molybdenum	0.0316	FALSE	TRUE
APW04	6/30/2021	Potassium	1.3	FALSE	FALSE
APW04	6/30/2021	Sodium	95	FALSE	FALSE
APW04	6/30/2021	Sulfate	910	FALSE	FALSE
APW04	6/30/2021	H+	0.000000158	FALSE	FALSE
APW04	6/30/2021	Alkalinity	14.3	FALSE	FALSE
APW04	7/31/2023	Arsenic	0.0009	FALSE	FALSE
APW04	7/31/2023	Barium	0.0247	FALSE	FALSE
APW04	7/31/2023	Boron	0.0402	FALSE	FALSE
APW04	7/31/2023	Calcium	211	FALSE	FALSE
APW04	7/31/2023	Chloride	36	FALSE	FALSE
APW04	7/31/2023	Fluoride	0.18	FALSE	FALSE
APW04	7/31/2023	Iron	0.935	FALSE	FALSE
APW04	7/31/2023	Lithium	0.0225	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW04	7/31/2023	Magnesium	174	FALSE	FALSE
APW04	7/31/2023	Manganese	0.818	FALSE	FALSE
APW04	7/31/2023	Molybdenum	0.0014	FALSE	FALSE
APW04	7/31/2023	Potassium	1.72	FALSE	FALSE
APW04	7/31/2023	Sodium	90.6	FALSE	FALSE
APW04	7/31/2023	Sulfate	808	FALSE	FALSE
APW04	7/31/2023	H+	0.000000257	FALSE	FALSE
APW04	7/31/2023	Alkalinity	15	FALSE	FALSE
APW04	10/10/2023	Arsenic	0.0006	FALSE	FALSE
APW04	10/10/2023	Barium	0.02	FALSE	FALSE
APW04	10/10/2023	Boron	0.0322	FALSE	FALSE
APW04	10/10/2023	Calcium	206	FALSE	FALSE
APW04	10/10/2023	Chloride	34	FALSE	FALSE
APW04	10/10/2023	Fluoride	0.2	FALSE	FALSE
APW04	10/10/2023	Iron	1.1	TRUE	NA
APW04	10/10/2023	Lithium	0.0218	FALSE	FALSE
APW04	10/10/2023	Magnesium	167	FALSE	FALSE
APW04	10/10/2023	Manganese	1.8	TRUE	NA
APW04	10/10/2023	Molybdenum	0.001	FALSE	FALSE
APW04	10/10/2023	Potassium	1.76	FALSE	FALSE
APW04	10/10/2023	Sodium	92.1	FALSE	FALSE
APW04	10/10/2023	Sulfate	808	FALSE	FALSE
APW04	10/10/2023	H+	0.000000162	FALSE	FALSE
APW04	10/10/2023	Alkalinity	15.2	FALSE	FALSE
APW05	2/9/2021	Arsenic	0.021	TRUE	NA
APW05	2/9/2021	Barium	0.26	TRUE	NA
APW05	2/9/2021	Boron	0.13	FALSE	FALSE
APW05	2/9/2021	Calcium	54	FALSE	FALSE
APW05	2/9/2021	Chloride	50	FALSE	FALSE
APW05	2/9/2021	Fluoride	0.543	FALSE	FALSE
APW05	2/9/2021	Iron	1.4	TRUE	NA
APW05	2/9/2021	Lithium	0.01	TRUE	NA
APW05	2/9/2021	Magnesium	29	FALSE	FALSE
APW05	2/9/2021	Manganese	0.037	TRUE	NA
APW05	2/9/2021	Molybdenum	0.011	TRUE	NA
APW05	2/9/2021	Potassium	1.9	FALSE	FALSE
APW05	2/9/2021	Sodium	130	FALSE	FALSE
APW05	2/9/2021	Sulfate	1.3	FALSE	FALSE
APW05	2/9/2021	H+	2.51E-08	FALSE	FALSE
APW05	2/9/2021	Alkalinity	14.4	FALSE	FALSE
APW05	3/10/2021	Arsenic	0.022	FALSE	FALSE
APW05	3/10/2021	Barium	0.24	FALSE	FALSE
APW05	3/10/2021	Boron	0.12	FALSE	FALSE
APW05	3/10/2021	Calcium	55	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05	3/10/2021	Chloride	48	FALSE	FALSE
APW05	3/10/2021	Fluoride	0.365	FALSE	FALSE
APW05	3/10/2021	Iron	3	FALSE	FALSE
APW05	3/10/2021	Lithium	0.141	FALSE	TRUE
APW05	3/10/2021	Magnesium	29	FALSE	FALSE
APW05	3/10/2021	Manganese	0.053	FALSE	FALSE
APW05	3/10/2021	Molybdenum	0.011	FALSE	FALSE
APW05	3/10/2021	Potassium	1.7	FALSE	FALSE
APW05	3/10/2021	Sodium	130	FALSE	FALSE
APW05	3/10/2021	Sulfate	1.3	FALSE	FALSE
APW05	3/10/2021	H+	0.00000002	FALSE	FALSE
APW05	3/10/2021	Alkalinity	14.4	FALSE	FALSE
APW05	3/30/2021	Arsenic	0.022	FALSE	FALSE
APW05	3/30/2021	Barium	0.27	FALSE	FALSE
APW05	3/30/2021	Boron	0.092	FALSE	FALSE
APW05	3/30/2021	Calcium	54	FALSE	FALSE
APW05	3/30/2021	Chloride	49	FALSE	FALSE
APW05	3/30/2021	Fluoride	0.342	FALSE	FALSE
APW05	3/30/2021	Iron	2.6	FALSE	FALSE
APW05	3/30/2021	Lithium	0.141	FALSE	TRUE
APW05	3/30/2021	Magnesium	26	FALSE	FALSE
APW05	3/30/2021	Manganese	0.042	FALSE	FALSE
APW05	3/30/2021	Molybdenum	0.011	FALSE	FALSE
APW05	3/30/2021	Potassium	1.5	FALSE	FALSE
APW05	3/30/2021	Sodium	120	FALSE	FALSE
APW05	3/30/2021	Sulfate	1.3	FALSE	FALSE
APW05	3/30/2021	H+	6.31E-08	FALSE	FALSE
APW05	3/30/2021	Alkalinity	14.4	FALSE	FALSE
APW05	4/28/2021	Arsenic	0.018	FALSE	FALSE
APW05	4/28/2021	Barium	0.24	FALSE	FALSE
APW05	4/28/2021	Boron	0.099	FALSE	FALSE
APW05	4/28/2021	Calcium	52	FALSE	FALSE
APW05	4/28/2021	Chloride	51	FALSE	FALSE
APW05	4/28/2021	Fluoride	0.514	FALSE	FALSE
APW05	4/28/2021	Iron	1.4	FALSE	FALSE
APW05	4/28/2021	Lithium	0.141	FALSE	TRUE
APW05	4/28/2021	Magnesium	29	FALSE	FALSE
APW05	4/28/2021	Manganese	0.037	FALSE	FALSE
APW05	4/28/2021	Molybdenum	0.012	FALSE	FALSE
APW05	4/28/2021	Potassium	1.5	FALSE	FALSE
APW05	4/28/2021	Sodium	140	FALSE	FALSE
APW05	4/28/2021	Sulfate	1.1	FALSE	FALSE
APW05	4/28/2021	H+	3.24E-08	FALSE	FALSE
APW05	4/28/2021	Alkalinity	14.4	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05	5/25/2021	Arsenic	0.019	FALSE	FALSE
APW05	5/25/2021	Barium	0.24	FALSE	FALSE
APW05	5/25/2021	Boron	0.12	FALSE	FALSE
APW05	5/25/2021	Calcium	54	FALSE	FALSE
APW05	5/25/2021	Chloride	48	FALSE	FALSE
APW05	5/25/2021	Fluoride	0.532	FALSE	FALSE
APW05	5/25/2021	Iron	1.5	FALSE	FALSE
APW05	5/25/2021	Lithium	0.141	FALSE	TRUE
APW05	5/25/2021	Magnesium	28	FALSE	FALSE
APW05	5/25/2021	Manganese	0.034	FALSE	FALSE
APW05	5/25/2021	Molybdenum	0.012	FALSE	FALSE
APW05	5/25/2021	Potassium	1.6	FALSE	FALSE
APW05	5/25/2021	Sodium	130	FALSE	FALSE
APW05	5/25/2021	Sulfate	1	FALSE	FALSE
APW05	5/25/2021	H+	2.88E-08	FALSE	FALSE
APW05	5/25/2021	Alkalinity	13.4	FALSE	FALSE
APW05	6/17/2021	Arsenic	0.022	FALSE	FALSE
APW05	6/17/2021	Barium	0.25	FALSE	FALSE
APW05	6/17/2021	Boron	0.091	FALSE	FALSE
APW05	6/17/2021	Calcium	58	FALSE	FALSE
APW05	6/17/2021	Chloride	50	FALSE	FALSE
APW05	6/17/2021	Fluoride	0.516	FALSE	FALSE
APW05	6/17/2021	Iron	1.4	FALSE	FALSE
APW05	6/17/2021	Lithium	0.141	FALSE	TRUE
APW05	6/17/2021	Magnesium	31	FALSE	FALSE
APW05	6/17/2021	Manganese	0.035	FALSE	FALSE
APW05	6/17/2021	Molybdenum	0.011	FALSE	FALSE
APW05	6/17/2021	Potassium	1.6	FALSE	FALSE
APW05	6/17/2021	Sodium	140	FALSE	FALSE
APW05	6/17/2021	Sulfate	1	FALSE	TRUE
APW05	6/17/2021	H+	1.86E-08	FALSE	FALSE
APW05	6/17/2021	Alkalinity	14.6	FALSE	FALSE
APW05	6/30/2021	Arsenic	0.021	FALSE	FALSE
APW05	6/30/2021	Barium	0.25	FALSE	FALSE
APW05	6/30/2021	Boron	0.26	FALSE	FALSE
APW05	6/30/2021	Calcium	52	FALSE	FALSE
APW05	6/30/2021	Chloride	51	FALSE	FALSE
APW05	6/30/2021	Fluoride	0.441	FALSE	FALSE
APW05	6/30/2021	Iron	1.3	FALSE	FALSE
APW05	6/30/2021	Lithium	0.141	FALSE	TRUE
APW05	6/30/2021	Magnesium	30	FALSE	FALSE
APW05	6/30/2021	Manganese	0.062	FALSE	FALSE
APW05	6/30/2021	Molybdenum	0.011	FALSE	FALSE
APW05	6/30/2021	Potassium	1.6	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05	6/30/2021	Sodium	140	FALSE	FALSE
APW05	6/30/2021	Sulfate	1	FALSE	FALSE
APW05	6/30/2021	H+	2.82E-08	FALSE	FALSE
APW05	6/30/2021	Alkalinity	14.3	FALSE	FALSE
APW05	7/15/2021	Arsenic	0.022	FALSE	FALSE
APW05	7/15/2021	Barium	0.25	FALSE	FALSE
APW05	7/15/2021	Boron	0.1	FALSE	FALSE
APW05	7/15/2021	Calcium	51	FALSE	FALSE
APW05	7/15/2021	Chloride	52	FALSE	FALSE
APW05	7/15/2021	Fluoride	0.386	FALSE	FALSE
APW05	7/15/2021	Iron	1.4	FALSE	FALSE
APW05	7/15/2021	Lithium	0.141	FALSE	TRUE
APW05	7/15/2021	Magnesium	28	FALSE	FALSE
APW05	7/15/2021	Manganese	0.032	FALSE	FALSE
APW05	7/15/2021	Molybdenum	0.011	FALSE	FALSE
APW05	7/15/2021	Potassium	1.5	FALSE	FALSE
APW05	7/15/2021	Sodium	130	FALSE	FALSE
APW05	7/15/2021	Sulfate	1.1	FALSE	FALSE
APW05	7/15/2021	H+	1.66E-08	FALSE	FALSE
APW05	7/15/2021	Alkalinity	14.6	FALSE	FALSE
APW05	6/15/2022	Arsenic	0.02	FALSE	FALSE
APW05	6/15/2022	Barium	0.25	FALSE	FALSE
APW05	6/15/2022	Boron	0.14	FALSE	FALSE
APW05	6/15/2022	Calcium	51	FALSE	FALSE
APW05	6/15/2022	Chloride	45	FALSE	FALSE
APW05	6/15/2022	Fluoride	0.5	FALSE	TRUE
APW05	6/15/2022	Iron	1.4	TRUE	NA
APW05	6/15/2022	Lithium	0.141	FALSE	TRUE
APW05	6/15/2022	Magnesium	28	FALSE	FALSE
APW05	6/15/2022	Manganese	0.035	TRUE	NA
APW05	6/15/2022	Molybdenum	0.011	FALSE	FALSE
APW05	6/15/2022	Potassium	1.5	FALSE	FALSE
APW05	6/15/2022	Sodium	120	FALSE	FALSE
APW05	6/15/2022	Sulfate	1	FALSE	TRUE
APW05	6/15/2022	H+	2.88E-08	FALSE	FALSE
APW05	6/15/2022	Alkalinity	14.2	FALSE	FALSE
APW05	8/16/2022	Arsenic	0.021	FALSE	FALSE
APW05	8/16/2022	Barium	0.26	FALSE	FALSE
APW05	8/16/2022	Boron	0.28	FALSE	FALSE
APW05	8/16/2022	Calcium	54	FALSE	FALSE
APW05	8/16/2022	Chloride	46	FALSE	FALSE
APW05	8/16/2022	Fluoride	0.389	FALSE	FALSE
APW05	8/16/2022	Iron	2.5	TRUE	NA
APW05	8/16/2022	Lithium	0.0084	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05	8/16/2022	Magnesium	29	FALSE	FALSE
APW05	8/16/2022	Manganese	0.053	TRUE	NA
APW05	8/16/2022	Molybdenum	0.01	FALSE	FALSE
APW05	8/16/2022	Potassium	1.7	FALSE	FALSE
APW05	8/16/2022	Sodium	140	FALSE	FALSE
APW05	8/16/2022	Sulfate	0.69	FALSE	FALSE
APW05	8/16/2022	H+	4.79E-08	FALSE	FALSE
APW05	8/16/2022	Alkalinity	13.8	FALSE	FALSE
APW05	4/27/2023	Arsenic	0.03	FALSE	FALSE
APW05	4/27/2023	Barium	0.25	FALSE	FALSE
APW05	4/27/2023	Boron	0.092	FALSE	FALSE
APW05	4/27/2023	Calcium	49	FALSE	FALSE
APW05	4/27/2023	Chloride	46	FALSE	FALSE
APW05	4/27/2023	Fluoride	0.498	FALSE	FALSE
APW05	4/27/2023	Iron	2.5	FALSE	FALSE
APW05	4/27/2023	Lithium	0.0087	FALSE	FALSE
APW05	4/27/2023	Magnesium	26	FALSE	FALSE
APW05	4/27/2023	Manganese	0.059	FALSE	FALSE
APW05	4/27/2023	Molybdenum	0.0091	FALSE	FALSE
APW05	4/27/2023	Potassium	1.4	FALSE	FALSE
APW05	4/27/2023	Sodium	130	FALSE	FALSE
APW05	4/27/2023	Sulfate	0.97	FALSE	FALSE
APW05	4/27/2023	H+	7.94E-08	FALSE	FALSE
APW05	4/27/2023	Alkalinity	14.6	FALSE	FALSE
APW05	7/24/2023	Arsenic	0.0293	FALSE	FALSE
APW05	7/24/2023	Barium	0.312	FALSE	FALSE
APW05	7/24/2023	Boron	0.108	FALSE	FALSE
APW05	7/24/2023	Calcium	50.4	FALSE	FALSE
APW05	7/24/2023	Chloride	46	FALSE	FALSE
APW05	7/24/2023	Fluoride	0.48	FALSE	FALSE
APW05	7/24/2023	Iron	2.18	FALSE	FALSE
APW05	7/24/2023	Lithium	0.0088	FALSE	FALSE
APW05	7/24/2023	Magnesium	25.4	FALSE	FALSE
APW05	7/24/2023	Manganese	0.0375	FALSE	FALSE
APW05	7/24/2023	Molybdenum	0.0114	FALSE	FALSE
APW05	7/24/2023	Potassium	1.55	FALSE	FALSE
APW05	7/24/2023	Sodium	128	FALSE	FALSE
APW05	7/24/2023	Sulfate	10	FALSE	FALSE
APW05	7/24/2023	H+	9.55E-09	FALSE	FALSE
APW05	7/24/2023	Alkalinity	14.5	FALSE	FALSE
APW05	10/10/2023	Arsenic	0.0323	FALSE	FALSE
APW05	10/10/2023	Barium	0.333	FALSE	FALSE
APW05	10/10/2023	Boron	0.0897	FALSE	FALSE
APW05	10/10/2023	Calcium	52.8	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05	10/10/2023	Chloride	46	FALSE	FALSE
APW05	10/10/2023	Fluoride	0.53	FALSE	FALSE
APW05	10/10/2023	Iron	2.18	TRUE	NA
APW05	10/10/2023	Lithium	0.009	FALSE	FALSE
APW05	10/10/2023	Magnesium	27.2	FALSE	FALSE
APW05	10/10/2023	Manganese	0.0375	TRUE	NA
APW05	10/10/2023	Molybdenum	0.0127	FALSE	FALSE
APW05	10/10/2023	Potassium	1.52	FALSE	FALSE
APW05	10/10/2023	Sodium	130	FALSE	FALSE
APW05	10/10/2023	Sulfate	8	FALSE	FALSE
APW05	10/10/2023	H+	3.72E-08	FALSE	FALSE
APW05	10/10/2023	Alkalinity	14.7	FALSE	FALSE
APW05S	4/29/2021	Arsenic	0.0018	FALSE	FALSE
APW05S	4/29/2021	Barium	0.048	FALSE	FALSE
APW05S	4/29/2021	Boron	0.04	FALSE	FALSE
APW05S	4/29/2021	Calcium	420	FALSE	FALSE
APW05S	4/29/2021	Chloride	200	FALSE	FALSE
APW05S	4/29/2021	Fluoride	0.373	FALSE	FALSE
APW05S	4/29/2021	Iron	1.3	FALSE	FALSE
APW05S	4/29/2021	Lithium	0.039	FALSE	FALSE
APW05S	4/29/2021	Magnesium	320	FALSE	FALSE
APW05S	4/29/2021	Manganese	0.7	FALSE	FALSE
APW05S	4/29/2021	Molybdenum	0.0014	FALSE	FALSE
APW05S	4/29/2021	Potassium	1.9	FALSE	FALSE
APW05S	4/29/2021	Sodium	280	FALSE	FALSE
APW05S	4/29/2021	Sulfate	2000	FALSE	FALSE
APW05S	4/29/2021	H+	0.000000145	FALSE	FALSE
APW05S	4/29/2021	Alkalinity	14.7	FALSE	FALSE
APW05S	5/25/2021	Arsenic	0.0016	FALSE	FALSE
APW05S	5/25/2021	Barium	0.053	FALSE	FALSE
APW05S	5/25/2021	Boron	0.056	FALSE	FALSE
APW05S	5/25/2021	Calcium	420	FALSE	FALSE
APW05S	5/25/2021	Chloride	210	FALSE	FALSE
APW05S	5/25/2021	Fluoride	0.391	FALSE	FALSE
APW05S	5/25/2021	Iron	1.1	FALSE	FALSE
APW05S	5/25/2021	Lithium	0.042	FALSE	FALSE
APW05S	5/25/2021	Magnesium	300	FALSE	FALSE
APW05S	5/25/2021	Manganese	0.57	FALSE	FALSE
APW05S	5/25/2021	Molybdenum	0.0014	FALSE	FALSE
APW05S	5/25/2021	Potassium	1.9	FALSE	FALSE
APW05S	5/25/2021	Sodium	250	FALSE	FALSE
APW05S	5/25/2021	Sulfate	2100	FALSE	FALSE
APW05S	5/25/2021	H+	0.000000138	FALSE	FALSE
APW05S	5/25/2021	Alkalinity	20.9	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05S	6/17/2021	Arsenic	0.0022	FALSE	FALSE
APW05S	6/17/2021	Barium	0.051	FALSE	FALSE
APW05S	6/17/2021	Boron	0.043	FALSE	FALSE
APW05S	6/17/2021	Calcium	410	FALSE	FALSE
APW05S	6/17/2021	Chloride	190	FALSE	FALSE
APW05S	6/17/2021	Fluoride	0.364	FALSE	FALSE
APW05S	6/17/2021	Iron	1.8	FALSE	FALSE
APW05S	6/17/2021	Lithium	0.038	FALSE	FALSE
APW05S	6/17/2021	Magnesium	300	FALSE	FALSE
APW05S	6/17/2021	Manganese	0.58	FALSE	FALSE
APW05S	6/17/2021	Molybdenum	0.0013	FALSE	FALSE
APW05S	6/17/2021	Potassium	2.1	FALSE	FALSE
APW05S	6/17/2021	Sodium	240	FALSE	FALSE
APW05S	6/17/2021	Sulfate	2100	FALSE	FALSE
APW05S	6/17/2021	H+	0.000000151	FALSE	FALSE
APW05S	6/17/2021	Alkalinity	15.4	FALSE	FALSE
APW05S	6/30/2021	Arsenic	0.002	FALSE	FALSE
APW05S	6/30/2021	Barium	0.051	FALSE	FALSE
APW05S	6/30/2021	Boron	0.046	FALSE	FALSE
APW05S	6/30/2021	Calcium	380	FALSE	FALSE
APW05S	6/30/2021	Chloride	180	FALSE	FALSE
APW05S	6/30/2021	Fluoride	0.401	FALSE	FALSE
APW05S	6/30/2021	Iron	1.6	FALSE	FALSE
APW05S	6/30/2021	Lithium	0.091	FALSE	FALSE
APW05S	6/30/2021	Magnesium	290	FALSE	FALSE
APW05S	6/30/2021	Manganese	0.57	FALSE	FALSE
APW05S	6/30/2021	Molybdenum	0.0011	FALSE	FALSE
APW05S	6/30/2021	Potassium	1.9	FALSE	FALSE
APW05S	6/30/2021	Sodium	250	FALSE	FALSE
APW05S	6/30/2021	Sulfate	1900	FALSE	FALSE
APW05S	6/30/2021	H+	0.000000186	FALSE	FALSE
APW05S	6/30/2021	Alkalinity	14.7	FALSE	FALSE
APW05S	7/15/2021	Arsenic	0.0026	FALSE	FALSE
APW05S	7/15/2021	Barium	0.05	FALSE	FALSE
APW05S	7/15/2021	Boron	0.039	FALSE	FALSE
APW05S	7/15/2021	Calcium	370	FALSE	FALSE
APW05S	7/15/2021	Chloride	260	FALSE	FALSE
APW05S	7/15/2021	Fluoride	0.379	FALSE	FALSE
APW05S	7/15/2021	Iron	1.1	FALSE	FALSE
APW05S	7/15/2021	Lithium	0.067	FALSE	FALSE
APW05S	7/15/2021	Magnesium	290	FALSE	FALSE
APW05S	7/15/2021	Manganese	0.65	FALSE	FALSE
APW05S	7/15/2021	Molybdenum	0.0011	FALSE	FALSE
APW05S	7/15/2021	Potassium	1.9	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW05S	7/15/2021	Sodium	250	FALSE	FALSE
APW05S	7/15/2021	Sulfate	2000	FALSE	FALSE
APW05S	7/15/2021	H+	0.00000017	FALSE	FALSE
APW05S	7/15/2021	Alkalinity	15.1	FALSE	FALSE
APW06	2/9/2021	Arsenic	0.022	TRUE	NA
APW06	2/9/2021	Barium	0.26	TRUE	NA
APW06	2/9/2021	Boron	0.087	FALSE	FALSE
APW06	2/9/2021	Calcium	55	FALSE	FALSE
APW06	2/9/2021	Chloride	24	FALSE	FALSE
APW06	2/9/2021	Fluoride	0.585	FALSE	FALSE
APW06	2/9/2021	Iron	1.5	TRUE	NA
APW06	2/9/2021	Lithium	0.01	TRUE	NA
APW06	2/9/2021	Magnesium	27	FALSE	FALSE
APW06	2/9/2021	Manganese	0.037	TRUE	NA
APW06	2/9/2021	Molybdenum	0.011	TRUE	NA
APW06	2/9/2021	Potassium	1.4	FALSE	FALSE
APW06	2/9/2021	Sodium	130	FALSE	FALSE
APW06	2/9/2021	Sulfate	1.8	FALSE	FALSE
APW06	2/9/2021	H+	2.51E-08	FALSE	FALSE
APW06	2/9/2021	Alkalinity	14.4	FALSE	FALSE
APW06	3/10/2021	Arsenic	0.0052	FALSE	FALSE
APW06	3/10/2021	Barium	0.25	FALSE	FALSE
APW06	3/10/2021	Boron	0.086	FALSE	FALSE
APW06	3/10/2021	Calcium	58	FALSE	FALSE
APW06	3/10/2021	Chloride	22	FALSE	FALSE
APW06	3/10/2021	Fluoride	0.427	FALSE	FALSE
APW06	3/10/2021	Iron	1.8	FALSE	FALSE
APW06	3/10/2021	Lithium	0.141	FALSE	TRUE
APW06	3/10/2021	Magnesium	27	FALSE	FALSE
APW06	3/10/2021	Manganese	0.057	FALSE	FALSE
APW06	3/10/2021	Molybdenum	0.0058	FALSE	FALSE
APW06	3/10/2021	Potassium	1.5	FALSE	FALSE
APW06	3/10/2021	Sodium	120	FALSE	FALSE
APW06	3/10/2021	Sulfate	9.2	FALSE	FALSE
APW06	3/10/2021	H+	0.00000002	FALSE	FALSE
APW06	3/10/2021	Alkalinity	14.4	FALSE	FALSE
APW06	7/15/2021	Arsenic	0.0067	FALSE	FALSE
APW06	7/15/2021	Barium	0.23	FALSE	FALSE
APW06	7/15/2021	Boron	0.083	FALSE	FALSE
APW06	7/15/2021	Calcium	55	FALSE	FALSE
APW06	7/15/2021	Chloride	27	FALSE	FALSE
APW06	7/15/2021	Fluoride	0.442	FALSE	FALSE
APW06	7/15/2021	Iron	3.7	FALSE	FALSE
APW06	7/15/2021	Lithium	0.141	FALSE	TRUE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW06	7/15/2021	Magnesium	27	FALSE	FALSE
APW06	7/15/2021	Manganese	0.11	FALSE	FALSE
APW06	7/15/2021	Molybdenum	0.0076	FALSE	FALSE
APW06	7/15/2021	Potassium	1.7	FALSE	FALSE
APW06	7/15/2021	Sodium	120	FALSE	FALSE
APW06	7/15/2021	Sulfate	7.8	FALSE	FALSE
APW06	7/15/2021	H+	3.24E-08	FALSE	FALSE
APW06	7/15/2021	Alkalinity	14.2	FALSE	FALSE
APW06	2/22/2022	Arsenic	0.021	TRUE	NA
APW06	2/22/2022	Barium	0.26	TRUE	NA
APW06	2/22/2022	Boron	0.1	FALSE	FALSE
APW06	2/22/2022	Calcium	56	FALSE	FALSE
APW06	2/22/2022	Chloride	26	FALSE	FALSE
APW06	2/22/2022	Fluoride	0.389	FALSE	FALSE
APW06	2/22/2022	Iron	2.6	TRUE	NA
APW06	2/22/2022	Lithium	0.01	TRUE	NA
APW06	2/22/2022	Magnesium	28	FALSE	FALSE
APW06	2/22/2022	Manganese	0.053	TRUE	NA
APW06	2/22/2022	Molybdenum	0.011	TRUE	NA
APW06	2/22/2022	Potassium	1.8	FALSE	FALSE
APW06	2/22/2022	Sodium	130	FALSE	FALSE
APW06	2/22/2022	Sulfate	7.6	FALSE	FALSE
APW06	2/22/2022	H+	2.57E-08	FALSE	FALSE
APW06	2/22/2022	Alkalinity	13.8	FALSE	FALSE
APW06	3/15/2023	Arsenic	0.0049	FALSE	FALSE
APW06	3/15/2023	Barium	0.21	FALSE	FALSE
APW06	3/15/2023	Boron	0.094	FALSE	FALSE
APW06	3/15/2023	Calcium	54	FALSE	FALSE
APW06	3/15/2023	Chloride	22	FALSE	FALSE
APW06	3/15/2023	Fluoride	0.493	FALSE	FALSE
APW06	3/15/2023	Iron	2.18	TRUE	NA
APW06	3/15/2023	Lithium	0.01	FALSE	FALSE
APW06	3/15/2023	Magnesium	29	FALSE	FALSE
APW06	3/15/2023	Manganese	0.057	TRUE	NA
APW06	3/15/2023	Molybdenum	0.0091	TRUE	NA
APW06	3/15/2023	Potassium	1.4	FALSE	FALSE
APW06	3/15/2023	Sodium	130	FALSE	FALSE
APW06	3/15/2023	Sulfate	6.8	FALSE	FALSE
APW06	3/15/2023	H+	2.95E-08	FALSE	FALSE
APW06	3/15/2023	Alkalinity	14.6	FALSE	FALSE
APW06	7/25/2023	Arsenic	0.0047	FALSE	FALSE
APW06	7/25/2023	Barium	0.254	FALSE	FALSE
APW06	7/25/2023	Boron	0.605	FALSE	FALSE
APW06	7/25/2023	Calcium	53.7	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW06	7/25/2023	Chloride	24	FALSE	FALSE
APW06	7/25/2023	Fluoride	0.58	FALSE	FALSE
APW06	7/25/2023	Iron	0.846	FALSE	FALSE
APW06	7/25/2023	Lithium	0.0096	FALSE	FALSE
APW06	7/25/2023	Magnesium	24.7	FALSE	FALSE
APW06	7/25/2023	Manganese	0.0486	FALSE	FALSE
APW06	7/25/2023	Molybdenum	0.0071	FALSE	FALSE
APW06	7/25/2023	Potassium	1.42	FALSE	FALSE
APW06	7/25/2023	Sodium	115	FALSE	FALSE
APW06	7/25/2023	Sulfate	17	FALSE	FALSE
APW06	7/25/2023	H+	0.00000002	FALSE	FALSE
APW06	7/25/2023	Alkalinity	14.3	FALSE	FALSE
APW07	6/14/2022	Arsenic	0.012	FALSE	FALSE
APW07	6/14/2022	Barium	0.5	FALSE	FALSE
APW07	6/14/2022	Boron	0.11	FALSE	FALSE
APW07	6/14/2022	Calcium	93	FALSE	FALSE
APW07	6/14/2022	Chloride	64	FALSE	FALSE
APW07	6/14/2022	Fluoride	0.5	FALSE	TRUE
APW07	6/14/2022	Iron	3.2	TRUE	NA
APW07	6/14/2022	Lithium	0.141	FALSE	TRUE
APW07	6/14/2022	Magnesium	37	FALSE	FALSE
APW07	6/14/2022	Manganese	0.038	TRUE	NA
APW07	6/14/2022	Molybdenum	0.0015	FALSE	FALSE
APW07	6/14/2022	Potassium	1.6	FALSE	FALSE
APW07	6/14/2022	Sodium	84	FALSE	FALSE
APW07	6/14/2022	Sulfate	12	FALSE	FALSE
APW07	6/14/2022	H+	4.37E-08	FALSE	FALSE
APW07	6/14/2022	Alkalinity	11.9	FALSE	FALSE
APW07	8/16/2022	Arsenic	0.012	FALSE	FALSE
APW07	8/16/2022	Barium	0.51	FALSE	FALSE
APW07	8/16/2022	Boron	0.2	FALSE	FALSE
APW07	8/16/2022	Calcium	96	FALSE	FALSE
APW07	8/16/2022	Chloride	63	FALSE	FALSE
APW07	8/16/2022	Fluoride	0.289	FALSE	FALSE
APW07	8/16/2022	Iron	3.2	TRUE	NA
APW07	8/16/2022	Lithium	0.141	FALSE	TRUE
APW07	8/16/2022	Magnesium	42	FALSE	FALSE
APW07	8/16/2022	Manganese	0.038	TRUE	NA
APW07	8/16/2022	Molybdenum	0.0014	FALSE	FALSE
APW07	8/16/2022	Potassium	1.8	FALSE	FALSE
APW07	8/16/2022	Sodium	110	FALSE	FALSE
APW07	8/16/2022	Sulfate	12	FALSE	FALSE
APW07	8/16/2022	H+	7.24E-08	FALSE	FALSE
APW07	8/16/2022	Alkalinity	12.6	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW07	10/10/2023	Arsenic	0.0225	FALSE	FALSE
APW07	10/10/2023	Barium	0.808	FALSE	FALSE
APW07	10/10/2023	Boron	0.068	FALSE	FALSE
APW07	10/10/2023	Calcium	96.2	FALSE	FALSE
APW07	10/10/2023	Chloride	67	FALSE	FALSE
APW07	10/10/2023	Fluoride	0.42	FALSE	FALSE
APW07	10/10/2023	Iron	3.74	TRUE	NA
APW07	10/10/2023	Lithium	0.0025	FALSE	FALSE
APW07	10/10/2023	Magnesium	35.4	FALSE	FALSE
APW07	10/10/2023	Manganese	0.0342	TRUE	NA
APW07	10/10/2023	Molybdenum	0.0031	FALSE	FALSE
APW07	10/10/2023	Potassium	1.8	FALSE	FALSE
APW07	10/10/2023	Sodium	95.4	FALSE	FALSE
APW07	10/10/2023	Sulfate	16	FALSE	FALSE
APW07	10/10/2023	H+	0.000000024	FALSE	FALSE
APW07	10/10/2023	Alkalinity	15	FALSE	FALSE
APW08	11/9/2021	Arsenic	0.022	TRUE	NA
APW08	11/9/2021	Barium	0.49	TRUE	NA
APW08	11/9/2021	Boron	0.085	FALSE	FALSE
APW08	11/9/2021	Calcium	100	FALSE	FALSE
APW08	11/9/2021	Chloride	52	FALSE	FALSE
APW08	11/9/2021	Fluoride	0.505	FALSE	FALSE
APW08	11/9/2021	Iron	3.5	TRUE	NA
APW08	11/9/2021	Lithium	0.141	TRUE	NA
APW08	11/9/2021	Magnesium	42	FALSE	FALSE
APW08	11/9/2021	Manganese	0.038	TRUE	NA
APW08	11/9/2021	Molybdenum	0.0048	TRUE	NA
APW08	11/9/2021	Potassium	1.6	FALSE	FALSE
APW08	11/9/2021	Sodium	86	FALSE	FALSE
APW08	11/9/2021	Sulfate	42	FALSE	FALSE
APW08	11/9/2021	H+	3.55E-08	FALSE	FALSE
APW08	11/9/2021	Alkalinity	14.9	FALSE	FALSE
APW08	2/22/2022	Arsenic	0.022	TRUE	NA
APW08	2/22/2022	Barium	0.49	TRUE	NA
APW08	2/22/2022	Boron	0.09	FALSE	FALSE
APW08	2/22/2022	Calcium	110	FALSE	FALSE
APW08	2/22/2022	Chloride	54	FALSE	FALSE
APW08	2/22/2022	Fluoride	0.499	FALSE	FALSE
APW08	2/22/2022	Iron	3.5	TRUE	NA
APW08	2/22/2022	Lithium	0.141	TRUE	NA
APW08	2/22/2022	Magnesium	45	FALSE	FALSE
APW08	2/22/2022	Manganese	0.038	TRUE	NA
APW08	2/22/2022	Molybdenum	0.0048	TRUE	NA
APW08	2/22/2022	Potassium	1.9	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW08	2/22/2022	Sodium	93	FALSE	FALSE
APW08	2/22/2022	Sulfate	49	FALSE	FALSE
APW08	2/22/2022	H+	4.07E-08	FALSE	FALSE
APW08	2/22/2022	Alkalinity	14.6	FALSE	FALSE
APW08	6/14/2022	Arsenic	0.019	FALSE	FALSE
APW08	6/14/2022	Barium	0.46	FALSE	FALSE
APW08	6/14/2022	Boron	0.1	FALSE	FALSE
APW08	6/14/2022	Calcium	110	FALSE	FALSE
APW08	6/14/2022	Chloride	54	FALSE	FALSE
APW08	6/14/2022	Fluoride	0.5	FALSE	TRUE
APW08	6/14/2022	Iron	3.5	TRUE	NA
APW08	6/14/2022	Lithium	0.141	FALSE	TRUE
APW08	6/14/2022	Magnesium	44	FALSE	FALSE
APW08	6/14/2022	Manganese	0.038	TRUE	NA
APW08	6/14/2022	Molybdenum	0.0038	FALSE	FALSE
APW08	6/14/2022	Potassium	2	FALSE	FALSE
APW08	6/14/2022	Sodium	79	FALSE	FALSE
APW08	6/14/2022	Sulfate	42	FALSE	FALSE
APW08	6/14/2022	H+	3.98E-08	FALSE	FALSE
APW08	6/14/2022	Alkalinity	14.2	FALSE	FALSE
APW08	8/16/2022	Arsenic	0.022	FALSE	FALSE
APW08	8/16/2022	Barium	0.49	FALSE	FALSE
APW08	8/16/2022	Boron	0.17	FALSE	FALSE
APW08	8/16/2022	Calcium	100	FALSE	FALSE
APW08	8/16/2022	Chloride	56	FALSE	FALSE
APW08	8/16/2022	Fluoride	0.325	FALSE	FALSE
APW08	8/16/2022	Iron	3.5	TRUE	NA
APW08	8/16/2022	Lithium	0.141	FALSE	TRUE
APW08	8/16/2022	Magnesium	44	FALSE	FALSE
APW08	8/16/2022	Manganese	0.038	TRUE	NA
APW08	8/16/2022	Molybdenum	0.0037	FALSE	FALSE
APW08	8/16/2022	Potassium	1.9	FALSE	FALSE
APW08	8/16/2022	Sodium	93	FALSE	FALSE
APW08	8/16/2022	Sulfate	44	FALSE	FALSE
APW08	8/16/2022	H+	7.24E-08	FALSE	FALSE
APW08	8/16/2022	Alkalinity	14.4	FALSE	FALSE
APW08	4/26/2023	Arsenic	0.026	FALSE	FALSE
APW08	4/26/2023	Barium	0.47	FALSE	FALSE
APW08	4/26/2023	Boron	0.087	FALSE	FALSE
APW08	4/26/2023	Calcium	110	FALSE	FALSE
APW08	4/26/2023	Chloride	58	FALSE	FALSE
APW08	4/26/2023	Fluoride	0.404	FALSE	FALSE
APW08	4/26/2023	Iron	7.7	FALSE	FALSE
APW08	4/26/2023	Lithium	0.0057	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW08	4/26/2023	Magnesium	45	FALSE	FALSE
APW08	4/26/2023	Manganese	0.16	FALSE	FALSE
APW08	4/26/2023	Molybdenum	0.0044	FALSE	FALSE
APW08	4/26/2023	Potassium	2	FALSE	FALSE
APW08	4/26/2023	Sodium	91	FALSE	FALSE
APW08	4/26/2023	Sulfate	48	FALSE	FALSE
APW08	4/26/2023	H+	3.02E-08	FALSE	FALSE
APW08	4/26/2023	Alkalinity	13.7	FALSE	FALSE
APW08	7/31/2023	Arsenic	0.0308	FALSE	FALSE
APW08	7/31/2023	Barium	0.651	FALSE	FALSE
APW08	7/31/2023	Boron	0.114	FALSE	FALSE
APW08	7/31/2023	Calcium	102	FALSE	FALSE
APW08	7/31/2023	Chloride	56	FALSE	FALSE
APW08	7/31/2023	Fluoride	0.44	FALSE	FALSE
APW08	7/31/2023	Iron	5.14	FALSE	FALSE
APW08	7/31/2023	Lithium	0.0027	FALSE	FALSE
APW08	7/31/2023	Magnesium	42.9	FALSE	FALSE
APW08	7/31/2023	Manganese	0.0962	FALSE	FALSE
APW08	7/31/2023	Molybdenum	0.0052	FALSE	FALSE
APW08	7/31/2023	Potassium	1.99	FALSE	FALSE
APW08	7/31/2023	Sodium	85.2	FALSE	FALSE
APW08	7/31/2023	Sulfate	53	FALSE	FALSE
APW08	7/31/2023	H+	8.32E-08	FALSE	FALSE
APW08	7/31/2023	Alkalinity	14.9	FALSE	FALSE
APW08	10/10/2023	Arsenic	0.0366	FALSE	FALSE
APW08	10/10/2023	Barium	0.777	FALSE	FALSE
APW08	10/10/2023	Boron	0.071	FALSE	FALSE
APW08	10/10/2023	Calcium	103	FALSE	FALSE
APW08	10/10/2023	Chloride	60	FALSE	FALSE
APW08	10/10/2023	Fluoride	0.48	FALSE	FALSE
APW08	10/10/2023	Iron	3.74	TRUE	NA
APW08	10/10/2023	Lithium	0.0022	FALSE	FALSE
APW08	10/10/2023	Magnesium	41.1	FALSE	FALSE
APW08	10/10/2023	Manganese	0.0342	TRUE	NA
APW08	10/10/2023	Molybdenum	0.0058	FALSE	FALSE
APW08	10/10/2023	Potassium	1.89	FALSE	FALSE
APW08	10/10/2023	Sodium	87.4	FALSE	FALSE
APW08	10/10/2023	Sulfate	57	FALSE	FALSE
APW08	10/10/2023	H+	0.000000038	FALSE	FALSE
APW08	10/10/2023	Alkalinity	15.3	FALSE	FALSE
APW09	2/11/2021	Arsenic	0.022	TRUE	NA
APW09	2/11/2021	Barium	0.52	TRUE	NA
APW09	2/11/2021	Boron	0.11	FALSE	FALSE
APW09	2/11/2021	Calcium	85	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW09	2/11/2021	Chloride	140	FALSE	FALSE
APW09	2/11/2021	Fluoride	0.536	FALSE	FALSE
APW09	2/11/2021	Iron	3.74	TRUE	NA
APW09	2/11/2021	Lithium	0.025	TRUE	NA
APW09	2/11/2021	Magnesium	42	FALSE	FALSE
APW09	2/11/2021	Manganese	0.0342	TRUE	NA
APW09	2/11/2021	Molybdenum	0.0316	TRUE	NA
APW09	2/11/2021	Potassium	1.9	FALSE	FALSE
APW09	2/11/2021	Sodium	200	FALSE	FALSE
APW09	2/11/2021	Sulfate	3.16	FALSE	TRUE
APW09	2/11/2021	H+	3.98E-08	FALSE	FALSE
APW09	2/11/2021	Alkalinity	16.1	FALSE	FALSE
APW09	2/22/2022	Arsenic	0.022	TRUE	NA
APW09	2/22/2022	Barium	0.51	TRUE	NA
APW09	2/22/2022	Boron	0.12	FALSE	FALSE
APW09	2/22/2022	Calcium	82	FALSE	FALSE
APW09	2/22/2022	Chloride	140	FALSE	FALSE
APW09	2/22/2022	Fluoride	0.27	FALSE	FALSE
APW09	2/22/2022	Iron	4	TRUE	NA
APW09	2/22/2022	Lithium	0.025	TRUE	NA
APW09	2/22/2022	Magnesium	42	FALSE	FALSE
APW09	2/22/2022	Manganese	0.0342	TRUE	NA
APW09	2/22/2022	Molybdenum	0.0037	TRUE	NA
APW09	2/22/2022	Potassium	1.8	FALSE	FALSE
APW09	2/22/2022	Sodium	200	FALSE	FALSE
APW09	2/22/2022	Sulfate	8.4	FALSE	FALSE
APW09	2/22/2022	H+	0.00000002	FALSE	FALSE
APW09	2/22/2022	Alkalinity	15.1	FALSE	FALSE
APW09	7/31/2023	Arsenic	0.0355	FALSE	FALSE
APW09	7/31/2023	Barium	0.564	FALSE	FALSE
APW09	7/31/2023	Boron	0.121	FALSE	FALSE
APW09	7/31/2023	Calcium	78.4	FALSE	FALSE
APW09	7/31/2023	Chloride	134	FALSE	FALSE
APW09	7/31/2023	Fluoride	0.5	FALSE	FALSE
APW09	7/31/2023	Iron	3.74	FALSE	FALSE
APW09	7/31/2023	Lithium	0.0075	FALSE	FALSE
APW09	7/31/2023	Magnesium	39.3	FALSE	FALSE
APW09	7/31/2023	Manganese	0.0342	FALSE	FALSE
APW09	7/31/2023	Molybdenum	0.0042	FALSE	FALSE
APW09	7/31/2023	Potassium	1.83	FALSE	FALSE
APW09	7/31/2023	Sodium	191	FALSE	FALSE
APW09	7/31/2023	Sulfate	19	FALSE	FALSE
APW09	7/31/2023	H+	6.31E-08	FALSE	FALSE
APW09	7/31/2023	Alkalinity	16.3	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW09	10/10/2023	Arsenic	0.0114	FALSE	FALSE
APW09	10/10/2023	Barium	0.406	FALSE	FALSE
APW09	10/10/2023	Boron	0.078	FALSE	FALSE
APW09	10/10/2023	Calcium	69.2	FALSE	FALSE
APW09	10/10/2023	Chloride	94	FALSE	FALSE
APW09	10/10/2023	Fluoride	0.63	FALSE	FALSE
APW09	10/10/2023	Iron	3.74	TRUE	NA
APW09	10/10/2023	Lithium	0.0066	FALSE	FALSE
APW09	10/10/2023	Magnesium	32.7	FALSE	FALSE
APW09	10/10/2023	Manganese	0.055	TRUE	NA
APW09	10/10/2023	Molybdenum	0.0165	FALSE	FALSE
APW09	10/10/2023	Potassium	3.43	FALSE	FALSE
APW09	10/10/2023	Sodium	151	FALSE	FALSE
APW09	10/10/2023	Sulfate	32	FALSE	FALSE
APW09	10/10/2023	H+	2.45E-08	FALSE	FALSE
APW09	10/10/2023	Alkalinity	14.6	FALSE	FALSE
APW10	6/17/2021	Arsenic	0.008	FALSE	FALSE
APW10	6/17/2021	Barium	0.026	FALSE	FALSE
APW10	6/17/2021	Boron	0.07	FALSE	FALSE
APW10	6/17/2021	Calcium	150	FALSE	FALSE
APW10	6/17/2021	Chloride	47	FALSE	FALSE
APW10	6/17/2021	Fluoride	0.436	FALSE	FALSE
APW10	6/17/2021	Iron	0.1	FALSE	FALSE
APW10	6/17/2021	Lithium	0.022	FALSE	FALSE
APW10	6/17/2021	Magnesium	73	FALSE	FALSE
APW10	6/17/2021	Manganese	0.36	FALSE	FALSE
APW10	6/17/2021	Molybdenum	0.0074	FALSE	FALSE
APW10	6/17/2021	Potassium	1.5	FALSE	FALSE
APW10	6/17/2021	Sodium	120	FALSE	FALSE
APW10	6/17/2021	Sulfate	540	FALSE	FALSE
APW10	6/17/2021	H+	4.57E-08	FALSE	FALSE
APW10	6/17/2021	Alkalinity	13.5	FALSE	FALSE
APW10	2/22/2022	Arsenic	0.022	TRUE	NA
APW10	2/22/2022	Barium	0.46	TRUE	NA
APW10	2/22/2022	Boron	0.091	FALSE	FALSE
APW10	2/22/2022	Calcium	140	FALSE	FALSE
APW10	2/22/2022	Chloride	48	FALSE	FALSE
APW10	2/22/2022	Fluoride	0.5	FALSE	TRUE
APW10	2/22/2022	Iron	2.1	TRUE	NA
APW10	2/22/2022	Lithium	0.141	TRUE	NA
APW10	2/22/2022	Magnesium	71	FALSE	FALSE
APW10	2/22/2022	Manganese	0.038	TRUE	NA
APW10	2/22/2022	Molybdenum	0.0038	TRUE	NA
APW10	2/22/2022	Potassium	1.6	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW10	2/22/2022	Sodium	130	FALSE	FALSE
APW10	2/22/2022	Sulfate	410	FALSE	FALSE
APW10	2/22/2022	H+	0.000000049	FALSE	FALSE
APW10	2/22/2022	Alkalinity	12.9	FALSE	FALSE
APW10	6/15/2022	Arsenic	0.0088	FALSE	FALSE
APW10	6/15/2022	Barium	0.026	FALSE	FALSE
APW10	6/15/2022	Boron	0.09	FALSE	FALSE
APW10	6/15/2022	Calcium	140	FALSE	FALSE
APW10	6/15/2022	Chloride	44	FALSE	FALSE
APW10	6/15/2022	Fluoride	0.319	FALSE	FALSE
APW10	6/15/2022	Iron	2.4	TRUE	NA
APW10	6/15/2022	Lithium	0.02	FALSE	FALSE
APW10	6/15/2022	Magnesium	70	FALSE	FALSE
APW10	6/15/2022	Manganese	0.36	TRUE	NA
APW10	6/15/2022	Molybdenum	0.0071	FALSE	FALSE
APW10	6/15/2022	Potassium	1.5	FALSE	FALSE
APW10	6/15/2022	Sodium	110	FALSE	FALSE
APW10	6/15/2022	Sulfate	400	FALSE	FALSE
APW10	6/15/2022	H+	7.24E-08	FALSE	FALSE
APW10	6/15/2022	Alkalinity	13.4	FALSE	FALSE
APW10	7/31/2023	Arsenic	0.0094	FALSE	FALSE
APW10	7/31/2023	Barium	0.0326	FALSE	FALSE
APW10	7/31/2023	Boron	0.0923	FALSE	FALSE
APW10	7/31/2023	Calcium	140	FALSE	FALSE
APW10	7/31/2023	Chloride	45	FALSE	FALSE
APW10	7/31/2023	Fluoride	0.32	FALSE	FALSE
APW10	7/31/2023	Iron	0.139	FALSE	FALSE
APW10	7/31/2023	Lithium	0.0215	FALSE	FALSE
APW10	7/31/2023	Magnesium	67.3	FALSE	FALSE
APW10	7/31/2023	Manganese	0.383	FALSE	FALSE
APW10	7/31/2023	Molybdenum	0.0083	FALSE	FALSE
APW10	7/31/2023	Potassium	1.5	FALSE	FALSE
APW10	7/31/2023	Sodium	112	FALSE	FALSE
APW10	7/31/2023	Sulfate	421	FALSE	FALSE
APW10	7/31/2023	H+	8.51E-08	FALSE	FALSE
APW10	7/31/2023	Alkalinity	13.7	FALSE	FALSE
APW10	10/10/2023	Arsenic	0.012	FALSE	FALSE
APW10	10/10/2023	Barium	0.0397	FALSE	FALSE
APW10	10/10/2023	Boron	0.0626	FALSE	FALSE
APW10	10/10/2023	Calcium	146	FALSE	FALSE
APW10	10/10/2023	Chloride	43	FALSE	FALSE
APW10	10/10/2023	Fluoride	0.34	FALSE	FALSE
APW10	10/10/2023	Iron	2.4	TRUE	NA
APW10	10/10/2023	Lithium	0.0182	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW10	10/10/2023	Magnesium	65.7	FALSE	FALSE
APW10	10/10/2023	Manganese	0.36	TRUE	NA
APW10	10/10/2023	Molybdenum	0.0112	FALSE	FALSE
APW10	10/10/2023	Potassium	1.66	FALSE	FALSE
APW10	10/10/2023	Sodium	124	FALSE	FALSE
APW10	10/10/2023	Sulfate	399	FALSE	FALSE
APW10	10/10/2023	H+	0.000000055	FALSE	FALSE
APW10	10/10/2023	Alkalinity	14.2	FALSE	FALSE
APW11	5/24/2021	Arsenic	0.0015	FALSE	FALSE
APW11	5/24/2021	Barium	0.05	FALSE	FALSE
APW11	5/24/2021	Boron	0.083	FALSE	FALSE
APW11	5/24/2021	Calcium	130	FALSE	FALSE
APW11	5/24/2021	Chloride	27	FALSE	FALSE
APW11	5/24/2021	Fluoride	0.5	FALSE	TRUE
APW11	5/24/2021	Iron	2.2	FALSE	FALSE
APW11	5/24/2021	Lithium	0.024	FALSE	FALSE
APW11	5/24/2021	Magnesium	58	FALSE	FALSE
APW11	5/24/2021	Manganese	0.83	FALSE	FALSE
APW11	5/24/2021	Molybdenum	0.005	FALSE	FALSE
APW11	5/24/2021	Potassium	1.7	FALSE	FALSE
APW11	5/24/2021	Sodium	110	FALSE	FALSE
APW11	5/24/2021	Sulfate	300	FALSE	FALSE
APW11	5/24/2021	H+	4.27E-08	FALSE	FALSE
APW11	5/24/2021	Alkalinity	18.4	FALSE	FALSE
APW11	6/16/2021	Arsenic	0.002	FALSE	FALSE
APW11	6/16/2021	Barium	0.047	FALSE	FALSE
APW11	6/16/2021	Boron	0.078	FALSE	FALSE
APW11	6/16/2021	Calcium	130	FALSE	FALSE
APW11	6/16/2021	Chloride	26	FALSE	FALSE
APW11	6/16/2021	Fluoride	0.375	FALSE	FALSE
APW11	6/16/2021	Iron	2	FALSE	FALSE
APW11	6/16/2021	Lithium	0.024	FALSE	FALSE
APW11	6/16/2021	Magnesium	58	FALSE	FALSE
APW11	6/16/2021	Manganese	0.92	FALSE	FALSE
APW11	6/16/2021	Molybdenum	0.0048	FALSE	FALSE
APW11	6/16/2021	Potassium	1.8	FALSE	FALSE
APW11	6/16/2021	Sodium	100	FALSE	FALSE
APW11	6/16/2021	Sulfate	290	FALSE	FALSE
APW11	6/16/2021	H+	5.89E-08	FALSE	FALSE
APW11	6/16/2021	Alkalinity	13.8	FALSE	FALSE
APW11	6/30/2021	Arsenic	0.0018	FALSE	FALSE
APW11	6/30/2021	Barium	0.042	FALSE	FALSE
APW11	6/30/2021	Boron	0.065	FALSE	FALSE
APW11	6/30/2021	Calcium	120	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW11	6/30/2021	Chloride	33	FALSE	FALSE
APW11	6/30/2021	Fluoride	0.409	FALSE	FALSE
APW11	6/30/2021	Iron	1.8	FALSE	FALSE
APW11	6/30/2021	Lithium	0.038	FALSE	FALSE
APW11	6/30/2021	Magnesium	57	FALSE	FALSE
APW11	6/30/2021	Manganese	0.82	FALSE	FALSE
APW11	6/30/2021	Molybdenum	0.0044	FALSE	FALSE
APW11	6/30/2021	Potassium	1.5	FALSE	FALSE
APW11	6/30/2021	Sodium	100	FALSE	FALSE
APW11	6/30/2021	Sulfate	280	FALSE	FALSE
APW11	6/30/2021	H+	7.24E-08	FALSE	FALSE
APW11	6/30/2021	Alkalinity	13.5	FALSE	FALSE
APW11	7/15/2021	Arsenic	0.0023	FALSE	FALSE
APW11	7/15/2021	Barium	0.042	FALSE	FALSE
APW11	7/15/2021	Boron	0.062	FALSE	FALSE
APW11	7/15/2021	Calcium	120	FALSE	FALSE
APW11	7/15/2021	Chloride	31	FALSE	FALSE
APW11	7/15/2021	Fluoride	0.5	FALSE	TRUE
APW11	7/15/2021	Iron	2	FALSE	FALSE
APW11	7/15/2021	Lithium	0.03	FALSE	FALSE
APW11	7/15/2021	Magnesium	55	FALSE	FALSE
APW11	7/15/2021	Manganese	0.9	FALSE	FALSE
APW11	7/15/2021	Molybdenum	0.0043	FALSE	FALSE
APW11	7/15/2021	Potassium	1.4	FALSE	FALSE
APW11	7/15/2021	Sodium	97	FALSE	FALSE
APW11	7/15/2021	Sulfate	140	FALSE	FALSE
APW11	7/15/2021	H+	5.89E-08	FALSE	FALSE
APW11	7/15/2021	Alkalinity	13.8	FALSE	FALSE
APW12	3/9/2021	Arsenic	0.0017	FALSE	FALSE
APW12	3/9/2021	Barium	0.05	FALSE	FALSE
APW12	3/9/2021	Boron	0.26	FALSE	FALSE
APW12	3/9/2021	Calcium	230	FALSE	FALSE
APW12	3/9/2021	Chloride	27	FALSE	FALSE
APW12	3/9/2021	Fluoride	0.5	FALSE	TRUE
APW12	3/9/2021	Iron	2.1	FALSE	FALSE
APW12	3/9/2021	Lithium	0.028	FALSE	FALSE
APW12	3/9/2021	Magnesium	97	FALSE	FALSE
APW12	3/9/2021	Manganese	2.5	FALSE	FALSE
APW12	3/9/2021	Molybdenum	0.0025	FALSE	FALSE
APW12	3/9/2021	Potassium	3.2	FALSE	FALSE
APW12	3/9/2021	Sodium	110	FALSE	FALSE
APW12	3/9/2021	Sulfate	480	FALSE	FALSE
APW12	3/9/2021	H+	0.000000316	FALSE	FALSE
APW12	3/9/2021	Alkalinity	17	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW12	3/29/2021	Arsenic	0.002	FALSE	FALSE
APW12	3/29/2021	Barium	0.046	FALSE	FALSE
APW12	3/29/2021	Boron	0.29	FALSE	FALSE
APW12	3/29/2021	Calcium	220	FALSE	FALSE
APW12	3/29/2021	Chloride	28	FALSE	FALSE
APW12	3/29/2021	Fluoride	0.5	FALSE	TRUE
APW12	3/29/2021	Iron	1.8	FALSE	FALSE
APW12	3/29/2021	Lithium	0.029	FALSE	FALSE
APW12	3/29/2021	Magnesium	86	FALSE	FALSE
APW12	3/29/2021	Manganese	2.3	FALSE	FALSE
APW12	3/29/2021	Molybdenum	0.0019	FALSE	FALSE
APW12	3/29/2021	Potassium	2.1	FALSE	FALSE
APW12	3/29/2021	Sodium	94	FALSE	FALSE
APW12	3/29/2021	Sulfate	440	FALSE	FALSE
APW12	3/29/2021	H+	0.000001	FALSE	FALSE
APW12	3/29/2021	Alkalinity	17	FALSE	FALSE
APW12	4/28/2021	Arsenic	0.0016	FALSE	FALSE
APW12	4/28/2021	Barium	0.038	FALSE	FALSE
APW12	4/28/2021	Boron	0.21	FALSE	FALSE
APW12	4/28/2021	Calcium	210	FALSE	FALSE
APW12	4/28/2021	Chloride	23	FALSE	FALSE
APW12	4/28/2021	Fluoride	0.5	FALSE	TRUE
APW12	4/28/2021	Iron	1.1	FALSE	FALSE
APW12	4/28/2021	Lithium	0.026	FALSE	FALSE
APW12	4/28/2021	Magnesium	95	FALSE	FALSE
APW12	4/28/2021	Manganese	1.9	FALSE	FALSE
APW12	4/28/2021	Molybdenum	0.0012	FALSE	FALSE
APW12	4/28/2021	Potassium	1.1	FALSE	FALSE
APW12	4/28/2021	Sodium	97	FALSE	FALSE
APW12	4/28/2021	Sulfate	390	FALSE	FALSE
APW12	4/28/2021	H+	0.000000398	FALSE	FALSE
APW12	4/28/2021	Alkalinity	17.2	FALSE	FALSE
APW12	5/25/2021	Arsenic	0.0023	FALSE	FALSE
APW12	5/25/2021	Barium	0.038	FALSE	FALSE
APW12	5/25/2021	Boron	0.29	FALSE	FALSE
APW12	5/25/2021	Calcium	220	FALSE	FALSE
APW12	5/25/2021	Chloride	23	FALSE	FALSE
APW12	5/25/2021	Fluoride	0.5	FALSE	TRUE
APW12	5/25/2021	Iron	2.5	FALSE	FALSE
APW12	5/25/2021	Lithium	0.029	FALSE	FALSE
APW12	5/25/2021	Magnesium	94	FALSE	FALSE
APW12	5/25/2021	Manganese	1.7	FALSE	FALSE
APW12	5/25/2021	Molybdenum	0.0038	FALSE	FALSE
APW12	5/25/2021	Potassium	1.1	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW12	5/25/2021	Sodium	98	FALSE	FALSE
APW12	5/25/2021	Sulfate	390	FALSE	FALSE
APW12	5/25/2021	H+	0.000000288	FALSE	FALSE
APW12	5/25/2021	Alkalinity	17	FALSE	FALSE
APW12	6/16/2021	Arsenic	0.0027	FALSE	FALSE
APW12	6/16/2021	Barium	0.039	FALSE	FALSE
APW12	6/16/2021	Boron	0.15	FALSE	FALSE
APW12	6/16/2021	Calcium	210	FALSE	FALSE
APW12	6/16/2021	Chloride	20	FALSE	FALSE
APW12	6/16/2021	Fluoride	0.5	FALSE	TRUE
APW12	6/16/2021	Iron	2.6	FALSE	FALSE
APW12	6/16/2021	Lithium	0.026	FALSE	FALSE
APW12	6/16/2021	Magnesium	89	FALSE	FALSE
APW12	6/16/2021	Manganese	2.1	FALSE	FALSE
APW12	6/16/2021	Molybdenum	0.0316	FALSE	TRUE
APW12	6/16/2021	Potassium	0.95	FALSE	FALSE
APW12	6/16/2021	Sodium	81	FALSE	FALSE
APW12	6/16/2021	Sulfate	290	FALSE	FALSE
APW12	6/16/2021	H+	0.000000355	FALSE	FALSE
APW12	6/16/2021	Alkalinity	17	FALSE	FALSE
APW12	6/30/2021	Arsenic	0.0019	FALSE	FALSE
APW12	6/30/2021	Barium	0.04	FALSE	FALSE
APW12	6/30/2021	Boron	0.11	FALSE	FALSE
APW12	6/30/2021	Calcium	190	FALSE	FALSE
APW12	6/30/2021	Chloride	20	FALSE	FALSE
APW12	6/30/2021	Fluoride	0.5	FALSE	TRUE
APW12	6/30/2021	Iron	1.9	FALSE	FALSE
APW12	6/30/2021	Lithium	0.046	FALSE	FALSE
APW12	6/30/2021	Magnesium	84	FALSE	FALSE
APW12	6/30/2021	Manganese	2.1	FALSE	FALSE
APW12	6/30/2021	Molybdenum	0.0316	FALSE	TRUE
APW12	6/30/2021	Potassium	1.2	FALSE	FALSE
APW12	6/30/2021	Sodium	77	FALSE	FALSE
APW12	6/30/2021	Sulfate	310	FALSE	FALSE
APW12	6/30/2021	H+	0.000000513	FALSE	FALSE
APW12	6/30/2021	Alkalinity	16.3	FALSE	FALSE
APW12	7/15/2021	Arsenic	0.0017	FALSE	FALSE
APW12	7/15/2021	Barium	0.033	FALSE	FALSE
APW12	7/15/2021	Boron	0.28	FALSE	FALSE
APW12	7/15/2021	Calcium	210	FALSE	FALSE
APW12	7/15/2021	Chloride	26	FALSE	FALSE
APW12	7/15/2021	Fluoride	0.5	FALSE	TRUE
APW12	7/15/2021	Iron	0.95	FALSE	FALSE
APW12	7/15/2021	Lithium	0.045	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW12	7/15/2021	Magnesium	99	FALSE	FALSE
APW12	7/15/2021	Manganese	1.6	FALSE	FALSE
APW12	7/15/2021	Molybdenum	0.0316	FALSE	TRUE
APW12	7/15/2021	Potassium	1	FALSE	FALSE
APW12	7/15/2021	Sodium	110	FALSE	FALSE
APW12	7/15/2021	Sulfate	440	FALSE	FALSE
APW12	7/15/2021	H+	0.000000288	FALSE	FALSE
APW12	7/15/2021	Alkalinity	16.8	FALSE	FALSE
APW12	3/15/2023	Arsenic	0.002	FALSE	FALSE
APW12	3/15/2023	Barium	0.038	FALSE	FALSE
APW12	3/15/2023	Boron	0.42	FALSE	FALSE
APW12	3/15/2023	Calcium	230	FALSE	FALSE
APW12	3/15/2023	Chloride	22	FALSE	FALSE
APW12	3/15/2023	Fluoride	0.121	FALSE	FALSE
APW12	3/15/2023	Iron	1.9	TRUE	NA
APW12	3/15/2023	Lithium	0.024	FALSE	FALSE
APW12	3/15/2023	Magnesium	120	FALSE	FALSE
APW12	3/15/2023	Manganese	1.7	TRUE	NA
APW12	3/15/2023	Molybdenum	0.0316	TRUE	NA
APW12	3/15/2023	Potassium	1.1	FALSE	FALSE
APW12	3/15/2023	Sodium	130	FALSE	FALSE
APW12	3/15/2023	Sulfate	56	FALSE	FALSE
APW12	3/15/2023	H+	0.000000316	FALSE	FALSE
APW12	3/15/2023	Alkalinity	16.7	FALSE	FALSE
APW12	4/26/2023	Arsenic	0.0014	FALSE	FALSE
APW12	4/26/2023	Barium	0.028	FALSE	FALSE
APW12	4/26/2023	Boron	0.44	FALSE	FALSE
APW12	4/26/2023	Calcium	230	FALSE	FALSE
APW12	4/26/2023	Chloride	23	FALSE	FALSE
APW12	4/26/2023	Fluoride	0.5	FALSE	TRUE
APW12	4/26/2023	Iron	0.25	FALSE	FALSE
APW12	4/26/2023	Lithium	0.024	FALSE	FALSE
APW12	4/26/2023	Magnesium	110	FALSE	FALSE
APW12	4/26/2023	Manganese	1.4	FALSE	FALSE
APW12	4/26/2023	Molybdenum	0.0316	FALSE	TRUE
APW12	4/26/2023	Potassium	0.94	FALSE	FALSE
APW12	4/26/2023	Sodium	120	FALSE	FALSE
APW12	4/26/2023	Sulfate	540	FALSE	FALSE
APW12	4/26/2023	H+	0.000000302	FALSE	FALSE
APW12	4/26/2023	Alkalinity	15.1	FALSE	FALSE
APW12	10/11/2023	Arsenic	0.0008	FALSE	FALSE
APW12	10/11/2023	Barium	0.0345	FALSE	FALSE
APW12	10/11/2023	Boron	0.724	FALSE	FALSE
APW12	10/11/2023	Calcium	275	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW12	10/11/2023	Chloride	31	FALSE	FALSE
APW12	10/11/2023	Fluoride	0.22	FALSE	FALSE
APW12	10/11/2023	Iron	1.9	TRUE	NA
APW12	10/11/2023	Lithium	0.0365	FALSE	FALSE
APW12	10/11/2023	Magnesium	127	FALSE	FALSE
APW12	10/11/2023	Manganese	1.7	TRUE	NA
APW12	10/11/2023	Molybdenum	0.0387	FALSE	TRUE
APW12	10/11/2023	Potassium	1.29	FALSE	FALSE
APW12	10/11/2023	Sodium	151	FALSE	FALSE
APW12	10/11/2023	Sulfate	712	FALSE	FALSE
APW12	10/11/2023	H+	0.000000776	FALSE	FALSE
APW12	10/11/2023	Alkalinity	16.7	FALSE	FALSE
APW13	2/22/2021	Arsenic	0.0043	FALSE	FALSE
APW13	2/22/2021	Barium	0.055	FALSE	FALSE
APW13	2/22/2021	Boron	0.12	FALSE	FALSE
APW13	2/22/2021	Calcium	110	FALSE	FALSE
APW13	2/22/2021	Chloride	57	FALSE	FALSE
APW13	2/22/2021	Fluoride	0.503	FALSE	FALSE
APW13	2/22/2021	Iron	2.5	FALSE	FALSE
APW13	2/22/2021	Lithium	0.042	FALSE	FALSE
APW13	2/22/2021	Magnesium	58	FALSE	FALSE
APW13	2/22/2021	Manganese	0.64	FALSE	FALSE
APW13	2/22/2021	Molybdenum	0.016	FALSE	FALSE
APW13	2/22/2021	Potassium	2.1	FALSE	FALSE
APW13	2/22/2021	Sodium	120	FALSE	FALSE
APW13	2/22/2021	Sulfate	220	FALSE	FALSE
APW13	2/22/2021	H+	7.94E-08	FALSE	FALSE
APW13	2/22/2021	Alkalinity	14.4	FALSE	FALSE
APW13	3/10/2021	Arsenic	0.0046	FALSE	FALSE
APW13	3/10/2021	Barium	0.054	FALSE	FALSE
APW13	3/10/2021	Boron	0.11	FALSE	FALSE
APW13	3/10/2021	Calcium	120	FALSE	FALSE
APW13	3/10/2021	Chloride	71	FALSE	FALSE
APW13	3/10/2021	Fluoride	0.326	FALSE	FALSE
APW13	3/10/2021	Iron	3.3	FALSE	FALSE
APW13	3/10/2021	Lithium	0.044	FALSE	FALSE
APW13	3/10/2021	Magnesium	61	FALSE	FALSE
APW13	3/10/2021	Manganese	0.66	FALSE	FALSE
APW13	3/10/2021	Molybdenum	0.017	FALSE	FALSE
APW13	3/10/2021	Potassium	2.2	FALSE	FALSE
APW13	3/10/2021	Sodium	120	FALSE	FALSE
APW13	3/10/2021	Sulfate	210	FALSE	FALSE
APW13	3/10/2021	H+	6.31E-08	FALSE	FALSE
APW13	3/10/2021	Alkalinity	14.2	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW13	3/31/2021	Arsenic	0.0047	FALSE	FALSE
APW13	3/31/2021	Barium	0.057	FALSE	FALSE
APW13	3/31/2021	Boron	0.12	FALSE	FALSE
APW13	3/31/2021	Calcium	110	FALSE	FALSE
APW13	3/31/2021	Chloride	46	FALSE	FALSE
APW13	3/31/2021	Fluoride	0.43	FALSE	FALSE
APW13	3/31/2021	Iron	3.4	FALSE	FALSE
APW13	3/31/2021	Lithium	0.041	FALSE	FALSE
APW13	3/31/2021	Magnesium	56	FALSE	FALSE
APW13	3/31/2021	Manganese	0.6	FALSE	FALSE
APW13	3/31/2021	Molybdenum	0.011	FALSE	FALSE
APW13	3/31/2021	Potassium	2.1	FALSE	FALSE
APW13	3/31/2021	Sodium	120	FALSE	FALSE
APW13	3/31/2021	Sulfate	210	FALSE	FALSE
APW13	3/31/2021	H+	0.000000398	FALSE	FALSE
APW13	3/31/2021	Alkalinity	14.7	FALSE	FALSE
APW13	4/29/2021	Arsenic	0.0046	FALSE	FALSE
APW13	4/29/2021	Barium	0.05	FALSE	FALSE
APW13	4/29/2021	Boron	0.11	FALSE	FALSE
APW13	4/29/2021	Calcium	110	FALSE	FALSE
APW13	4/29/2021	Chloride	48	FALSE	FALSE
APW13	4/29/2021	Fluoride	0.327	FALSE	FALSE
APW13	4/29/2021	Iron	2.4	FALSE	FALSE
APW13	4/29/2021	Lithium	0.032	FALSE	FALSE
APW13	4/29/2021	Magnesium	60	FALSE	FALSE
APW13	4/29/2021	Manganese	0.62	FALSE	FALSE
APW13	4/29/2021	Molybdenum	0.011	FALSE	FALSE
APW13	4/29/2021	Potassium	1.9	FALSE	FALSE
APW13	4/29/2021	Sodium	130	FALSE	FALSE
APW13	4/29/2021	Sulfate	210	FALSE	FALSE
APW13	4/29/2021	H+	7.08E-08	FALSE	FALSE
APW13	4/29/2021	Alkalinity	14.9	FALSE	FALSE
APW13	5/25/2021	Arsenic	0.0031	FALSE	FALSE
APW13	5/25/2021	Barium	0.051	FALSE	FALSE
APW13	5/25/2021	Boron	0.12	FALSE	FALSE
APW13	5/25/2021	Calcium	120	FALSE	FALSE
APW13	5/25/2021	Chloride	64	FALSE	FALSE
APW13	5/25/2021	Fluoride	0.402	FALSE	FALSE
APW13	5/25/2021	Iron	2.3	FALSE	FALSE
APW13	5/25/2021	Lithium	0.03	FALSE	FALSE
APW13	5/25/2021	Magnesium	60	FALSE	FALSE
APW13	5/25/2021	Manganese	0.61	FALSE	FALSE
APW13	5/25/2021	Molybdenum	0.0096	FALSE	FALSE
APW13	5/25/2021	Potassium	1.8	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW13	5/25/2021	Sodium	110	FALSE	FALSE
APW13	5/25/2021	Sulfate	220	FALSE	FALSE
APW13	5/25/2021	H+	4.79E-08	FALSE	FALSE
APW13	5/25/2021	Alkalinity	14.9	FALSE	FALSE
APW13	6/17/2021	Arsenic	0.0037	FALSE	FALSE
APW13	6/17/2021	Barium	0.051	FALSE	FALSE
APW13	6/17/2021	Boron	0.1	FALSE	FALSE
APW13	6/17/2021	Calcium	130	FALSE	FALSE
APW13	6/17/2021	Chloride	53	FALSE	FALSE
APW13	6/17/2021	Fluoride	0.487	FALSE	FALSE
APW13	6/17/2021	Iron	2.2	FALSE	FALSE
APW13	6/17/2021	Lithium	0.027	FALSE	FALSE
APW13	6/17/2021	Magnesium	65	FALSE	FALSE
APW13	6/17/2021	Manganese	0.63	FALSE	FALSE
APW13	6/17/2021	Molybdenum	0.0089	FALSE	FALSE
APW13	6/17/2021	Potassium	1.9	FALSE	FALSE
APW13	6/17/2021	Sodium	120	FALSE	FALSE
APW13	6/17/2021	Sulfate	220	FALSE	FALSE
APW13	6/17/2021	H+	5.62E-08	FALSE	FALSE
APW13	6/17/2021	Alkalinity	15	FALSE	FALSE
APW13	7/15/2021	Arsenic	0.006	FALSE	FALSE
APW13	7/15/2021	Barium	0.05	FALSE	FALSE
APW13	7/15/2021	Boron	0.15	FALSE	FALSE
APW13	7/15/2021	Calcium	110	FALSE	FALSE
APW13	7/15/2021	Chloride	55	FALSE	FALSE
APW13	7/15/2021	Fluoride	0.5	FALSE	TRUE
APW13	7/15/2021	Iron	2.2	FALSE	FALSE
APW13	7/15/2021	Lithium	0.036	FALSE	FALSE
APW13	7/15/2021	Magnesium	62	FALSE	FALSE
APW13	7/15/2021	Manganese	0.57	FALSE	FALSE
APW13	7/15/2021	Molybdenum	0.0082	FALSE	FALSE
APW13	7/15/2021	Potassium	1.7	FALSE	FALSE
APW13	7/15/2021	Sodium	120	FALSE	FALSE
APW13	7/15/2021	Sulfate	210	FALSE	FALSE
APW13	7/15/2021	H+	5.13E-08	FALSE	FALSE
APW13	7/15/2021	Alkalinity	14.9	FALSE	FALSE
APW13	3/14/2023	Arsenic	0.002	FALSE	FALSE
APW13	3/14/2023	Barium	0.057	FALSE	FALSE
APW13	3/14/2023	Boron	0.12	FALSE	FALSE
APW13	3/14/2023	Calcium	120	FALSE	FALSE
APW13	3/14/2023	Chloride	47	FALSE	FALSE
APW13	3/14/2023	Fluoride	0.376	FALSE	FALSE
APW13	3/14/2023	Iron	2.4	TRUE	NA
APW13	3/14/2023	Lithium	0.025	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW13	3/14/2023	Magnesium	68	FALSE	FALSE
APW13	3/14/2023	Manganese	0.63	TRUE	NA
APW13	3/14/2023	Molybdenum	0.0096	TRUE	NA
APW13	3/14/2023	Potassium	2.1	FALSE	FALSE
APW13	3/14/2023	Sodium	140	FALSE	FALSE
APW13	3/14/2023	Sulfate	240	FALSE	FALSE
APW13	3/14/2023	H+	5.89E-08	FALSE	FALSE
APW13	3/14/2023	Alkalinity	14.4	FALSE	FALSE
APW13	7/31/2023	Arsenic	0.0053	FALSE	FALSE
APW13	7/31/2023	Barium	0.072	FALSE	FALSE
APW13	7/31/2023	Boron	0.143	FALSE	FALSE
APW13	7/31/2023	Calcium	121	FALSE	FALSE
APW13	7/31/2023	Chloride	48	FALSE	FALSE
APW13	7/31/2023	Fluoride	0.42	FALSE	FALSE
APW13	7/31/2023	Iron	2.56	FALSE	FALSE
APW13	7/31/2023	Lithium	0.023	FALSE	FALSE
APW13	7/31/2023	Magnesium	61.7	FALSE	FALSE
APW13	7/31/2023	Manganese	0.846	FALSE	FALSE
APW13	7/31/2023	Molybdenum	0.0098	FALSE	FALSE
APW13	7/31/2023	Potassium	1.94	FALSE	FALSE
APW13	7/31/2023	Sodium	122	FALSE	FALSE
APW13	7/31/2023	Sulfate	233	FALSE	FALSE
APW13	7/31/2023	H+	0.000000115	FALSE	FALSE
APW13	7/31/2023	Alkalinity	14.9	FALSE	FALSE
APW13	10/10/2023	Arsenic	0.0044	FALSE	FALSE
APW13	10/10/2023	Barium	0.0642	FALSE	FALSE
APW13	10/10/2023	Boron	0.102	FALSE	FALSE
APW13	10/10/2023	Calcium	120	FALSE	FALSE
APW13	10/10/2023	Chloride	53	FALSE	FALSE
APW13	10/10/2023	Fluoride	0.44	FALSE	FALSE
APW13	10/10/2023	Iron	2.4	TRUE	NA
APW13	10/10/2023	Lithium	0.024	FALSE	FALSE
APW13	10/10/2023	Magnesium	57.5	FALSE	FALSE
APW13	10/10/2023	Manganese	0.62	TRUE	NA
APW13	10/10/2023	Molybdenum	0.0087	FALSE	FALSE
APW13	10/10/2023	Potassium	1.93	FALSE	FALSE
APW13	10/10/2023	Sodium	124	FALSE	FALSE
APW13	10/10/2023	Sulfate	234	FALSE	FALSE
APW13	10/10/2023	H+	6.46E-08	FALSE	FALSE
APW13	10/10/2023	Alkalinity	15.1	FALSE	FALSE
APW14	3/31/2021	Arsenic	0.0098	FALSE	FALSE
APW14	3/31/2021	Barium	0.092	FALSE	FALSE
APW14	3/31/2021	Boron	0.11	FALSE	FALSE
APW14	3/31/2021	Calcium	130	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW14	3/31/2021	Chloride	46	FALSE	FALSE
APW14	3/31/2021	Fluoride	0.363	FALSE	FALSE
APW14	3/31/2021	Iron	6.4	FALSE	FALSE
APW14	3/31/2021	Lithium	0.034	FALSE	FALSE
APW14	3/31/2021	Magnesium	61	FALSE	FALSE
APW14	3/31/2021	Manganese	0.42	FALSE	FALSE
APW14	3/31/2021	Molybdenum	0.0068	FALSE	FALSE
APW14	3/31/2021	Potassium	3.2	FALSE	FALSE
APW14	3/31/2021	Sodium	130	FALSE	FALSE
APW14	3/31/2021	Sulfate	330	FALSE	FALSE
APW14	3/31/2021	H+	0.000000316	FALSE	FALSE
APW14	3/31/2021	Alkalinity	14.1	FALSE	FALSE
APW14	5/25/2021	Arsenic	0.0047	FALSE	FALSE
APW14	5/25/2021	Barium	0.098	FALSE	FALSE
APW14	5/25/2021	Boron	0.11	FALSE	FALSE
APW14	5/25/2021	Calcium	130	FALSE	FALSE
APW14	5/25/2021	Chloride	43	FALSE	FALSE
APW14	5/25/2021	Fluoride	0.358	FALSE	FALSE
APW14	5/25/2021	Iron	5	FALSE	FALSE
APW14	5/25/2021	Lithium	0.029	FALSE	FALSE
APW14	5/25/2021	Magnesium	63	FALSE	FALSE
APW14	5/25/2021	Manganese	0.59	FALSE	FALSE
APW14	5/25/2021	Molybdenum	0.0063	FALSE	FALSE
APW14	5/25/2021	Potassium	3.1	FALSE	FALSE
APW14	5/25/2021	Sodium	130	FALSE	FALSE
APW14	5/25/2021	Sulfate	320	FALSE	FALSE
APW14	5/25/2021	H+	3.39E-08	FALSE	FALSE
APW14	5/25/2021	Alkalinity	19.4	FALSE	FALSE
APW14	6/17/2021	Arsenic	0.0054	FALSE	FALSE
APW14	6/17/2021	Barium	0.086	FALSE	FALSE
APW14	6/17/2021	Boron	0.089	FALSE	FALSE
APW14	6/17/2021	Calcium	140	FALSE	FALSE
APW14	6/17/2021	Chloride	45	FALSE	FALSE
APW14	6/17/2021	Fluoride	0.436	FALSE	FALSE
APW14	6/17/2021	Iron	4.3	FALSE	FALSE
APW14	6/17/2021	Lithium	0.024	FALSE	FALSE
APW14	6/17/2021	Magnesium	69	FALSE	FALSE
APW14	6/17/2021	Manganese	0.55	FALSE	FALSE
APW14	6/17/2021	Molybdenum	0.0053	FALSE	FALSE
APW14	6/17/2021	Potassium	2.8	FALSE	FALSE
APW14	6/17/2021	Sodium	130	FALSE	FALSE
APW14	6/17/2021	Sulfate	310	FALSE	FALSE
APW14	6/17/2021	H+	4.17E-08	FALSE	FALSE
APW14	6/17/2021	Alkalinity	14.7	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW14	6/30/2021	Arsenic	0.0061	FALSE	FALSE
APW14	6/30/2021	Barium	0.082	FALSE	FALSE
APW14	6/30/2021	Boron	0.097	FALSE	FALSE
APW14	6/30/2021	Calcium	150	FALSE	FALSE
APW14	6/30/2021	Chloride	49	FALSE	FALSE
APW14	6/30/2021	Fluoride	0.371	FALSE	FALSE
APW14	6/30/2021	Iron	4.9	FALSE	FALSE
APW14	6/30/2021	Lithium	0.047	FALSE	FALSE
APW14	6/30/2021	Magnesium	76	FALSE	FALSE
APW14	6/30/2021	Manganese	0.56	FALSE	FALSE
APW14	6/30/2021	Molybdenum	0.0053	FALSE	FALSE
APW14	6/30/2021	Potassium	3	FALSE	FALSE
APW14	6/30/2021	Sodium	150	FALSE	FALSE
APW14	6/30/2021	Sulfate	330	FALSE	FALSE
APW14	6/30/2021	H+	3.09E-08	FALSE	FALSE
APW14	6/30/2021	Alkalinity	14.1	FALSE	FALSE
APW14	7/15/2021	Arsenic	0.0055	FALSE	FALSE
APW14	7/15/2021	Barium	0.07	FALSE	FALSE
APW14	7/15/2021	Boron	0.12	FALSE	FALSE
APW14	7/15/2021	Calcium	130	FALSE	FALSE
APW14	7/15/2021	Chloride	53	FALSE	FALSE
APW14	7/15/2021	Fluoride	0.5	FALSE	TRUE
APW14	7/15/2021	Iron	4.3	FALSE	FALSE
APW14	7/15/2021	Lithium	0.032	FALSE	FALSE
APW14	7/15/2021	Magnesium	69	FALSE	FALSE
APW14	7/15/2021	Manganese	0.42	FALSE	FALSE
APW14	7/15/2021	Molybdenum	0.0046	FALSE	FALSE
APW14	7/15/2021	Potassium	2.3	FALSE	FALSE
APW14	7/15/2021	Sodium	140	FALSE	FALSE
APW14	7/15/2021	Sulfate	330	FALSE	FALSE
APW14	7/15/2021	H+	4.07E-08	FALSE	FALSE
APW14	7/15/2021	Alkalinity	14.6	FALSE	FALSE
APW14	4/28/2023	Arsenic	0.0055	FALSE	FALSE
APW14	4/28/2023	Barium	0.065	FALSE	FALSE
APW14	4/28/2023	Boron	0.1	FALSE	FALSE
APW14	4/28/2023	Calcium	130	FALSE	FALSE
APW14	4/28/2023	Chloride	46	FALSE	FALSE
APW14	4/28/2023	Fluoride	0.243	FALSE	FALSE
APW14	4/28/2023	Iron	4.3	FALSE	FALSE
APW14	4/28/2023	Lithium	0.016	FALSE	FALSE
APW14	4/28/2023	Magnesium	66	FALSE	FALSE
APW14	4/28/2023	Manganese	0.28	FALSE	FALSE
APW14	4/28/2023	Molybdenum	0.004	FALSE	FALSE
APW14	4/28/2023	Potassium	1.6	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW14	4/28/2023	Sodium	130	FALSE	FALSE
APW14	4/28/2023	Sulfate	380	FALSE	FALSE
APW14	4/28/2023	H+	4.57E-08	FALSE	FALSE
APW14	4/28/2023	Alkalinity	14.4	FALSE	FALSE
APW14	7/31/2023	Arsenic	0.0078	FALSE	FALSE
APW14	7/31/2023	Barium	0.0649	FALSE	FALSE
APW14	7/31/2023	Boron	0.103	FALSE	FALSE
APW14	7/31/2023	Calcium	133	FALSE	FALSE
APW14	7/31/2023	Chloride	42	FALSE	FALSE
APW14	7/31/2023	Fluoride	0.31	FALSE	FALSE
APW14	7/31/2023	Iron	4.45	FALSE	FALSE
APW14	7/31/2023	Lithium	0.0207	FALSE	FALSE
APW14	7/31/2023	Magnesium	67.6	FALSE	FALSE
APW14	7/31/2023	Manganese	0.244	FALSE	FALSE
APW14	7/31/2023	Molybdenum	0.0049	FALSE	FALSE
APW14	7/31/2023	Potassium	2	FALSE	FALSE
APW14	7/31/2023	Sodium	126	FALSE	FALSE
APW14	7/31/2023	Sulfate	370	FALSE	FALSE
APW14	7/31/2023	H+	9.12E-08	FALSE	FALSE
APW14	7/31/2023	Alkalinity	14.2	FALSE	FALSE
APW14	10/10/2023	Arsenic	0.0094	FALSE	FALSE
APW14	10/10/2023	Barium	0.0758	FALSE	FALSE
APW14	10/10/2023	Boron	0.0888	FALSE	FALSE
APW14	10/10/2023	Calcium	138	FALSE	FALSE
APW14	10/10/2023	Chloride	41	FALSE	FALSE
APW14	10/10/2023	Fluoride	0.33	FALSE	FALSE
APW14	10/10/2023	Iron	2.3	TRUE	NA
APW14	10/10/2023	Lithium	0.0205	FALSE	FALSE
APW14	10/10/2023	Magnesium	63.1	FALSE	FALSE
APW14	10/10/2023	Manganese	0.62	TRUE	NA
APW14	10/10/2023	Molybdenum	0.0058	FALSE	FALSE
APW14	10/10/2023	Potassium	1.92	FALSE	FALSE
APW14	10/10/2023	Sodium	133	FALSE	FALSE
APW14	10/10/2023	Sulfate	358	FALSE	FALSE
APW14	10/10/2023	H+	0.000000049	FALSE	FALSE
APW14	10/10/2023	Alkalinity	14.7	FALSE	FALSE
APW15	5/24/2021	Arsenic	0.017	FALSE	FALSE
APW15	5/24/2021	Barium	0.57	FALSE	FALSE
APW15	5/24/2021	Boron	0.15	FALSE	FALSE
APW15	5/24/2021	Calcium	98	FALSE	FALSE
APW15	5/24/2021	Chloride	230	FALSE	FALSE
APW15	5/24/2021	Fluoride	1.68	FALSE	FALSE
APW15	5/24/2021	Iron	10	FALSE	FALSE
APW15	5/24/2021	Lithium	0.141	FALSE	TRUE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW15	5/24/2021	Magnesium	41	FALSE	FALSE
APW15	5/24/2021	Manganese	0.16	FALSE	FALSE
APW15	5/24/2021	Molybdenum	0.012	FALSE	FALSE
APW15	5/24/2021	Potassium	3.2	FALSE	FALSE
APW15	5/24/2021	Sodium	300	FALSE	FALSE
APW15	5/24/2021	Sulfate	1	FALSE	TRUE
APW15	5/24/2021	H+	5.13E-08	FALSE	FALSE
APW15	5/24/2021	Alkalinity	23.3	FALSE	FALSE
APW15	6/17/2021	Arsenic	0.017	FALSE	FALSE
APW15	6/17/2021	Barium	0.6	FALSE	FALSE
APW15	6/17/2021	Boron	0.13	FALSE	FALSE
APW15	6/17/2021	Calcium	95	FALSE	FALSE
APW15	6/17/2021	Chloride	240	FALSE	FALSE
APW15	6/17/2021	Fluoride	3.18	FALSE	FALSE
APW15	6/17/2021	Iron	15	FALSE	FALSE
APW15	6/17/2021	Lithium	0.022	FALSE	FALSE
APW15	6/17/2021	Magnesium	37	FALSE	FALSE
APW15	6/17/2021	Manganese	0.16	FALSE	FALSE
APW15	6/17/2021	Molybdenum	0.012	FALSE	FALSE
APW15	6/17/2021	Potassium	2.9	FALSE	FALSE
APW15	6/17/2021	Sodium	260	FALSE	FALSE
APW15	6/17/2021	Sulfate	1	FALSE	TRUE
APW15	6/17/2021	H+	5.13E-08	FALSE	FALSE
APW15	6/17/2021	Alkalinity	17.3	FALSE	FALSE
APW15	6/30/2021	Arsenic	0.017	FALSE	FALSE
APW15	6/30/2021	Barium	0.6	FALSE	FALSE
APW15	6/30/2021	Boron	0.13	FALSE	FALSE
APW15	6/30/2021	Calcium	98	FALSE	FALSE
APW15	6/30/2021	Chloride	230	FALSE	FALSE
APW15	6/30/2021	Fluoride	2.89	FALSE	FALSE
APW15	6/30/2021	Iron	13	FALSE	FALSE
APW15	6/30/2021	Lithium	0.022	FALSE	FALSE
APW15	6/30/2021	Magnesium	42	FALSE	FALSE
APW15	6/30/2021	Manganese	0.14	FALSE	FALSE
APW15	6/30/2021	Molybdenum	0.0098	FALSE	FALSE
APW15	6/30/2021	Potassium	2.8	FALSE	FALSE
APW15	6/30/2021	Sodium	280	FALSE	FALSE
APW15	6/30/2021	Sulfate	1	FALSE	TRUE
APW15	6/30/2021	H+	7.76E-08	FALSE	FALSE
APW15	6/30/2021	Alkalinity	17.2	FALSE	FALSE
APW15	7/14/2021	Arsenic	0.016	FALSE	FALSE
APW15	7/14/2021	Barium	0.6	FALSE	FALSE
APW15	7/14/2021	Boron	0.16	FALSE	FALSE
APW15	7/14/2021	Calcium	96	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW15	7/14/2021	Chloride	130	FALSE	FALSE
APW15	7/14/2021	Fluoride	8.16	FALSE	FALSE
APW15	7/14/2021	Iron	13	FALSE	FALSE
APW15	7/14/2021	Lithium	0.141	FALSE	TRUE
APW15	7/14/2021	Magnesium	41	FALSE	FALSE
APW15	7/14/2021	Manganese	0.13	FALSE	FALSE
APW15	7/14/2021	Molybdenum	0.0094	FALSE	FALSE
APW15	7/14/2021	Potassium	2.8	FALSE	FALSE
APW15	7/14/2021	Sodium	290	FALSE	FALSE
APW15	7/14/2021	Sulfate	1	FALSE	TRUE
APW15	7/14/2021	H+	6.17E-08	FALSE	FALSE
APW15	7/14/2021	Alkalinity	17.3	FALSE	FALSE
APW16	2/23/2021	Arsenic	0.014	FALSE	FALSE
APW16	2/23/2021	Barium	0.62	FALSE	FALSE
APW16	2/23/2021	Boron	0.14	FALSE	FALSE
APW16	2/23/2021	Calcium	92	FALSE	FALSE
APW16	2/23/2021	Chloride	71	FALSE	FALSE
APW16	2/23/2021	Fluoride	0.629	FALSE	FALSE
APW16	2/23/2021	Iron	1.8	FALSE	FALSE
APW16	2/23/2021	Lithium	0.141	FALSE	TRUE
APW16	2/23/2021	Magnesium	43	FALSE	FALSE
APW16	2/23/2021	Manganese	0.052	FALSE	FALSE
APW16	2/23/2021	Molybdenum	0.0036	FALSE	FALSE
APW16	2/23/2021	Potassium	2.2	FALSE	FALSE
APW16	2/23/2021	Sodium	130	FALSE	FALSE
APW16	2/23/2021	Sulfate	1.9	FALSE	FALSE
APW16	2/23/2021	H+	3.98E-08	FALSE	FALSE
APW16	2/23/2021	Alkalinity	16.2	FALSE	FALSE
APW16	4/28/2021	Arsenic	0.0083	FALSE	FALSE
APW16	4/28/2021	Barium	0.62	FALSE	FALSE
APW16	4/28/2021	Boron	0.12	FALSE	FALSE
APW16	4/28/2021	Calcium	96	FALSE	FALSE
APW16	4/28/2021	Chloride	75	FALSE	FALSE
APW16	4/28/2021	Fluoride	0.742	FALSE	FALSE
APW16	4/28/2021	Iron	7.4	FALSE	FALSE
APW16	4/28/2021	Lithium	0.141	FALSE	TRUE
APW16	4/28/2021	Magnesium	45	FALSE	FALSE
APW16	4/28/2021	Manganese	0.052	FALSE	FALSE
APW16	4/28/2021	Molybdenum	0.0015	FALSE	FALSE
APW16	4/28/2021	Potassium	1.9	FALSE	FALSE
APW16	4/28/2021	Sodium	140	FALSE	FALSE
APW16	4/28/2021	Sulfate	1	FALSE	TRUE
APW16	4/28/2021	H+	3.63E-08	FALSE	FALSE
APW16	4/28/2021	Alkalinity	16.7	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW16	5/24/2021	Arsenic	0.0074	FALSE	FALSE
APW16	5/24/2021	Barium	0.61	FALSE	FALSE
APW16	5/24/2021	Boron	0.15	FALSE	FALSE
APW16	5/24/2021	Calcium	100	FALSE	FALSE
APW16	5/24/2021	Chloride	74	FALSE	FALSE
APW16	5/24/2021	Fluoride	0.639	FALSE	FALSE
APW16	5/24/2021	Iron	6.5	FALSE	FALSE
APW16	5/24/2021	Lithium	0.141	FALSE	TRUE
APW16	5/24/2021	Magnesium	46	FALSE	FALSE
APW16	5/24/2021	Manganese	0.048	FALSE	FALSE
APW16	5/24/2021	Molybdenum	0.0012	FALSE	FALSE
APW16	5/24/2021	Potassium	2	FALSE	FALSE
APW16	5/24/2021	Sodium	150	FALSE	FALSE
APW16	5/24/2021	Sulfate	1	FALSE	TRUE
APW16	5/24/2021	H+	2.82E-08	FALSE	FALSE
APW16	5/24/2021	Alkalinity	22.5	FALSE	FALSE
APW16	6/16/2021	Arsenic	0.0077	FALSE	FALSE
APW16	6/16/2021	Barium	0.57	FALSE	FALSE
APW16	6/16/2021	Boron	0.14	FALSE	FALSE
APW16	6/16/2021	Calcium	100	FALSE	FALSE
APW16	6/16/2021	Chloride	73	FALSE	FALSE
APW16	6/16/2021	Fluoride	0.735	FALSE	FALSE
APW16	6/16/2021	Iron	4.7	FALSE	FALSE
APW16	6/16/2021	Lithium	0.141	FALSE	TRUE
APW16	6/16/2021	Magnesium	44	FALSE	FALSE
APW16	6/16/2021	Manganese	0.04	FALSE	FALSE
APW16	6/16/2021	Molybdenum	0.0316	FALSE	TRUE
APW16	6/16/2021	Potassium	1.9	FALSE	FALSE
APW16	6/16/2021	Sodium	140	FALSE	FALSE
APW16	6/16/2021	Sulfate	1	FALSE	TRUE
APW16	6/16/2021	H+	3.98E-08	FALSE	FALSE
APW16	6/16/2021	Alkalinity	16.7	FALSE	FALSE
APW16	6/30/2021	Arsenic	0.0083	FALSE	FALSE
APW16	6/30/2021	Barium	0.55	FALSE	FALSE
APW16	6/30/2021	Boron	0.13	FALSE	FALSE
APW16	6/30/2021	Calcium	96	FALSE	FALSE
APW16	6/30/2021	Chloride	59	FALSE	FALSE
APW16	6/30/2021	Fluoride	0.766	FALSE	FALSE
APW16	6/30/2021	Iron	4	FALSE	FALSE
APW16	6/30/2021	Lithium	0.141	FALSE	TRUE
APW16	6/30/2021	Magnesium	44	FALSE	FALSE
APW16	6/30/2021	Manganese	0.036	FALSE	FALSE
APW16	6/30/2021	Molybdenum	0.0316	FALSE	TRUE
APW16	6/30/2021	Potassium	2	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW16	6/30/2021	Sodium	140	FALSE	FALSE
APW16	6/30/2021	Sulfate	1	FALSE	TRUE
APW16	6/30/2021	H+	0.0000001	FALSE	FALSE
APW16	6/30/2021	Alkalinity	15	FALSE	FALSE
APW16	7/15/2021	Arsenic	0.0088	FALSE	FALSE
APW16	7/15/2021	Barium	0.56	FALSE	FALSE
APW16	7/15/2021	Boron	0.13	FALSE	FALSE
APW16	7/15/2021	Calcium	95	FALSE	FALSE
APW16	7/15/2021	Chloride	77	FALSE	FALSE
APW16	7/15/2021	Fluoride	0.55	FALSE	FALSE
APW16	7/15/2021	Iron	4.3	FALSE	FALSE
APW16	7/15/2021	Lithium	0.141	FALSE	TRUE
APW16	7/15/2021	Magnesium	45	FALSE	FALSE
APW16	7/15/2021	Manganese	0.043	FALSE	FALSE
APW16	7/15/2021	Molybdenum	0.0316	FALSE	TRUE
APW16	7/15/2021	Potassium	1.8	FALSE	FALSE
APW16	7/15/2021	Sodium	150	FALSE	FALSE
APW16	7/15/2021	Sulfate	1	FALSE	TRUE
APW16	7/15/2021	H+	4.07E-08	FALSE	FALSE
APW16	7/15/2021	Alkalinity	16.7	FALSE	FALSE
APW16	3/15/2023	Arsenic	0.022	FALSE	FALSE
APW16	3/15/2023	Barium	0.52	FALSE	FALSE
APW16	3/15/2023	Boron	0.15	FALSE	FALSE
APW16	3/15/2023	Calcium	95	FALSE	FALSE
APW16	3/15/2023	Chloride	65	FALSE	FALSE
APW16	3/15/2023	Fluoride	0.63	FALSE	FALSE
APW16	3/15/2023	Iron	4	TRUE	NA
APW16	3/15/2023	Lithium	0.141	FALSE	TRUE
APW16	3/15/2023	Magnesium	48	FALSE	FALSE
APW16	3/15/2023	Manganese	0.04	TRUE	NA
APW16	3/15/2023	Molybdenum	0.0316	TRUE	NA
APW16	3/15/2023	Potassium	1.9	FALSE	FALSE
APW16	3/15/2023	Sodium	160	FALSE	FALSE
APW16	3/15/2023	Sulfate	0.93	FALSE	FALSE
APW16	3/15/2023	H+	0.000000038	FALSE	FALSE
APW16	3/15/2023	Alkalinity	16.7	FALSE	FALSE
APW16	4/25/2023	Arsenic	0.021	FALSE	FALSE
APW16	4/25/2023	Barium	0.54	FALSE	FALSE
APW16	4/25/2023	Boron	0.13	FALSE	FALSE
APW16	4/25/2023	Calcium	96	FALSE	FALSE
APW16	4/25/2023	Chloride	71	FALSE	FALSE
APW16	4/25/2023	Fluoride	0.606	FALSE	FALSE
APW16	4/25/2023	Iron	2.3	FALSE	FALSE
APW16	4/25/2023	Lithium	0.141	FALSE	TRUE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW16	4/25/2023	Magnesium	44	FALSE	FALSE
APW16	4/25/2023	Manganese	0.021	FALSE	FALSE
APW16	4/25/2023	Molybdenum	0.0316	FALSE	TRUE
APW16	4/25/2023	Potassium	1.8	FALSE	FALSE
APW16	4/25/2023	Sodium	140	FALSE	FALSE
APW16	4/25/2023	Sulfate	0.65	FALSE	FALSE
APW16	4/25/2023	H+	2.24E-08	FALSE	FALSE
APW16	4/25/2023	Alkalinity	15.6	FALSE	FALSE
APW16	7/31/2023	Arsenic	0.0271	FALSE	FALSE
APW16	7/31/2023	Barium	0.658	FALSE	FALSE
APW16	7/31/2023	Boron	0.147	FALSE	FALSE
APW16	7/31/2023	Calcium	94	FALSE	FALSE
APW16	7/31/2023	Chloride	64	FALSE	FALSE
APW16	7/31/2023	Fluoride	0.72	FALSE	FALSE
APW16	7/31/2023	Iron	2.85	FALSE	FALSE
APW16	7/31/2023	Lithium	0.0025	FALSE	FALSE
APW16	7/31/2023	Magnesium	42.7	FALSE	FALSE
APW16	7/31/2023	Manganese	0.0247	FALSE	FALSE
APW16	7/31/2023	Molybdenum	0.0387	FALSE	TRUE
APW16	7/31/2023	Potassium	1.96	FALSE	FALSE
APW16	7/31/2023	Sodium	135	FALSE	FALSE
APW16	7/31/2023	Sulfate	14	FALSE	FALSE
APW16	7/31/2023	H+	7.41E-08	FALSE	FALSE
APW16	7/31/2023	Alkalinity	16.4	FALSE	FALSE
APW16	10/10/2023	Arsenic	0.0253	FALSE	FALSE
APW16	10/10/2023	Barium	0.597	FALSE	FALSE
APW16	10/10/2023	Boron	0.126	FALSE	FALSE
APW16	10/10/2023	Calcium	92.9	FALSE	FALSE
APW16	10/10/2023	Chloride	69	FALSE	FALSE
APW16	10/10/2023	Fluoride	0.77	FALSE	FALSE
APW16	10/10/2023	Iron	4.3	TRUE	NA
APW16	10/10/2023	Lithium	0.0029	FALSE	FALSE
APW16	10/10/2023	Magnesium	39.6	FALSE	FALSE
APW16	10/10/2023	Manganese	0.0342	TRUE	NA
APW16	10/10/2023	Molybdenum	0.0387	FALSE	TRUE
APW16	10/10/2023	Potassium	2	FALSE	FALSE
APW16	10/10/2023	Sodium	138	FALSE	FALSE
APW16	10/10/2023	Sulfate	8	FALSE	FALSE
APW16	10/10/2023	H+	3.55E-08	FALSE	FALSE
APW16	10/10/2023	Alkalinity	16.7	FALSE	FALSE
APW17	2/23/2021	Arsenic	0.0033	FALSE	FALSE
APW17	2/23/2021	Barium	0.54	FALSE	FALSE
APW17	2/23/2021	Boron	0.091	FALSE	FALSE
APW17	2/23/2021	Calcium	100	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW17	2/23/2021	Chloride	64	FALSE	FALSE
APW17	2/23/2021	Fluoride	0.944	FALSE	FALSE
APW17	2/23/2021	Iron	3.5	FALSE	FALSE
APW17	2/23/2021	Lithium	0.141	FALSE	TRUE
APW17	2/23/2021	Magnesium	48	FALSE	FALSE
APW17	2/23/2021	Manganese	0.075	FALSE	FALSE
APW17	2/23/2021	Molybdenum	0.0085	FALSE	FALSE
APW17	2/23/2021	Potassium	2.2	FALSE	FALSE
APW17	2/23/2021	Sodium	89	FALSE	FALSE
APW17	2/23/2021	Sulfate	34	FALSE	FALSE
APW17	2/23/2021	H+	3.98E-08	FALSE	FALSE
APW17	2/23/2021	Alkalinity	15.4	FALSE	FALSE
APW17	4/29/2021	Arsenic	0.003	FALSE	FALSE
APW17	4/29/2021	Barium	0.6	FALSE	FALSE
APW17	4/29/2021	Boron	0.088	FALSE	FALSE
APW17	4/29/2021	Calcium	120	FALSE	FALSE
APW17	4/29/2021	Chloride	55	FALSE	FALSE
APW17	4/29/2021	Fluoride	0.468	FALSE	FALSE
APW17	4/29/2021	Iron	3.7	FALSE	FALSE
APW17	4/29/2021	Lithium	0.141	FALSE	TRUE
APW17	4/29/2021	Magnesium	50	FALSE	FALSE
APW17	4/29/2021	Manganese	0.044	FALSE	FALSE
APW17	4/29/2021	Molybdenum	0.0055	FALSE	FALSE
APW17	4/29/2021	Potassium	1.9	FALSE	FALSE
APW17	4/29/2021	Sodium	97	FALSE	FALSE
APW17	4/29/2021	Sulfate	36	FALSE	FALSE
APW17	4/29/2021	H+	3.72E-08	FALSE	FALSE
APW17	4/29/2021	Alkalinity	15.4	FALSE	FALSE
APW17	5/24/2021	Arsenic	0.0035	FALSE	FALSE
APW17	5/24/2021	Barium	0.59	FALSE	FALSE
APW17	5/24/2021	Boron	0.087	FALSE	FALSE
APW17	5/24/2021	Calcium	110	FALSE	FALSE
APW17	5/24/2021	Chloride	88	FALSE	FALSE
APW17	5/24/2021	Fluoride	0.474	FALSE	FALSE
APW17	5/24/2021	Iron	2.8	FALSE	FALSE
APW17	5/24/2021	Lithium	0.141	FALSE	TRUE
APW17	5/24/2021	Magnesium	47	FALSE	FALSE
APW17	5/24/2021	Manganese	0.032	FALSE	FALSE
APW17	5/24/2021	Molybdenum	0.005	FALSE	FALSE
APW17	5/24/2021	Potassium	1.8	FALSE	FALSE
APW17	5/24/2021	Sodium	91	FALSE	FALSE
APW17	5/24/2021	Sulfate	40	FALSE	FALSE
APW17	5/24/2021	H+	4.27E-08	FALSE	FALSE
APW17	5/24/2021	Alkalinity	20.1	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW17	6/16/2021	Arsenic	0.0058	FALSE	FALSE
APW17	6/16/2021	Barium	0.62	FALSE	FALSE
APW17	6/16/2021	Boron	0.088	FALSE	FALSE
APW17	6/16/2021	Calcium	120	FALSE	FALSE
APW17	6/16/2021	Chloride	54	FALSE	FALSE
APW17	6/16/2021	Fluoride	0.593	FALSE	FALSE
APW17	6/16/2021	Iron	3.5	FALSE	FALSE
APW17	6/16/2021	Lithium	0.141	FALSE	TRUE
APW17	6/16/2021	Magnesium	50	FALSE	FALSE
APW17	6/16/2021	Manganese	0.038	FALSE	FALSE
APW17	6/16/2021	Molybdenum	0.0048	FALSE	FALSE
APW17	6/16/2021	Potassium	1.8	FALSE	FALSE
APW17	6/16/2021	Sodium	95	FALSE	FALSE
APW17	6/16/2021	Sulfate	40	FALSE	FALSE
APW17	6/16/2021	H+	4.37E-08	FALSE	FALSE
APW17	6/16/2021	Alkalinity	15.4	FALSE	FALSE
APW17	6/30/2021	Arsenic	0.0074	FALSE	FALSE
APW17	6/30/2021	Barium	0.61	FALSE	FALSE
APW17	6/30/2021	Boron	0.084	FALSE	FALSE
APW17	6/30/2021	Calcium	110	FALSE	FALSE
APW17	6/30/2021	Chloride	49	FALSE	FALSE
APW17	6/30/2021	Fluoride	0.548	FALSE	FALSE
APW17	6/30/2021	Iron	3.2	FALSE	FALSE
APW17	6/30/2021	Lithium	0.141	FALSE	TRUE
APW17	6/30/2021	Magnesium	48	FALSE	FALSE
APW17	6/30/2021	Manganese	0.038	FALSE	FALSE
APW17	6/30/2021	Molybdenum	0.0048	FALSE	FALSE
APW17	6/30/2021	Potassium	1.7	FALSE	FALSE
APW17	6/30/2021	Sodium	94	FALSE	FALSE
APW17	6/30/2021	Sulfate	41	FALSE	FALSE
APW17	6/30/2021	H+	4.27E-08	FALSE	FALSE
APW17	6/30/2021	Alkalinity	14.9	FALSE	FALSE
APW17	7/15/2021	Arsenic	0.0083	FALSE	FALSE
APW17	7/15/2021	Barium	0.61	FALSE	FALSE
APW17	7/15/2021	Boron	0.091	FALSE	FALSE
APW17	7/15/2021	Calcium	110	FALSE	FALSE
APW17	7/15/2021	Chloride	31	FALSE	FALSE
APW17	7/15/2021	Fluoride	0.412	FALSE	FALSE
APW17	7/15/2021	Iron	3.4	FALSE	FALSE
APW17	7/15/2021	Lithium	0.141	FALSE	TRUE
APW17	7/15/2021	Magnesium	48	FALSE	FALSE
APW17	7/15/2021	Manganese	0.035	FALSE	FALSE
APW17	7/15/2021	Molybdenum	0.0049	FALSE	FALSE
APW17	7/15/2021	Potassium	1.8	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW17	7/15/2021	Sodium	96	FALSE	FALSE
APW17	7/15/2021	Sulfate	5	FALSE	TRUE
APW17	7/15/2021	H+	4.07E-08	FALSE	FALSE
APW17	7/15/2021	Alkalinity	15.1	FALSE	FALSE
APW17	3/15/2023	Arsenic	0.024	FALSE	FALSE
APW17	3/15/2023	Barium	0.6	FALSE	FALSE
APW17	3/15/2023	Boron	0.097	FALSE	FALSE
APW17	3/15/2023	Calcium	110	FALSE	FALSE
APW17	3/15/2023	Chloride	51	FALSE	FALSE
APW17	3/15/2023	Fluoride	0.449	FALSE	FALSE
APW17	3/15/2023	Iron	3.5	TRUE	NA
APW17	3/15/2023	Lithium	0.141	FALSE	TRUE
APW17	3/15/2023	Magnesium	53	FALSE	FALSE
APW17	3/15/2023	Manganese	0.038	TRUE	NA
APW17	3/15/2023	Molybdenum	0.0042	TRUE	NA
APW17	3/15/2023	Potassium	1.8	FALSE	FALSE
APW17	3/15/2023	Sodium	100	FALSE	FALSE
APW17	3/15/2023	Sulfate	49	FALSE	FALSE
APW17	3/15/2023	H+	3.24E-08	FALSE	FALSE
APW17	3/15/2023	Alkalinity	15.5	FALSE	FALSE
APW17	4/25/2023	Arsenic	0.02	FALSE	FALSE
APW17	4/25/2023	Barium	0.55	FALSE	FALSE
APW17	4/25/2023	Boron	0.083	FALSE	FALSE
APW17	4/25/2023	Calcium	110	FALSE	FALSE
APW17	4/25/2023	Chloride	56	FALSE	FALSE
APW17	4/25/2023	Fluoride	0.483	FALSE	FALSE
APW17	4/25/2023	Iron	2.1	FALSE	FALSE
APW17	4/25/2023	Lithium	0.141	FALSE	TRUE
APW17	4/25/2023	Magnesium	47	FALSE	FALSE
APW17	4/25/2023	Manganese	0.026	FALSE	FALSE
APW17	4/25/2023	Molybdenum	0.0053	FALSE	FALSE
APW17	4/25/2023	Potassium	1.6	FALSE	FALSE
APW17	4/25/2023	Sodium	93	FALSE	FALSE
APW17	4/25/2023	Sulfate	52	FALSE	FALSE
APW17	4/25/2023	H+	0.000000024	FALSE	FALSE
APW17	4/25/2023	Alkalinity	14.2	FALSE	FALSE
APW17	7/25/2023	Arsenic	0.0274	FALSE	FALSE
APW17	7/25/2023	Barium	0.609	FALSE	FALSE
APW17	7/25/2023	Boron	0.121	FALSE	FALSE
APW17	7/25/2023	Calcium	106	FALSE	FALSE
APW17	7/25/2023	Chloride	53	FALSE	FALSE
APW17	7/25/2023	Fluoride	0.58	FALSE	FALSE
APW17	7/25/2023	Iron	2.57	FALSE	FALSE
APW17	7/25/2023	Lithium	0.0025	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW17	7/25/2023	Magnesium	44.7	FALSE	FALSE
APW17	7/25/2023	Manganese	0.0233	FALSE	FALSE
APW17	7/25/2023	Molybdenum	0.0052	FALSE	FALSE
APW17	7/25/2023	Potassium	1.83	FALSE	FALSE
APW17	7/25/2023	Sodium	90.1	FALSE	FALSE
APW17	7/25/2023	Sulfate	56	FALSE	FALSE
APW17	7/25/2023	H+	0.000000115	FALSE	FALSE
APW17	7/25/2023	Alkalinity	15.3	FALSE	FALSE
APW17	10/10/2023	Arsenic	0.032	FALSE	FALSE
APW17	10/10/2023	Barium	0.741	FALSE	FALSE
APW17	10/10/2023	Boron	0.0788	FALSE	FALSE
APW17	10/10/2023	Calcium	107	FALSE	FALSE
APW17	10/10/2023	Chloride	59	FALSE	FALSE
APW17	10/10/2023	Fluoride	0.54	FALSE	FALSE
APW17	10/10/2023	Iron	5.14	TRUE	NA
APW17	10/10/2023	Lithium	0.0024	FALSE	FALSE
APW17	10/10/2023	Magnesium	42.3	FALSE	FALSE
APW17	10/10/2023	Manganese	0.0342	TRUE	NA
APW17	10/10/2023	Molybdenum	0.0172	FALSE	FALSE
APW17	10/10/2023	Potassium	1.9	FALSE	FALSE
APW17	10/10/2023	Sodium	89.1	FALSE	FALSE
APW17	10/10/2023	Sulfate	64	FALSE	FALSE
APW17	10/10/2023	H+	3.24E-08	FALSE	FALSE
APW17	10/10/2023	Alkalinity	15.6	FALSE	FALSE
APW18	6/16/2021	Arsenic	0.0043	FALSE	FALSE
APW18	6/16/2021	Barium	0.36	FALSE	FALSE
APW18	6/16/2021	Boron	0.19	FALSE	FALSE
APW18	6/16/2021	Calcium	64	FALSE	FALSE
APW18	6/16/2021	Chloride	29	FALSE	FALSE
APW18	6/16/2021	Fluoride	6.67	FALSE	FALSE
APW18	6/16/2021	Iron	4.1	FALSE	FALSE
APW18	6/16/2021	Lithium	0.141	FALSE	TRUE
APW18	6/16/2021	Magnesium	37	FALSE	FALSE
APW18	6/16/2021	Manganese	0.14	FALSE	FALSE
APW18	6/16/2021	Molybdenum	0.0096	FALSE	FALSE
APW18	6/16/2021	Potassium	8.8	FALSE	FALSE
APW18	6/16/2021	Sodium	120	FALSE	FALSE
APW18	6/16/2021	Sulfate	4.8	FALSE	FALSE
APW18	6/16/2021	H+	2.82E-08	FALSE	FALSE
APW18	6/16/2021	Alkalinity	14.9	FALSE	FALSE
APW18	6/30/2021	Arsenic	0.0316	FALSE	TRUE
APW18	6/30/2021	Barium	0.36	FALSE	FALSE
APW18	6/30/2021	Boron	0.11	FALSE	FALSE
APW18	6/30/2021	Calcium	60	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW18	6/30/2021	Chloride	28	FALSE	FALSE
APW18	6/30/2021	Fluoride	3.23	FALSE	FALSE
APW18	6/30/2021	Iron	3.5	FALSE	FALSE
APW18	6/30/2021	Lithium	0.141	FALSE	TRUE
APW18	6/30/2021	Magnesium	38	FALSE	FALSE
APW18	6/30/2021	Manganese	0.13	FALSE	FALSE
APW18	6/30/2021	Molybdenum	0.0048	FALSE	FALSE
APW18	6/30/2021	Potassium	7.6	FALSE	FALSE
APW18	6/30/2021	Sodium	120	FALSE	FALSE
APW18	6/30/2021	Sulfate	2.2	FALSE	FALSE
APW18	6/30/2021	H+	2.63E-08	FALSE	FALSE
APW18	6/30/2021	Alkalinity	14.6	FALSE	FALSE
APW18	7/15/2021	Arsenic	0.0015	FALSE	FALSE
APW18	7/15/2021	Barium	0.33	FALSE	FALSE
APW18	7/15/2021	Boron	0.12	FALSE	FALSE
APW18	7/15/2021	Calcium	64	FALSE	FALSE
APW18	7/15/2021	Chloride	31	FALSE	FALSE
APW18	7/15/2021	Fluoride	4.67	FALSE	FALSE
APW18	7/15/2021	Iron	4.6	FALSE	FALSE
APW18	7/15/2021	Lithium	0.141	FALSE	TRUE
APW18	7/15/2021	Magnesium	39	FALSE	FALSE
APW18	7/15/2021	Manganese	0.16	FALSE	FALSE
APW18	7/15/2021	Molybdenum	0.0051	FALSE	FALSE
APW18	7/15/2021	Potassium	8.1	FALSE	FALSE
APW18	7/15/2021	Sodium	120	FALSE	FALSE
APW18	7/15/2021	Sulfate	1.9	FALSE	FALSE
APW18	7/15/2021	H+	2.57E-08	FALSE	FALSE
APW18	7/15/2021	Alkalinity	14.9	FALSE	FALSE
APW18	4/25/2023	Arsenic	0.0027	FALSE	FALSE
APW18	4/25/2023	Barium	0.35	FALSE	FALSE
APW18	4/25/2023	Boron	0.1	FALSE	FALSE
APW18	4/25/2023	Calcium	75	FALSE	FALSE
APW18	4/25/2023	Chloride	24	FALSE	FALSE
APW18	4/25/2023	Fluoride	0.518	FALSE	FALSE
APW18	4/25/2023	Iron	1.8	FALSE	FALSE
APW18	4/25/2023	Lithium	0.0052	FALSE	FALSE
APW18	4/25/2023	Magnesium	40	FALSE	FALSE
APW18	4/25/2023	Manganese	0.055	FALSE	FALSE
APW18	4/25/2023	Molybdenum	0.0029	FALSE	FALSE
APW18	4/25/2023	Potassium	2.6	FALSE	FALSE
APW18	4/25/2023	Sodium	110	FALSE	FALSE
APW18	4/25/2023	Sulfate	52	FALSE	FALSE
APW18	4/25/2023	H+	1.66E-08	FALSE	FALSE
APW18	4/25/2023	Alkalinity	14.1	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
APW18	7/25/2023	Arsenic	0.0023	FALSE	FALSE
APW18	7/25/2023	Barium	0.368	FALSE	FALSE
APW18	7/25/2023	Boron	0.128	FALSE	FALSE
APW18	7/25/2023	Calcium	73.2	FALSE	FALSE
APW18	7/25/2023	Chloride	26	FALSE	FALSE
APW18	7/25/2023	Fluoride	0.63	FALSE	FALSE
APW18	7/25/2023	Iron	1.82	FALSE	FALSE
APW18	7/25/2023	Lithium	0.0052	FALSE	FALSE
APW18	7/25/2023	Magnesium	36.8	FALSE	FALSE
APW18	7/25/2023	Manganese	0.0791	FALSE	FALSE
APW18	7/25/2023	Molybdenum	0.0032	FALSE	FALSE
APW18	7/25/2023	Potassium	2.76	FALSE	FALSE
APW18	7/25/2023	Sodium	107	FALSE	FALSE
APW18	7/25/2023	Sulfate	49	FALSE	FALSE
APW18	7/25/2023	H+	6.03E-08	FALSE	FALSE
APW18	7/25/2023	Alkalinity	15.1	FALSE	FALSE
APW18	10/10/2023	Arsenic	0.0026	FALSE	FALSE
APW18	10/10/2023	Barium	0.443	FALSE	FALSE
APW18	10/10/2023	Boron	0.0971	FALSE	FALSE
APW18	10/10/2023	Calcium	75.5	FALSE	FALSE
APW18	10/10/2023	Chloride	23	FALSE	FALSE
APW18	10/10/2023	Fluoride	0.59	FALSE	FALSE
APW18	10/10/2023	Iron	1.82	TRUE	NA
APW18	10/10/2023	Lithium	0.0052	FALSE	FALSE
APW18	10/10/2023	Magnesium	37.6	FALSE	FALSE
APW18	10/10/2023	Manganese	0.052	TRUE	NA
APW18	10/10/2023	Molybdenum	0.0043	FALSE	FALSE
APW18	10/10/2023	Potassium	2.34	FALSE	FALSE
APW18	10/10/2023	Sodium	104	FALSE	FALSE
APW18	10/10/2023	Sulfate	49	FALSE	FALSE
APW18	10/10/2023	H+	8.91E-09	FALSE	FALSE
APW18	10/10/2023	Alkalinity	15.2	FALSE	FALSE
XPW01	3/9/2021	Arsenic	0.049	FALSE	FALSE
XPW01	3/9/2021	Barium	0.14	FALSE	FALSE
XPW01	3/9/2021	Boron	11	FALSE	FALSE
XPW01	3/9/2021	Calcium	63	FALSE	FALSE
XPW01	3/9/2021	Chloride	38	FALSE	FALSE
XPW01	3/9/2021	Fluoride	2.37	FALSE	FALSE
XPW01	3/9/2021	Iron	1	FALSE	FALSE
XPW01	3/9/2021	Lithium	0.13	FALSE	FALSE
XPW01	3/9/2021	Magnesium	0.81	FALSE	FALSE
XPW01	3/9/2021	Manganese	0.015	FALSE	FALSE
XPW01	3/9/2021	Molybdenum	0.59	FALSE	FALSE
XPW01	3/9/2021	Potassium	150	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW01	3/9/2021	Sodium	8000	FALSE	FALSE
XPW01	3/9/2021	Sulfate	14000	FALSE	FALSE
XPW01	3/9/2021	H+	3.98E-13	FALSE	FALSE
XPW01	3/9/2021	Alkalinity	11.2	FALSE	FALSE
XPW01	3/30/2021	Arsenic	0.049	FALSE	FALSE
XPW01	3/30/2021	Barium	0.064	FALSE	FALSE
XPW01	3/30/2021	Boron	9.9	FALSE	FALSE
XPW01	3/30/2021	Calcium	54	FALSE	FALSE
XPW01	3/30/2021	Chloride	32	FALSE	FALSE
XPW01	3/30/2021	Fluoride	2.7	FALSE	FALSE
XPW01	3/30/2021	Iron	0.43	FALSE	FALSE
XPW01	3/30/2021	Lithium	0.14	FALSE	FALSE
XPW01	3/30/2021	Magnesium	0.32	FALSE	FALSE
XPW01	3/30/2021	Manganese	0.0054	FALSE	FALSE
XPW01	3/30/2021	Molybdenum	0.54	FALSE	FALSE
XPW01	3/30/2021	Potassium	130	FALSE	FALSE
XPW01	3/30/2021	Sodium	6700	FALSE	FALSE
XPW01	3/30/2021	Sulfate	19000	FALSE	FALSE
XPW01	3/30/2021	H+	3.98E-13	FALSE	FALSE
XPW01	3/30/2021	Alkalinity	14.2	FALSE	FALSE
XPW01	7/14/2021	Arsenic	0.052	FALSE	FALSE
XPW01	7/14/2021	Barium	0.039	FALSE	FALSE
XPW01	7/14/2021	Boron	12	FALSE	FALSE
XPW01	7/14/2021	Calcium	31	FALSE	FALSE
XPW01	7/14/2021	Chloride	27	FALSE	FALSE
XPW01	7/14/2021	Fluoride	1.92	FALSE	FALSE
XPW01	7/14/2021	Iron	0.26	FALSE	FALSE
XPW01	7/14/2021	Lithium	0.15	FALSE	FALSE
XPW01	7/14/2021	Magnesium	0.79	FALSE	FALSE
XPW01	7/14/2021	Manganese	0.046	FALSE	FALSE
XPW01	7/14/2021	Molybdenum	0.38	FALSE	FALSE
XPW01	7/14/2021	Potassium	98	FALSE	FALSE
XPW01	7/14/2021	Sodium	5700	FALSE	FALSE
XPW01	7/14/2021	Sulfate	11000	FALSE	FALSE
XPW01	7/14/2021	H+	6.31E-13	FALSE	FALSE
XPW01	7/14/2021	Alkalinity	14.9	FALSE	FALSE
XPW01	7/24/2023	Arsenic	0.0641	FALSE	FALSE
XPW01	7/24/2023	Barium	0.0448	FALSE	FALSE
XPW01	7/24/2023	Boron	13.3	FALSE	FALSE
XPW01	7/24/2023	Calcium	10.3	FALSE	FALSE
XPW01	7/24/2023	Chloride	44	FALSE	FALSE
XPW01	7/24/2023	Fluoride	4.18	FALSE	FALSE
XPW01	7/24/2023	Iron	0.658	FALSE	FALSE
XPW01	7/24/2023	Lithium	0.0545	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW01	7/24/2023	Magnesium	0.343	FALSE	FALSE
XPW01	7/24/2023	Manganese	0.0084	FALSE	FALSE
XPW01	7/24/2023	Molybdenum	0.185	FALSE	FALSE
XPW01	7/24/2023	Potassium	42.4	FALSE	FALSE
XPW01	7/24/2023	Sodium	2050	FALSE	FALSE
XPW01	7/24/2023	Sulfate	2530	FALSE	FALSE
XPW01	7/24/2023	H+	2E-13	FALSE	FALSE
XPW01	7/24/2023	Alkalinity	18.2	FALSE	FALSE
XPW02	3/9/2021	Arsenic	0.091	FALSE	FALSE
XPW02	3/9/2021	Barium	0.024	FALSE	FALSE
XPW02	3/9/2021	Boron	2.5	FALSE	FALSE
XPW02	3/9/2021	Calcium	20	FALSE	FALSE
XPW02	3/9/2021	Chloride	9.6	FALSE	FALSE
XPW02	3/9/2021	Fluoride	0.61	FALSE	FALSE
XPW02	3/9/2021	Iron	0.13	FALSE	FALSE
XPW02	3/9/2021	Lithium	0.141	FALSE	TRUE
XPW02	3/9/2021	Magnesium	0.33	FALSE	FALSE
XPW02	3/9/2021	Manganese	0.0044	FALSE	FALSE
XPW02	3/9/2021	Molybdenum	0.097	FALSE	FALSE
XPW02	3/9/2021	Potassium	16	FALSE	FALSE
XPW02	3/9/2021	Sodium	72	FALSE	FALSE
XPW02	3/9/2021	Sulfate	150	FALSE	FALSE
XPW02	3/9/2021	H+	6.31E-10	FALSE	FALSE
XPW02	3/9/2021	Alkalinity	5.32	FALSE	FALSE
XPW02	4/28/2021	Arsenic	0.082	FALSE	FALSE
XPW02	4/28/2021	Barium	0.042	FALSE	FALSE
XPW02	4/28/2021	Boron	2.6	FALSE	FALSE
XPW02	4/28/2021	Calcium	25	FALSE	FALSE
XPW02	4/28/2021	Chloride	9.7	FALSE	FALSE
XPW02	4/28/2021	Fluoride	0.637	FALSE	FALSE
XPW02	4/28/2021	Iron	0.59	FALSE	FALSE
XPW02	4/28/2021	Lithium	0.023	FALSE	FALSE
XPW02	4/28/2021	Magnesium	0.55	FALSE	FALSE
XPW02	4/28/2021	Manganese	0.01	FALSE	FALSE
XPW02	4/28/2021	Molybdenum	0.11	FALSE	FALSE
XPW02	4/28/2021	Potassium	16	FALSE	FALSE
XPW02	4/28/2021	Sodium	77	FALSE	FALSE
XPW02	4/28/2021	Sulfate	190	FALSE	FALSE
XPW02	4/28/2021	H+	1.29E-10	FALSE	FALSE
XPW02	4/28/2021	Alkalinity	5.28	FALSE	FALSE
XPW02	7/14/2021	Arsenic	0.077	FALSE	FALSE
XPW02	7/14/2021	Barium	0.025	FALSE	FALSE
XPW02	7/14/2021	Boron	2.5	FALSE	FALSE
XPW02	7/14/2021	Calcium	21	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW02	7/14/2021	Chloride	10	FALSE	FALSE
XPW02	7/14/2021	Fluoride	0.508	FALSE	FALSE
XPW02	7/14/2021	Iron	0.23	FALSE	FALSE
XPW02	7/14/2021	Lithium	0.028	FALSE	FALSE
XPW02	7/14/2021	Magnesium	0.34	FALSE	FALSE
XPW02	7/14/2021	Manganese	0.0061	FALSE	FALSE
XPW02	7/14/2021	Molybdenum	0.086	FALSE	FALSE
XPW02	7/14/2021	Potassium	16	FALSE	FALSE
XPW02	7/14/2021	Sodium	73	FALSE	FALSE
XPW02	7/14/2021	Sulfate	160	FALSE	FALSE
XPW02	7/14/2021	H+	1.82E-10	FALSE	FALSE
XPW02	7/14/2021	Alkalinity	4.96	FALSE	FALSE
XPW02	2/23/2022	Arsenic	0.024	TRUE	NA
XPW02	2/23/2022	Barium	0.0781	TRUE	NA
XPW02	2/23/2022	Boron	2.4	FALSE	FALSE
XPW02	2/23/2022	Calcium	40	FALSE	FALSE
XPW02	2/23/2022	Chloride	12	FALSE	FALSE
XPW02	2/23/2022	Fluoride	0.314	FALSE	FALSE
XPW02	2/23/2022	Iron	0.23	TRUE	NA
XPW02	2/23/2022	Lithium	0.028	TRUE	NA
XPW02	2/23/2022	Magnesium	1.2	FALSE	FALSE
XPW02	2/23/2022	Manganese	0.0061	TRUE	NA
XPW02	2/23/2022	Molybdenum	0.054	TRUE	NA
XPW02	2/23/2022	Potassium	18	FALSE	FALSE
XPW02	2/23/2022	Sodium	70	FALSE	FALSE
XPW02	2/23/2022	Sulfate	210	FALSE	FALSE
XPW02	2/23/2022	H+	2.88E-10	FALSE	FALSE
XPW02	2/23/2022	Alkalinity	4.91	FALSE	FALSE
XPW02	8/15/2022	Arsenic	0.024	TRUE	NA
XPW02	8/15/2022	Barium	0.0781	TRUE	NA
XPW02	8/15/2022	Boron	2.4	FALSE	FALSE
XPW02	8/15/2022	Calcium	29	FALSE	FALSE
XPW02	8/15/2022	Chloride	8.9	FALSE	FALSE
XPW02	8/15/2022	Fluoride	0.46	FALSE	FALSE
XPW02	8/15/2022	Iron	0.23	TRUE	NA
XPW02	8/15/2022	Lithium	0.028	TRUE	NA
XPW02	8/15/2022	Magnesium	0.37	FALSE	FALSE
XPW02	8/15/2022	Manganese	0.0061	TRUE	NA
XPW02	8/15/2022	Molybdenum	0.086	TRUE	NA
XPW02	8/15/2022	Potassium	15	FALSE	FALSE
XPW02	8/15/2022	Sodium	65	FALSE	FALSE
XPW02	8/15/2022	Sulfate	160	FALSE	FALSE
XPW02	8/15/2022	H+	1.86E-10	FALSE	FALSE
XPW02	8/15/2022	Alkalinity	4.96	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW02	4/27/2023	Arsenic	0.077	TRUE	NA
XPW02	4/27/2023	Barium	0.025	TRUE	NA
XPW02	4/27/2023	Boron	2.3	FALSE	FALSE
XPW02	4/27/2023	Calcium	23	FALSE	FALSE
XPW02	4/27/2023	Chloride	8.8	FALSE	FALSE
XPW02	4/27/2023	Fluoride	0.536	FALSE	FALSE
XPW02	4/27/2023	Iron	0.11	FALSE	FALSE
XPW02	4/27/2023	Lithium	0.024	TRUE	NA
XPW02	4/27/2023	Magnesium	0.316	FALSE	TRUE
XPW02	4/27/2023	Manganese	0.0316	FALSE	TRUE
XPW02	4/27/2023	Molybdenum	0.086	TRUE	NA
XPW02	4/27/2023	Potassium	14	FALSE	FALSE
XPW02	4/27/2023	Sodium	64	FALSE	FALSE
XPW02	4/27/2023	Sulfate	150	FALSE	FALSE
XPW02	4/27/2023	H+	2.63E-10	FALSE	FALSE
XPW02	4/27/2023	Alkalinity	5.32	FALSE	FALSE
XPW02	7/24/2023	Arsenic	0.0619	FALSE	FALSE
XPW02	7/24/2023	Barium	0.0138	FALSE	FALSE
XPW02	7/24/2023	Boron	1.7	FALSE	FALSE
XPW02	7/24/2023	Calcium	27.6	FALSE	FALSE
XPW02	7/24/2023	Chloride	16	FALSE	FALSE
XPW02	7/24/2023	Fluoride	0.46	FALSE	FALSE
XPW02	7/24/2023	Iron	0.0441	FALSE	FALSE
XPW02	7/24/2023	Lithium	0.0207	FALSE	FALSE
XPW02	7/24/2023	Magnesium	0.202	FALSE	FALSE
XPW02	7/24/2023	Manganese	0.0021	FALSE	FALSE
XPW02	7/24/2023	Molybdenum	0.0491	FALSE	FALSE
XPW02	7/24/2023	Potassium	16.4	FALSE	FALSE
XPW02	7/24/2023	Sodium	69.1	FALSE	FALSE
XPW02	7/24/2023	Sulfate	213	FALSE	FALSE
XPW02	7/24/2023	H+	3.16E-10	FALSE	FALSE
XPW02	7/24/2023	Alkalinity	5.32	FALSE	FALSE
XPW02	10/10/2023	Arsenic	0.0645	FALSE	FALSE
XPW02	10/10/2023	Barium	0.0781	FALSE	FALSE
XPW02	10/10/2023	Boron	1.91	FALSE	FALSE
XPW02	10/10/2023	Calcium	37.2	FALSE	FALSE
XPW02	10/10/2023	Chloride	16	FALSE	FALSE
XPW02	10/10/2023	Fluoride	0.49	FALSE	FALSE
XPW02	10/10/2023	Iron	0.5	TRUE	NA
XPW02	10/10/2023	Lithium	0.0308	FALSE	FALSE
XPW02	10/10/2023	Magnesium	0.668	FALSE	FALSE
XPW02	10/10/2023	Manganese	0.0057	TRUE	NA
XPW02	10/10/2023	Molybdenum	0.0496	FALSE	FALSE
XPW02	10/10/2023	Potassium	19.4	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW02	10/10/2023	Sodium	74.9	FALSE	FALSE
XPW02	10/10/2023	Sulfate	239	FALSE	FALSE
XPW02	10/10/2023	H+	1.82E-10	FALSE	FALSE
XPW02	10/10/2023	Alkalinity	5.12	FALSE	FALSE
XPW03	3/9/2021	Arsenic	0.031	FALSE	FALSE
XPW03	3/9/2021	Barium	0.11	FALSE	FALSE
XPW03	3/9/2021	Boron	1.2	FALSE	FALSE
XPW03	3/9/2021	Calcium	47	FALSE	FALSE
XPW03	3/9/2021	Chloride	9.2	FALSE	FALSE
XPW03	3/9/2021	Fluoride	0.569	FALSE	FALSE
XPW03	3/9/2021	Iron	0.5	FALSE	FALSE
XPW03	3/9/2021	Lithium	0.024	FALSE	FALSE
XPW03	3/9/2021	Magnesium	0.44	FALSE	FALSE
XPW03	3/9/2021	Manganese	0.0057	FALSE	FALSE
XPW03	3/9/2021	Molybdenum	0.054	FALSE	FALSE
XPW03	3/9/2021	Potassium	15	FALSE	FALSE
XPW03	3/9/2021	Sodium	58	FALSE	FALSE
XPW03	3/9/2021	Sulfate	93	FALSE	FALSE
XPW03	3/9/2021	H+	1.58E-11	FALSE	FALSE
XPW03	3/9/2021	Alkalinity	5.75	FALSE	FALSE
XPW03	4/28/2021	Arsenic	0.035	FALSE	FALSE
XPW03	4/28/2021	Barium	0.37	FALSE	FALSE
XPW03	4/28/2021	Boron	1.2	FALSE	FALSE
XPW03	4/28/2021	Calcium	55	FALSE	FALSE
XPW03	4/28/2021	Chloride	11	FALSE	FALSE
XPW03	4/28/2021	Fluoride	0.598	FALSE	FALSE
XPW03	4/28/2021	Iron	3	FALSE	FALSE
XPW03	4/28/2021	Lithium	0.029	FALSE	FALSE
XPW03	4/28/2021	Magnesium	2.1	FALSE	FALSE
XPW03	4/28/2021	Manganese	0.028	FALSE	FALSE
XPW03	4/28/2021	Molybdenum	0.054	FALSE	FALSE
XPW03	4/28/2021	Potassium	17	FALSE	FALSE
XPW03	4/28/2021	Sodium	55	FALSE	FALSE
XPW03	4/28/2021	Sulfate	96	FALSE	FALSE
XPW03	4/28/2021	H+	5.01E-12	FALSE	FALSE
XPW03	4/28/2021	Alkalinity	6.56	FALSE	FALSE
XPW03	7/14/2021	Arsenic	0.032	FALSE	FALSE
XPW03	7/14/2021	Barium	0.44	FALSE	FALSE
XPW03	7/14/2021	Boron	1.3	FALSE	FALSE
XPW03	7/14/2021	Calcium	72	FALSE	FALSE
XPW03	7/14/2021	Chloride	11	FALSE	FALSE
XPW03	7/14/2021	Fluoride	0.372	FALSE	FALSE
XPW03	7/14/2021	Iron	3.6	FALSE	FALSE
XPW03	7/14/2021	Lithium	0.04	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW03	7/14/2021	Magnesium	2.5	FALSE	FALSE
XPW03	7/14/2021	Manganese	0.03	FALSE	FALSE
XPW03	7/14/2021	Molybdenum	0.055	FALSE	FALSE
XPW03	7/14/2021	Potassium	18	FALSE	FALSE
XPW03	7/14/2021	Sodium	55	FALSE	FALSE
XPW03	7/14/2021	Sulfate	120	FALSE	FALSE
XPW03	7/14/2021	H+	6.31E-12	FALSE	FALSE
XPW03	7/14/2021	Alkalinity	5.52	FALSE	FALSE
XPW03	8/16/2022	Arsenic	0.0405	TRUE	NA
XPW03	8/16/2022	Barium	0.0781	TRUE	NA
XPW03	8/16/2022	Boron	1.4	FALSE	FALSE
XPW03	8/16/2022	Calcium	30	FALSE	FALSE
XPW03	8/16/2022	Chloride	11	FALSE	FALSE
XPW03	8/16/2022	Fluoride	1.17	FALSE	FALSE
XPW03	8/16/2022	Iron	0.5	TRUE	NA
XPW03	8/16/2022	Lithium	0.0308	TRUE	NA
XPW03	8/16/2022	Magnesium	0.53	FALSE	FALSE
XPW03	8/16/2022	Manganese	0.0061	TRUE	NA
XPW03	8/16/2022	Molybdenum	0.11	TRUE	NA
XPW03	8/16/2022	Potassium	14	FALSE	FALSE
XPW03	8/16/2022	Sodium	160	FALSE	FALSE
XPW03	8/16/2022	Sulfate	180	FALSE	FALSE
XPW03	8/16/2022	H+	6.31E-12	FALSE	FALSE
XPW03	8/16/2022	Alkalinity	8.84	FALSE	FALSE
XPW03	7/26/2023	Arsenic	0.05	FALSE	FALSE
XPW03	7/26/2023	Barium	0.0603	FALSE	FALSE
XPW03	7/26/2023	Boron	1.77	FALSE	FALSE
XPW03	7/26/2023	Calcium	22.8	FALSE	FALSE
XPW03	7/26/2023	Chloride	21	FALSE	FALSE
XPW03	7/26/2023	Fluoride	1.11	FALSE	FALSE
XPW03	7/26/2023	Iron	0.238	FALSE	FALSE
XPW03	7/26/2023	Lithium	0.121	FALSE	FALSE
XPW03	7/26/2023	Magnesium	0.134	FALSE	FALSE
XPW03	7/26/2023	Manganese	0.0023	FALSE	FALSE
XPW03	7/26/2023	Molybdenum	0.122	FALSE	FALSE
XPW03	7/26/2023	Potassium	22.5	FALSE	FALSE
XPW03	7/26/2023	Sodium	190	FALSE	FALSE
XPW03	7/26/2023	Sulfate	138	FALSE	FALSE
XPW03	7/26/2023	H+	3.16E-12	FALSE	FALSE
XPW03	7/26/2023	Alkalinity	9.42	FALSE	FALSE
XPW03	10/10/2023	Arsenic	0.0545	FALSE	FALSE
XPW03	10/10/2023	Barium	0.0618	FALSE	FALSE
XPW03	10/10/2023	Boron	2.06	FALSE	FALSE
XPW03	10/10/2023	Calcium	24.8	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW03	10/10/2023	Chloride	21	FALSE	FALSE
XPW03	10/10/2023	Fluoride	1.01	FALSE	FALSE
XPW03	10/10/2023	Iron	0.5	TRUE	NA
XPW03	10/10/2023	Lithium	0.0324	FALSE	FALSE
XPW03	10/10/2023	Magnesium	0.103	FALSE	FALSE
XPW03	10/10/2023	Manganese	0.0057	TRUE	NA
XPW03	10/10/2023	Molybdenum	0.142	FALSE	FALSE
XPW03	10/10/2023	Potassium	23.2	FALSE	FALSE
XPW03	10/10/2023	Sodium	206	FALSE	FALSE
XPW03	10/10/2023	Sulfate	132	FALSE	FALSE
XPW03	10/10/2023	H+	1.58E-12	FALSE	FALSE
XPW03	10/10/2023	Alkalinity	8.55	FALSE	FALSE
XPW04	4/28/2021	Arsenic	0.0071	FALSE	FALSE
XPW04	4/28/2021	Barium	0.22	FALSE	FALSE
XPW04	4/28/2021	Boron	2.8	FALSE	FALSE
XPW04	4/28/2021	Calcium	120	FALSE	FALSE
XPW04	4/28/2021	Chloride	37	FALSE	FALSE
XPW04	4/28/2021	Fluoride	0.628	FALSE	FALSE
XPW04	4/28/2021	Iron	0.37	FALSE	FALSE
XPW04	4/28/2021	Lithium	0.02	FALSE	FALSE
XPW04	4/28/2021	Magnesium	0.7	FALSE	FALSE
XPW04	4/28/2021	Manganese	0.0033	FALSE	FALSE
XPW04	4/28/2021	Molybdenum	0.52	FALSE	FALSE
XPW04	4/28/2021	Potassium	62	FALSE	FALSE
XPW04	4/28/2021	Sodium	1800	FALSE	FALSE
XPW04	4/28/2021	Sulfate	3800	FALSE	FALSE
XPW04	4/28/2021	H+	3.16E-12	FALSE	FALSE
XPW04	4/28/2021	Alkalinity	8.03	FALSE	FALSE
XPW04	7/14/2021	Arsenic	0.0067	FALSE	FALSE
XPW04	7/14/2021	Barium	0.089	FALSE	FALSE
XPW04	7/14/2021	Boron	2.3	FALSE	FALSE
XPW04	7/14/2021	Calcium	60	FALSE	FALSE
XPW04	7/14/2021	Chloride	34	FALSE	FALSE
XPW04	7/14/2021	Fluoride	0.542	FALSE	FALSE
XPW04	7/14/2021	Iron	0.19	FALSE	FALSE
XPW04	7/14/2021	Lithium	0.141	FALSE	TRUE
XPW04	7/14/2021	Magnesium	0.83	FALSE	FALSE
XPW04	7/14/2021	Manganese	0.0027	FALSE	FALSE
XPW04	7/14/2021	Molybdenum	0.14	FALSE	FALSE
XPW04	7/14/2021	Potassium	34	FALSE	FALSE
XPW04	7/14/2021	Sodium	680	FALSE	FALSE
XPW04	7/14/2021	Sulfate	1600	FALSE	FALSE
XPW04	7/14/2021	H+	1E-10	FALSE	FALSE
XPW04	7/14/2021	Alkalinity	9.01	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW04	2/23/2022	Arsenic	0.0405	TRUE	NA
XPW04	2/23/2022	Barium	0.114	TRUE	NA
XPW04	2/23/2022	Boron	2.2	FALSE	FALSE
XPW04	2/23/2022	Calcium	68	FALSE	FALSE
XPW04	2/23/2022	Chloride	30	FALSE	FALSE
XPW04	2/23/2022	Fluoride	0.683	FALSE	FALSE
XPW04	2/23/2022	Iron	0.26	TRUE	NA
XPW04	2/23/2022	Lithium	0.0308	TRUE	NA
XPW04	2/23/2022	Magnesium	1.7	FALSE	FALSE
XPW04	2/23/2022	Manganese	0.015	TRUE	NA
XPW04	2/23/2022	Molybdenum	0.142	TRUE	NA
XPW04	2/23/2022	Potassium	34	FALSE	FALSE
XPW04	2/23/2022	Sodium	700	FALSE	FALSE
XPW04	2/23/2022	Sulfate	1800	FALSE	FALSE
XPW04	2/23/2022	H+	3.09E-10	FALSE	FALSE
XPW04	2/23/2022	Alkalinity	8.55	FALSE	FALSE
XPW04	8/16/2022	Arsenic	0.0405	TRUE	NA
XPW04	8/16/2022	Barium	0.114	TRUE	NA
XPW04	8/16/2022	Boron	3.7	FALSE	FALSE
XPW04	8/16/2022	Calcium	120	FALSE	FALSE
XPW04	8/16/2022	Chloride	54	FALSE	FALSE
XPW04	8/16/2022	Fluoride	0.994	FALSE	FALSE
XPW04	8/16/2022	Iron	0.26	TRUE	NA
XPW04	8/16/2022	Lithium	0.0324	TRUE	NA
XPW04	8/16/2022	Magnesium	0.14	FALSE	FALSE
XPW04	8/16/2022	Manganese	0.0054	TRUE	NA
XPW04	8/16/2022	Molybdenum	0.59	TRUE	NA
XPW04	8/16/2022	Potassium	87	FALSE	FALSE
XPW04	8/16/2022	Sodium	4000	FALSE	FALSE
XPW04	8/16/2022	Sulfate	4000	FALSE	FALSE
XPW04	8/16/2022	H+	3.98E-12	FALSE	FALSE
XPW04	8/16/2022	Alkalinity	8.84	FALSE	FALSE
XPW04	7/24/2023	Arsenic	0.0699	FALSE	FALSE
XPW04	7/24/2023	Barium	0.0749	FALSE	FALSE
XPW04	7/24/2023	Boron	4.57	FALSE	FALSE
XPW04	7/24/2023	Calcium	76.3	FALSE	FALSE
XPW04	7/24/2023	Chloride	186	FALSE	FALSE
XPW04	7/24/2023	Fluoride	1.54	FALSE	FALSE
XPW04	7/24/2023	Iron	0.242	FALSE	FALSE
XPW04	7/24/2023	Lithium	0.0324	FALSE	FALSE
XPW04	7/24/2023	Magnesium	0.275	FALSE	FALSE
XPW04	7/24/2023	Manganese	0.003	FALSE	FALSE
XPW04	7/24/2023	Molybdenum	0.676	FALSE	FALSE
XPW04	7/24/2023	Potassium	88.6	FALSE	FALSE

Attachment 9. PCA Input Data
Geochemical Conceptual Site Model
Newton Primary Ash Pond
Newton Power Plant
Newton, IL

Well ID	Date	Parameter	Result (mg/L)	Imputed Value	Half RL Used
XPW04	7/24/2023	Sodium	4560	FALSE	FALSE
XPW04	7/24/2023	Sulfate	9420	FALSE	FALSE
XPW04	7/24/2023	H+	3.16E-13	FALSE	FALSE
XPW04	7/24/2023	Alkalinity	11.8	FALSE	FALSE
XPW04	10/10/2023	Arsenic	0.0405	FALSE	FALSE
XPW04	10/10/2023	Barium	0.114	FALSE	FALSE
XPW04	10/10/2023	Boron	3.07	FALSE	FALSE
XPW04	10/10/2023	Calcium	122	FALSE	FALSE
XPW04	10/10/2023	Chloride	148	FALSE	FALSE
XPW04	10/10/2023	Fluoride	0.87	FALSE	FALSE
XPW04	10/10/2023	Iron	0.37	TRUE	NA
XPW04	10/10/2023	Lithium	0.026	FALSE	FALSE
XPW04	10/10/2023	Magnesium	0.586	FALSE	FALSE
XPW04	10/10/2023	Manganese	0.0054	TRUE	NA
XPW04	10/10/2023	Molybdenum	0.629	FALSE	FALSE
XPW04	10/10/2023	Potassium	93.7	FALSE	FALSE
XPW04	10/10/2023	Sodium	4080	FALSE	FALSE
XPW04	10/10/2023	Sulfate	9130	FALSE	FALSE
XPW04	10/10/2023	H+	1E-12	FALSE	FALSE
XPW04	10/10/2023	Alkalinity	9.16	FALSE	FALSE

ATTACHMENT 10
LABORATORY TREATABILITY STUDY REPORT

Prepared for:

Golder Associates, Inc.
701 Emerson Road, Suite 250
Creve Coeur, Missouri, 63141

FINAL

Laboratory Treatability Study to Evaluate Arsenic, Boron, Lithium, and Sulfate Adsorption and Desorption in Geologic Materials and Groundwater

Vistra Newton, IL

Prepared by:

130 Stone Rd W
Guelph, Ontario N1G 3Z2

SiREM Ref: TL0478
27 July 2022

siremlab.com

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LIST OF ABBREVIATIONS

%	percent
°C	degrees Celsius
µg/g	micrograms per gram
µg/L	micrograms per liter
µL	microliters
µm	micrometers
ALS	ALS Environmental
As	arsenic
B	boron
CEC	cation exchange capacity
CO_2	carbon dioxide
DI	deionized
DOC	dissolved organic carbon
EGC	eluent generator cartridge
EPA	Environmental Protection Agency
GM:GW	geologic material to groundwater
Golder	Golder Associates Inc.
H_2	hydrogen gas
HDPE	high-density polyethylene
IC	ion chromatograph
ICP-MS	inductively coupled plasma-mass spectrometry
Li	lithium
LOI	loss on ignition
meq/100g	milliequivalents per 100 grams
mg/L	milligrams per liter
min	minutes
mL	milliliters
mM	millimolar
mV	millivolts
N_2	nitrogen
O_2	oxygen
ORP	oxidation reduction potential
QL	quantitation limit
RPM	revolutions per minute
SGS	SGS Environmental
SO_4^{2-}	sulfate
SPLP	synthetic precipitation leaching procedure
TDS	total dissolved solids
TOC	total organic carbon
VFA	volatile fatty acid
XRD	X-ray diffraction

1. INTRODUCTION

Golder Associates, Inc. (Golder) retained SiREM to perform a laboratory treatability study to assess the adsorption and desorption behaviour of arsenic (As), boron (B), lithium (Li), and sulfate (SO_4^{2-}) in groundwater and geologic material from the Vistra Newton site in IL (the Site). The purpose of the study was to assess the sorption characteristics of As, B, Li, and SO_4^{2-} and generate site-specific sorption coefficients and further assess the stability of sorbed As, B, Li, and SO_4^{2-} under oxidizing, reducing, and alkaline conditions.

The geologic materials were collected by Golder personnel on 17-21 August 2021 and received by SiREM on 10 September 2021. The groundwater (APW-02, APW-04, APW-14, APW-05 and APW-05S) was collected by Golder personnel on 16 and 17 August 2021 and was received by SiREM on 23 August 2021. The groundwater samples were received outside of temperature at 19 degrees Celsius (°C). Therefore, the groundwater samples were re-collected on 31 August 2021 and received by SiREM on 2 September 2021 at 6 °C. The groundwater received on 2 September 2021 was the only groundwater used during the study. The materials received and chosen for the study are summarized in the Table below. The chain of custodies received with these samples are provided in Appendix A.

Test	Depth	Client ID (Sediment)	Client ID (Groundwater)
Adsorption	60.0'-67.1'	N-SB-05 (60.0'-67.1')	APW-04
	12.0'-18.0'	N-SB-04 (12.0'-18.0')	APW-14
Desorption	65.0'-71.5'	N-SB-02 (65.0'-71.5')	APW-05
	12.5'-20.0'	N-SB-02 (12.5'-20.0')	

The remainder of this report is divided into two sections. Section 2 presents the experimental materials and methods, and Section 3 presents the results.

2. MATERIALS AND METHODS

The following sections describe the materials and methods used for baseline sampling and homogenization (Section 2.1), adsorption test reactor construction and incubation (Section 2.2), desorption test reactor construction and incubation (Section 2.3), and study sampling and analysis (Section 2.4).

2.1 Baseline Sampling and Homogenization

2.1.1 Baseline Elemental and Mineralogy Sampling and Analysis

Site geologic material from all locations and depths were individually homogenized, and sub-sampled on 21 September 2021 for total metals and anions including As, B, Li, and SO_4^{2-}, total organic carbon (TOC), cation exchange capacity (CEC), X-ray diffraction (XRD), and loss on ignition (LOI) analyses, and on 1 March 2022 for synthetic precipitation leaching procedure (SPLP) for As, B, Li, and SO_4^{2-} (N-SB-XPW01 and N-SB-XPW04 only). Site groundwater was also sub-sampled on 21 September 2021 for analysis of dissolved metals and anions, dissolved organic carbon (DOC) and total dissolved solids (TDS).

Samples were collected in a temporary anaerobic glove bag filled with a 100 percent (%) nitrogen (N_2) headspace. After homogenization and sample collection the geologic material was removed from the anaerobic glove bag and stored at 4 ºC in N_2 purged polypropylene bags with minimized headspace until required for test set-up.

2.2 Adsorption Test Reactor Construction and Incubation

Adsorption test reactors were constructed in an anaerobic chamber (Coy Laboratory Products, Grass Lake, MI) filled with an atmosphere of approximately 80% N_2, 10% carbon dioxide (CO_2) and 10% hydrogen (H_2) (Linde Gases, Guelph, ON). H_2 in the anaerobic chamber functions to scavenge trace oxygen (O_2) via a palladium catalyst. Anaerobic conditions in the anaerobic chamber were verified using an indicator containing resazurin (Sigma, St. Louis, MO) in a mineral medium which turns pink in the presence of O_2. APW-04 groundwater and N-SB-05 (60.0'-67.1') geologic material was used to construct the first set of reactors. The second set of reactors were constructed using APW-14 groundwater with N-SB-04 (12.0'-18.0') geologic material. For both sets of reactors, geologic material was added on 14 February 2022 (Day -1) and the groundwater was spiked with As, B, Li, and SO_4^{2-} on 15 February 2022 (Day 0) and subsequently added to the reactors.

Reactors were constructed by filling sterile 125 milliliter (mL) (nominal volume), and 250 mL (nominal volume) Nalgene® bottles (Systems Plus, New Hamburg, ON) with a specified mass of geologic material and groundwater. The geologic material to groundwater (GM:GW) ratios tested in each set of reactors were 2:1, 1:1, 1:5, 1:10, and 1:20, based on the wet weight of the geologic material. Groundwater only controls were also constructed for each set.

In consultation with Golder, it was determined that the starting aqueous concentrations of As, B, Li, and SO_4^{2-} in the groundwater should be 200 micrograms per liter (µg/L), 10 milligrams per liter (mg/L), 300 µg/L, and 774 mg/L, respectively. The concentrations of all species were not at the target concentrations, therefore immediately before construction of the reactors, the entire volume of groundwater needed to construct each set of reactors was spiked with respective solutions prepared from the appropriate salt as detailed in the table below to target these concentrations in the aqueous phase of the reactors at the start of the adsorption test. Spiking occurred on 15 February 2022 (Day 0).

Compound	Target (mg/L)	Salt Used to Prepare Spiking Solution	Chemical Formula
Arsenic	0.2	Metaarsenite	$NaAsO_2$
Boron	10	Boric Acid	H_3BO_3
Lithium	0.3	Lithium Chloride	LiCl
Sulfate	774	Sodium Sulfate	Na_2SO_4

After construction, the reactors were incubated in the anaerobic chamber for a period of 7 days. During incubation the reactors were inverted once a day to increase the contact between the geologic material and groundwater. During quiescent incubation all reactors were covered to minimize photodegradation and incubated at 22 °C (room temperature). Table 1 details the

reactor construction, incubation, amendments, and sampling parameters of the adsorption test reactors.

2.3 Desorption Test Reactor Construction and Incubation

Desorption test reactors were constructed in an anaerobic chamber filled with an atmosphere of approximately 80% N_2, 10% CO_2 and 10% H_2 on 21 March 2022 (Day 0). The APW-05 groundwater and N-SB-02 (65.0'-71.5') geologic material was used to construct the first set of reactors. The second set of reactors was constructed using APW-05 groundwater with N-SB-02 (12.5'-20.0') geologic material.

Reactors were constructed by filling sterile 125 mL (nominal volume) Nalgene® bottles with a specified mass of geologic material and groundwater. Based on the adsorption test results, the GM:GW ratio (based on the wet weight of geologic material) was selected to be 1:10 in both sets of reactors.

After construction, all reactors were incubated for a period of 7 days. The control reactors for each set were tested under ambient conditions in the anaerobic glove chamber with no amendments throughout the incubation period. Treatment reactors for each set were tested under highly reducing and highly oxidizing conditions. These conditions were established in the reactors through daily amendments of either H_2 or O_2, respectively. The H_2 sparged reactors were kept in the anaerobic glove chamber throughout the incubation period, whereas the O_2 sparged reactors were transferred out of the glove chamber and incubated on the lab bench under aerobic conditions.

During the incubation period, reactors were inverted once a day to increase the contact between the geologic material and groundwater. During quiescent incubation all reactors were covered to minimize photodegradation and incubated at 22 °C (room temperature). Table 2 details the reactor construction, incubation, amendments, and sampling parameters of the desorption test reactors.

2.4 Sampling and Analysis

2.4.1 Baseline and Reactor Sampling

Site geologic materials were sub-sampled for baseline analysis of total metals, CEC, TOC, XRD, and LOI on 21 September 2021. Site materials N-SB-XPW01 (10.0'-12.7') and N-SB-XPW04 (10.0'-15.0') were further sub-sampled for baseline analysis of SPLP on 1 March 2022. Site groundwater was sub-sampled for baseline analysis of dissolved metals including As, B, Li and SO_4^{2-}, DOC, and TDS on 21 September 2021.

The adsorption and desorption control reactors were sampled on Day 0 and Day 7 of their incubation periods. Treatment test reactors from both tests were sampled on Day 7. Samples from the adsorption and desorption tests were submitted for analysis of pH, oxidation reduction potential (ORP), anions (including total volatile fatty acids [VFAs], chloride, nitrite-N, nitrate-N, SO_4^{2-}, and phosphate) and dissolved metals. The controls from the desorption test were additionally submitted for TDS on Day 0.

Site geologic material sub-samples were collected in 250 mL wide-mouth amber glass jars and shipped on ice to ALS Environmental in Waterloo, ON (ALS) or SGS Environmental in Lakefield, ON (SGS). Site groundwater and test reactor samples submitted for pH, ORP, TDS and anions analysis were collected using 30 mL plastic syringes (Fisher Scientific, Whitby, ON) and analysed by SiREM. Samples submitted for dissolved metals were collected as described in Section 2.4.6 and shipped on ice to ALS or SGS for analysis.

2.4.2 Analysis of pH

The pH measurements were performed using an Oakton pH spear with a combination pH electrode (Oakton, Vernon Hills, IL). A 0.5 mL sample was collected (as described in section 2.4.1), placed into a 1.5 mL micro-centrifuge tube, and measured on the lab bench. The pH spear was calibrated at each sampling event according to the manufacturer's instructions using pH 4.0, 7.0 and 10 standards.

2.4.3 Analysis of ORP

The ORP measurements were performed using a YSI Multilab IDS Meter with YSI 4210 ORP glass electrode (Mandel Scientific, Guelph, ON). A 1.2 mL sample was collected (as described in section 2.4.1) and placed in a 5 mL Thermo-Fisher vial. The vial was removed from the glove box and the ORP was measured on the lab bench. The ORP probe was tested at each sampling event according to the manufacturer's instructions using Zobell's solution.

2.4.4 Analysis of TDS

The TDS measurements were performed using a combination conductivity and TDS meter (Hach Model 44600, CO). A 1.5 mL sample was collected (as described in section 2.4.1) and placed in a 5 mL Thermo-Fisher vial. The vial was removed from the glove box and the TDS was measured on the lab bench.

2.4.5 Analysis of Anions and Total VFAs

Anion and total VFA analysis was performed on a Thermo-Fisher ICS-2100 ion chromatograph (IC) equipped with a Thermo-Fisher AS-DV autosampler and an AS18 column. An isocratic separation was performed using 33 millimolar (mM) reagent grade sodium hydroxide eluent generator cartridge (EGC) (Thermo Scientific, Burlington, ON) eluent for 13 minutes (min). One standard was analysed with each set of samples tested to verify the seven-point calibration using external standards of known concentrations. External standards were prepared gravimetrically using chemicals of the highest purity available (Sigma St Louis, MO or Bioshop, Burlington, ON). Data was integrated using Chromeleon 7® Chromatography software (Thermo-Fisher, Burlington, ON). The quantitation limits (QLs) were as follows: 0.07 mg/L total VFAs, 0.07 mg/L chloride, 0.09 mg/L nitrite, 0.09 mg/L nitrate, 0.07 mg/L SO_4^{2-}, 0.07 mg/L phosphate and 0.08 mg/L bromide. The total VFAs value was initially calibrated as lactate, but includes lactate, formate, acetate, propionate, pyruvate, and butyrate.

A 0.5 mL sample was withdrawn from the reactors (as described in section 2.4.1), after which the sample was placed in a 1.5 mL micro-centrifuge tube. Samples were centrifuged for 5 min at

13,000 revolutions per minute (RPM) to remove solids. The supernatant was sub-sampled, diluted 50-fold in deionized (DI) water and placed in a Thermo-Fisher auto sampler vial with a cap that filters the sample during automated injection onto the IC through a 25 microliter (µL) sample loop.

2.4.6 Analysis of Groundwater at ALS and SGS

Dissolved metals and DOC analyses were completed at both ALS and SGS.

Dissolved metals analysis was completed using an inductively coupled plasma-mass spectrometer (ICP-MS). DOC analysis was completed using a modified version of ASTM 1915-13, method E. Reactor samples were collected by decanting the sample into a 30 mL plastic syringe (Fisher Scientific, Whitby, ON) and filtering the sample with a 0.45 micrometer (µm) syringe filter into a 30 mL high-density polyethylene (HDPE) bottle with 150 µL of nitric acid preservative. The samples were then packaged and shipped to ALS or SGS for analysis.

Baseline groundwater samples were submitted to SGS in Lakefield, ON for analysis. However, due to delays in reporting times that SGS could not improve, the analytical laboratory used to complete the dissolved metals analysis for the adsorption and desorption tests was changed to ALS in Waterloo, ON, which could meet the reporting timelines required for the study. Analyses at both labs were completed using similar ICP-MS methodologies.

All groundwater laboratory reports are presented in Appendix B.

2.4.7 Analysis of Geologic Material at ALS and SGS

Total metals and TOC analyses were completed using an acid digestion based on Environmental Protection Agency (EPA) method 3050B, followed by ICP-MS analysis of the extract based on Standard Method 5310C. The total metals and TOC reports from SGS are presented in Appendix C.

CEC analysis was completed using a custom direct method developed by SGS. The CEC report from SGS is presented in Appendix D.

XRD analysis was completed using a custom X-ray crystallography method developed by SGS. LOI analysis was completed using a temperature-controlled furnace along with a crucible to determine the mass prior and post ignition. The XRD and LOI report from SGS is presented in Appendix E.

SPLP analysis was completed using an extract produced by the synthetic precipitation leaching procedure as per EPA 1312 is analysed by Collision/Reaction Cell ICPMS. The extract is filtered through a 0.6-to-0.8-micron glass fibre filter. The SPLP report from ALS is presented in Appendix F.

3. RESULTS

Tables 3, 4, 5, 6 and 7 present a summary of baseline groundwater dissolved metals and DOC results, a summary of baseline geologic material total metals and TOC results, a summary of baseline geologic material CEC results, a summary of baseline geologic material XRD and LOI results, and a summary of baseline geologic material SPLP results.

Tables 8, 9, and 10 present the dissolved metals, anions, and pH and ORP results from the Adsorption Tests.

Table 11 presents the calculated site-specific sorption coefficients for As, B, Li, and SO_4^{2-}. Three types of sorption coefficient were calculated for each analyte in each material combination based on the results from the adsorption tests: a linear coefficient, a Langmuir coefficient, and a Freundlich coefficient. The calculations used to prepare the sorption coefficients are presented in Appendix G.

Tables 12, 13, and 14 present the dissolved metals, anions, and pH, ORP, and TDS results from the Desorption Tests.

Dissolved metals, DOC, TDS, and anion results are reported in units of mg/L. Total metals results are reported in units of micrograms per gram (µg/g). CEC results are presented as milliequivalents per 100 grams of soil (meq/100g). Total SO_4^{2-}, TOC, XRD, and LOI results are presented as a percentage of the total composition of the material. SPLP results are reported in units of µg/L. ORP results are reported in units of millivolts (mV).

TABLES

TABLE 1: SUMMARY OF ADSORPTION TEST REACTOR CONTROLS, TREATMENTS, AND AMENDMENTS

Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Description	Number of Replicates	Incubation Period and Sampling Frequency	Microcosm Content						Number of Analyses		
						Groundwater (L)	Saturated Geologic Material (kg)	Arsenic	Boron	Lithium	Sulfate	Dissolved Metals	Anions	pH/ORP
APW-04	--	Groundwater Only Control	Groundwater Only	2 (2)*	7 Days (Sampled on Day 0 and 7)	0.100	0.000	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
	N-SB-05 (60.0'-67.1')	2:1 Soil:Water Ratio	Geologic Material and Water in a 2:1 ratio, shaken once daily during incubation	2	7 Days (Sampled on Day 7)	0.100	0.200	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:1 Soil:Water Ratio	Geologic Material and Water in a 1:1 ratio, shaken once daily during incubation	2		0.100	0.100	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:5 Soil:Water Ratio	Geologic Material and Water in a 1:5 ratio, shaken once daily during incubation	2		0.100	0.020	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:10 Soil:Water Ratio	Geologic Material and Water in a 1:10 ratio, shaken once daily during incubation	2		0.100	0.010	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:20 Soil:Water Ratio	Geologic Material and Water in a 1:20 ratio, shaken once daily during incubation	2		0.100	0.004	Amended with 346.80 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.40 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.40 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
APW-14	--	Groundwater Only Control	Groundwater Only	2 (2)*	7 Days (Sampled on Day 0 and 7)	0.100	0.000	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 24.41 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
	N-SB-04 (12.0'-18.0')	2:1 Soil:Water Ratio	Geologic Material and Water in a 2:1 ratio, shaken once daily during incubation	2	7 Days (Sampled on Day 7)	0.100	0.200	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:1 Soil:Water Ratio	Geologic Material and Water in a 1:1 ratio, shaken once daily during incubation	2		0.100	0.100	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:5 Soil:Water Ratio	Geologic Material and Water in a 1:5 ratio, shaken once daily during incubation	2		0.100	0.020	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:10 Soil:Water Ratio	Geologic Material and Water in a 1:10 ratio, shaken once daily during incubation	2		0.100	0.010	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2
		1:20 Soil:Water Ratio	Geologic Material and Water in a 1:20 ratio, shaken once daily during incubation	2		0.100	0.004	Amended with 344.72 µL of a 2 g/L As(III) solution to target a 0.2 mg/L As concentration on Day 0.	Amended with 11.32 mL of a 10 g/L H_3BO_3 solution to target a 10 mg/L B concentration on Day 0.	Amended with 3.39 mL of a 1 g/L LiCl solution to target a 0.3 mg/L Li concentration on Day 0.	Amended with 12.20 mL of a 100 g/L Na_2SO_4 solution to target a 774 mg/L SO_4^{2-} concentration on Day 0.	2	2	2

*Numbers in brackets represent additional control reactors required for analytical sample volumes.

Notes:

µL - microliter
As - arsenic
B- boron
Cl - chloride
g/L - grams per liter
H - hydrogen
ID - identification
kg - kilogram
L - liter
Li - lithium
mg/L - milligrams per liter
Na - sodium
O - oxygen
ORP - oxidation-reduction potential
$SO4^{2-}$ - sulfate

TABLE 2: SUMMARY OF DESORPTION TEST REACTOR CONTROLS, TREATMENTS, AND AMENDMENTS
Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Description	Number of Replicates	Incubation Period and Sampling Frequency	Microcosm Contents		Amendments		Number of Analyses		
						Groundwater (L)	Saturated Geologic Material (kg)	Oxygen Gas	Hydrogen Gas	Dissolved Metals	Anions	pH/ORP
APW-05	N-SB-02 (65.0'-71.5')	Ambiant Control	Incubated under anaerobic conditions and shaken once daily during incubation	2 (2)*	7 Days (Sampled on Day 0 and 7)	0.1	0.02	--	--	2	2	2
		Oxidizing Conditions	Daily oxygen gas addition and incubated under aerobic conditions and shaken once daily during incubation	2	7 Days (Sampled on Day 7)	0.1	0.02	Amended with 5 mL of pure oxygen gas every day.	--	2	2	2
		Reducing Conditions	Daily hydrogen gas addition and incubated under anaerobic conditions and shaken once daily during incubation	2		0.1	0.02	--	Amended with 5 mL of pure hydrogen gas every day.	2	2	2
	N-SB-02 (12.5'-20.0')	Ambiant Control	Incubated under anaerobic conditions and shaken once daily during incubation	2 (2)*	7 Days (Sampled on Day 0 and 7)	0.1	0.02	--	--	2	2	2
		Oxidizing Conditions	Daily oxygen gas addition and incubated under aerobic conditions and shaken once daily during incubation	2	7 Days (Sampled on Day 7)	0.1	0.02	Amended with 5 mL of pure oxygen gas every day.	--	2	2	2
		Reducing Conditions	Daily hydrogen gas addition and incubated under anaerobic conditions and shaken once daily during incubation	2		0.1	0.02	--	Amended with 5 mL of pure hydrogen gas every day.	2	2	2

*Numbers in brackets represent additional control reactors required for analytical sample volumes.

Notes:

ID - identification
kg - kilogram
L - liter
mL - milliliters
ORP - oxidation-reduction potential

TABLE 3: SUMMARY OF BASELINE GROUNDWATER TOTAL DISSOLVED METALS, DOC and TDS RESULTS

Vistra Newton, IL Site

Groundwater Sample ID	Date	Dissovled Arsenic	Dissolved Boron	Dissolved Lithium	Dissolved Sulfate	DOC	TDS	Comments
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
APW-05	21-Sep-21	0.0144	0.12	0.011	771	4.0	454	Field samples sub-sampled under anaerobic conditions.
APW-05S	21-Sep-21	0.0008	0.043	0.034	2,335	100	1,839	Field samples sub-sampled under anaerobic conditions.
APW-02	21-Sep-21	<0.0002	0.14	0.11	1,690	108	2,840	Field samples sub-sampled under anaerobic conditions.
APW-14	21-Sep-21	0.0012	0.11	0.023	<0.07	57	759	Field samples sub-sampled under anaerobic conditions.
APW-04	21-Sep-21	<0.0002	0.038	0.022	387	67	1,053	Field samples sub-sampled under anaerobic conditions.

Notes:

< - compound not detected, the associated value is the detection limit

DOC - dissolved organic carbon

ID - identification

mg/L - milligrams per litre

TDS - total dissolved soilds

TABLE 4: SUMMARY OF BASELINE GEOLOGIC MATERIAL TOTAL METALS AND TOC RESULTS
Vistra Newton, IL Site

Geologic Material Sample ID	Date	Total Arsenic	Total Boron	Total Lithium	Total Sulfate	TOC	Comments
		µg/g	g/t	µg/g	µg/g	%	
N-SB-05 (18.0'-20.0')	21-Sep-21	5.0	< 40	10	< 0.1	0.18	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-05 (60.0'-67.1')	21-Sep-21	3.3	< 40	8.0	< 0.1	0.091	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-18 (77.5'-80.0')	21-Sep-21	14	< 40	9.3	< 0.1	0.31	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-02 (12.5'-20.0')	21-Sep-21	8.4	< 40	29	< 0.1	0.24	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-02 (65.0'-71.5')	21-Sep-21	5.1	< 40	8.5	< 0.1	0.45	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-14 (44.2'-52.0')	22-Sep-21	6.9	< 40	25	< 0.1	0.45	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-04 (12.0'-18.0')	22-Sep-21	13	< 40	32	< 0.1	< 0.025	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-04 (38.7'-45.4')	22-Sep-21	11	< 40	15	< 0.1	0.25	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-XPW04 (10.0'-15.0')	22-Sep-21	17	< 40	37	1.6	0.96	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-XPW01 (10.0'-12.7')	22-Sep-21	8.1	< 40	17	0.60	0.69	Field samples homogenized and sub-sampled under anaerobic conditions.

Notes:

% - percent
< - compound not detected, the associated value is the detection limit
µg/g - micrograms per gram
g/t - grams per tonne
ID - identification
TOC - total organic carbon

TABLE 5: SUMMARY OF BASELINE GEOLOGIC MATERIAL CEC RESULTS

Vistra Newton, IL Site

Geologic Material Sample ID	Date	CEC	Comments
		meq/100g	
N-SB-05 (18.0'-20.0')	21-Sep-21	9.5	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-05 (60.0'-67.1')	21-Sep-21	4.4	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-18 (77.5'-80.0')	21-Sep-21	2.3	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-02 (12.5'-20.0')	21-Sep-21	13	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-02 (65.0'-71.5')	21-Sep-21	1.6	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-14 (44.2'-52.0')	22-Sep-21	12	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-04 (12.0'-18.0')	22-Sep-21	23	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-04 (38.7'-45.4')	22-Sep-21	5.7	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-XPW04 (10.0'-15.0')	22-Sep-21	21	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-XPW01 (10.0'-12.7')	22-Sep-21	22	Field samples homogenized and sub-sampled under anaerobic conditions.

Notes:

CEC - cation exchange capacity

ID - identification

meq/100g - millequivalents per 100 grams of soil

TABLE 6: SUMMARY OF BASELINE GEOLOGIC MATERIAL XRD AND LOI RESULTS

Vistra Newton, IL Site

Geologic MaterialSample ID		N-SB-05 (18.0'-20.0')	N-SB-05 (60.0'-67.0')	N-SB-18 (77.5'-80.0')	N-SB-02 (12.5'-20.0')	N-SB-02 (65.0'-71.5')	N-SB-14 (44.2'-52.0')	N-SB-04 (12.0'-18.0')	N-SB-04 (38.7'-45.4')	N-SB-XPW04 (10.0'-15.0')	N-SB-XPW01 (10.0'-12.7')
Date		**21-Sep-21**	**21-Sep-21**	**21-Sep-21**	**21-Sep-21**	**21-Sep-21**	**22-Sep-21**	**22-Sep-21**	**22-Sep-21**	**22-Sep-21**	**22-Sep-21**
Mineral	**Mineral Composition**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
Quartz	SiO_2	46.0	41.3	32.7	48.9	47.6	48.0	47.3	51.7	22.6	68.7
Albite	$NaAlSi_3O_8$	8.2	8.8	4.1	8.4	5.2	13.6	9.1	12.7	14.5	10.0
Calcite	$CaCO_3$	20.7	12.9	13.3	3.6	4.9	9.3	11.1	9.7	13.2	0.1
Dolomite	$CaMg(CO_3)_2$	9.5	18.5	27.3	12.7	26.1	6.8	5.0	6.0	-	0.1
Ankerite	$CaFe(CO_3)_2$	3.3	2.3	8.3	2.2	2.6	2.6	4.1	4.4	-	0.0
Microcline	$KAlSi_3O_8$	4.5	4.5	4.2	7.6	5.1	6.2	5.4	4.2	-	8.8
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$	5.0	1.6	1.2	8.7	1.0	5.5	10.5	3.1	-	8.5
Diopside	$CaMgSi_2O_6$	0.9	2.9	2.0	1.7	1.5	2.5	1.0	1.4	15.2	1.4
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	1.8	1.8	0.8	3.5	1.5	1.8	2.4	2.1	-	2.5
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	-	2.9	2.1	-	-	-	-	2.3	-	-
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$	-	2.6	1.9	2.8	2.7	3.8	4.2	2.3	-	-
Fluorapatite	$Ca_5(PO_4)_3F$	-	-	2.0	-	1.8	-	-	-	-	-
Perovskite	$CaTiO_3$	-	-	-	-	-	-	-	-	8.7	-
Periclase	MgO	-	-	-	-	-	-	-	-	1.6	-
Hematite	Fe_2O_3	-	-	-	-	-	-	-	-	3.4	-
Magnetite	Fe_3O_4	-	-	-	-	-	-	-	-	0.1	-
Gehlenite	$Ca_2(Mg_{0.25}Al_{0.75})(Si_{1.25}Al_{0.75}O_7)$	-	-	-	-	-	-	-	-	13.9	-
Mullite	~Al6Si3O15	-	-	-	-	-	-	-	-	3.7	-
Ganophyllite	$K_{2.16}Mn_{16}Si_{26.9}O_{67.8}(OH)_8$	-	-	-	-	-	-	-	-	3.1	-
LOI	--	9.4	14	20	12	18	13	13	12	LNR	6.5

Notes:

-- - not applicable
% - percent
Al - aluminum
C - carbon
Ca - calcium
Fe - iron
H - hydrogen
K - potassium
LNR - indicates insufficient sample to perform the analysis
LOI - loss on ignition
Mg - magnesium
Mn - manganese
Na - sodium
O - oxygen
Si - silicon
XRD - X-ray diffraction

TABLE 7: SUMMARY OF BASELINE GEOLOGIC MATERIAL SPLP RESULTS
Vistra Newton, IL Site

Geologic Material Sample ID	Date	Total Arsenic	Total Boron	Comments
		µg/L	µg/L	
N-SB-XPW01 (10.0'-12.7')	1-Mar-22	34.9	810	Field samples homogenized and sub-sampled under anaerobic conditions.
N-SB-XPW04 (10.0'-15.0')	1-Mar-22	<5.0	620	Field samples homogenized and sub-sampled under anaerobic conditions.

Notes:

< - compound not detected, the associated value is the detection limit
µg/L - micrograms per liter
ID - identification
SPLP - synthetic precipitation leaching procedure

TABLE 8: SUMMARY OF ADSORPTION TEST TOTAL DISSOLVED METALS RESULTS

Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	Dissovled Arsenic	Dissolved Boron	Dissolved Lithium	Dissolved Sulfate	Dissolved Sulfur	Comments
						mg/L	mg/L	mg/L	mg/L	mg/L	
APW-04	--	Groundwater Only Control	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
					APW-04-1a	0.19	9.2	0.28	1,097	455	
					APW-04-2a	0.19	9.5	0.29	1,077	458	
					Average Concentration (mg/L)	**0.19**	**9.3**	**0.28**	**1,087**	**457**	
			22-Feb-22	7	APW-04-1	0.20	9.2	0.26	721	433	
					APW-04-2	0.012	9.4	0.25	407	431	
					Average Concentration (mg/L)	**0.10**	**9.3**	**0.26**	**564**	**432**	
	N-SB-05 (60.0'-67.1')	2:1 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 2:1-1	<0.010	5.9	<0.10	440	343	
					N-SB-05-(60.0-67.1) :APW-04 2:1-2	<0.010	5.8	<0.10	463	345	
					Average Concentration (mg/L)	**ND**	**5.9**	**ND**	**451**	**344**	
		1:1 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:1-1	<0.010	7.2	0.13	807	414	
					N-SB-05-(60.0-67.1) :APW-04 1:1-2	<0.010	7.4	0.14	740	401	
					Average Concentration (mg/L)	**ND**	**7.3**	**0.14**	**773**	**408**	
		1:5 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:5-1	<0.010	8.6	0.17	813	433	
					N-SB-05-(60.0-67.1) :APW-04 1:5-2	0.011	9.6	0.24	788	449	
					Average Concentration (mg/L)	**0.0055**	**9.1**	**0.21**	**800**	**441**	
		1:10 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:10-1	0.017	10	0.26	889	466	
					N-SB-05-(60.0-67.1) :APW-04 1:10-2	0.019	9.6	0.25	996	446	
					Average Concentration (mg/L)	**0.018**	**10**	**0.26**	**943**	**456**	
		1:20 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:20-1	0.041	9.2	0.24	776	450	
					N-SB-05-(60.0-67.1) :APW-04 1:20-2	0.034	8.9	0.23	1,212	446	
					Average Concentration (mg/L)	**0.038**	**9.1**	**0.24**	**994**	**448**	
APW-14	--	Groundwater Only Control	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
					APW-14-1a	0.20	9.5	0.28	1,010	407	
					APW-14-2a	0.20	9.6	0.28	1,004	412	
					Average Concentration (mg/L)	**0.20**	**9.5**	**0.28**	**1,007**	**410**	
			22-Feb-22	7	APW-14-1	0.11	9.2	0.25	1,366	409	
					APW-14-2	0.11	10	0.25	773	395	
					Average Concentration (mg/L)	**0.11**	**9.6**	**0.25**	**1,069**	**402**	
	N-SB-04 (12.0'-18.0')	2:1 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 2:1-1	<0.010	5.6	<0.10	773	402	
					N-SB-04-(12.0-18.0) :APW-14 2:1-2	<0.010	5.6	<0.10	938	415	
					Average Concentration (mg/L)	**ND**	**5.6**	**ND**	**856**	**409**	
		1:1 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:1-1	<0.010	7.2	0.15	853	394	
					N-SB-04-(12.0-18.0) :APW-14 1:1-2	<0.010	7.0	0.13	630	403	
					Average Concentration (mg/L)	**ND**	**7.1**	**0.14**	**741**	**399**	
		1:5 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:5-1	<0.010	10	0.26	716	459	
					N-SB-04-(12.0-18.0) :APW-14 1:5-2	<0.010	8.9	0.20	1,081	400	
					Average Concentration (mg/L)	**ND**	**9.6**	**0.23**	**899**	**430**	
		1:10 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:10-1	<0.010	9.7	0.22	914	385	
					N-SB-04-(12.0-18.0) :APW-14 1:10-2	<0.010	9.7	0.23	998	379	
					Average Concentration (mg/L)	**ND**	**9.7**	**0.23**	**956**	**382**	
		1:20 Soil:Water Ratio	15-Feb-22	0							Groundwater spiked with metaarsenite, boric acid, lithium chloride and sodium sulfate solutions to target concentrations of 0.2, 10, 0.3 and 774 mg/L respectively.
			22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:20-1	<0.010	9.8	0.26	650	386	
					N-SB-04-(12.0-18.0) :APW-14 1:20-2	<0.010	9.0	0.24	724	376	
					Average Concentration (mg/L)	**ND**	**9.4**	**0.25**	**687**	**381**	

Notes:

-- - not applicable
< - compound not detected, the associated value is the detection limit
µg/L - micrograms per liter
mg/L - milligrams per liter
mL - milliliter
ND - not detected

TABLE 9: SUMMARY OF ADSORPTION TEST ANION RESULTS
Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	Total VFA	Chloride	Nitrate-N	Nitrite-N	Sulfate	Phosphate
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
APW-04	--	Groundwater Only Control	15-Feb-22	0	APW-04-1a	141	59	<1.7	4.1	1,097	<1.7
					APW-04-2a	66	50	<1.7	<1.7	1,077	<1.7
					Average	**104**	**54**	**ND**	**2.0**	**1,087**	**ND**
			22-Feb-22	7	APW-04-1	<1.5	54	<1.7	<1.7	721	<1.4
					APW-04-2	<1.5	89	<1.7	<1.7	407	<1.4
					Average	**ND**	**71**	**ND**	**ND**	**564**	**ND**
	N-SB-05 (60.0'-67.1')	2:1 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 2:1-1	<1.5	55	<1.7	<1.7	440	<1.4
					N-SB-05-(60.0-67.1) :APW-04 2:1-2	<1.5	54	<1.7	6.96	463	<1.4
					Average	**ND**	**54**	**ND**	**7.0**	**451**	**ND**
		1:1 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:1-1	<1.5	43	<1.7	<1.7	807	<1.4
					N-SB-05-(60.0-67.1) :APW-04 1:1-2	<1.5	43	<1.7	<1.7	740	<1.4
					Average	**ND**	**43**	**ND**	**ND**	**773**	**ND**
		1:5 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:5-1	<1.5	38	<1.7	<1.7	813	<1.4
					N-SB-05-(60.0-67.1) :APW-04 1:5-2	<1.5	46	<1.7	<1.7	788	<1.4
					Average	**ND**	**42**	**ND**	**ND**	**800**	**ND**
		1:10 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:10-1	<1.5	36	<1.7	<1.7	889	<1.4
					N-SB-05-(60.0-67.1) :APW-04 1:10-2	<1.5	41	<1.7	<1.7	996	<1.4
					Average	**ND**	**38**	**ND**	**ND**	**943**	**ND**
		1:20 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:20-1	<1.5	44	<1.7	<1.7	776	<1.4
					N-SB-05-(60.0-67.1) :APW-04 1:20-2	<1.5	52	<1.7	<1.7	1,212	<1.4
					Average	**ND**	**48**	**ND**	**ND**	**994**	**ND**
APW-14	--	Groundwater Only Control	15-Feb-22	0	APW-14-1a	149	51	<1.7	3.4	1,010	<1.7
					APW-14-2a	140	41	<1.7	<1.7	1,004	<1.7
					Average	**144**	**46**	**ND**	**1.7**	**1,007**	**ND**
			22-Feb-22	7	APW-14-1	<1.5	54	<1.7	<1.7	1,366	<1.4
					APW-14-2	<1.5	51	<1.7	<1.7	773	<1.4
					Average	**ND**	**52**	**ND**	**ND**	**1,069**	**ND**
	N-SB-04 (12.0'-18.0')	2:1 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 2:1-1	<1.5	39	<1.7	<1.7	773	<1.4
					N-SB-04-(12.0-18.0) :APW-14 2:1-2	<1.5	44	<1.7	<1.7	938	<1.4
					Average	**ND**	**41**	**ND**	**ND**	**856**	**ND**
		1:1 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:1-1	<1.5	49	<1.7	<1.7	853	<1.4
					N-SB-04-(12.0-18.0) :APW-14 1:1-2	3.8	63	<1.7	<1.7	630	<1.4
					Average	**3.8**	**56**	**ND**	**ND**	**741**	**ND**
		1:5 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:5-1	<1.5	40	<1.7	<1.7	716	<1.4
					N-SB-04-(12.0-18.0) :APW-14 1:5-2	<1.5	71	<1.7	<1.7	1,081	<1.4
					Average	**ND**	**56**	**ND**	**ND**	**899**	**ND**
		1:10 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:10-1	<1.5	49	<1.7	<1.7	914	<1.4
					N-SB-04-(12.0-18.0) :APW-14 1:10-2	<1.5	58	<1.7	<1.7	998	<1.4
					Average	**ND**	**53**	**ND**	**ND**	**956**	**ND**
		1:20 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:20-1	<1.5	33	<1.7	<1.7	650	<1.4
					N-SB-04-(12.0-18.0) :APW-14 1:20-2	<1.5	46	<1.7	<1.7	724	<1.4
					Average	**ND**	**39**	**ND**	**ND**	**687**	**ND**

Notes:

< - compound not detected, the associated value is the detection limit
mg/L - milligrams per liter
ND - not detected
VFAs - total volatile fatty acids, calibrated as lactate but may include other VFAs such as formate, acetate, propionate, pyruvate and butyrate

TABLE 10: SUMMARY OF ADSORPTION TEST pH AND ORP RESULTS
Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	pH	ORP
							mV
APW-04	--	Groundwater Only Control	15-Feb-22	0	APW-04-1a	6.92	2
					APW-04-2a	6.92	29
					Average	**6.92**	**16**
			22-Feb-22	7	APW-04-1	7.02	67
					APW-04-2	7.04	13
					Average	**7.03**	**40**
	N-SB-05 (60.0'-67.1')	2:1 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 2:1-1	7.02	-20
					N-SB-05-(60.0-67.1) :APW-04 2:1-2	7.02	-43
					Average	**7.02**	**-32**
		1:1 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:1-1	7.02	-49
					N-SB-05-(60.0-67.1) :APW-04 1:1-2	7.02	-48
					Average	**7.02**	**-49**
		1:5 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:5-1	7.04	-40
					N-SB-05-(60.0-67.1) :APW-04 1:5-2	7.02	-70
					Average	**7.03**	**-55**
		1:10 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:10-1	7.02	-92
					N-SB-05-(60.0-67.1) :APW-04 1:10-2	7.02	-52
					Average	**7.02**	**-72**
		1:20 Soil:Water Ratio	22-Feb-22	7	N-SB-05-(60.0-67.1) :APW-04 1:20-1	7.03	-27
					N-SB-05-(60.0-67.1) :APW-04 1:20-2	7.02	-5
					Average	**7.03**	**-16**
APW-14	--	Groundwater Only Control	15-Feb-22	0	APW-14-1a	6.99	17
					APW-14-2a	6.99	4
					Average	**6.99**	**11**
			22-Feb-22	7	APW-14-1	7.00	-28
					APW-14-2	7.00	-24
					Average	**7.00**	**-26**
	N-SB-04 (12.0'-18.0')	2:1 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 2:1-1	7.02	-72
					N-SB-04-(12.0-18.0) :APW-14 2:1-2	7.02	-150
					Average	**7.02**	**-111**
		1:1 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:1-1	7.03	-47
					N-SB-04-(12.0-18.0) :APW-14 1:1-2	7.04	35
					Average	**7.04**	**-6**
		1:5 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:5-1	7.06	53
					N-SB-04-(12.0-18.0) :APW-14 1:5-2	7.05	17
					Average	**7.06**	**35**
		1:10 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:10-1	7.05	21
					N-SB-04-(12.0-18.0) :APW-14 1:10-2	7.06	34
					Average	**7.06**	**28**
		1:20 Soil:Water Ratio	22-Feb-22	7	N-SB-04-(12.0-18.0) :APW-14 1:20-1	7.08	41
					N-SB-04-(12.0-18.0) :APW-14 1:20-2	7.04	38
					Average	**7.06**	**40**

Notes:

-- - not applicable
< - compound not detected, the associated value is the detection limit
mg/L - milligrams per liter
mL - milliliter
mV - millivolts
ND - not detected
ORP - oxidation-reduction potential

TABLE 11: SUMMARY OF CALCULATED SITE-SPECIFIC SORPTION COEFFICIENTS
Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Sorption Coefficient Type	Arsenic		Boron		Lithium		Sulfate	
			Sorption Coefficient L/kg	R^2	Sorption Coefficient L/kg	R^2	Sorption Coefficient L/kg	R^2	Sorption Coefficient L/kg	R^2
APW-04	N-SB-05 (60.0'-67.1')	Linear K_D	112	0.991	-1.35	0.157	2.30	0.239	3.58	0.621
		Langmuir K_L	4.58E+08	0.950	-6.23E+04	0.027	4.23E+08	0.989	-6.26E+02	0.134
		Freundlich K_F	177	0.906	57.4	0.012	136	0.226	4.11	0.535
APW-14	N-SB-04 (12.0'-18.0')	Linear K_D	--	--	-0.890	0.367	2.18	0.435	-25.600	0.47
		Langmuir K_L	--	--	-1.56E+05	0.185	1.19E+09	0.9996	-2.20E+03	0.07
		Freundlich K_F	--	--	68.7	0.987	231	0.543	2.14E+11	0.330

Notes:

-- - not applicable
ID - identification
K_D - linear sorption coefficient
K_F - Freundlich sorption coefficient
K_L - Langmuir sorption coefficient
L/kg - liters per kilogram
R^2 - coefficient of determination

TABLE 12: SUMMARY OF DESORPTION TEST TOTAL DISSOLVED METALS RESULTS
Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	Dissolved Arsenic	Dissolved Boron	Dissolved Lithium	Dissolved Sulfate	Dissolved Sulfur	Comments
						mg/L	mg/L	mg/L	mg/L	mg/L	
APW-05	N-SB-02 (65.0-71.5)	Ambient Control	21-Mar-22	0	N-SB-02D (65.0-71.5):APW-05 Unamended-1a	0.0018	<0.100	<0.0100	22	7.3	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2a	0.0015	<0.100	<0.0100	23	7.1	
					Average	**0.0017**	**ND**	**ND**	**22**	**7.2**	
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Unamended-1	0.0013	<0.100	<0.0100	23	7.4	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2	<0.00100	<0.100	<0.0100	24	7.6	
					Average	**0.00066**	**ND**	**ND**	**23**	**7.5**	
		Oxygen Sparged	21-Mar-22	0							Began daily sparging with 5 mL of oxygen gas.
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Oxygen-1	0.0010	<0.100	<0.0100	19	6.1	
					N-SB-02D (65.0-71.5):APW-05 Oxygen-2	<0.00100	<0.100	0.033	24	7.8	
					Average	**0.00052**	**ND**	**0.017**	**22**	**7.0**	
		Hydrogen Sparged	21-Mar-22	0							Began daily sparging with 5 mL of hydrogen gas.
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Hydrogen-1	0.0014	<0.100	<0.0100	23	7.1	
					N-SB-02D (65.0-71.5):APW-05 Hydrogen-2	0.0017	<0.100	<0.0100	25	8.5	
					Average	**0.0016**	**ND**	**ND**	**24**	**7.8**	
	N-SB-02 (12.5-20.0)	Ambient Control	23-Mar-22	0	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	0.0071	<0.100	<0.0100	17	<5.00	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2a	0.0059	<0.100	<0.0100	20	6.2	
					Average	**0.0065**	**ND**	**ND**	**19**	**3.1**	
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Unamended-1	<0.00100	<0.100	0.016	67	23	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2	<0.00100	<0.100	0.015	179	61	
					Average	**ND**	**ND**	**0.016**	**123**	**42**	
		Oxygen Sparged	23-Mar-22	0							Began daily sparging with 5 mL of oxygen gas.
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Oxygen-1	<0.00100	<0.100	0.014	98	34	
					N-SB-02S (12.5-20.0):APW-05 Oxygen-2	<0.00100	<0.100	0.016	145	48	
					Average	**ND**	**ND**	**0.015**	**121**	**41**	
		Hydrogen Sparged	23-Mar-22	0							Began daily sparging with 5 mL of hydrogen gas.
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Hydrogen-1	<0.00100	<0.100	0.016	168	55	
					N-SB-02S (12.5-20.0):APW-05 Hydrogen-2	<0.00100	<0.100	0.016	182	60	
					Average	**ND**	**ND**	**0.016**	**175**	**58**	

Notes:

< - compound not detected, the associated value is the detection limit
µL - microliter
M - molar
mg/L - milligrams per liter
mL - milliliter
NaOH - sodium hydroxide
ND - not detected

TABLE 13: SUMMARY OF DESORPTION TEST ANION RESULTS

Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	Total VFAs	Chloride	Nitrite-N	Nitrate-N	Sulfate	Phosphate	Comments
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
APW-05	N-SB-02 (65.0-71.5)	Ambient Control	21-Mar-22	0	N-SB-02D (65.0-71.5):APW-05 Unamended-1a	66	75	<1.7	5.9	22	<1.4	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2a	75	121	<1.7	6.4	23	<1.4	
					Average	**70**	**98**	**ND**	**6.2**	**22**	**ND**	
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Unamended-1	4.9	50	<0.09	<0.09	23	<0.07	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2	<0.07	48	<0.09	<0.09	24	<0.07	
					Average	**2.5**	**49**	**ND**	**ND**	**23**	**ND**	
		Oxygen Sparged	21-Mar-22	0								Began daily sparging with 5 mL of oxygen gas
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Oxygen-1	<0.07	52	<0.09	1.6	19	<0.07	
					N-SB-02D (65.0-71.5):APW-05 Oxygen-2	<0.07	52	<0.09	1.7	24	<0.07	
					Average	**ND**	**52**	**ND**	**1.7**	**22**	**ND**	
		Hydrogen Sparged	21-Mar-22	0								Began daily sparging with 5 mL of hydrogen gas
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Hydrogen-1	<0.07	52	<0.09	<0.09	23	<0.07	
					N-SB-02D (65.0-71.5):APW-05 Hydrogen-2	<0.07	57	<0.09	<0.09	25	<0.07	
					Average	**ND**	**55**	**ND**	**ND**	**24**	**ND**	
	N-SB-02 (12.5-20.0)	Ambient Control	23-Mar-22	0	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	70	62	<1.7	6.1	17	<1.4	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2a	70	62	<1.7	6.1	20	<1.4	
					Average	**70**	**62**	**ND**	**6.1**	**19**	**ND**	
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Unamended-1	<0.07	70	<0.09	<0.09	67	0.74	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2	<0.07	52	<0.09	<0.09	179	<0.07	
					Average	**ND**	**61**	**ND**	**ND**	**123**	**0.37**	
		Oxygen Sparged	23-Mar-22	0								Began daily sparging with 5 mL of oxygen gas
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Oxygen-1	<0.07	83	<0.09	1.0	98	1.0	
					N-SB-02S (12.5-20.0):APW-05 Oxygen-2	<0.07	54	<0.09	1.3	145	<0.07	
					Average	**ND**	**69**	**ND**	**1.2**	**121**	**0.51**	
		Hydrogen Sparged	23-Mar-22	0								Began daily sparging with 5 mL of hydrogen gas
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Hydrogen-1	<0.07	69	<0.09	<0.09	168	<0.07	
					N-SB-02S (12.5-20.0):APW-05 Hydrogen-2	4.3	56	<0.09	<0.09	182	<0.07	
					Average	**2.2**	**63**	**ND**	**ND**	**175**	**ND**	

Notes:

< - compound not detected, the associated value is the detection limit
µL - microliter
M - molar
mg/L - milligrams per liter
mL - milliliter
NaOH - sodium hydroxide
ND - not detected
VFAs - total volatile fatty acids, calibrated as lactate but may include other VFAs such as formate, acetate, propionate, pyruvate and butyrate

TABLE 14: SUMMARY OF DESORPTION TEST pH AND ORP RESULTS
Vistra Newton, IL Site

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Date	Day	Replicate	pH	ORP	Comments
							mV	
APW-05	N-SB-02 (65.0'-71.5')	Ambient Control	21-Mar-22	0	N-SB-02D (65.0-71.5):APW-05 Unamended-1a	7.13	136	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2a	7.21	142	
					Average	**7.17**	**139**	
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Unamended-1	7.08	41	
					N-SB-02D (65.0-71.5):APW-05 Unamended-2	7.07	51	
					Average	**7.08**	**46**	
		Oxygen Sparged	21-Mar-22	0				Began daily sparging with 5 mL of oxygen gas.
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Oxygen-1	7.65	217	
					N-SB-02D (65.0-71.5):APW-05 Oxygen-2	7.56	210	
					Average	**7.61**	**214**	
		Hydrogen Sparged	21-Mar-22	0				Began daily sparging with 5 mL of hydrogen gas.
			28-Mar-22	7	N-SB-02D (65.0-71.5):APW-05 Hydrogen-1	7.02	33	
					N-SB-02D (65.0-71.5):APW-05 Hydrogen-2	7.03	68	
					Average	**7.03**	**51**	
	N-SB-02 (12.5'-20.0')	Ambient Control	23-Mar-22	0	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	7.15	137	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2a	7.17	139	
					Average	**7.16**	**138**	
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Unamended-1	7.13	62	
					N-SB-02S (12.5-20.0):APW-05 Unamended-2	7.09	--	
					Average	**7.11**	**31**	
		Oxygen Sparged	23-Mar-22	0				Began daily sparging with 5 mL of oxygen gas.
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Oxygen-1	7.49	227	
					N-SB-02S (12.5-20.0):APW-05 Oxygen-2	7.55	215	
					Average	**7.52**	**221**	
		Hydrogen Sparged	23-Mar-22	0				Began daily sparging with 5 mL of hydrogen gas.
			30-Mar-22	7	N-SB-02S (12.5-20.0):APW-05 Hydrogen-1	7.03	--	
					N-SB-02S (12.5-20.0):APW-05 Hydrogen-2	7.04	32	
					Average	**7.04**	**16**	

Notes:

-- - not applicable
µL - microliter
$CaCO_3$ - calcium carbonate
M - molar
mL - milliliter
mV - millivolts
ORP - oxidation- reduction potential
TDS - total dissolved solids
TOC - total organic carbon

APPENDIX A:
Chain of Custody Documentation

SIREM

Chain-of-Custody Form

siremlab.com

130 Stone Road West
Guelph ON, Canada N1G 3Z2
(519) 822-2265

S-8312

*Project Name: Newton MNA	*Project #: 21454831
*Project Manager: Jeff Ingram	*Company: Golder Associates
*Email Address: JIngram@golder.com	
Address (Street): 13515 Barrett Parkway Dr., Suite 260	
City: Ballwin / State/Province: MO / Country: USA	
*Phone #: (719)- 213-8548	
*Sampler's Signature:	*Sampler's Printed Name: Eric Schneider

Analysis

Preservative Key: 0. None; 1. HCL; 2. Other; 3. Other; 4. Other; 5. Other; 6. Other

Client Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac DHC	Gene-Trac VC	Gene-Trac DHB	Gene-Trac DHG	Treatability Study	Other Information
APW-02	8-17-21	1345	L	1	✓	✓	✓	✓	✓	Confirm Sample Analyses with Jeff Ingram Prior to Analysis
APW-04	8-17-21	1150	"	1	"	"	"	"	"	
APW-05	8-16-21	1603	"	8	"	"	"	"	"	
APW-05S	8-16-21	1556	"	4	"	"	"	"	"	
APW-14	8-17-21	0945	"	1	"	"	"	"	"	

Billing Information

P.O. # 21454831

*Bill To: Golder Associates

Turnaround Time Requested

Normal ☑

Rush ☐

For Lab Use Only

Cooler Condition: Good

Cooler Temperature: 19°C

Custody Seals: Yes ☐ No ☑

For Lab Use Only

23-Aug-21 @ Brent

Received 8 Samples Labeled APW-05S And Only 4 Samples Labeled APW-05

Proposal #:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature: Brent	Signature:	Signature:	Signature:	Signature:
Printed Name: Eric Schneider	Printed Name: Natasha Brent	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Golder Associates	Firm: SIREM	Firm:	Firm:	Firm:	Firm:
Date/Time: 8/18/2021/12:15	Date/Time: 23-Aug-21 @ 13:00	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - return to Originator; Yellow - Lab Copy; Pink - Retained by Client

* Mandatory Fields

SiREM

Chain-of-Custody Form

siremlab.com

130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Lab # 583606

*Project Name: Vistra MNA - Newton	*Project #: 21454831
*Project Manager: Jeff Ingram	*Company: Golder Associates
*Email Address: Jeffrey_Ingram@golder.com	
Address (Street): 13515 Barrett Parkway Drive Suite 260	
City: Ballwin	State/Province: MO
Country: USA	
*Phone #: 314-984-8800	
*Sampler's Signature:	*Sampler's Printed Name: Eric Schneider

Client Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac DHC	Gene-Trac FGA	Gene-Trac DHB	Gene-Trac DHG	Gene-Trac NGS	Volatile Fatty Acids	Dissolved hydrocarbon gases	Treatability Study
✓ APW-05	8/31/21	0950	GW	1								X
✓ APW-05 (LS)		1027		2								
✓ APW-02		1142		1								
✓ APW-14		1237		1								
✓ APW-04		1355		1								

Analysis

Preservative Key
0. None
1. HCL
2. Other
3. Other
4. Other
5. Other
6. Other

Other Information
Please Contact Jeffrey Ingram Prior to Analysis

Billing Information
P.O. #: 21454831
*Bill To:

Turnaround Time Requested
Normal ☐
Rush ☐

For Lab Use Only
Cooler Condition: 4°C
Cooler Temperature: GOOD
Custody Seals: Yes ☐ No ☒

For Lab Use Only
Proposal #:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Eric Schneider	Printed Name: Bethany Kinsman	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Golder Associates	Firm: SiREM	Firm	Firm	Firm	Firm
Date/Time: 8/31/2021 1630	Date/Time: Sept.02.21 3:53pm	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - return to Originator; Yellow - Lab Copy; Pink - Retained by Client

* Mandatory Fields

SiREM

Chain-of-Custody Form

siremlab.com

130 Stone Road West
Guelph ON, Canada N1G 3Z
(519) 822-2265

Lab # S-8394

Pg. 1 of 1

*Project Name: Newton MNA	*Project #: 21454831
*Project Manager: Jeff Ingram	*Company: Golder
*Email Address: JIngram@golder.com	
Address (Street): 13515 Barrett Parkway Dr. Suite 260	
City: Ballwin	State/Province: MO	Country: USA
*Phone #: 636-485-8185	
*Sampler's Signature: B Talbert	*Sampler's Printed Name: Brendan Talbert

Preservative Key: 0. None; 1. HCL; 2. Other ____; 3. Other ____; 4. Other ____; 5. Other ____; 6. Other ____

Client Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac DHC	Gene-Trac VC	Gene-Trac DHB	Gene-Trac DHG	Treatability Study	Other Information
N-SB-05 (18.0-20.0)	8-17-21	1240	S	2					✓	
N-SB-05 (60.0-67.1)	8-17-21	1540							✓	
N-SB-18 (77.5-80.0)	8-18-21	1000							✓	
N-SB-02 (12.5-20.0)	⊥	1410							✓	
N-SB-02 (65.0-71.5)	8-19-21	1200							✓	
N-SB-14 (~~60.0-52.0~~)	⊥	1445							✓	N-SB-14 (44.2-52.0)
N-SB-04 (12.0-18.0)	8-21-21	0735							✓	
N-SB-04 (~~38.7-45.4~~)		0830							✓	N-SB-04 (38.7-45.4)
N-SB-XPW04 (10.0-15.0)		0920							✓	
N-SB-XPW01 (10.0-12.7)	⊥	1010	⊥	⊥					✓	

Billing Information

P.O. #: 21454831

*Bill To: 13515 Barrett Pkwy Dr., Ste 260, Ballwin, MO 63021

Turnaround Time Requested

Normal ☒
Rush ☐

For Lab Use Only

Cooler Condition: good
Cooler Temperature: 2°C
Custody Seals: Yes ☑ No ☐

For Lab Use Only

Proposal #: ____

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: B Talbert	Signature: B Kinsman	Signature:	Signature:	Signature:	Signature:
Printed Name: Brendan Talbert	Printed Name: Bethany Kinsman	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Golder	Firm: SiREM	Firm:	Firm:	Firm:	Firm:
Date/Time:	Date/Time: Sept. 10.21 2:30 pm	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - return to Originator; Yellow - Lab Copy; Pink - Retained by Client

* Mandatory Fields

APPENDIX B:
ALS and SGS Groundwater Dissolved Metals and DOC Laboratory Reports

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

15-October-2021

SiREM Laboratory
Attn : Michael Healey

130 Stone Road W
Guelph, ON
N1G 3Z2, Canada

Phone: 519-822-2265
Fax:519-822-3151

Date Rec. : 23 September 2021
LR Report: **CA13848-SEP21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: APW-05	6: APW-05 (S)
Sample Date & Time					21-Sep-21 13:00	21-Sep-21 13:15
Temp Upon Receipt [°C]	---	---	---	---	10.0	10.0
TOC [mg/L]	27-Sep-21	20:20	29-Sep-21	09:12	4	100
SO4 [mg/L]	01-Oct-21	08:19	01-Oct-21	16:58	3	2200
Ag (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.00005	< 0.00005
Al (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.006	0.002
As (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.0144	0.0008
Ba (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.263	0.0425
Be (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.000007	< 0.000007
B (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.116	0.043
Bi (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00003	0.00038
Ca (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	55.5	413
Cd (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.000003	0.000009
Co (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.000196	0.00125
Cr (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00024	0.00013
Cu (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.0008	0.0002
Fe (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.073	0.018
K (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	1.64	2.04
Li (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.0106	0.0344
Mg (diss) [mg/L]	27-Sep-21	11:00	29-Sep-21	17:16	26.7	277
Mn (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.0266	0.498
Mo (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00875	0.00121
Na (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	125	240
Ni (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.0004	0.0049
Pb (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.00009	< 0.00009
Sb (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.0009	< 0.0009
Se (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.00004	0.00015
Sn (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.00006	< 0.00006

OnLine LIMS

00026779969

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA13848-SEP21**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: APW-05	6: APW-05 (S)
Sr (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.353	1.44
Ti (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00010	0.00005
Tl (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.000005	0.000028
U (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.000180	0.0230
V (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00005	0.00007
W (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.00005	0.00003
Y (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	< 0.00002	0.00014
Zn (diss) [mg/L]	27-Sep-21	12:00	29-Sep-21	17:16	0.009	0.004

Analysis	7: APW-02	8: APW-14	9: APW-04
Sample Date & Time	21-Sep-21 13:30	21-Sep-21 13:45	21-Sep-21 14:00
Temp Upon Receipt [°C]	10.0	10.0	10.0
TOC [mg/L]	108	57	67
SO4 [mg/L]	3600	410	890
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.003	0.002	0.001
As (diss) [mg/L]	< 0.0002	0.0012	< 0.0002
Ba (diss) [mg/L]	0.00913	0.0682	0.0137
Be (diss) [mg/L]	< 0.000007	< 0.000007	< 0.000007
B (diss) [mg/L]	0.139	0.107	0.038
Bi (diss) [mg/L]	0.00036	0.00002	0.00039
Ca (diss) [mg/L]	529	136	235
Cd (diss) [mg/L]	0.000053	< 0.000003	0.000032
Co (diss) [mg/L]	0.000625	0.000121	0.000186
Cr (diss) [mg/L]	0.00018	0.00018	0.00037
Cu (diss) [mg/L]	0.0003	0.0004	0.0009
Fe (diss) [mg/L]	0.038	0.051	0.134
K (diss) [mg/L]	6.78	2.33	1.76
Li (diss) [mg/L]	0.107	0.0227	0.0219
Mg (diss) [mg/L]	426	61.2	169
Mn (diss) [mg/L]	0.608	0.381	0.332
Mo (diss) [mg/L]	0.00137	0.00443	0.00114
Na (diss) [mg/L]	351	123	95.7
Ni (diss) [mg/L]	0.0079	0.0002	0.0030
Pb (diss) [mg/L]	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	< 0.00004	< 0.00004	0.00006
Sn (diss) [mg/L]	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	1.85	0.603	0.557

OnLine LIMS

00026779969

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA13848-SEP21**

Analysis	7: APW-02	8: APW-14	9: APW-04
Ti (diss) [mg/L]	0.00010	0.00013	< 0.00005
Tl (diss) [mg/L]	0.000073	< 0.000005	0.000025
U (diss) [mg/L]	0.0334	0.000666	0.00771
V (diss) [mg/L]	0.00006	0.00003	0.00023
W (diss) [mg/L]	0.00008	0.00003	0.00013
Y (diss) [mg/L]	0.00009	< 0.00002	0.00007
Zn (diss) [mg/L]	0.008	0.005	0.009

Catharine Arnold

CHARTERED CATHARINE ARNOLD CHEMIST

Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

00026779969

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

SIREM
ATTN: Michael Healey
130 Stone Road West
Guelph ON N1G 3Z2

Date Received: 16-FEB-22
Report Date: 22-FEB-22 15:28 (MT)
Version: FINAL

Client Phone: 519-822-2265

Certificate of Analysis

Lab Work Order #: L2686539

Project P.O. #: NOT SUBMITTED
Job Reference: NEWTON MNA
C of C Numbers:
Legal Site Desc:

Gayle Braun
Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2686539-1 APW-04-1A Sampled By: RH on 15-FEB-22 @ 12:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					22-FEB-22	R5727977
Aluminum (Al)-Dissolved	<0.050	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Antimony (Sb)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Arsenic (As)-Dissolved	0.193	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Barium (Ba)-Dissolved	0.0111	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Beryllium (Be)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Bismuth (Bi)-Dissolved	0.00068	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Boron (B)-Dissolved	9.19	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Cadmium (Cd)-Dissolved	<0.000050	DLHC	0.000050	mg/L	22-FEB-22	22-FEB-22	R5728039
Calcium (Ca)-Dissolved	207	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Cesium (Cs)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Chromium (Cr)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Cobalt (Co)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Copper (Cu)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Iron (Fe)-Dissolved	<0.10	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Lead (Pb)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Lithium (Li)-Dissolved	0.279	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Magnesium (Mg)-Dissolved	177	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Manganese (Mn)-Dissolved	0.232	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Molybdenum (Mo)-Dissolved	0.00076	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Nickel (Ni)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Phosphorus (P)-Dissolved	<0.50	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Potassium (K)-Dissolved	1.61	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Rubidium (Rb)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Selenium (Se)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Silicon (Si)-Dissolved	10.8	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Silver (Ag)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Sodium (Na)-Dissolved	290	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Strontium (Sr)-Dissolved	0.559	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Sulfur (S)-Dissolved	455	DLHC	5.0	mg/L	22-FEB-22	22-FEB-22	R5728039
Tellurium (Te)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Thallium (Tl)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Thorium (Th)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Tin (Sn)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Titanium (Ti)-Dissolved	<0.0030	DLHC	0.0030	mg/L	22-FEB-22	22-FEB-22	R5728039
Tungsten (W)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Uranium (U)-Dissolved	0.00870	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Vanadium (V)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Zinc (Zn)-Dissolved	<0.010	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Zirconium (Zr)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
L2686539-2 APW-04-2A							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2686539-2 APW-04-2A Sampled By: RH on 15-FEB-22 @ 12:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					22-FEB-22	R5727977
Aluminum (Al)-Dissolved	<0.050	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Antimony (Sb)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Arsenic (As)-Dissolved	0.194	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Barium (Ba)-Dissolved	0.0111	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Beryllium (Be)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Bismuth (Bi)-Dissolved	0.00069	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Boron (B)-Dissolved	9.45	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Cadmium (Cd)-Dissolved	<0.000050	DLHC	0.000050	mg/L	22-FEB-22	22-FEB-22	R5728039
Calcium (Ca)-Dissolved	210	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Cesium (Cs)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Chromium (Cr)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Cobalt (Co)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Copper (Cu)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Iron (Fe)-Dissolved	<0.10	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Lead (Pb)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Lithium (Li)-Dissolved	0.285	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Magnesium (Mg)-Dissolved	185	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Manganese (Mn)-Dissolved	0.236	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Molybdenum (Mo)-Dissolved	0.00087	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Nickel (Ni)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Phosphorus (P)-Dissolved	<0.50	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Potassium (K)-Dissolved	1.61	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Rubidium (Rb)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Selenium (Se)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Silicon (Si)-Dissolved	10.8	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Silver (Ag)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Sodium (Na)-Dissolved	297	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Strontium (Sr)-Dissolved	0.533	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Sulfur (S)-Dissolved	458	DLHC	5.0	mg/L	22-FEB-22	22-FEB-22	R5728039
Tellurium (Te)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Thallium (Tl)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Thorium (Th)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Tin (Sn)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Titanium (Ti)-Dissolved	<0.0030	DLHC	0.0030	mg/L	22-FEB-22	22-FEB-22	R5728039
Tungsten (W)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Uranium (U)-Dissolved	0.00824	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Vanadium (V)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Zinc (Zn)-Dissolved	0.018	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Zirconium (Zr)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
L2686539-3 APW-14-1A							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2686539-3 APW-14-1A Sampled By: RH on 15-FEB-22 @ 13:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					22-FEB-22	R5727977
Aluminum (Al)-Dissolved	<0.050	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Antimony (Sb)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Arsenic (As)-Dissolved	0.203	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Barium (Ba)-Dissolved	0.0586	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Beryllium (Be)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Bismuth (Bi)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Boron (B)-Dissolved	9.50	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Cadmium (Cd)-Dissolved	<0.000050	DLHC	0.000050	mg/L	22-FEB-22	22-FEB-22	R5728039
Calcium (Ca)-Dissolved	127	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Cesium (Cs)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Chromium (Cr)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Cobalt (Co)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Copper (Cu)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Iron (Fe)-Dissolved	<0.10	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Lead (Pb)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Lithium (Li)-Dissolved	0.282	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Magnesium (Mg)-Dissolved	70.6	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Manganese (Mn)-Dissolved	0.249	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Molybdenum (Mo)-Dissolved	0.00469	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Nickel (Ni)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Phosphorus (P)-Dissolved	<0.50	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Potassium (K)-Dissolved	2.26	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Rubidium (Rb)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Selenium (Se)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Silicon (Si)-Dissolved	9.39	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Silver (Ag)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Sodium (Na)-Dissolved	526	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Strontium (Sr)-Dissolved	0.594	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Sulfur (S)-Dissolved	407	DLHC	5.0	mg/L	22-FEB-22	22-FEB-22	R5728039
Tellurium (Te)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Thallium (Tl)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Thorium (Th)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Tin (Sn)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Titanium (Ti)-Dissolved	<0.0030	DLHC	0.0030	mg/L	22-FEB-22	22-FEB-22	R5728039
Tungsten (W)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Uranium (U)-Dissolved	0.00075	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Vanadium (V)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Zinc (Zn)-Dissolved	<0.010	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Zirconium (Zr)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
L2686539-4 APW-14-2A							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2686539-4 APW-14-2A Sampled By: RH on 15-FEB-22 @ 13:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					22-FEB-22	R5727977
Aluminum (Al)-Dissolved	<0.050	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Antimony (Sb)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Arsenic (As)-Dissolved	0.200	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Barium (Ba)-Dissolved	0.0602	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Beryllium (Be)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Bismuth (Bi)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Boron (B)-Dissolved	9.56	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Cadmium (Cd)-Dissolved	<0.000050	DLHC	0.000050	mg/L	22-FEB-22	22-FEB-22	R5728039
Calcium (Ca)-Dissolved	129	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Cesium (Cs)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Chromium (Cr)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Cobalt (Co)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Copper (Cu)-Dissolved	0.0023	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Iron (Fe)-Dissolved	<0.10	DLHC	0.10	mg/L	22-FEB-22	22-FEB-22	R5728039
Lead (Pb)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Lithium (Li)-Dissolved	0.284	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Magnesium (Mg)-Dissolved	70.3	DLHC	0.050	mg/L	22-FEB-22	22-FEB-22	R5728039
Manganese (Mn)-Dissolved	0.247	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Molybdenum (Mo)-Dissolved	0.00459	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Nickel (Ni)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Phosphorus (P)-Dissolved	<0.50	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Potassium (K)-Dissolved	2.27	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Rubidium (Rb)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Selenium (Se)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Silicon (Si)-Dissolved	9.53	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Silver (Ag)-Dissolved	<0.00050	DLHC	0.00050	mg/L	22-FEB-22	22-FEB-22	R5728039
Sodium (Na)-Dissolved	539	DLHC	0.50	mg/L	22-FEB-22	22-FEB-22	R5728039
Strontium (Sr)-Dissolved	0.599	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Sulfur (S)-Dissolved	412	DLHC	5.0	mg/L	22-FEB-22	22-FEB-22	R5728039
Tellurium (Te)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039
Thallium (Tl)-Dissolved	<0.00010	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Thorium (Th)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Tin (Sn)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Titanium (Ti)-Dissolved	<0.0030	DLHC	0.0030	mg/L	22-FEB-22	22-FEB-22	R5728039
Tungsten (W)-Dissolved	<0.0010	DLHC	0.0010	mg/L	22-FEB-22	22-FEB-22	R5728039
Uranium (U)-Dissolved	0.00073	DLHC	0.00010	mg/L	22-FEB-22	22-FEB-22	R5728039
Vanadium (V)-Dissolved	<0.0050	DLHC	0.0050	mg/L	22-FEB-22	22-FEB-22	R5728039
Zinc (Zn)-Dissolved	0.011	DLHC	0.010	mg/L	22-FEB-22	22-FEB-22	R5728039
Zirconium (Zr)-Dissolved	<0.0020	DLHC	0.0020	mg/L	22-FEB-22	22-FEB-22	R5728039

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Boron (B)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Lithium (Li)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L2686539-1, -2, -3, -4
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2686539-1, -2, -3, -4

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-D-CCMS-WT	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2686539 Report Date: 22-FEB-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5728039								
WG3698272-4 DUP		**WG3698272-3**						
Aluminum (Al)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	22-FEB-22
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Arsenic (As)-Dissolved		0.193	0.195		mg/L	1.3	20	22-FEB-22
Barium (Ba)-Dissolved		0.0111	0.0110		mg/L	1.3	20	22-FEB-22
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Bismuth (Bi)-Dissolved		0.00068	0.00071		mg/L	3.5	20	22-FEB-22
Boron (B)-Dissolved		9.19	9.19		mg/L	0.0	20	22-FEB-22
Cadmium (Cd)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-FEB-22
Calcium (Ca)-Dissolved		207	212		mg/L	2.1	20	22-FEB-22
Cesium (Cs)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-FEB-22
Chromium (Cr)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-FEB-22
Cobalt (Co)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Copper (Cu)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-FEB-22
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	22-FEB-22
Lead (Pb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-FEB-22
Lithium (Li)-Dissolved		0.279	0.283		mg/L	1.6	20	22-FEB-22
Magnesium (Mg)-Dissolved		177	180		mg/L	1.8	20	22-FEB-22
Manganese (Mn)-Dissolved		0.232	0.237		mg/L	2.3	20	22-FEB-22
Molybdenum (Mo)-Dissolved		0.00076	0.00077		mg/L	1.4	20	22-FEB-22
Nickel (Ni)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-FEB-22
Phosphorus (P)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	22-FEB-22
Potassium (K)-Dissolved		1.61	1.61		mg/L	0.1	20	22-FEB-22
Rubidium (Rb)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-FEB-22
Selenium (Se)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-FEB-22
Silicon (Si)-Dissolved		10.8	10.7		mg/L	0.6	20	22-FEB-22
Silver (Ag)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-FEB-22
Sodium (Na)-Dissolved		290	296		mg/L	2.0	20	22-FEB-22
Strontium (Sr)-Dissolved		0.559	0.550		mg/L	1.7	20	22-FEB-22
Sulfur (S)-Dissolved		455	458		mg/L	0.7	20	22-FEB-22
Tellurium (Te)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-FEB-22
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-FEB-22
Thorium (Th)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Tin (Sn)-Dissolved		<0.0010	<0.0010		mg/L			22-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5728039								
WG3698272-4 DUP		**WG3698272-3**						
Tin (Sn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Titanium (Ti)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	22-FEB-22
Tungsten (W)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-FEB-22
Uranium (U)-Dissolved		0.00870	0.00847		mg/L	2.6	20	22-FEB-22
Vanadium (V)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-FEB-22
Zinc (Zn)-Dissolved		<0.010	0.014	RPD-NA	mg/L	N/A	20	22-FEB-22
Zirconium (Zr)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-FEB-22
WG3698272-2 LCS								
Aluminum (Al)-Dissolved			104.3		%		80-120	22-FEB-22
Antimony (Sb)-Dissolved			101.5		%		80-120	22-FEB-22
Arsenic (As)-Dissolved			99.8		%		80-120	22-FEB-22
Barium (Ba)-Dissolved			98.0		%		80-120	22-FEB-22
Beryllium (Be)-Dissolved			104.5		%		80-120	22-FEB-22
Bismuth (Bi)-Dissolved			102.7		%		80-120	22-FEB-22
Boron (B)-Dissolved			100.8		%		80-120	22-FEB-22
Cadmium (Cd)-Dissolved			92.1		%		80-120	22-FEB-22
Calcium (Ca)-Dissolved			101.7		%		80-120	22-FEB-22
Cesium (Cs)-Dissolved			102.4		%		80-120	22-FEB-22
Chromium (Cr)-Dissolved			100.2		%		80-120	22-FEB-22
Cobalt (Co)-Dissolved			100.5		%		80-120	22-FEB-22
Copper (Cu)-Dissolved			98.2		%		80-120	22-FEB-22
Iron (Fe)-Dissolved			98.2		%		80-120	22-FEB-22
Lead (Pb)-Dissolved			101.1		%		80-120	22-FEB-22
Lithium (Li)-Dissolved			103.0		%		80-120	22-FEB-22
Magnesium (Mg)-Dissolved			112.3		%		80-120	22-FEB-22
Manganese (Mn)-Dissolved			100.7		%		80-120	22-FEB-22
Molybdenum (Mo)-Dissolved			99.3		%		80-120	22-FEB-22
Nickel (Ni)-Dissolved			97.9		%		80-120	22-FEB-22
Phosphorus (P)-Dissolved			107.6		%		80-120	22-FEB-22
Potassium (K)-Dissolved			100.1		%		80-120	22-FEB-22
Rubidium (Rb)-Dissolved			103.5		%		80-120	22-FEB-22
Selenium (Se)-Dissolved			98.8		%		80-120	22-FEB-22
Silicon (Si)-Dissolved			102.3		%		60-140	22-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5728039								
WG3698272-2 LCS								
Silver (Ag)-Dissolved			98.6		%		80-120	22-FEB-22
Sodium (Na)-Dissolved			100.8		%		80-120	22-FEB-22
Strontium (Sr)-Dissolved			99.6		%		80-120	22-FEB-22
Sulfur (S)-Dissolved			101.6		%		80-120	22-FEB-22
Tellurium (Te)-Dissolved			96.9		%		80-120	22-FEB-22
Thallium (Tl)-Dissolved			102.7		%		80-120	22-FEB-22
Thorium (Th)-Dissolved			98.5		%		80-120	22-FEB-22
Tin (Sn)-Dissolved			93.1		%		80-120	22-FEB-22
Titanium (Ti)-Dissolved			98.0		%		80-120	22-FEB-22
Tungsten (W)-Dissolved			96.5		%		80-120	22-FEB-22
Uranium (U)-Dissolved			100.1		%		80-120	22-FEB-22
Vanadium (V)-Dissolved			102.1		%		80-120	22-FEB-22
Zinc (Zn)-Dissolved			97.7		%		80-120	22-FEB-22
Zirconium (Zr)-Dissolved			96.5		%		80-120	22-FEB-22
WG3698272-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	22-FEB-22
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	22-FEB-22
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-FEB-22
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	22-FEB-22
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	22-FEB-22
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	22-FEB-22
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	22-FEB-22
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	22-FEB-22
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-FEB-22
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-FEB-22
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	22-FEB-22
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-FEB-22
Manganese (Mn)-Dissolved			<0.00050		mg/L		0.0005	22-FEB-22
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5728039								
WG3698272-1 MB								
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	22-FEB-22
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	22-FEB-22
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-FEB-22
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	22-FEB-22
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	22-FEB-22
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	22-FEB-22
Silver (Ag)-Dissolved			<0.000050		mg/L		0.00005	22-FEB-22
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-FEB-22
Strontium (Sr)-Dissolved			<0.0010		mg/L		0.001	22-FEB-22
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	22-FEB-22
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	22-FEB-22
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-FEB-22
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-FEB-22
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	22-FEB-22
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-FEB-22
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	22-FEB-22
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-FEB-22
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	22-FEB-22
WG3698272-5 MS		**WG3698272-3**						
Aluminum (Al)-Dissolved			92.5		%		70-130	22-FEB-22
Antimony (Sb)-Dissolved			94.6		%		70-130	22-FEB-22
Arsenic (As)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Beryllium (Be)-Dissolved			95.8		%		70-130	22-FEB-22
Bismuth (Bi)-Dissolved			91.2		%		70-130	22-FEB-22
Boron (B)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Cadmium (Cd)-Dissolved			85.5		%		70-130	22-FEB-22
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Cesium (Cs)-Dissolved			96.4		%		70-130	22-FEB-22
Chromium (Cr)-Dissolved			94.4		%		70-130	22-FEB-22
Cobalt (Co)-Dissolved			93.0		%		70-130	22-FEB-22
Copper (Cu)-Dissolved			86.4		%		70-130	22-FEB-22
Iron (Fe)-Dissolved			80.2		%		70-130	22-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5728039								
WG3698272-5 MS		**WG3698272-3**						
Lead (Pb)-Dissolved			95.8		%		70-130	22-FEB-22
Lithium (Li)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Molybdenum (Mo)-Dissolved			91.5		%		70-130	22-FEB-22
Nickel (Ni)-Dissolved			81.8		%		70-130	22-FEB-22
Phosphorus (P)-Dissolved			104.0		%		70-130	22-FEB-22
Rubidium (Rb)-Dissolved			88.8		%		70-130	22-FEB-22
Selenium (Se)-Dissolved			97.0		%		70-130	22-FEB-22
Silicon (Si)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Sodium (Na)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Sulfur (S)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Tellurium (Te)-Dissolved			90.4		%		70-130	22-FEB-22
Thallium (Tl)-Dissolved			91.3		%		70-130	22-FEB-22
Thorium (Th)-Dissolved			91.8		%		70-130	22-FEB-22
Tin (Sn)-Dissolved			86.8		%		70-130	22-FEB-22
Titanium (Ti)-Dissolved			96.4		%		70-130	22-FEB-22
Tungsten (W)-Dissolved			93.4		%		70-130	22-FEB-22
Uranium (U)-Dissolved			N/A	MS-B	%		-	22-FEB-22
Vanadium (V)-Dissolved			98.5		%		70-130	22-FEB-22
Zinc (Zn)-Dissolved			75.0		%		70-130	22-FEB-22
Zirconium (Zr)-Dissolved			93.1		%		70-130	22-FEB-22

Quality Control Report

Workorder: L2686539 Report Date: 22-FEB-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

SIREM
ATTN: Michael Healey
130 Stone Road West
Guelph ON N1G 3Z2

Date Received: 24-FEB-22
Report Date: 28-FEB-22 15:30 (MT)
Version: FINAL

Client Phone: 519-822-2265

Certificate of Analysis

Lab Work Order #: L2688199

Project P.O. #: NOT SUBMITTED
Job Reference: NEWTON MNA
C of C Numbers: 1, 2
Legal Site Desc:

Gayle Braun
Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-1 APW-04-1 Sampled By: CLIENT on 22-FEB-22 @ 09:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.196	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.012	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	212	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.26	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	188	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.239	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	10.5	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	296	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.55	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	433	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0087	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-2 APW-04-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-2 APW-04-2 Sampled By: CLIENT on 22-FEB-22 @ 09:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.198	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.012	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.4	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	208	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.25	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	174	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.246	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	10.3	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	307	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.53	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	431	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0086	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-3 N-SB-05-(60.0-67.1):APW-04 2:1-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-3 N-SB-05-(60.0-67.1):APW-04 2:1-1 Sampled By: CLIENT on 22-FEB-22 @ 10:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.089	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	5.9	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	210	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	1.3	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	123	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.314	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	8.7	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	287	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.74	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	343	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0075	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-4 N-SB-05-(60.0-67.1):APW-04 2:1-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-4 N-SB-05-(60.0-67.1):APW-04 2:1-2 Sampled By: CLIENT on 22-FEB-22 @ 10:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.095	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	5.8	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	212	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	123	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.332	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	8.5	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	282	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.71	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	345	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0073	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-5 N-SB-05-(60.0-67.1):APW-04 1:1-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-5 N-SB-05-(60.0-67.1):APW-04 1:1-1 Sampled By: CLIENT on 22-FEB-22 @ 10:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.081	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	7.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	225	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	1.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.13	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	155	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.308	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.1	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	288	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.77	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	414	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0074	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-6 N-SB-05-(60.0-67.1):APW-04 1:1-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-6 N-SB-05-(60.0-67.1):APW-04 1:1-2 Sampled By: CLIENT on 22-FEB-22 @ 10:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.078	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	7.4	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	230	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	1.1	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.14	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	138	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.321	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	8.9	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	296	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.72	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	401	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0085	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-7 N-SB-05-(60.0-67.1):APW-04 1:5-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-7 N-SB-05-(60.0-67.1):APW-04 1:5-1 Sampled By: CLIENT on 22-FEB-22 @ 11:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.092	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	8.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	208	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	0.800	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.17	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	186	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.310	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	0.173	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.1	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	305	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.65	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	433	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0083	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-8 N-SB-05-(60.0-67.1):APW-04 1:5-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-8 N-SB-05-(60.0-67.1):APW-04 1:5-2 Sampled By: CLIENT on 22-FEB-22 @ 11:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.011	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.087	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	231	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.24	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	183	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.282	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.2	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	303	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.63	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	449	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0082	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-9 N-SB-05-(60.0-67.1):APW-04 1:10-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-9 N-SB-05-(60.0-67.1):APW-04 1:10-1 Sampled By: CLIENT on 22-FEB-22 @ 11:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.017	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.107	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	10.3	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	235	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	1.3	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.26	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	198	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.300	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.8	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	314	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.64	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	466	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0083	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-10 N-SB-05-(60.0-67.1):APW-04 1:10-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-10 N-SB-05-(60.0-67.1):APW-04 1:10-2 Sampled By: CLIENT on 22-FEB-22 @ 11:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.019	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.103	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	229	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.25	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	188	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.315	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.6	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	306	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.60	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	446	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0080	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-11 N-SB-05-(60.0-67.1):APW-04 1:20-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-11 N-SB-05-(60.0-67.1):APW-04 1:20-1 Sampled By: CLIENT on 22-FEB-22 @ 12:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.041	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.098	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	214	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	1.5	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.24	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	186	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.260	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	10.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	305	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.56	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	450	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0092	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-12 N-SB-05-(60.0-67.1):APW-04 1:20-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-12 N-SB-05-(60.0-67.1):APW-04 1:20-2 Sampled By: CLIENT on 22-FEB-22 @ 12:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.034	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.127	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	8.9	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	213	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.23	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	183	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.296	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.7	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	302	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.58	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	446	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0092	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-13 APW-14-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-13 APW-14-1 Sampled By: CLIENT on 22-FEB-22 @ 09:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.109	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.064	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	130	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.25	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	68.3	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.271	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.5	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	544	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.60	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	409	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	0.25	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-14 APW-14-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-14 APW-14-2 Sampled By: CLIENT on 22-FEB-22 @ 09:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	0.113	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.064	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	10.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	129	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.25	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	68.5	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	0.256	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.4	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	544	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.60	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	395	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-15 N-SB-04-(12.0-18.0):APW-14 2:1-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-15 N-SB-04-(12.0-18.0):APW-14 2:1-1 Sampled By: CLIENT on 22-FEB-22 @ 10:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.023	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	5.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	172	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	133	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	3.73	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0096	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	11.5	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	368	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.36	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	402	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0083	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-16 N-SB-04-(12.0-18.0):APW-14 2:1-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-16 N-SB-04-(12.0-18.0):APW-14 2:1-2 Sampled By: CLIENT on 22-FEB-22 @ 10:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.025	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	5.6	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	173	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	130	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	4.23	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0125	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	11.9	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	375	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.36	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	415	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0081	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-17 N-SB-04-(12.0-18.0):APW-14 1:1-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-17 N-SB-04-(12.0-18.0):APW-14 1:1-1 Sampled By: CLIENT on 22-FEB-22 @ 10:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.028	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	7.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	160	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.15	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	108	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	4.76	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0128	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	11.2	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	418	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.36	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	394	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0076	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-18 N-SB-04-(12.0-18.0):APW-14 1:1-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-18 N-SB-04-(12.0-18.0):APW-14 1:1-2 Sampled By: CLIENT on 22-FEB-22 @ 10:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.027	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	7.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	155	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.13	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	109	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	4.70	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0126	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	11.5	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	432	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.36	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	403	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0082	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-19 N-SB-04-(12.0-18.0):APW-14 1:5-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-19 N-SB-04-(12.0-18.0):APW-14 1:5-1 Sampled By: CLIENT on 22-FEB-22 @ 11:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.029	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	10.2	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	163	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.26	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	94.2	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	2.48	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0112	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	12.3	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	588	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.49	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	459	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0051	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-20 N-SB-04-(12.0-18.0):APW-14 1:5-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-20 N-SB-04-(12.0-18.0):APW-14 1:5-2 Sampled By: CLIENT on 22-FEB-22 @ 11:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729274
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.026	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	8.9	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	137	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.20	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	85.3	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	3.06	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0117	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	10.6	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	524	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.42	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	400	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0048	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-21 N-SB-04-(12.0-18.0):APW-14 1:10-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-21 N-SB-04-(12.0-18.0):APW-14 1:10-1 Sampled By: CLIENT on 22-FEB-22 @ 11:30 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729279
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.025	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.7	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	132	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.22	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	77.8	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	2.13	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0089	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	10.2	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	530	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.46	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	385	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0036	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-22 N-SB-04-(12.0-18.0):APW-14 1:10-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-22 N-SB-04-(12.0-18.0):APW-14 1:10-2 Sampled By: CLIENT on 22-FEB-22 @ 11:45 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729279
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.023	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.7	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	132	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.23	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	74.6	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	1.80	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0081	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.8	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	492	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.45	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	379	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0037	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-23 N-SB-04-(12.0-18.0):APW-14 1:20-1							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-23 N-SB-04-(12.0-18.0):APW-14 1:20-1 Sampled By: CLIENT on 22-FEB-22 @ 12:00 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729279
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.027	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.8	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	133	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.26	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	71.7	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	1.69	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0075	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.6	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	533	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.53	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	386	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0021	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
L2688199-24 N-SB-04-(12.0-18.0):APW-14 1:20-2							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2688199-24 N-SB-04-(12.0-18.0):APW-14 1:20-2 Sampled By: CLIENT on 22-FEB-22 @ 12:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					25-FEB-22	R5729279
Aluminum (Al)-Dissolved	<0.50	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Antimony (Sb)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Arsenic (As)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Barium (Ba)-Dissolved	0.024	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Beryllium (Be)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Bismuth (Bi)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Boron (B)-Dissolved	9.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cadmium (Cd)-Dissolved	<0.00050	DLHC	0.00050	mg/L	25-FEB-22	25-FEB-22	R5729521
Calcium (Ca)-Dissolved	129	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Cesium (Cs)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Chromium (Cr)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Cobalt (Co)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Copper (Cu)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Iron (Fe)-Dissolved	<1.0	DLHC	1.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Lead (Pb)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Lithium (Li)-Dissolved	0.24	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Magnesium (Mg)-Dissolved	72.7	DLHC	0.50	mg/L	25-FEB-22	25-FEB-22	R5729521
Manganese (Mn)-Dissolved	1.28	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Molybdenum (Mo)-Dissolved	0.0068	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Nickel (Ni)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Phosphorus (P)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Potassium (K)-Dissolved	<5.0	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Rubidium (Rb)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Selenium (Se)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Silicon (Si)-Dissolved	9.4	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Silver (Ag)-Dissolved	<0.0050	DLHC	0.0050	mg/L	25-FEB-22	25-FEB-22	R5729521
Sodium (Na)-Dissolved	507	DLHC	5.0	mg/L	25-FEB-22	25-FEB-22	R5729521
Strontium (Sr)-Dissolved	0.50	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Sulfur (S)-Dissolved	376	DLHC	50	mg/L	25-FEB-22	25-FEB-22	R5729521
Tellurium (Te)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521
Thallium (Tl)-Dissolved	<0.0010	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Thorium (Th)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Tin (Sn)-Dissolved	0.013	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Titanium (Ti)-Dissolved	<0.030	DLHC	0.030	mg/L	25-FEB-22	25-FEB-22	R5729521
Tungsten (W)-Dissolved	<0.010	DLHC	0.010	mg/L	25-FEB-22	25-FEB-22	R5729521
Uranium (U)-Dissolved	0.0027	DLHC	0.0010	mg/L	25-FEB-22	25-FEB-22	R5729521
Vanadium (V)-Dissolved	<0.050	DLHC	0.050	mg/L	25-FEB-22	25-FEB-22	R5729521
Zinc (Zn)-Dissolved	<0.10	DLHC	0.10	mg/L	25-FEB-22	25-FEB-22	R5729521
Zirconium (Zr)-Dissolved	<0.020	DLHC	0.020	mg/L	25-FEB-22	25-FEB-22	R5729521

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Boron (B)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Boron (B)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Lithium (Li)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Lithium (Li)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L2688199-21, -22, -23, -24
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2688199-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2688199-21, -22, -23, -24

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-D-CCMS-WT	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Reference Information

Chain of Custody Numbers:

1 2

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2688199 Report Date: 28-FEB-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699775-4 DUP		**WG3699775-3**						
Aluminum (Al)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	25-FEB-22
Antimony (Sb)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Arsenic (As)-Dissolved		0.196	0.195		mg/L	0.5	20	25-FEB-22
Barium (Ba)-Dissolved		0.012	0.013		mg/L	6.7	20	25-FEB-22
Beryllium (Be)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Bismuth (Bi)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Boron (B)-Dissolved		9.2	9.3		mg/L	1.1	20	25-FEB-22
Cadmium (Cd)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-FEB-22
Calcium (Ca)-Dissolved		212	219		mg/L	3.4	20	25-FEB-22
Cesium (Cs)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-FEB-22
Chromium (Cr)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Cobalt (Co)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Copper (Cu)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Iron (Fe)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Lead (Pb)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Lithium (Li)-Dissolved		0.26	0.28		mg/L	7.4	20	25-FEB-22
Magnesium (Mg)-Dissolved		188	189		mg/L	0.2	20	25-FEB-22
Manganese (Mn)-Dissolved		0.239	0.244		mg/L	2.0	20	25-FEB-22
Molybdenum (Mo)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Nickel (Ni)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Phosphorus (P)-Dissolved		<5.0	<5.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Potassium (K)-Dissolved		<5.0	<5.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Rubidium (Rb)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Selenium (Se)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Silicon (Si)-Dissolved		10.5	10.4		mg/L	0.9	20	25-FEB-22
Silver (Ag)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Sodium (Na)-Dissolved		296	308		mg/L	4.0	20	25-FEB-22
Strontium (Sr)-Dissolved		0.55	0.56		mg/L	2.1	20	25-FEB-22
Sulfur (S)-Dissolved		433	428		mg/L	1.1	20	25-FEB-22
Tellurium (Te)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Thallium (Tl)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-FEB-22
Thorium (Th)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Tin (Sn)-Dissolved		<0.010	<0.010		mg/L			25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699775-4 DUP		**WG3699775-3**						
Tin (Sn)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Titanium (Ti)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	25-FEB-22
Tungsten (W)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Uranium (U)-Dissolved		0.0087	0.0085		mg/L	2.1	20	25-FEB-22
Vanadium (V)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Zinc (Zn)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-FEB-22
Zirconium (Zr)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
WG3699776-4 DUP		**WG3699776-3**						
Aluminum (Al)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	25-FEB-22
Antimony (Sb)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Arsenic (As)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Barium (Ba)-Dissolved		0.025	0.025		mg/L	1.6	20	25-FEB-22
Beryllium (Be)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Bismuth (Bi)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Boron (B)-Dissolved		9.7	9.0		mg/L	7.2	20	25-FEB-22
Cadmium (Cd)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-FEB-22
Calcium (Ca)-Dissolved		132	135		mg/L	2.2	20	25-FEB-22
Cesium (Cs)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-FEB-22
Chromium (Cr)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Cobalt (Co)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Copper (Cu)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Iron (Fe)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Lead (Pb)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Lithium (Li)-Dissolved		0.22	0.24		mg/L	8.0	20	25-FEB-22
Magnesium (Mg)-Dissolved		77.8	77.5		mg/L	0.4	20	25-FEB-22
Manganese (Mn)-Dissolved		2.13	2.13		mg/L	0.2	20	25-FEB-22
Molybdenum (Mo)-Dissolved		0.0089	0.0094		mg/L	5.8	20	25-FEB-22
Nickel (Ni)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Phosphorus (P)-Dissolved		<5.0	<5.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Potassium (K)-Dissolved		<5.0	<5.0	RPD-NA	mg/L	N/A	20	25-FEB-22
Rubidium (Rb)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Selenium (Se)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Silicon (Si)-Dissolved		10.2	10.2		mg/L	0.0	20	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699776-4 DUP		**WG3699776-3**						
Silver (Ag)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	25-FEB-22
Sodium (Na)-Dissolved		530	533		mg/L	0.6	20	25-FEB-22
Strontium (Sr)-Dissolved		0.46	0.47		mg/L	2.3	20	25-FEB-22
Sulfur (S)-Dissolved		385	386		mg/L	0.4	20	25-FEB-22
Tellurium (Te)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
Thallium (Tl)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-FEB-22
Thorium (Th)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Tin (Sn)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Titanium (Ti)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	25-FEB-22
Tungsten (W)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-FEB-22
Uranium (U)-Dissolved		0.0036	0.0035		mg/L	2.8	20	25-FEB-22
Vanadium (V)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-FEB-22
Zinc (Zn)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	25-FEB-22
Zirconium (Zr)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-FEB-22
WG3699775-2 LCS								
Aluminum (Al)-Dissolved			100.7		%		80-120	25-FEB-22
Antimony (Sb)-Dissolved			100.7		%		80-120	25-FEB-22
Arsenic (As)-Dissolved			101.0		%		80-120	25-FEB-22
Barium (Ba)-Dissolved			99.2		%		80-120	25-FEB-22
Beryllium (Be)-Dissolved			98.7		%		80-120	25-FEB-22
Bismuth (Bi)-Dissolved			96.3		%		80-120	25-FEB-22
Boron (B)-Dissolved			93.9		%		80-120	25-FEB-22
Cadmium (Cd)-Dissolved			93.2		%		80-120	25-FEB-22
Calcium (Ca)-Dissolved			97.4		%		80-120	25-FEB-22
Cesium (Cs)-Dissolved			100.9		%		80-120	25-FEB-22
Chromium (Cr)-Dissolved			99.8		%		80-120	25-FEB-22
Cobalt (Co)-Dissolved			95.4		%		80-120	25-FEB-22
Copper (Cu)-Dissolved			99.3		%		80-120	25-FEB-22
Iron (Fe)-Dissolved			99.6		%		80-120	25-FEB-22
Lead (Pb)-Dissolved			102.2		%		80-120	25-FEB-22
Lithium (Li)-Dissolved			97.9		%		80-120	25-FEB-22
Magnesium (Mg)-Dissolved			106.0		%		80-120	25-FEB-22
Manganese (Mn)-Dissolved			99.99		%		80-120	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699775-2 LCS								
Molybdenum (Mo)-Dissolved			94.9		%		80-120	25-FEB-22
Nickel (Ni)-Dissolved			99.4		%		80-120	25-FEB-22
Phosphorus (P)-Dissolved			106.8		%		80-120	25-FEB-22
Potassium (K)-Dissolved			107.9		%		80-120	25-FEB-22
Rubidium (Rb)-Dissolved			102.9		%		80-120	25-FEB-22
Selenium (Se)-Dissolved			98.0		%		80-120	25-FEB-22
Silicon (Si)-Dissolved			99.1		%		60-140	25-FEB-22
Silver (Ag)-Dissolved			100.1		%		80-120	25-FEB-22
Sodium (Na)-Dissolved			100.5		%		80-120	25-FEB-22
Strontium (Sr)-Dissolved			109.0		%		80-120	25-FEB-22
Sulfur (S)-Dissolved			96.1		%		80-120	25-FEB-22
Tellurium (Te)-Dissolved			97.7		%		80-120	25-FEB-22
Thallium (Tl)-Dissolved			98.2		%		80-120	25-FEB-22
Thorium (Th)-Dissolved			98.7		%		80-120	25-FEB-22
Tin (Sn)-Dissolved			94.1		%		80-120	25-FEB-22
Titanium (Ti)-Dissolved			99.1		%		80-120	25-FEB-22
Tungsten (W)-Dissolved			96.2		%		80-120	25-FEB-22
Uranium (U)-Dissolved			101.0		%		80-120	25-FEB-22
Vanadium (V)-Dissolved			101.5		%		80-120	25-FEB-22
Zinc (Zn)-Dissolved			100.7		%		80-120	25-FEB-22
Zirconium (Zr)-Dissolved			99.5		%		80-120	25-FEB-22
WG3699776-2 LCS								
Aluminum (Al)-Dissolved			101.2		%		80-120	25-FEB-22
Antimony (Sb)-Dissolved			96.0		%		80-120	25-FEB-22
Arsenic (As)-Dissolved			100.6		%		80-120	25-FEB-22
Barium (Ba)-Dissolved			99.2		%		80-120	25-FEB-22
Beryllium (Be)-Dissolved			99.5		%		80-120	25-FEB-22
Bismuth (Bi)-Dissolved			96.3		%		80-120	25-FEB-22
Boron (B)-Dissolved			95.7		%		80-120	25-FEB-22
Cadmium (Cd)-Dissolved			91.6		%		80-120	25-FEB-22
Calcium (Ca)-Dissolved			97.8		%		80-120	25-FEB-22
Cesium (Cs)-Dissolved			99.5		%		80-120	25-FEB-22
Chromium (Cr)-Dissolved			99.2		%		80-120	25-FEB-22
Cobalt (Co)-Dissolved			94.9		%		80-120	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699776-2 LCS								
Copper (Cu)-Dissolved			98.7		%		80-120	25-FEB-22
Iron (Fe)-Dissolved			99.9		%		80-120	25-FEB-22
Lead (Pb)-Dissolved			102.4		%		80-120	25-FEB-22
Lithium (Li)-Dissolved			111.8		%		80-120	25-FEB-22
Magnesium (Mg)-Dissolved			103.5		%		80-120	25-FEB-22
Manganese (Mn)-Dissolved			99.6		%		80-120	25-FEB-22
Molybdenum (Mo)-Dissolved			94.5		%		80-120	25-FEB-22
Nickel (Ni)-Dissolved			98.3		%		80-120	25-FEB-22
Phosphorus (P)-Dissolved			102.2		%		80-120	25-FEB-22
Potassium (K)-Dissolved			97.9		%		80-120	25-FEB-22
Rubidium (Rb)-Dissolved			102.0		%		80-120	25-FEB-22
Selenium (Se)-Dissolved			98.0		%		80-120	25-FEB-22
Silicon (Si)-Dissolved			98.2		%		60-140	25-FEB-22
Silver (Ag)-Dissolved			99.1		%		80-120	25-FEB-22
Sodium (Na)-Dissolved			102.9		%		80-120	25-FEB-22
Strontium (Sr)-Dissolved			104.9		%		80-120	25-FEB-22
Sulfur (S)-Dissolved			96.2		%		80-120	25-FEB-22
Tellurium (Te)-Dissolved			94.0		%		80-120	25-FEB-22
Thallium (Tl)-Dissolved			101.8		%		80-120	25-FEB-22
Thorium (Th)-Dissolved			98.9		%		80-120	25-FEB-22
Tin (Sn)-Dissolved			91.4		%		80-120	25-FEB-22
Titanium (Ti)-Dissolved			97.1		%		80-120	25-FEB-22
Tungsten (W)-Dissolved			96.6		%		80-120	25-FEB-22
Uranium (U)-Dissolved			99.8		%		80-120	25-FEB-22
Vanadium (V)-Dissolved			100.9		%		80-120	25-FEB-22
Zinc (Zn)-Dissolved			101.2		%		80-120	25-FEB-22
Zirconium (Zr)-Dissolved			99.4		%		80-120	25-FEB-22
WG3699775-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	25-FEB-22
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699775-1 MB								
Boron (B)-Dissolved			<0.010		mg/L		0.01	25-FEB-22
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	25-FEB-22
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	25-FEB-22
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	25-FEB-22
Manganese (Mn)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Potassium (K)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Silver (Ag)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Strontium (Sr)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	25-FEB-22
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	25-FEB-22
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
WG3699776-1 MB								

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699776-1 MB								
Aluminum (Al)-Dissolved			<0.0050		mg/L		0.005	25-FEB-22
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Boron (B)-Dissolved			<0.010		mg/L		0.01	25-FEB-22
Cadmium (Cd)-Dissolved			<0.000005(		mg/L		0.000005	25-FEB-22
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Chromium (Cr)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	25-FEB-22
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	25-FEB-22
Manganese (Mn)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Potassium (K)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Silver (Ag)-Dissolved			<0.000050		mg/L		0.00005	25-FEB-22
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	25-FEB-22
Strontium (Sr)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	25-FEB-22
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699776-1 MB								
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	25-FEB-22
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	25-FEB-22
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	25-FEB-22
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	25-FEB-22
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	25-FEB-22
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	25-FEB-22
WG3699775-5 MS		**WG3699775-3**						
Aluminum (Al)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Antimony (Sb)-Dissolved			92.6		%		70-130	25-FEB-22
Arsenic (As)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Beryllium (Be)-Dissolved			98.8		%		70-130	25-FEB-22
Bismuth (Bi)-Dissolved			90.2		%		70-130	25-FEB-22
Boron (B)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Cadmium (Cd)-Dissolved			96.1		%		70-130	25-FEB-22
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Cesium (Cs)-Dissolved			92.6		%		70-130	25-FEB-22
Chromium (Cr)-Dissolved			90.0		%		70-130	25-FEB-22
Cobalt (Co)-Dissolved			88.4		%		70-130	25-FEB-22
Iron (Fe)-Dissolved			81.2		%		70-130	25-FEB-22
Lead (Pb)-Dissolved			98.0		%		70-130	25-FEB-22
Lithium (Li)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Molybdenum (Mo)-Dissolved			81.6		%		70-130	25-FEB-22
Nickel (Ni)-Dissolved			86.6		%		70-130	25-FEB-22
Phosphorus (P)-Dissolved			98.3		%		70-130	25-FEB-22
Rubidium (Rb)-Dissolved			84.6		%		70-130	25-FEB-22
Selenium (Se)-Dissolved			95.7		%		70-130	25-FEB-22
Silicon (Si)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Silver (Ag)-Dissolved			76.4		%		70-130	25-FEB-22
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Sulfur (S)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Tellurium (Te)-Dissolved			87.2		%		70-130	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699775-5 MS		**WG3699775-3**						
Thallium (Tl)-Dissolved			94.9		%		70-130	25-FEB-22
Thorium (Th)-Dissolved			94.4		%		70-130	25-FEB-22
Tin (Sn)-Dissolved			91.3		%		70-130	25-FEB-22
Titanium (Ti)-Dissolved			93.1		%		70-130	25-FEB-22
Tungsten (W)-Dissolved			94.0		%		70-130	25-FEB-22
Uranium (U)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Vanadium (V)-Dissolved			97.4		%		70-130	25-FEB-22
Zirconium (Zr)-Dissolved			91.5		%		70-130	25-FEB-22
WG3699776-5 MS		**WG3699776-3**						
Antimony (Sb)-Dissolved			100.9		%		70-130	25-FEB-22
Arsenic (As)-Dissolved			91.8		%		70-130	25-FEB-22
Barium (Ba)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Beryllium (Be)-Dissolved			94.0		%		70-130	25-FEB-22
Bismuth (Bi)-Dissolved			93.8		%		70-130	25-FEB-22
Boron (B)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Cadmium (Cd)-Dissolved			92.6		%		70-130	25-FEB-22
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Cesium (Cs)-Dissolved			97.0		%		70-130	25-FEB-22
Chromium (Cr)-Dissolved			91.1		%		70-130	25-FEB-22
Iron (Fe)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Lead (Pb)-Dissolved			102.1		%		70-130	25-FEB-22
Lithium (Li)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Nickel (Ni)-Dissolved			72.1		%		70-130	25-FEB-22
Phosphorus (P)-Dissolved			102.4		%		70-130	25-FEB-22
Potassium (K)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Rubidium (Rb)-Dissolved			91.5		%		70-130	25-FEB-22
Selenium (Se)-Dissolved			94.1		%		70-130	25-FEB-22
Silicon (Si)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Silver (Ag)-Dissolved			89.7		%		70-130	25-FEB-22
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Sulfur (S)-Dissolved			N/A	MS-B	%		-	25-FEB-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WT	**Water**							
Batch R5729521								
WG3699776-5 MS		**WG3699776-3**						
Tellurium (Te)-Dissolved			91.8		%		70-130	25-FEB-22
Thallium (Tl)-Dissolved			91.2		%		70-130	25-FEB-22
Thorium (Th)-Dissolved			95.9		%		70-130	25-FEB-22
Tin (Sn)-Dissolved			93.5		%		70-130	25-FEB-22
Titanium (Ti)-Dissolved			87.2		%		70-130	25-FEB-22
Tungsten (W)-Dissolved			93.5		%		70-130	25-FEB-22
Uranium (U)-Dissolved			N/A	MS-B	%		-	25-FEB-22
Vanadium (V)-Dissolved			99.0		%		70-130	25-FEB-22
Zirconium (Zr)-Dissolved			91.8		%		70-130	25-FEB-22

Quality Control Report

Workorder: L2688199 Report Date: 28-FEB-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: Michael Healey

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2688199-COFC

COC Number: 16 -

Page 1 of 2

Report To		Report F
Company:	SiREM	Select Report Format:
Contact:	Rachel Hallman, Michael Healey	Quality Control (QC) Report with Report ☐ Yes ☐ No
Address:	130 Research Lane, Suite 2 Guelph, Ontario, Canada, N1G 5G3	☐ Criteria on Report - provide details below if box checked
Phone:	519-822-2265	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
		Email 1 or Fax rhallman@siremlab.com
		Email 2 mhealey@siremlab.com

Invoice To	Same as Report To ☐ Yes ☐ No	Invoice Distribution
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Company:	SiREM	Email 1 or Fax kbroersma@geosyntec.com
Contact:	Karen Broersma, kbroersma@geosyntec.com	Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Newton MNA	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2688199 | **ALS Contact:** | **Sampler:** Rachel Hallman

Turnaround Time (TAT) Below (Rush Turnaround Time (TAT) is not available for all tests)

- R ☐ Regular (Standard TAT if received by 3 pm - business days)
- P ☑ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
- E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
- E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge

Specify Date Required for E2,E or P:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P	Dissolved Metals (incl. As, B, and Li)	Number of Containers
	APW-14-1	22-Feb-22	9:30	Water	P		1
	APW-14-2	22-Feb-22	9:45	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 2:1-1	22-Feb-22	10:00	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 2:1-2	22-Feb-22	10:15	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:1-1	22-Feb-22	10:30	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:1-2	22-Feb-22	10:45	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:5-1	22-Feb-22	11:00	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:5-2	22-Feb-22	11:15	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:10-1	22-Feb-22	11:30	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:10-2	22-Feb-22	11:45	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:20-1	22-Feb-22	12:00	Water	P		1
	N-SB-04-(12.0-18.0) :APW-14 1:20-2	22-Feb-22	12:15	Water	P		1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ Yes ☑ No

Are samples for human drinking water use? ☐ Yes ☑ No

Special Instructions / Specify Criteria to add on report (client Use)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.1		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 22 Feb 22	Time: 4:00pm	Received by:	Date:	Time:	Received by: Emma	Date: 24/2/22	Time: 2pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2688199-COFC

COC Number: 16 -

Page 1 of 2

Report To		Report For		Turnaround Time (TAT) Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	SiREM	Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	TAT if received by 3 pm - business days)
Contact:	Rachel Hallman, Michael Healey	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☑ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	130 Research Lane, Suite 2 Guelph, Ontario, Canada, N1G 5G3	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	519-822-2265	Email 1 or Fax	rhallman@siremlab.com	Specify Date Required for E2,E or P:
		Email 2	mhealey@siremlab.com	

Invoice To	Same as Report To ☐ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:	SiREM	Email 1 or Fax	kbroersma@geosyntec.com
Contact:	Karen Broersma, kbroersma@geosyntec.com	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Newton MNA	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	L2688199	ALS Contact:	Sampler: Rachel Hallman

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P	Dissolved Metals (incl. As, B, and Li)	Number of Containers
	APW-04-1	22-Feb-22	9:30	Water	P		1
	APW-04-2	22-Feb-22	9:45	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 2:1-1	22-Feb-22	10:00	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 2:1-2	22-Feb-22	10:15	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:1-1	22-Feb-22	10:30	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:1-2	22-Feb-22	10:45	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:5-1	22-Feb-22	11:00	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:5-2	22-Feb-22	11:15	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:10-1	22-Feb-22	11:30	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:10-2	22-Feb-22	11:45	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:20-1	22-Feb-22	12:00	Water	P		1
	N-SB-05-(60.0-67.1) :APW-04 1:20-2	22-Feb-22	12:15	Water	P		1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☑ No	
Are samples for human drinking water use? ☐ Yes ☑ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☑	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.1		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	22 Feb 22	4:00pm.				Emma	2/24/22	8AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v09 Front104 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WT2201588**	Page	: 1 of 4
Client	: **SiREM**	Laboratory	: Waterloo - Environmental
Contact	: Michael Healey	Account Manager	: Gayle Braun
Address	: 130 Stone Road West Guelph ON Canada N1G 3Z2	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 822 2265	Telephone	: +1 519 886 6910
Project	: Newton	Date Samples Received	: 22-Mar-2022 15:25
PO	: ----	Date Analysis Commenced	: 22-Mar-2022
C-O-C number	: ----	Issue Date	: 29-Mar-2022 10:08
Sampler	: Rachel Hallman		
Site	: ----		
Quote number	: 2022 SOA		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	N-SB-02D (65.0-71.5): APW-05 Unamended-1b	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	N-SB-02S (12.5-20.0):APW-05 Unamended-1b	----
					Client sampling date / time	21-Mar-2022 13:00	21-Mar-2022 13:15	21-Mar-2022 13:30	21-Mar-2022 13:45	----
						WT2201588-001	WT2201588-002	WT2201588-003	WT2201588-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00180 DLHC	0.00153 DLHC	0.00707 DLHC	0.00588 DLHC	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.282 DLHC	0.300 DLHC	0.128 DLHC	0.102 DLHC	----
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	----
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		<0.0000500 DLHC	0.0000578 DLHC	<0.0000500 DLHC	<0.0000500 DLHC	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L		60.5 DLHC	61.3 DLHC	55.7 DLHC	56.7 DLHC	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		0.00163 DLHC	0.00150 DLHC	<0.00100 DLHC	<0.00100 DLHC	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00383 DLHC	0.00426 DLHC	<0.00200 DLHC	<0.00200 DLHC	----
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		30.0 DLHC	30.4 DLHC	31.6 DLHC	32.2 DLHC	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.179 DLHC	0.187 DLHC	0.00214 DLHC	0.00188 DLHC	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.0105 DLHC	0.0109 DLHC	0.0106 DLHC	0.0106 DLHC	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L		1.71 DLHC	1.75 DLHC	1.97 DLHC	2.07 DLHC	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.00137 DLHC	0.00154 DLHC	<0.000500 DLHC	<0.000500 DLHC	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L		6.22 DLHC	6.35 DLHC	6.52 DLHC	6.60 DLHC	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	----
sodium, dissolved	7440-23-5	E421	0.050	mg/L		136 DLHC	139 DLHC	142 DLHC	140 DLHC	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.366 DLHC	0.370 DLHC	0.351 DLHC	0.344 DLHC	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	N-SB-02D (65.0-71.5): APW-05 Unamended-1b	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	N-SB-02S (12.5-20.0):APW-05 Unamended-1b	----
					Client sampling date / time	21-Mar-2022 13:00	21-Mar-2022 13:15	21-Mar-2022 13:30	21-Mar-2022 13:45	----
						WT2201588-001	WT2201588-002	WT2201588-003	WT2201588-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		7.29 DLHC	7.12 DLHC	<5.00 DLHC	6.18 DLHC	----
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000495 DLHC	0.000456 DLHC	0.000515 DLHC	0.000789 DLHC	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	----
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	----
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2201588**	Page	: 1 of 5
Client	: **SiREM**	Laboratory	: Waterloo - Environmental
Contact	: Michael Healey	Account Manager	: Gayle Braun
Address	: 130 Stone Road West Guelph ON Canada N1G 3Z2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 822 2265	Telephone	: +1 519 886 6910
Project	: Newton	Date Samples Received	: 22-Mar-2022 15:25
PO	: ----	Issue Date	: 29-Mar-2022 10:08
C-O-C number	: ----		
Sampler	: Rachel Hallman		
Site	: ----		
Quote number	: 2022 SOA		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
N-SB-02D (65.0-71.5): APW-05 Unamended-1a	E421	21-Mar-2022	22-Mar-2022	----	----		22-Mar-2022	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
N-SB-02D (65.0-71.5): APW-05 Unamended-1b	E421	21-Mar-2022	22-Mar-2022	----	----		22-Mar-2022	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
N-SB-02S (12.5-20.0):APW-05 Unamended-1a	E421	21-Mar-2022	22-Mar-2022	----	----		22-Mar-2022	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
N-SB-02S (12.5-20.0):APW-05 Unamended-1b	E421	21-Mar-2022	22-Mar-2022	----	----		22-Mar-2022	180 days	1 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Metals in Water by CRC ICPMS	E421	439609	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Metals in Water by CRC ICPMS	E421	439609	1	4	25.0	5.0	✓
Method Blanks (MB)							
Dissolved Metals in Water by CRC ICPMS	E421	439609	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Dissolved Metals in Water by CRC ICPMS	E421	439609	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 Waterloo - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 Waterloo - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

QUALITY CONTROL REPORT

Work Order	: **WT2201588**	Page	: 1 of 10
Client	: SiREM	Laboratory	: Waterloo - Environmental
Contact	: Michael Healey	Account Manager	: Gayle Braun
Address	: 130 Stone Road West Guelph ON Canada N1G 3Z2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 822 2265	Telephone	: +1 519 886 6910
Project	: Newton	Date Samples Received	: 22-Mar-2022 15:25
PO	: ----	Date Analysis Commenced	: 22-Mar-2022
C-O-C number	: ----	Issue Date	: 29-Mar-2022 10:08
Sampler	: Rachel Hallman		
Site	: ----		
Quote number	: 2022 SOA		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 439609)											
WT2201588-001	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	aluminum, dissolved	7429-90-5	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00100	mg/L	0.00180	0.00159	0.00021	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00100	mg/L	0.282	0.290	2.63%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.500	mg/L	60.5	61.6	1.75%	20%	----
		cesium, dissolved	7440-46-2	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00100	mg/L	0.00163	0.00162	0.000004	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00200	mg/L	0.00383	0.00387	0.00004	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0500	mg/L	30.0	30.7	2.37%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00100	mg/L	0.179	0.186	4.09%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.000500	mg/L	0.0105	0.0109	3.72%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.500	mg/L	1.71	1.73	0.020	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000500	mg/L	0.00137	0.00155	0.000184	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.500	mg/L	6.22	6.39	2.68%	20%	----
		silver, dissolved	7440-22-4	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		sodium, dissolved	7440-23-5	E421	0.500	mg/L	136	139	2.00%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00200	mg/L	0.366	0.370	1.06%	20%	----
		sulfur, dissolved	7704-34-9	E421	5.00	mg/L	7.29	7.50	0.21	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 439609) - continued											
WT2201588-001	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	thorium, dissolved	7440-29-1	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00300	mg/L	<0.00300	<0.00300	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000100	mg/L	0.000495	0.000493	0.000002	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00300	mg/L	<0.00300	<0.00300	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 439609)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 439609) - continued						
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 439609)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	100	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	102	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	102	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	102	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	97.9	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	101	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	91.8	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	101	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	99.0	80.0	120	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.0025 mg/L	104	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	99.0	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	98.0	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	99.2	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	100	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.0125 mg/L	96.8	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	99.0	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.0125 mg/L	97.9	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	101	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	98.0	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	99.2	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	99.6	80.0	120	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	101	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	102	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	97.8	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	97.3	80.0	120	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	100	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.0125 mg/L	104	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	95.2	80.0	120	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	99.7	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	108	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	103	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.0125 mg/L	99.6	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 439609) - continued									
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	104	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	110	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	101	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	104	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	99.2	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 439609)										
WT2201588-001	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	aluminum, dissolved	7429-90-5	E421	0.977 mg/L	1 mg/L	97.7	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.492 mg/L	0.5 mg/L	98.3	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.496 mg/L	0.5 mg/L	99.3	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0476 mg/L	0.05 mg/L	95.2	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.475 mg/L	0.5 mg/L	95.0	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.444 mg/L	0.5 mg/L	88.8	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.0493 mg/L	0.05 mg/L	98.6	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.0249 mg/L	0.025 mg/L	99.6	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.117 mg/L	0.125 mg/L	93.7	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.117 mg/L	0.125 mg/L	93.5	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.114 mg/L	0.125 mg/L	91.4	70.0	130	----
		iron, dissolved	7439-89-6	E421	0.473 mg/L	0.5 mg/L	94.7	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.247 mg/L	0.25 mg/L	99.0	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.120 mg/L	0.125 mg/L	95.9	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.119 mg/L	0.125 mg/L	95.5	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.229 mg/L	0.25 mg/L	91.8	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	5.27 mg/L	5 mg/L	105	70.0	130	----
		potassium, dissolved	7440-09-7	E421	24.1 mg/L	25 mg/L	96.3	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0480 mg/L	0.05 mg/L	96.0	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.506 mg/L	0.5 mg/L	101	70.0	130	----
		silicon, dissolved	7440-21-3	E421	ND mg/L	5 mg/L	ND	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0453 mg/L	0.05 mg/L	90.6	70.0	130	----
		sodium, dissolved	7440-23-5	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	24.5 mg/L	25 mg/L	98.2	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.0501 mg/L	0.05 mg/L	100	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.492 mg/L	0.5 mg/L	98.3	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0512 mg/L	0.05 mg/L	102	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 439609) - continued										
WT2201588-001	N-SB-02D (65.0-71.5): APW-05 Unamended-1a	tin, dissolved	7440-31-5	E421	0.250 mg/L	0.25 mg/L	100	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.117 mg/L	0.125 mg/L	93.7	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.0491 mg/L	0.05 mg/L	98.3	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00264 mg/L	0.0025 mg/L	105	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.241 mg/L	0.25 mg/L	96.3	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.240 mg/L	0.25 mg/L	96.1	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0474 mg/L	0.05 mg/L	94.7	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	SIREM
Contact:	Rachel Hallman, Michael Healey
Phone:	519 822 2265
	Company address below will appear on the final report
Street:	130 Stone Rd
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	SiREM a Division of Geosyntec
Contact:	Karen Broersma, kbroersma@geosyntec.com

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: rhallman@siremlab.com

Email 2: mhealey@siremlab.com

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: accountspayablecan@siremlab.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	
Job #:	Newton
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2201588

ALS Contact: Gayle

Sampler: Rachel Hallman

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	Dissolved Metals (incl. As, B and Li)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	N-SB-02D (65.0-71.5):APW-05 Unamended-1a	21-Mar-22	13:00	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Unamended-2a	21-Mar-22	13:15	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Unamended-1a	21-Mar-22	13:30	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Unamended-2a	21-Mar-22	13:45	Water	1	R				

Environmental Division
Waterloo
Work Order Reference
WT2201588

Telephone : +1 519 886 6910

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	7.8

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Rachel Hallman	21-Mar-22	14:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
HD	22/03/22	14 15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WT2201892-AA**	Page	: 1 of 8
Amendment	: **1**		
Client	: **SiREM**	Laboratory	: Waterloo - Environmental
Contact	: Rachel Hallman	Account Manager	: Gayle Braun
Address	: 130 Stone Road West Guelph ON Canada N1G 3Z2	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 822 2265	Telephone	: +1 519 886 6910
Project	: Newton	Date Samples Received	: 31-Mar-2022 14:00
PO	: ----	Date Analysis Commenced	: 01-Apr-2022
C-O-C number	: ----	Issue Date	: 27-Jul-2022 10:05
Sampler	: ----		
Site	: ----		
Quote number	: 2022 SOA		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (65.0-71.5) APW-05 UNAMENDED-1	N-SB-02S (65.0-71.5) APW-05 UNAMENDED-2	N-SB-02S (65.0-71.5) APW-05 OXYGEN-1	N-SB-02S (65.0-71.5) APW-05 OXYGEN-2	N-SB-02S (65.0-71.5) APW-05 HYDROGEN-1
					Client sampling date / time	28-Mar-2022 12:00	28-Mar-2022 12:15	28-Mar-2022 12:30	28-Mar-2022 12:45	28-Mar-2022 13:00
						WT2201892-001	WT2201892-002	WT2201892-003	WT2201892-004	WT2201892-005
						Result	Result	Result	Result	Result
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00132 DLHC	<0.00100 DLHC	0.00103 DLHC	<0.00100 DLHC	0.00143 DLHC
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.292 DLHC	0.288 DLHC	0.287 DLHC	0.267 DLHC	0.286 DLHC
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000529 DLHC	0.0000684 DLHC	0.0000594 DLHC	<0.0000500 DLHC	0.0000966 DLHC
calcium, dissolved	7440-70-2	E421	0.050	mg/L		65.0 DLHC	62.3 DLHC	61.2 DLHC	61.0 DLHC	61.6 DLHC
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		0.00240 DLHC	0.00225 DLHC	0.00120 DLHC	0.00141 DLHC	0.00276 DLHC
copper, dissolved	7440-50-8	E421	0.00020	mg/L		<0.00200 DLHC	0.00252 DLHC	0.00346 DLHC	0.00302 DLHC	0.00250 DLHC
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	0.0331 DLHC	<0.0100 DLHC
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		29.0 DLHC	29.3 DLHC	28.3 DLHC	28.6 DLHC	29.3 DLHC
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.422 DLHC	0.393 DLHC	0.313 DLHC	0.329 DLHC	0.474 DLHC
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.0106 DLHC	0.0108 DLHC	0.0113 DLHC	0.0116 DLHC	0.0104 DLHC
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		0.00814 DLHC	0.00720 DLHC	0.00515 DLHC	0.00544 DLHC	0.00872 DLHC
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	<0.500 DLHC
potassium, dissolved	7440-09-7	E421	0.050	mg/L		1.68 DLHC	1.67 DLHC	1.65 DLHC	1.65 DLHC	1.68 DLHC
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000546 DLHC	0.000681 DLHC	0.00118 DLHC	0.00181 DLHC	0.00141 DLHC
silicon, dissolved	7440-21-3	E421	0.050	mg/L		4.95 DLHC	4.74 DLHC	4.56 DLHC	4.54 DLHC	4.88 DLHC
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
sodium, dissolved	7440-23-5	E421	0.050	mg/L		129 DLHC	128 DLHC	127 DLHC	124 DLHC	127 DLHC
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.369 DLHC	0.355 DLHC	0.350 DLHC	0.358 DLHC	0.362 DLHC

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (65.0-71.5) APW-05 UNAMENDED-1	N-SB-02S (65.0-71.5) APW-05 UNAMENDED-2	N-SB-02S (65.0-71.5) APW-05 OXYGEN-1	N-SB-02S (65.0-71.5) APW-05 OXYGEN-2	N-SB-02S (65.0-71.5) APW-05 HYDROGEN-1
					Client sampling date / time	28-Mar-2022 12:00	28-Mar-2022 12:15	28-Mar-2022 12:30	28-Mar-2022 12:45	28-Mar-2022 13:00
						WT2201892-001	WT2201892-002	WT2201892-003	WT2201892-004	WT2201892-005
						Result	Result	Result	Result	Result
Dissolved Metals										
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		7.42 DLHC	7.60 DLHC	6.09 DLHC	7.83 DLHC	7.11 DLHC
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00108 DLHC	0.00108 DLHC	0.00125 DLHC	0.00129 DLHC	0.00110 DLHC
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (65.0-71.5) APW-05 HYDROGEN-2	N-SB-02S (12.5-20.0) APW-05 UNAMENDED-1	N-SB-02S (12.5-20.0) APW-05 UNAMENDED-2	N-SB-02S (12.5-20.0) APW-05 OXYGEN-1	N-SB-02S (12.5-20.0) APW-05 OXYGEN-2
					Client sampling date / time	28-Mar-2022 13:15	28-Mar-2022 13:30	28-Mar-2022 13:45	28-Mar-2022 14:00	28-Mar-2022 14:15
						WT2201892-006	WT2201892-007	WT2201892-008	WT2201892-009	WT2201892-010
						Result	Result	Result	Result	Result
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00168 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.286 DLHC	0.0625 DLHC	0.0514 DLHC	0.0419 DLHC	0.0459 DLHC
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC	<0.000200 DLHC
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000614 DLHC	<0.0000500 DLHC	<0.0000500 DLHC	<0.0000500 DLHC	<0.0000500 DLHC
calcium, dissolved	7440-70-2	E421	0.050	mg/L		66.7 DLHC	66.2 DLHC	101 DLHC	71.2 DLHC	87.4 DLHC
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		0.00274 DLHC	<0.00100 DLHC	0.00105 DLHC	<0.00100 DLHC	<0.00100 DLHC
copper, dissolved	7440-50-8	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC	<0.100 DLHC
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0100 DLHC	0.0159 DLHC	0.0152 DLHC	0.0142 DLHC	0.0162 DLHC
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		29.4 DLHC	39.0 DLHC	43.8 DLHC	39.0 DLHC	41.4 DLHC
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.457 DLHC	0.0968 DLHC	0.158 DLHC	<0.00100 DLHC	<0.00100 DLHC
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.0100 DLHC	0.00833 DLHC	0.00813 DLHC	0.00976 DLHC	0.0104 DLHC
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		0.00814 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	<0.500 DLHC	<0.500 DLHC
potassium, dissolved	7440-09-7	E421	0.050	mg/L		1.66 DLHC	3.18 DLHC	3.20 DLHC	3.08 DLHC	3.16 DLHC
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000635 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC
silicon, dissolved	7440-21-3	E421	0.050	mg/L		4.97 DLHC	6.83 DLHC	6.59 DLHC	6.53 DLHC	6.46 DLHC
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
sodium, dissolved	7440-23-5	E421	0.050	mg/L		129 DLHC	130 DLHC	129 DLHC	132 DLHC	132 DLHC
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.372 DLHC	0.296 DLHC	0.362 DLHC	0.303 DLHC	0.321 DLHC
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		8.50 DLHC	22.9 DLHC	61.0 DLHC	33.8 DLHC	48.1 DLHC

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (65.0-71.5) APW-05 HYDROGEN-2	N-SB-02S (12.5-20.0) APW-05 UNAMENDED-1	N-SB-02S (12.5-20.0) APW-05 UNAMENDED-2	N-SB-02S (12.5-20.0) APW-05 OXYGEN-1	N-SB-02S (12.5-20.0) APW-05 OXYGEN-2
					Client sampling date / time	28-Mar-2022 13:15	28-Mar-2022 13:30	28-Mar-2022 13:45	28-Mar-2022 14:00	28-Mar-2022 14:15
						WT2201892-006	WT2201892-007	WT2201892-008	WT2201892-009	WT2201892-010
						Result	Result	Result	Result	Result
Dissolved Metals										
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC	<0.000100 DLHC
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC	<0.00100 DLHC
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00112 DLHC	0.00439 DLHC	0.00501 DLHC	0.00506 DLHC	0.00431 DLHC
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC	<0.00300 DLHC
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (12.5-20.0) APW-05 HYDROGEN-1	N-SB-02S (12.5-20.0) APW-05 HYDROGEN-2	----	----	----
					Client sampling date / time	28-Mar-2022 14:30	28-Mar-2022 14:45	----	----	----
						WT2201892-011	WT2201892-012	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0114 DLHC	0.0459 DLHC	----	----	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	----	----	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	----	----	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0390 DLHC	0.0349 DLHC	----	----	----
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000200 DLHC	<0.000200 DLHC	----	----	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	----	----	----
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	----	----	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		<0.0000500 DLHC	<0.0000500 DLHC	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L		99.0 DLHC	102 DLHC	----	----	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	----	----	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	----	----	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		0.00189 DLHC	0.00178 DLHC	----	----	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	----	----	----
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.100 DLHC	<0.100 DLHC	----	----	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	----	----	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0162 DLHC	0.0163 DLHC	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		42.6 DLHC	42.2 DLHC	----	----	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.376 DLHC	0.253 DLHC	----	----	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.00737 DLHC	0.00806 DLHC	----	----	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	----	----	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.500 DLHC	<0.500 DLHC	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L		3.10 DLHC	3.18 DLHC	----	----	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	----	----	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLHC	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L		6.80 DLHC	6.72 DLHC	----	----	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	----	----	----
sodium, dissolved	7440-23-5	E421	0.050	mg/L		128 DLHC	125 DLHC	----	----	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.344 DLHC	0.333 DLHC	----	----	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		55.4 DLHC	60.1 DLHC	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	N-SB-02S (12.5-20.0) APW-05 HYDROGEN-1	N-SB-02S (12.5-20.0) APW-05 HYDROGEN-2	----	----	----
					Client sampling date / time	28-Mar-2022 14:30	28-Mar-2022 14:45	----	----	----
						WT2201892-011	WT2201892-012	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00200 DLHC	<0.00200 DLHC	----	----	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000100 DLHC	<0.000100 DLHC	----	----	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	----	----	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	----	----	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	----	----	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00100 DLHC	<0.00100 DLHC	----	----	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00536 DLHC	0.00478 DLHC	----	----	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00500 DLHC	<0.00500 DLHC	----	----	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0100 DLHC	<0.0100 DLHC	----	----	----
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L		<0.00300 DLHC	<0.00300 DLHC	----	----	----
dissolved metals filtration location	----	EP421	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **WT2201892-AA**	Page	: 1 of 10
Amendment	: **1**		
Client	: SiREM	Laboratory	: Waterloo - Environmental
Contact	: Rachel Hallman	Account Manager	: Gayle Braun
Address	: 130 Stone Road West Guelph ON Canada N1G 3Z2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 822 2265	Telephone	: +1 519 886 6910
Project	: Newton	Date Samples Received	: 31-Mar-2022 14:00
PO	: ----	Date Analysis Commenced	: 01-Apr-2022
C-O-C number	: ----	Issue Date	: 27-Jul-2022 10:05
Sampler	: ----		
Site	: ----		
Quote number	: 2022 SOA		
No. of samples received	: 12		
No. of samples analysed	: 12		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 447926)											
WT2201883-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0100	mg/L	0.283	0.268	5.45%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00100	mg/L	0.207	0.205	1.21%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.100	mg/L	0.364	0.368	0.003	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000500	mg/L	0.0200	0.0190	4.86%	20%	----
		calcium, dissolved	7440-70-2	E421	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		cesium, dissolved	7440-46-2	E421	0.000100	mg/L	0.000282	0.000282	0.0000006	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		manganese, dissolved	7439-96-5	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E421	0.00500	mg/L	0.0487	0.0482	0.00053	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		sodium, dissolved	7440-23-5	E421	0.500	mg/L	212	210	0.794%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00200	mg/L	0.00224	0.00208	0.00016	Diff <2x LOR	----
		sulfur, dissolved	7704-34-9	E421	5.00	mg/L	131	126	3.68%	20%	----
		tellurium, dissolved	13494-80-9	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 447926) - continued											
WT2201883-001	Anonymous	tin, dissolved	7440-31-5	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00300	mg/L	<0.00300	<0.00300	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00300	mg/L	<0.00300	<0.00300	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 447926)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 447926) - continued						
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 447926)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	98.4	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	104	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	96.5	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	101	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	87.5	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	103	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	97.5	80.0	120	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.0025 mg/L	100.0	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	96.4	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	95.2	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	95.5	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	96.2	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	101	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.0125 mg/L	98.1	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	95.2	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.0125 mg/L	96.7	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	98.5	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	95.3	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	95.9	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	96.2	80.0	120	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	103	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	95.4	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	90.2	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	88.0	80.0	120	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	94.3	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.0125 mg/L	100	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	91.0	80.0	120	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	95.9	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	103	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	97.8	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.0125 mg/L	95.6	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 447926) - continued									
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	99.6	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	108	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	98.4	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	98.1	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	92.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 447926)										
WT2201883-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.918 mg/L	1 mg/L	91.8	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.506 mg/L	0.5 mg/L	101	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.488 mg/L	0.5 mg/L	97.7	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0465 mg/L	0.05 mg/L	93.0	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.483 mg/L	0.5 mg/L	96.6	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.416 mg/L	0.5 mg/L	83.2	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.0474 mg/L	0.05 mg/L	94.8	70.0	130	----
		calcium, dissolved	7440-70-2	E421	23.4 mg/L	25 mg/L	93.6	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.0249 mg/L	0.025 mg/L	99.5	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.114 mg/L	0.125 mg/L	91.3	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.114 mg/L	0.125 mg/L	91.1	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.116 mg/L	0.125 mg/L	92.8	70.0	130	----
		iron, dissolved	7439-89-6	E421	0.454 mg/L	0.5 mg/L	90.8	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.246 mg/L	0.25 mg/L	98.4	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.121 mg/L	0.125 mg/L	96.8	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	23.0 mg/L	25 mg/L	92.0	70.0	130	----
		manganese, dissolved	7439-96-5	E421	0.117 mg/L	0.125 mg/L	93.5	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.126 mg/L	0.125 mg/L	101	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.228 mg/L	0.25 mg/L	91.0	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	4.70 mg/L	5 mg/L	94.1	70.0	130	----
		potassium, dissolved	7440-09-7	E421	22.6 mg/L	25 mg/L	90.2	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0485 mg/L	0.05 mg/L	97.0	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.450 mg/L	0.5 mg/L	90.1	70.0	130	----
		silicon, dissolved	7440-21-3	E421	4.30 mg/L	5 mg/L	86.0	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0432 mg/L	0.05 mg/L	86.4	70.0	130	----
		sodium, dissolved	7440-23-5	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	0.125 mg/L	0.125 mg/L	99.7	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.0476 mg/L	0.05 mg/L	95.2	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.486 mg/L	0.5 mg/L	97.2	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0495 mg/L	0.05 mg/L	99.0	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.247 mg/L	0.25 mg/L	98.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 447926) - continued										
WT2201883-001	Anonymous	titanium, dissolved	7440-32-6	E421	0.114 mg/L	0.125 mg/L	90.9	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.0481 mg/L	0.05 mg/L	96.2	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00254 mg/L	0.0025 mg/L	102	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.238 mg/L	0.25 mg/L	95.4	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.237 mg/L	0.25 mg/L	94.7	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0479 mg/L	0.05 mg/L	95.9	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

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Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	SIREM
Contact:	Rachel Hallman, Michael Healey
Phone:	519 822 2265
	Company address below will appear on the final report
Street:	130 Stone Rd
City/Province:	Guelph, ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	SiREM a Division of Geosyntec
Contact:	Karen Broersma, kbroersma@geosyntec.com

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: rhallman@siremlab.com

Email 2: mhealey@siremlab.com

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: accountspayablecan@siremlab.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:

Job #: Newton

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): MLP

ALS Contact: Gayle Sampler: Rachel Hallman

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	Dissolved Metals (incl. As, B and Li)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	N-SB-02D (65.0-71.5):APW-05 Unamended-1	28-Mar-22	12:00	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Unamended-2	28-Mar-22	12:15	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Oxygen-1	28-Mar-22	12:30	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Oxygen-2	28-Mar-22	12:45	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Hydrogen-1	28-Mar-22	13:00	Water	1	R				
	N-SB-02D (65.0-71.5):APW-05 Hydrogen-2	28-Mar-22	13:15	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Unamended-1	28-Mar-22	13:30	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Unamended-2	28-Mar-22	13:45	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Oxygen-1	28-Mar-22	14:00	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Oxygen-2	28-Mar-22	14:15	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Hydrogen-1	28-Mar-22	14:30	Water	1	R				
	N-SB-02S (12.5-20.0):APW-05 Hydrogen-2	28-Mar-22	14:45	Water	1	R				

Environmental Division
Waterloo
Work Order Reference
WT2201892

Telephone : +1 519 886 6910

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO

Are samples for human consumption/ use?
☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				0.1			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	28-Mar-22	15:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

APPENDIX C:
SGS Geologic Material Total Metals and TOC Laboratory Report

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

15-October-2021

SiREM Laboratory
Attn : Michael Healey

130 Stone Road W
Guelph, ON
N1G 3Z2, Canada

Phone: 519-822-2265
Fax:519-822-3151

Date Rec. : 23 September 2021
LR Report: **CA13849-SEP21**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: N-SB-05 (18.0-20.0)	6: N-SB-05 (60.0-67.1)	7: N-SB-18 (77.5-80.0)	8: N-SB-02 (12.5-20.0)
Sample Date & Time					21-Sep-21 14:15	21-Sep-21 14:45	21-Sep-21 15:15	21-Sep-21 16:00
Ag [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	< 0.5	< 0.5	< 0.5	< 0.5
Al [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	7300	6400	22000	46000
As [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	5.0	3.3	14	8.4
Ba [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	24	33	170	300
Be [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	0.30	0.33	0.54	1
Bi [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	< 0.09	< 0.09	< 0.09	0.13
Ca [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	49000	73000	100000	55000
Cd [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	0.09	0.18	0.26	0.19
Co [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	6	6	7	10
Cr [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	11	10	18	50
Cu [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	11	16	12	18
Fe [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	12000	20000	20000	23000
K [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	1500	1400	11000	17000
Li [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	10	8.0	9.3	29
Mg [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	18000	14000	37000	24000
Mn [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	370	480	820	540
Mo [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	1.0	0.5	1.8	2.0
Na [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	150	170	4900	6600
Ni [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	15	15	16	28
P [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	290	380	320	330
Pb [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	6	8	11	13
Sb [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	< 0.8	< 0.8	< 0.8	< 0.8
Se [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	< 0.7	< 0.7	< 0.7	< 0.7
Sn [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	< 6	< 6	< 6	< 6
Sr [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	50	94	130	130
Ti [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	210	190	660	2900
Tl [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	0.09	0.08	0.20	0.39
U [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	0.57	0.64	1.23	1.75
V [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	18	20	26	59
Y [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	7.6	9.5	11	17
Zn [µg/g]	29-Sep-21	13:16	01-Oct-21	12:51	36	47	49	60
TOC [%]	30-Sep-21	19:22	01-Oct-21	09:42	0.176	0.091	0.307	0.242
SO4 [%]	29-Sep-21	07:47	30-Sep-21	08:25	< 0.1	< 0.1	< 0.1	< 0.1

OnLine LIMS

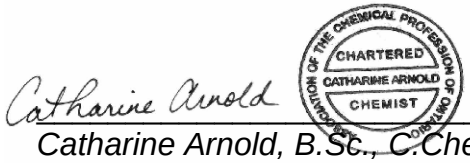
0002677973

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA13849-SEP21**

Analysis	9: N-SB-02 (65.0-71.5)	10: N-SB-14	N-SB-04 (12.0-18.0)	11:	12: N-SB-04	13: N-SB-XPW04 (10.0-15.0)	14: N-SB-XPW01 (10.0-12.7)
Sample Date & Time	21-Sep-21 17:00	22-Sep-21 09:30	22-Sep-21 10:30		22-Sep-21 11:00	22-Sep-21 13:30	22-Sep-21 14:30
Ag [µg/g]	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5
Al [µg/g]	20000	45000	55000		37000	84000	41000
As [µg/g]	5.1	6.9	13		11	17	8.1
Ba [µg/g]	200	290	350		290	4300	470
Be [µg/g]	0.48	1	1		0.89	3	1
Bi [µg/g]	< 0.09	0.13	0.16		< 0.09	0.79	0.18
Ca [µg/g]	81000	64000	56000		59000	140000	4400
Cd [µg/g]	0.19	0.18	0.21		0.19	1	0.13
Co [µg/g]	5	11	16		9	25	10
Cr [µg/g]	19	49	34		20	76	30
Cu [µg/g]	8.5	20	24		18	170	15
Fe [µg/g]	18000	29000	39000		25000	37000	22000
K [µg/g]	11000	15000	17000		13000	4200	14000
Li [µg/g]	8.5	25	32		15	37	17
Mg [µg/g]	30000	18000	14000		16000	24000	2600
Mn [µg/g]	630	650	740		670	210	780
Mo [µg/g]	1.2	3.1	3.0		2.8	10	3.8
Na [µg/g]	5000	8400	7800		9700	14000	14000
Ni [µg/g]	12	27	41		20	66	18
P [µg/g]	220	520	490		460	4000	350
Pb [µg/g]	9	13	15		12	32	19
Sb [µg/g]	< 0.8	< 0.8	< 0.8		< 0.8	1.6	< 0.8
Se [µg/g]	< 0.7	< 0.7	< 0.7		< 0.7	4.9	0.9
Sn [µg/g]	< 6	< 6	< 6		< 6	< 6	< 6
Sr [µg/g]	130	180	160		190	2700	120
Ti [µg/g]	1000	2900	3000		2300	8300	3400
Tl [µg/g]	0.18	0.36	0.46		0.30	0.63	0.47
U [µg/g]	0.87	1.91	1.93		1.40	6.81	2.23
V [µg/g]	22	57	72		43	170	60
Y [µg/g]	9.4	18	23		16	46	15
Zn [µg/g]	29	65	80		59	128	44
TOC [%]	0.445	0.450	< 0.025		0.248	0.960	0.692
SO4 [%]	< 0.1	< 0.1	< 0.1		< 0.1	1.6	0.6



Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002677973

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SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO 800003210A - Newton MNA

21-December-2021

SiREM Laboratory
Attn : Michael Healey

130 Stone Road W, Guelph
Canada, N1G 3Z2
Phone: 519-822-2265, Fax:519-822-3151

Date Rec. : 16 November 2021
LR Report: **CA14795-NOV21**
Reference: PO 800003210A - Newton MNA

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Sample ID	Sample Date & Time	B g/t
5: N-SB-05 (18.0-20.0)	21-Sep-21 14:15	< 40
6: N-SB-05 (60.0-67.1)	21-Sep-21 14:45	< 40
7: N-SB-18 (77.5-80.0)	21-Sep-21 15:15	< 40
8: N-SB-02 (12.5-20.0)	21-Sep-21 16:00	< 40
9: N-SB-02 (65.0-71.5)	21-Sep-21 17:00	< 40
10: N-SB-14	22-Sep-21 09:30	< 40
11: N-SB-04 (12.0-18.0)	22-Sep-21 10:30	< 40
12: N-SB-04	22-Sep-21 11:00	< 40
14: N-SB-XPW01 (10.0-12.7)	22-Sep-21 14:30	< 40

Catharine Arnold

Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002751350

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

APPENDIX D:
SGS Geologic Material CEC Laboratory Report

Analysis Report
GS21-04224

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received : 28-Sep-2021
Completed : 06-Oct-2021
Order Reference : Catharine/Lisa - CA13853-SEP21 Soil CEC

Laboratory ID:	GS21-04224.001	GS21-04224.002	GS21-04224.003	GS21-04224.004
Client Sample #:	N-SB-05 18.0-20.0	N-SB-05 60.0-67.1	N-SB-18 77.5-80.0	N-SB-02 12.5-20.0
Description:	CA13853-SEP21 Soil			
CEC Actual (meq/100g)	9.45	4.37	2.34	12.83

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Report File Reference Number: 0000192983

Signed and dated in Guelph, ON
On 06-Oct-2021

For and on behalf of SGS Canada Inc., Agriculture and Food

Tim Wright
Soil Lab Manager

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Analysis Report
GS21-04224

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received : 28-Sep-2021
Completed : 06-Oct-2021
Order Reference : Catharine/Lisa - CA13853-SEP21 Soil CEC

Laboratory ID:	GS21-04224.005	GS21-04224.006	GS21-04224.007	GS21-04224.008
Client Sample #:	N-SB-02 65.0-71.5	N-SB-14	N-SB-04 12.0-18.0	N-SB-04
Description:				
CEC Actual (meq/100g)	1.57	12.43	22.81	5.70

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Report File Reference Number: 0000192983

Signed and dated in Guelph, ON
On 06-Oct-2021

For and on behalf of SGS Canada Inc., Agriculture and Food

Tim Wright
Soil Lab Manager

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Analysis Report
GS21-04224

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received : 28-Sep-2021
Completed : 06-Oct-2021
Order Reference : Catharine/Lisa - CA13853-SEP21 Soil CEC

Laboratory ID:	GS21-04224.009	GS21-04224.010
Client Sample #:	N-SB-XPW04 10.0-15.0	N-SB-XPW01 10.0-12.7
Description:		
CEC Actual (meq/100g)	20.99	22.27

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Report File Reference Number: 0000192983

Signed and dated in Guelph, ON
On 06-Oct-2021

For and on behalf of SGS Canada Inc., Agriculture and Food

Tim Wright
Soil Lab Manager

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APPENDIX E:
SGS Geologic Material XRD and LOI Laboratory Report

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom XRD/MI4503-OCT21*
Sample Receipt:	*October 4, 2021*
Sample Analysis:	*October 8, 2021*
Reporting Date:	*November 2, 2021*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 35 kV, 40 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
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:

1) Method Summary
2) Quantitative XRD Results
3) XRD Pattern(s)

Kim Gibbs, H.B.Sc., P.Geo.
Senior Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

ACCREDITATION: SGS Minerals Services Lakefield is accredited to the requirements of ISO/IEC 17025 for specific tests as listed on our scope of accreditation, including geochemical, mineralogical and trade mineral tests. To view a list of the accredited methods, please visit the following website and search SGS Canada - Minerals Services - Lakefield: http://palcan.scc.ca/SpecsSearch/GLSearchForm.do.

Method Summary

The Rietveld Method of Mineral Identification by XRD (ME-LR-MIN-MET-MN-D05) method used by SGS Minerals Services is accredited to the requirements of ISO/IEC 17025.

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.

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WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

Mineral/Compound	N-SB-05 (18.0-20.0) OCT4503-01 (wt %)	N-SB-05 (60.0-67.1) OCT4503-02 (wt %)	N-SB-18 (77.5-80.0) OCT4503-03 (wt %)	N-SB-02 (12.5-20.0) OCT4503-04 (wt %)	N-SB-02 (65.0-71.5) OCT4503-05 (wt %)	N-SB-14 OCT4503-06 (wt %)	N-SB-04 (12.0-18.0) OCT4503-07 (wt %)	N-SB-04 OCT4503-08 (wt %)	N-SB-XPW04 (10.0-15.0) OCT4503-09 (wt %)	N-SB-XPW01 (10.0-12.7) OCT4503-10 (wt %)
Quartz	46.0	41.3	32.7	48.9	47.6	48.0	47.3	51.7	22.6	68.7
Albite	8.2	8.8	4.1	8.4	5.2	13.6	9.1	12.7	14.5	10.0
Calcite	20.7	12.9	13.3	3.6	4.9	9.3	11.1	9.7	13.2	0.1
Dolomite	9.5	18.5	27.3	12.7	26.1	6.8	5.0	6.0	-	0.1
Ankerite	3.3	2.3	8.3	2.2	2.6	2.6	4.1	4.4	-	0.0
Microcline	4.5	4.5	4.2	7.6	5.1	6.2	5.4	4.2	-	8.8
Muscovite	5.0	1.6	1.2	8.7	1.0	5.5	10.5	3.1	-	8.5
Diopside	0.9	2.9	2.0	1.7	1.5	2.5	1.0	1.4	15.2	1.4
Biotite	1.8	1.8	0.8	3.5	1.5	1.8	2.4	2.1	-	2.5
Actinolite	-	2.9	2.1	-	-	-	-	2.3	-	-
Chlorite	-	2.6	1.9	2.8	2.7	3.8	4.2	2.3	-	-
Fluorapatite	-	-	2.0	-	1.8	-	-	-	-	-
Perovskite	-	-	-	-	-	-	-	-	8.7	-
Periclase	-	-	-	-	-	-	-	-	1.6	-
Hematite	-	-	-	-	-	-	-	-	3.4	-
Magnetite	-	-	-	-	-	-	-	-	0.1	-
Gehlenite	-	-	-	-	-	-	-	-	13.9	-
Mullite	-	-	-	-	-	-	-	-	3.7	-
Ganophyllite	-	-	-	-	-	-	-	-	3.1	-
TOTAL	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.

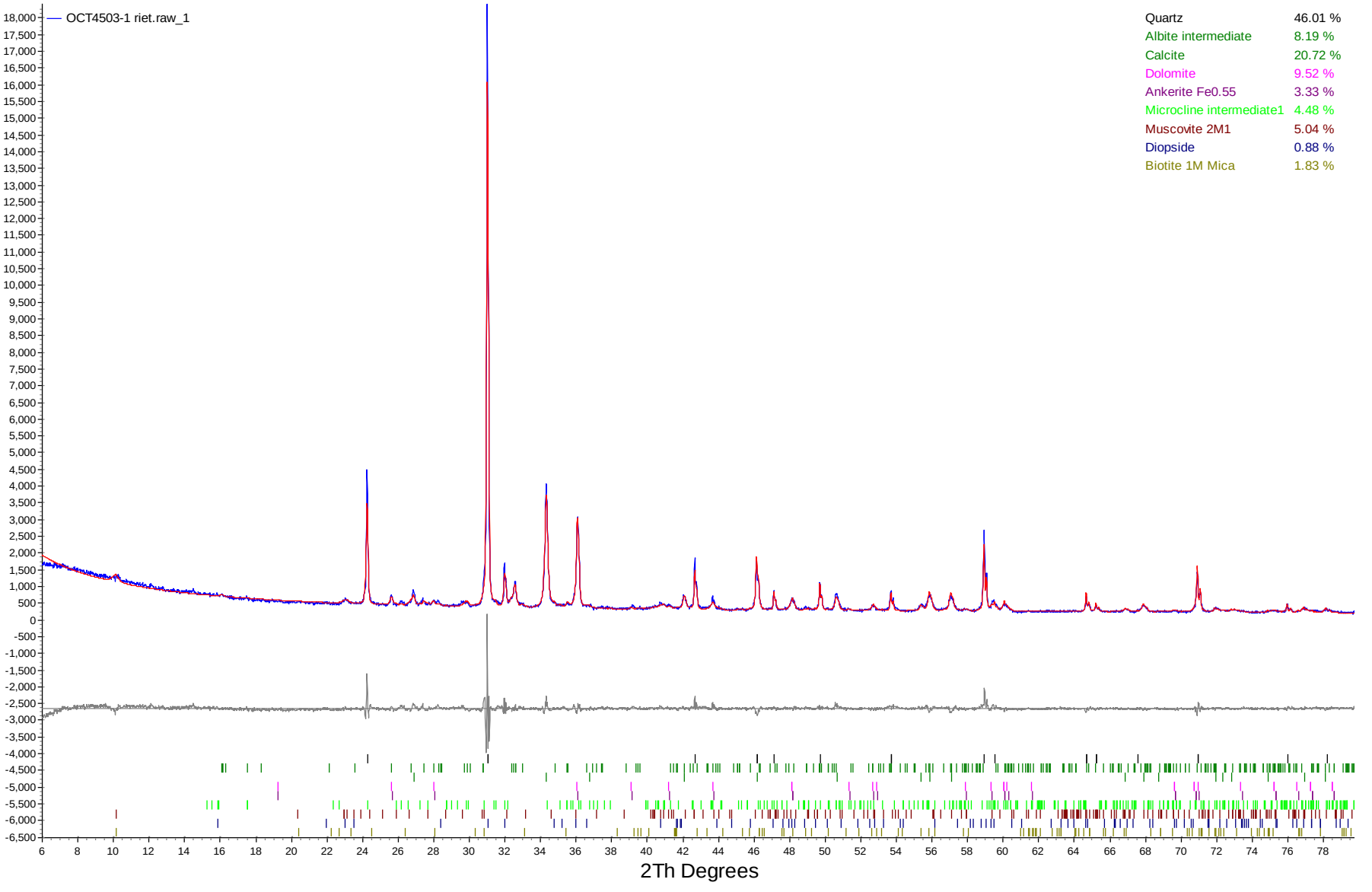
Dashes indicate that the mineral was not identified by the analyst and not included in the refinement calculation for the sample.

The weight percent quantities indicated have been normalized to a sum of 100%. The quantity of amorphous material has not been determined.

Mineral List

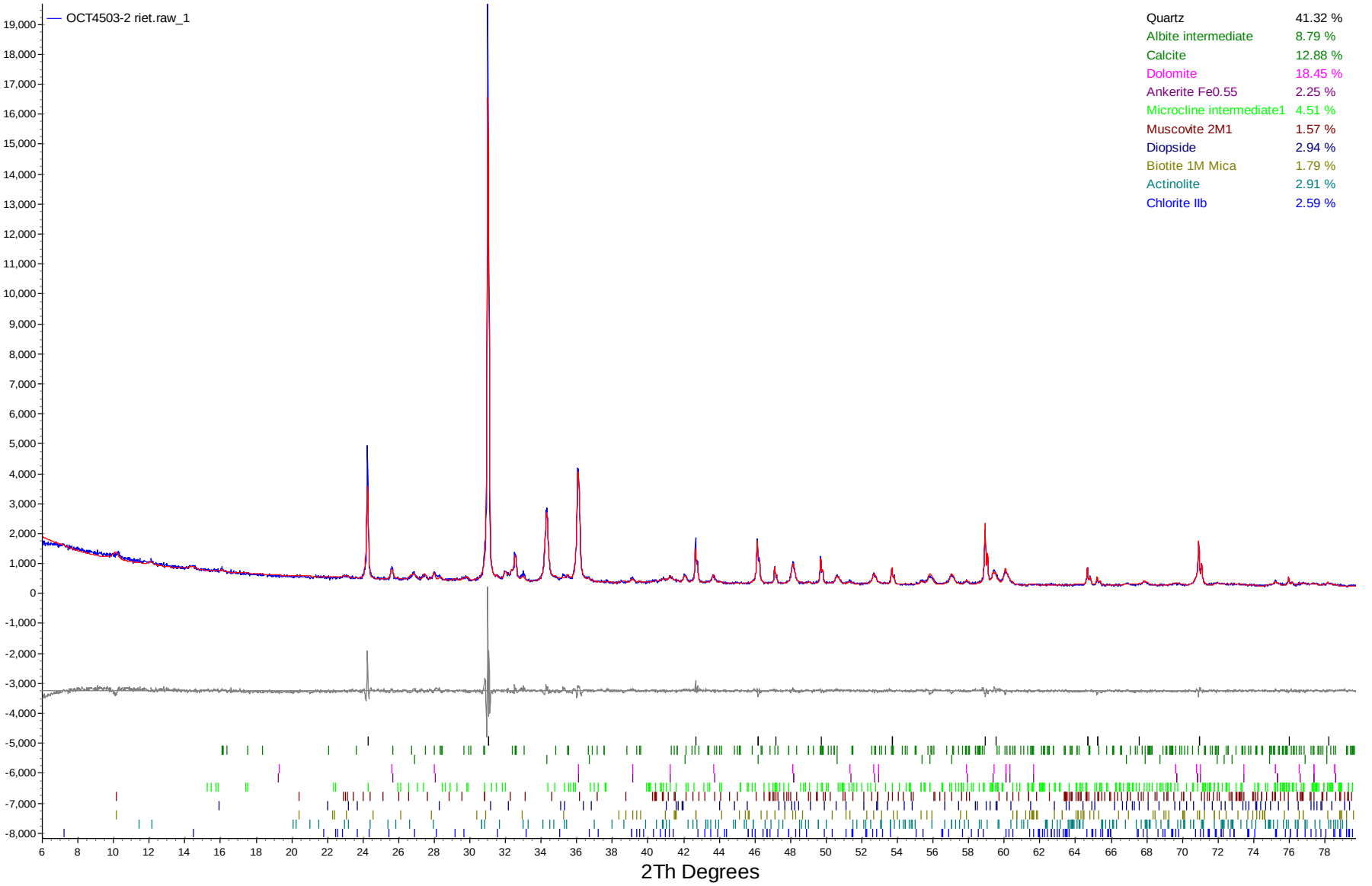
Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Calcite	$CaCO_3$
Dolomite	$CaMg(CO_3)_2$
Ankerite	$CaFe(CO_3)_2$
Microcline	$KAlSi_3O_8$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Diopside	$CaMgSi_2O_6$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Fluorapatite	$Ca_5(PO_4)_3F$
Perovskite	$CaTiO_3$
Periclase	MgO
Hematite	Fe2O3
Magnetite	Fe_3O_4
Gehlenite	$Ca_2(Mg_{0.25}Al_{0.75})(Si_{1.25}Al_{0.75}O_7)$
Mullite	$\sim Al_6Si_3O_{15}$
Ganophyllite	$K_{2.16}Mn_{16}Si_{26.9}O_{67.8}(OH)_8$

N-SB-05 (18.0-20.0)



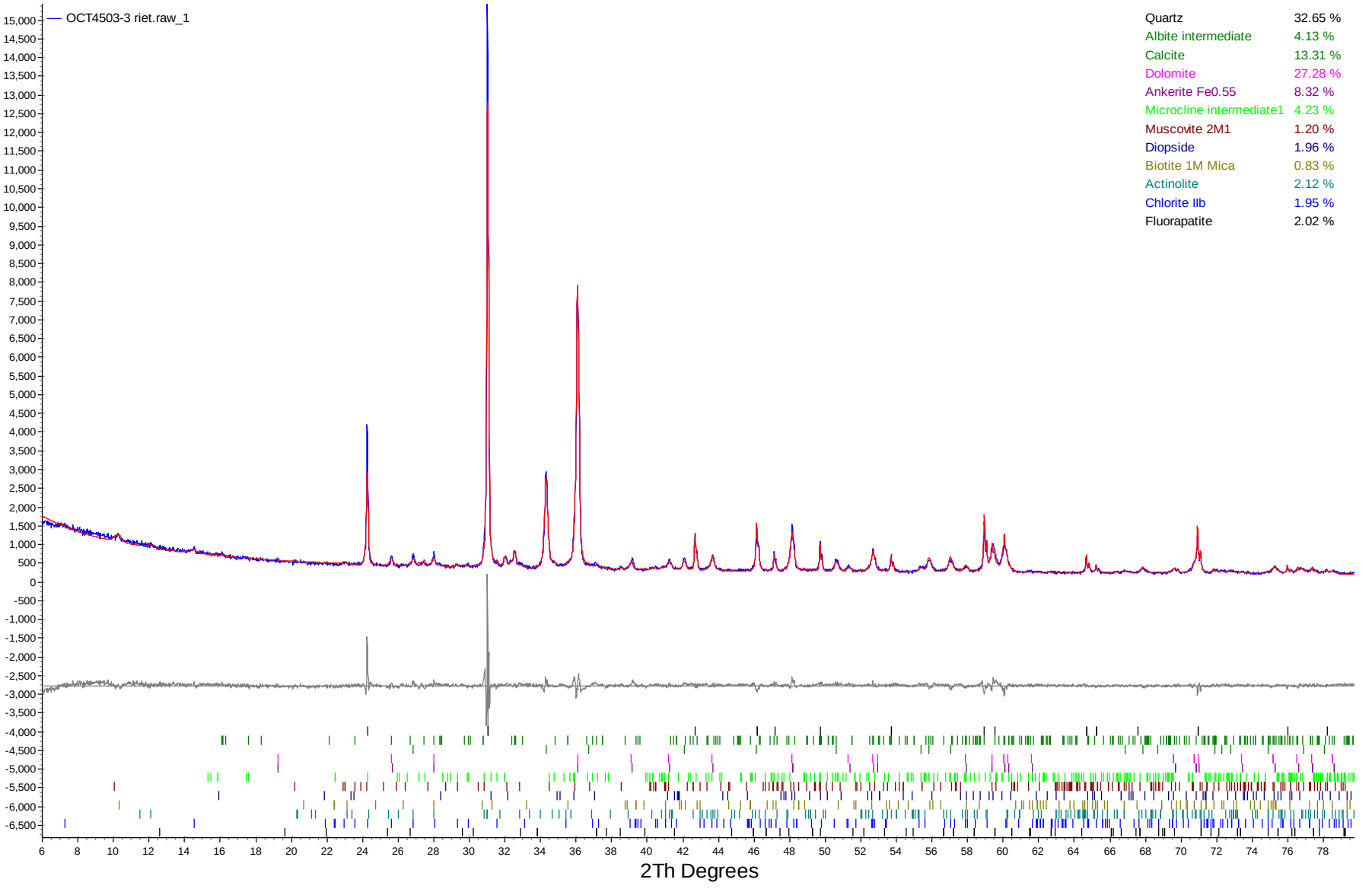
Quartz	46.01 %
Albite intermediate	8.19 %
Calcite	20.72 %
Dolomite	9.52 %
Ankerite Fe0.55	3.33 %
Microcline intermediate1	4.48 %
Muscovite 2M1	5.04 %
Diopside	0.88 %
Biotite 1M Mica	1.83 %

N-SB-05 (60.0-67.1)



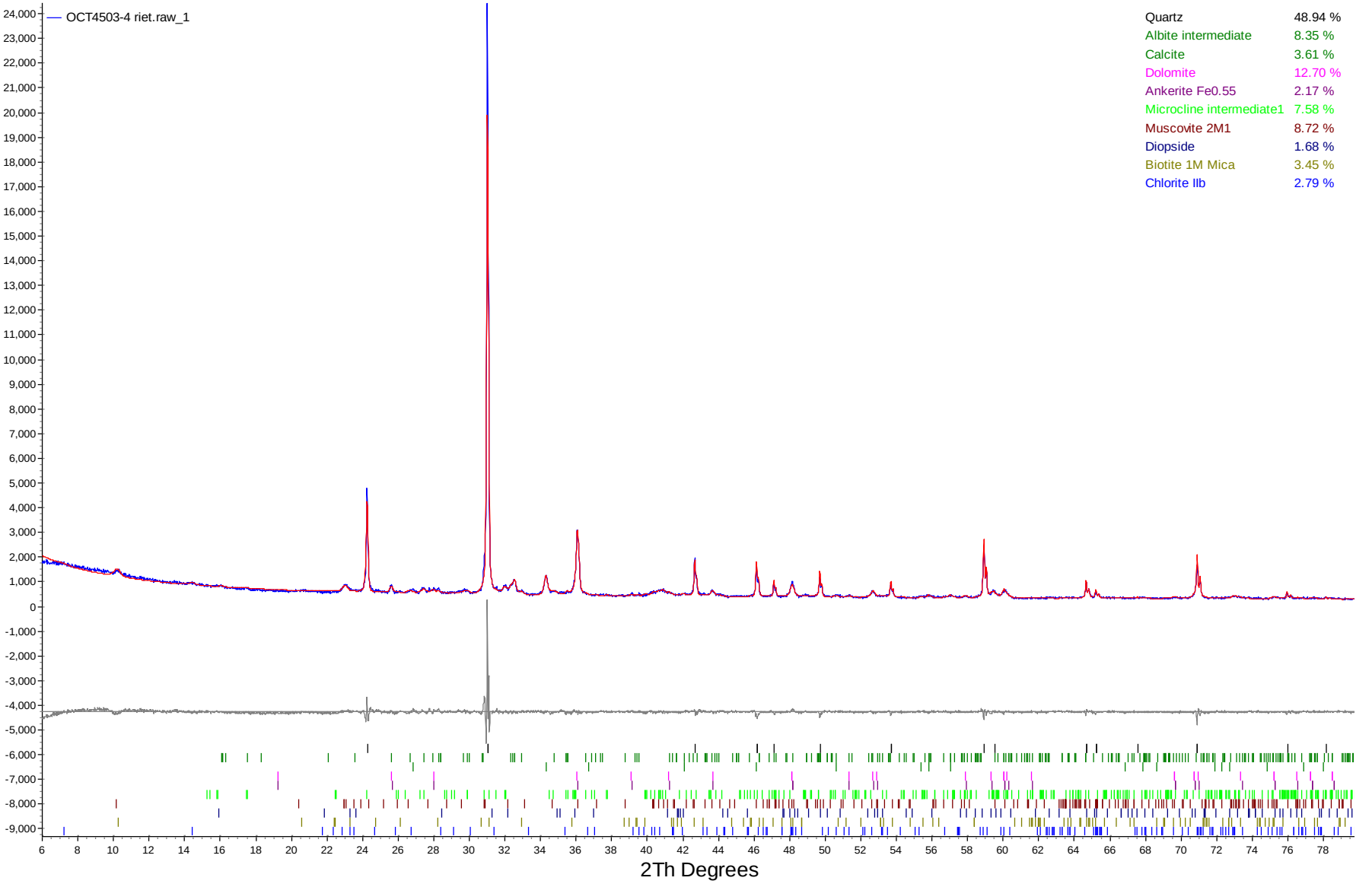
Quartz	41.32 %
Albite intermediate	8.79 %
Calcite	12.88 %
Dolomite	18.45 %
Ankerite Fe0.55	2.25 %
Microcline intermediate1	4.51 %
Muscovite 2M1	1.57 %
Diopside	2.94 %
Biotite 1M Mica	1.79 %
Actinolite	2.91 %
Chlorite IIb	2.59 %

N-SB-18 (77.5-80.0)



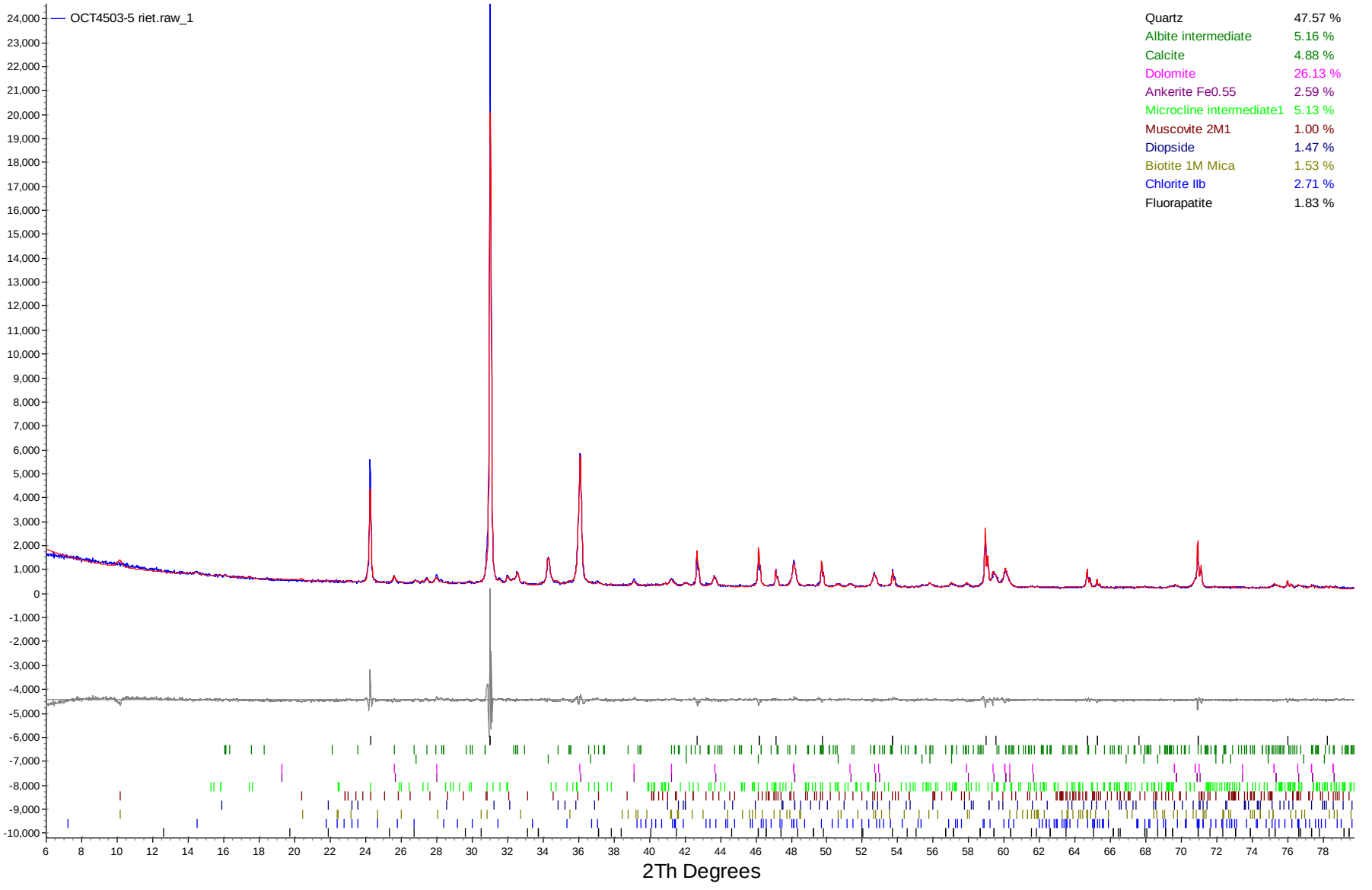
Quartz	32.65 %
Albite intermediate	4.13 %
Calcite	13.31 %
Dolomite	27.28 %
Ankerite Fe0.55	8.32 %
Microcline intermediate1	4.23 %
Muscovite 2M1	1.20 %
Diopside	1.96 %
Biotite 1M Mica	0.83 %
Actinolite	2.12 %
Chlorite IIb	1.95 %
Fluorapatite	2.02 %

N-SB-02 (12.5-20.0)



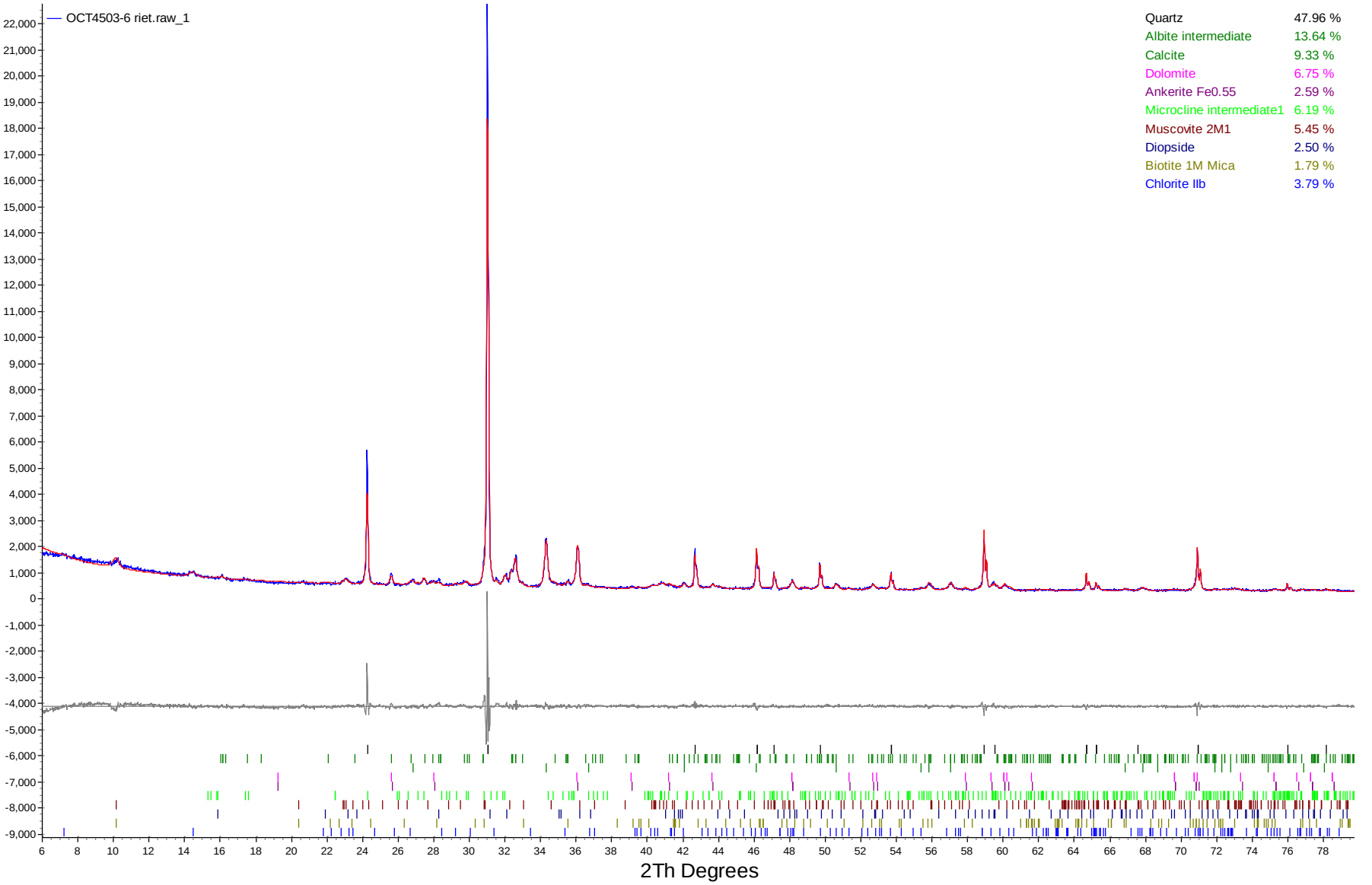
Quartz	48.94 %
Albite intermediate	8.35 %
Calcite	3.61 %
Dolomite	12.70 %
Ankerite Fe0.55	2.17 %
Microcline intermediate1	7.58 %
Muscovite 2M1	8.72 %
Diopside	1.68 %
Biotite 1M Mica	3.45 %
Chlorite IIb	2.79 %

N-SB-02 (65.0-71.5)



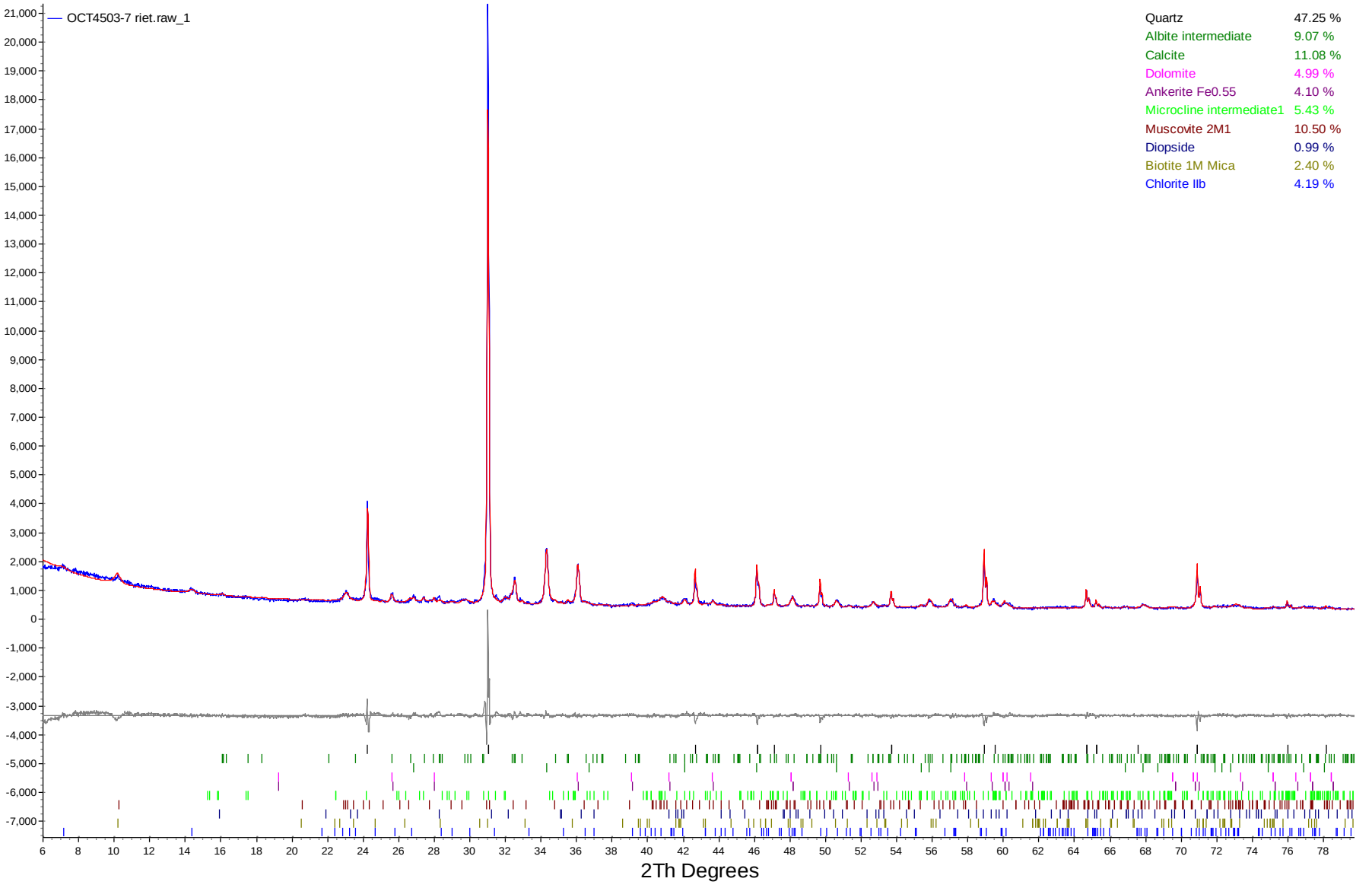
Quartz	47.57 %
Albite intermediate	5.16 %
Calcite	4.88 %
Dolomite	26.13 %
Ankerite Fe0.55	2.59 %
Microcline intermediate1	5.13 %
Muscovite 2M1	1.00 %
Diopside	1.47 %
Biotite 1M Mica	1.53 %
Chlorite IIb	2.71 %
Fluorapatite	1.83 %

N-SB-14



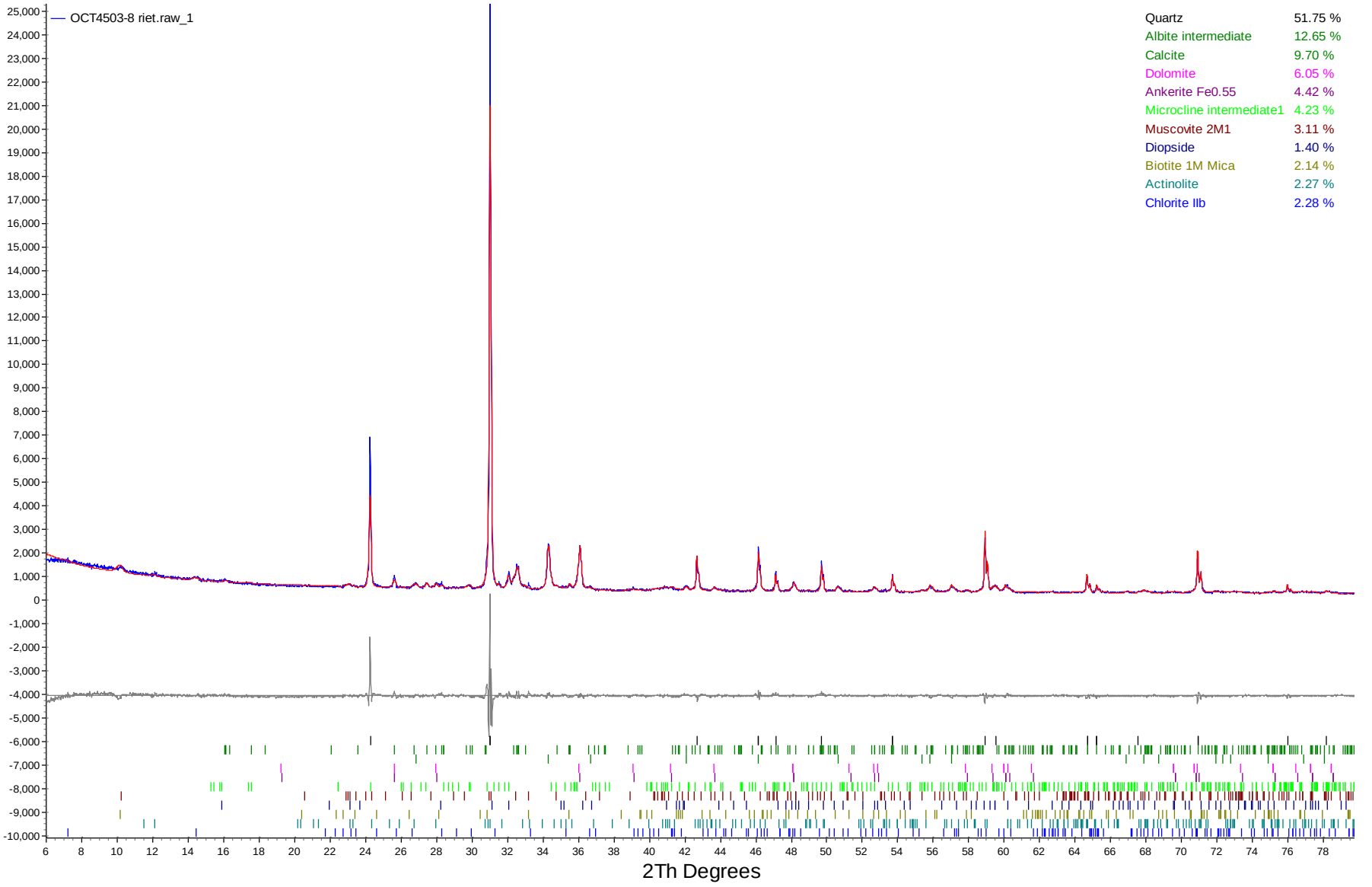
Quartz	47.96 %
Albite intermediate	13.64 %
Calcite	9.33 %
Dolomite	6.75 %
Ankerite Fe0.55	2.59 %
Microcline intermediate1	6.19 %
Muscovite 2M1	5.45 %
Diopside	2.50 %
Biotite 1M Mica	1.79 %
Chlorite IIb	3.79 %

N-SB-04 (12.0-18.0)



Quartz	47.25 %
Albite intermediate	9.07 %
Calcite	11.08 %
Dolomite	4.99 %
Ankerite Fe0.55	4.10 %
Microcline intermediate1	5.43 %
Muscovite 2M1	10.50 %
Diopside	0.99 %
Biotite 1M Mica	2.40 %
Chlorite IIb	4.19 %

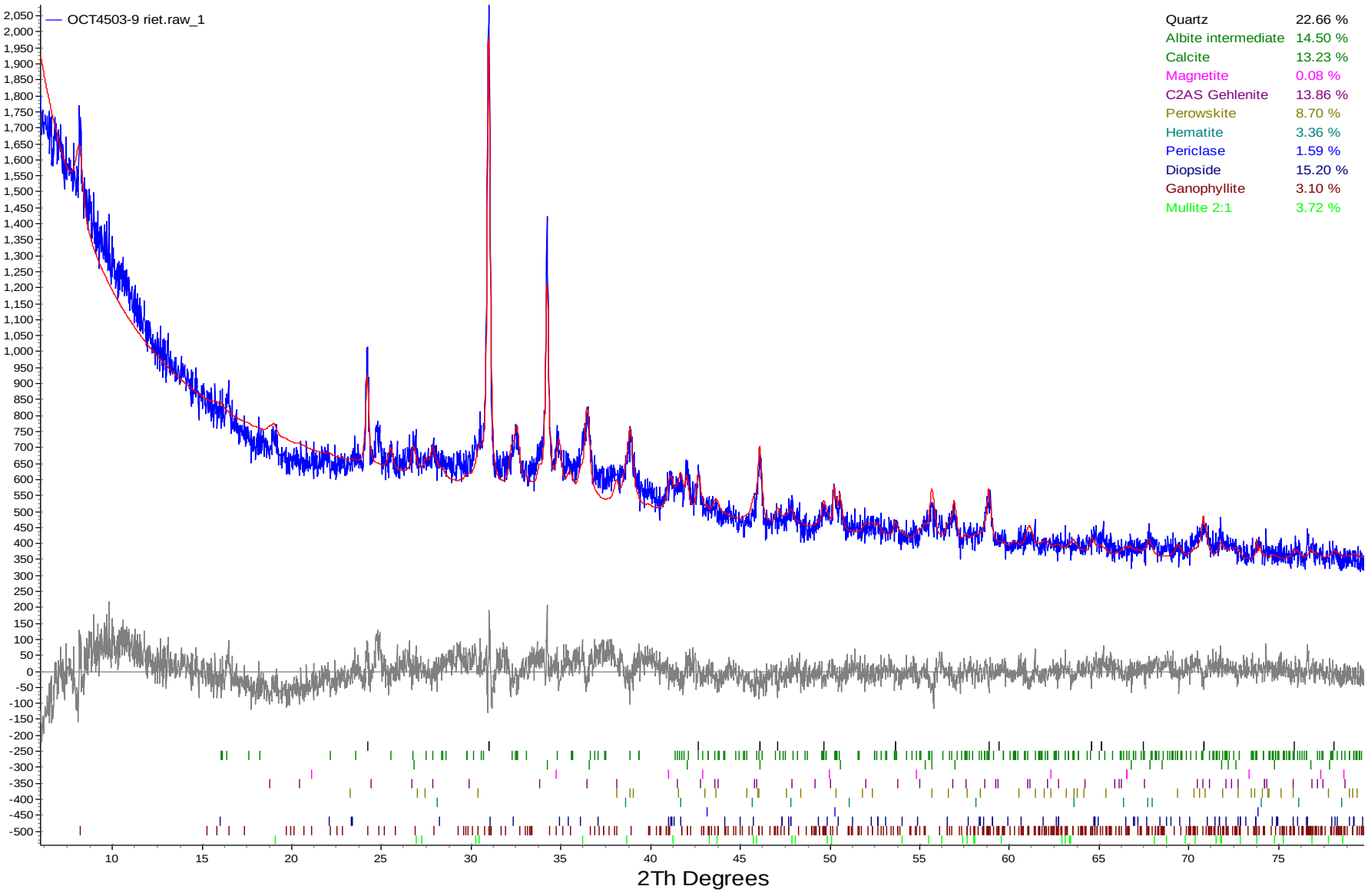
N-SB-04



Quartz	51.75 %
Albite intermediate	12.65 %
Calcite	9.70 %
Dolomite	6.05 %
Ankerite Fe0.55	4.42 %
Microcline intermediate1	4.23 %
Muscovite 2M1	3.11 %
Diopside	1.40 %
Biotite 1M Mica	2.14 %
Actinolite	2.27 %
Chlorite IIb	2.28 %

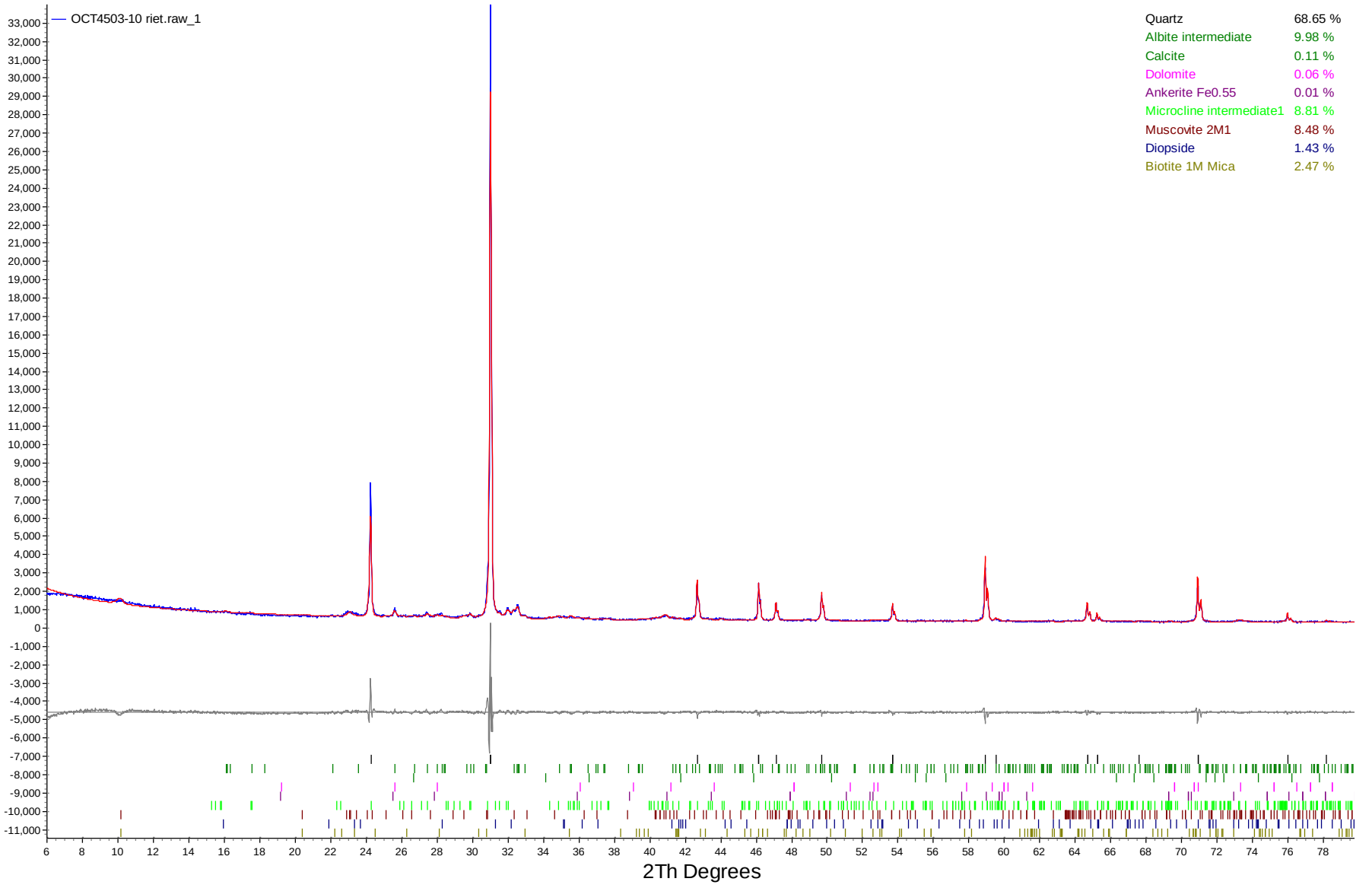
Environmental Services
Custom XRD/MI4503-OCT21
11/02/2021

N-SB-XPW04 (10.0-15.0)



Quartz	22.66 %
Albite intermediate	14.50 %
Calcite	13.23 %
Magnetite	0.08 %
C2AS Gehlenite	13.86 %
Perowskite	8.70 %
Hematite	3.36 %
Periclase	1.59 %
Diopside	15.20 %
Ganophyllite	3.10 %
Mullite 2:1	3.72 %

N-SB-XPW01 (10.0-12.7)



Quartz	68.65 %
Albite intermediate	9.98 %
Calcite	0.11 %
Dolomite	0.06 %
Ankerite Fe0.55	0.01 %
Microcline intermediate1	8.81 %
Muscovite 2M1	8.48 %
Diopside	1.43 %
Biotite 1M Mica	2.47 %

APPENDIX F:
ALS Geologic Material SPLP Laboratory Report

SIREM
ATTN: MICHAEL HEALEY
130 Stone Road West
Guelph ON N1G 3Z2

Date Received: 03-MAR-22
Report Date: 11-MAR-22 08:03 (MT)
Version: FINAL REV. 2

Client Phone: 519-822-2265

Certificate of Analysis

Lab Work Order #: L2690024

Project P.O. #: NOT SUBMITTED
Job Reference: NEWTON MNA
C of C Numbers:
Legal Site Desc:

Comments:

11-MAR-2022 No changes

Gayle Braun
Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2690024-1 N-SB-XPW01 (10.0-12.7) Sampled By: CLIENT on 01-MAR-22 @ 16:00 Matrix: SOIL							
Sample Preparation							
Initial pH	10.03		0.10	pH units		05-MAR-22	R5733977
Final pH	9.64		0.10	pH units		05-MAR-22	R5733977
SPLP Metals							
Antimony (Sb)	<5.0		5.0	ug/L		07-MAR-22	R5734784
Arsenic (As)	34.9		5.0	ug/L		07-MAR-22	R5734784
Barium (Ba)	260		100	ug/L		07-MAR-22	R5734784
Beryllium (Be)	2.4		2.0	ug/L		07-MAR-22	R5734784
Boron (B)	810		500	ug/L		07-MAR-22	R5734784
Cadmium (Cd)	0.35		0.10	ug/L		07-MAR-22	R5734784
Chromium (Cr)	39.2		5.0	ug/L		07-MAR-22	R5734784
Cobalt (Co)	11.0		2.0	ug/L		07-MAR-22	R5734784
Copper (Cu)	54		10	ug/L		07-MAR-22	R5734784
Lead (Pb)	45.8		2.0	ug/L		07-MAR-22	R5734784
Molybdenum (Mo)	56		10	ug/L		07-MAR-22	R5734784
Nickel (Ni)	22		20	ug/L		07-MAR-22	R5734784
Selenium (Se)	4.4		1.0	ug/L		07-MAR-22	R5734784
Silver (Ag)	<0.25		0.25	ug/L		07-MAR-22	R5734784
Thallium (Tl)	<0.80		0.80	ug/L		07-MAR-22	R5734784
Uranium (U)	<15		15	ug/L		07-MAR-22	R5734784
Vanadium (V)	139		5.0	ug/L		07-MAR-22	R5734784
Zinc (Zn)	80		30	ug/L		07-MAR-22	R5734784
L2690024-2 N-SB-XPW04 (10.0-15.0) Sampled By: CLIENT on 01-MAR-22 @ 16:00 Matrix: SOIL							
Sample Preparation							
Initial pH	11.17		0.10	pH units		05-MAR-22	R5733977
Final pH	11.39		0.10	pH units		05-MAR-22	R5733977
SPLP Metals							
Antimony (Sb)	<5.0		5.0	ug/L		07-MAR-22	R5734784
Arsenic (As)	<5.0		5.0	ug/L		07-MAR-22	R5734784
Barium (Ba)	<100		100	ug/L		07-MAR-22	R5734784
Beryllium (Be)	<2.0		2.0	ug/L		07-MAR-22	R5734784
Boron (B)	620		500	ug/L		07-MAR-22	R5734784
Cadmium (Cd)	<0.10		0.10	ug/L		07-MAR-22	R5734784
Chromium (Cr)	<5.0		5.0	ug/L		07-MAR-22	R5734784
Cobalt (Co)	<2.0		2.0	ug/L		07-MAR-22	R5734784
Copper (Cu)	<10		10	ug/L		07-MAR-22	R5734784
Lead (Pb)	<2.0		2.0	ug/L		07-MAR-22	R5734784
Molybdenum (Mo)	40		10	ug/L		07-MAR-22	R5734784
Nickel (Ni)	<20		20	ug/L		07-MAR-22	R5734784
Selenium (Se)	18.4		1.0	ug/L		07-MAR-22	R5734784
Silver (Ag)	<0.25		0.25	ug/L		07-MAR-22	R5734784

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2690024-2 N-SB-XPW04 (10.0-15.0) Sampled By: CLIENT on 01-MAR-22 @ 16:00 Matrix: SOIL							
SPLP Metals							
Thallium (Tl)	<0.80		0.80	ug/L		07-MAR-22	R5734784
Uranium (U)	<15		15	ug/L		07-MAR-22	R5734784
Vanadium (V)	151		5.0	ug/L		07-MAR-22	R5734784
Zinc (Zn)	<30		30	ug/L		07-MAR-22	R5734784

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
LEACH-MSPLP-WT	Waste	Modified SPLP Extraction	E9003

A Sample (100g) of soil is leached for 18 +/- 2 hours with 2.0 liters of splp leaching fluid #2 (pH = 5). For the analysis of metals, the leachate is filtered through a 0.45um filter using a metals free filtering system prior to digestion and analysis.

MET-SPLP-WT	Waste	SPLP Leachable Metals	EPA 200.8

An extract produced by the Synthetic Precipitation Leaching Procedure (SPLP) as per EPA 1312 or Ontario MECP E9003 is analyzed by Collision/Reaction Cell ICPMS. The extract is filtered through a 0.6 to 0.8 micron glass fibre filter for Method 1312 or through a 0.45um filter for Method E9003.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2690024 Report Date: 11-MAR-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: MICHAEL HEALEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-SPLP-WT	**Waste**							
Batch R5734784								
WG3702947-4 DUP		**WG3702947-3**						
Antimony (Sb)		<5.0	<5.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Arsenic (As)		<5.0	<5.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Barium (Ba)		<100	<100	RPD-NA	ug/L	N/A	25	07-MAR-22
Beryllium (Be)		<2.0	<2.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Boron (B)		620	630		ug/L	2.1	25	07-MAR-22
Cadmium (Cd)		<0.10	<0.10	RPD-NA	ug/L	N/A	25	07-MAR-22
Chromium (Cr)		<5.0	<5.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Cobalt (Co)		<2.0	<2.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Copper (Cu)		<10	<10	RPD-NA	ug/L	N/A	25	07-MAR-22
Lead (Pb)		<2.0	<2.0	RPD-NA	ug/L	N/A	25	07-MAR-22
Molybdenum (Mo)		40	41		ug/L	2.7	25	07-MAR-22
Nickel (Ni)		<20	<20	RPD-NA	ug/L	N/A	25	07-MAR-22
Selenium (Se)		18.4	18.4		ug/L	0.4	25	07-MAR-22
Silver (Ag)		<0.25	<0.25	RPD-NA	ug/L	N/A	25	07-MAR-22
Thallium (Tl)		<0.80	<0.80	RPD-NA	ug/L	N/A	25	07-MAR-22
Uranium (U)		<15	<15	RPD-NA	ug/L	N/A	25	07-MAR-22
Vanadium (V)		151	153		ug/L	0.8	25	07-MAR-22
Zinc (Zn)		<30	<30	RPD-NA	ug/L	N/A	25	07-MAR-22
WG3702947-2 LCS								
Antimony (Sb)			102.6		%		70-130	07-MAR-22
Arsenic (As)			103.4		%		70-130	07-MAR-22
Barium (Ba)			104.4		%		70-130	07-MAR-22
Beryllium (Be)			100.7		%		70-130	07-MAR-22
Boron (B)			98.7		%		70-130	07-MAR-22
Cadmium (Cd)			102.5		%		70-130	07-MAR-22
Chromium (Cr)			102.9		%		70-130	07-MAR-22
Cobalt (Co)			105.1		%		70-130	07-MAR-22
Copper (Cu)			103.7		%		70-130	07-MAR-22
Lead (Pb)			104.0		%		70-130	07-MAR-22
Molybdenum (Mo)			99.7		%		70-130	07-MAR-22
Nickel (Ni)			103.3		%		70-130	07-MAR-22
Selenium (Se)			99.7		%		70-130	07-MAR-22
Silver (Ag)			97.3		%		70-130	07-MAR-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: MICHAEL HEALEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-SPLP-WT	**Waste**							
Batch R5734784								
WG3702947-2 LCS								
Thallium (Tl)			103.3		%		70-130	07-MAR-22
Uranium (U)			104.3		%		70-130	07-MAR-22
Vanadium (V)			104.5		%		70-130	07-MAR-22
Zinc (Zn)			103.5		%		70-130	07-MAR-22
WG3702947-1 MB								
Antimony (Sb)			<5.0		ug/L		5	07-MAR-22
Arsenic (As)			<5.0		ug/L		5	07-MAR-22
Barium (Ba)			<100		ug/L		100	07-MAR-22
Beryllium (Be)			<2.0		ug/L		2	07-MAR-22
Boron (B)			<500		ug/L		500	07-MAR-22
Cadmium (Cd)			<0.10		ug/L		0.1	07-MAR-22
Chromium (Cr)			<5.0		ug/L		5	07-MAR-22
Cobalt (Co)			<2.0		ug/L		2	07-MAR-22
Copper (Cu)			<10		ug/L		10	07-MAR-22
Lead (Pb)			<2.0		ug/L		2	07-MAR-22
Molybdenum (Mo)			<10		ug/L		10	07-MAR-22
Nickel (Ni)			<20		ug/L		20	07-MAR-22
Selenium (Se)			<1.0		ug/L		1	07-MAR-22
Silver (Ag)			<0.25		ug/L		0.25	07-MAR-22
Thallium (Tl)			<0.80		ug/L		0.8	07-MAR-22
Uranium (U)			<15		ug/L		15	07-MAR-22
Vanadium (V)			<5.0		ug/L		5	07-MAR-22
Zinc (Zn)			<30		ug/L		30	07-MAR-22
WG3702947-5 MS		**WG3702947-3**						
Antimony (Sb)			99.8		%		50-140	07-MAR-22
Arsenic (As)			102.4		%		50-140	07-MAR-22
Barium (Ba)			100.4		%		50-140	07-MAR-22
Beryllium (Be)			94.1		%		50-140	07-MAR-22
Boron (B)			100.0		%		50-140	07-MAR-22
Cadmium (Cd)			103.3		%		50-140	07-MAR-22
Chromium (Cr)			99.7		%		50-140	07-MAR-22
Cobalt (Co)			97.4		%		50-140	07-MAR-22
Copper (Cu)			99.0		%		50-140	07-MAR-22
Lead (Pb)			99.8		%		50-140	07-MAR-22

Quality Control Report

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: MICHAEL HEALEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-SPLP-WT	**Waste**							
Batch R5734784								
WG3702947-5 MS		**WG3702947-3**						
Molybdenum (Mo)			99.0		%		50-140	07-MAR-22
Nickel (Ni)			98.4		%		50-140	07-MAR-22
Selenium (Se)			99.6		%		50-140	07-MAR-22
Silver (Ag)			122.5		%		50-140	07-MAR-22
Thallium (Tl)			99.6		%		50-140	07-MAR-22
Uranium (U)			99.99		%		70-130	07-MAR-22
Vanadium (V)			100.8		%		50-140	07-MAR-22
Zinc (Zn)			100.1		%		50-140	07-MAR-22

Quality Control Report

Workorder: L2690024 Report Date: 11-MAR-22

Client: SIREM
130 Stone Road West
Guelph ON N1G 3Z2
Contact: MICHAEL HEALEY

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2690024-COFC

COC Number: 16 -

Page 1 of 1

Report To		Report Format	
Company:	SiREM	Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Contact:	Rachel Hallman, Michael Healey	Quality Control (QC) Report with Report	☐ Yes ☐ No
Address:	130 Research Lane, Suite 2 Guelph, Ontario, Canada, N1G 5G3	☐ Criteria on Report - provide details below if box checked	
Phone:	519-822-2265	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
		Email 1 or Fax	rhallman@siremlab.com
		Email 2	mhealey@siremlab.com

Invoice To	Same as Report To ☐ Yes ☐ No	Invoice Distribution	
	Copy of Invoice with Report ☐ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:	SiREM	Email 1 or Fax	kbroersma@geosyntec.com
Contact:	Karen Broersma, kbroersma@geosyntec.com	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Newton MNA	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2690024 **ALS Contact:** **Sampler:** Rachel Hallman

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)

- R ☐ Regular (Standard TAT if received by 3 pm - business days)
- P ☑ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
- E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
- E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge

Specify Date Required for E2, E or P:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SPLP (Incl. B and Li)	Number of Containers
	N-SB-XPW01 (10.0-12.7)	1-Mar-21	4:00	Soil	P	1
	N-SB-XPW04 (10.0-15.0)	1-Mar-22	4:30	Soil	P	1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ Yes ☑ No

Are samples for human drinking water use? ☐ Yes ☑ No

Special Instructions / Specify Criteria to add on report (client Use)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice packs Yes ☑ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
				7.9	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	1 Mar 22	5:00pm					Mar 3/22	2:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS-FM-03264 v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

APPENDIX G:
Sorption Coefficient Calculations

The site-specific sorption coefficients (linear, Langmuir, and Freundlich) presented Table 11 were calculated as follows below.

To calculate the site-specific sorption coefficients, the equilibrium concentrations of each analyte in the groundwater and geologic material must be known. Equilibrium aqueous concentrations were measured directly after the reaction period. Equilibrium geologic material concentrations were calculated using the baseline geologic material concentrations, the time zero aqueous concentrations and the equilibrium aqueous concentrations as follows:

$$q_e = \frac{q_{t=0} \cdot m_s + (C_{t=0} - C_e) \cdot v_{aq}}{m_s}$$

Where,

q_e is the concentration of a given analyte in the geologic material in g/kg at equilibrium

$q_{t=0}$ is the concentration of a given analyte in the geologic material in g/kg at baseline

C_e is the concentration of a given analyte in the aqueous phase in g/L at equilibrium

$C_{t=0}$ is the concentration of a given analyte in the aqueous phase in g/L at the start of the reaction period, after spiking

m_s is the dry mass of the geologic material in a given reactor, in kg

v_{aq} is the volume of groundwater in a given reactor, in L

Linear Sorption Coefficient:

The concentration of a given analyte in the geologic material is plotted against the concentration of the analyte in the aqueous phase. The slope of the linear trendline is the linear sorption coefficient (K_D).

$$q_e = C_e \cdot K_D + b$$

Where,

q_e is the concentration of a given analyte in the geologic material in g/kg at equilibrium

C_e is the concentration of a given analyte in the aqueous phase in g/L at equilibrium

K_D is the linear sorption coefficient

b is the y-intercept of the plot

Langmuir Sorption Coefficient:

The Langmuir model of sorption can be expressed as follows:

$$q_e = \frac{q_m \cdot K_L \cdot C_e}{1 + K_L \cdot C_e}$$

Where,

q_e is the concentration of a given analyte in the geologic material in g/kg

C_e is the concentration of a given analyte in the aqueous phase in g/L

K_L is the Langmuir sorption coefficient

q_m is the maximum concentration possible to be sorbed to the geologic material in g/kg

This relationship can be linearized as follows:

$$\frac{C_e}{q_e} = \frac{1}{K_L \cdot q_m} + \frac{C_e}{q_m}$$

Therefore, the equilibrium aqueous phase concentration divided by the equilibrium geologic material concentration (C_e/q_e) can be plotted against the equilibrium aqueous phase concentration (C_e) and:

$$K_L = \frac{1}{y - intercept \cdot q_m}$$

$$q_m = \frac{1}{slope}$$

Freundlich Sorption Coefficient

The Freundlich model of sorption can be expressed as follows:

$$q_e = K_F \cdot (C_e)^{\frac{1}{n}}$$

Where,

q_e is the concentration of a given analyte in the geologic material in g/kg

C_e is the concentration of a given analyte in the aqueous phase in g/L

K_F is the Freundlich sorption coefficient

n is a Site-specific sorption constant

This relationship can be linearized as follows:

$$\log q_e = \frac{\log K_F + 1}{n \cdot \log C_e}$$

Therefore, the logarithm of the equilibrium geologic material concentration ($\log(q_e)$) can be plotted against the logarithm of the equilibrium aqueous phase concentration ($\log(C_e)$) and:

$$K_F = e^{intercept}$$

$$n = \frac{1}{slope}$$