

2022 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

BOTTOM ASH POND

Sherburne County (Sherco) Generating Plant
Becker, Minnesota

Prepared for:

Northern States Power Company, a Minnesota Corporation

January 31, 2023



15650 36th Avenue N, Suite 110

Plymouth, MN 55446

Tel 952-346-3900

Fax 952-346-3901

www.carlsonmccain.com

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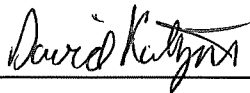
**2022 CCR ANNUAL GROUNDWATER MONITORING
AND CORRECTIVE ACTION REPORT**

**Bottom Ash Pond
Becker, Minnesota**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Geologist under the laws of the State of Minnesota.

Additionally, I certify that this report has been prepared to meet the requirements of § 257.90(e), Annual groundwater monitoring and corrective action report, as included in 40 CFR Part 257, Subpart D, Disposal of Coal Combustion Residuals from Electric Utilities.

Signature of Preparer:



David Katzner, P.G. #57700
Carlson McCain, Inc.

Date: January 31, 2023



TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	2
1.1 Annual Groundwater Monitoring Report Requirements	2
2. SITE DESCRIPTION	5
2.1 Site Hydrogeology	5
3. MONITORING RESULTS.....	7
3.1 Compliance with §257.90(e)	7
3.1.1 Groundwater Monitoring System (§257.90(e)(1))	7
3.1.2 Well Installation or Decommissioning (§257.90(e)(2)).....	7
3.1.3 Summary of Monitoring Data (§257.90(e)(3))	7
3.1.4 Transition Between Monitoring Programs (§257.90(e)(4)).....	11
3.1.5 Other Information (§257.90(e)(5)).....	11
4. DISCUSSION	12
4.1 Key Actions Completed	12
4.2 Problems	12
4.2.1 Problems Encountered	12
4.2.2 Resolution of Problems	13
4.3 Key Activities for 2023	14
5.0 REFERENCES.....	15

TABLES

Table 1	CCR Groundwater Monitoring System
Table 2	Summary of Data Collected
Table 3	Count of Parameters Analyzed by Well
Table 4	Spring 2022 Groundwater Summary Data
Table 5	Fall 2022 Groundwater Summary Data

FIGURES

Figure 1	Site Location Map
Figure 2	CCR Groundwater Monitoring System
Figure 3	Water Table Elevation Contour Map (5/2-5/2022)
Figure 4	Water Table Elevation Contour Map (10/31-11/3/2022)

APPENDICES

Appendix A – Spring 2022 Assessment Monitoring Event Laboratory Report and Field Datasheets
Appendix B – Fall 2022 Assessment Monitoring Event Laboratory Report and Field Datasheets

EXECUTIVE SUMMARY

The Bottom Ash Pond at the Sherburne County Generating Plant is subject to the groundwater monitoring and correction action requirements under U.S. Code of Federal Regulations, Title 40, Parts §257.90 to §257.98. The Bottom Ash Pond operated under the assessment monitoring program in §257.95 at both the start of this annual reporting period on January 1, 2022 and at the end of the annual reporting period on December 31, 2022. Since the Bottom Ash Pond was operated under the assessment monitoring program in §257.95 during all of 2022, statistically significant increases over background were not evaluated or determined for Appendix III to 40 CFR §257 constituents pursuant to §257.94(e) (i.e. detection monitoring). Statistical analysis performed on year 2022 groundwater data indicates no exceedances of groundwater protection standards for any constituents listed in Appendix IV to 40 CFR §257 and, as such, no remedies were selected pursuant to §257.97 and no remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.

1. INTRODUCTION

This report presents the documentation of the status of groundwater monitoring and corrective action for the year 2022 (YR2022) for the Bottom Ash Pond (BAP) at the Sherburne County Generating Plant (Sherco) located in Becker, Minnesota. The BAP is owned and operated by Northern States Power Company, a Minnesota Corporation (NSPM).

The BAP is an inactive coal combustion residuals (CCR) impoundment and is required to comply with provisions of the U.S. Code of Federal Regulations (CFR), Title 40, Parts 257 and 261 relating to disposal of coal combustion residuals from electric utilities. In particular, this report addresses the requirements of 40 CFR Section 257.90(e), annual groundwater monitoring and corrective action for YR2022.

This report has been prepared in general accordance with the reporting procedures outlined in the Sherco Bottom Ash Pond CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2021a). Any deviations from the requirements of the Groundwater Sampling and Analysis Plan are described in subsequent sections of this report.

1.1 Annual Groundwater Monitoring Report Requirements

According to §257.90(e), CCR units must prepare an annual groundwater monitoring and corrective action report each year that complies with the following:

“For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility’s operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

- (1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;*
- (2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;*
- (3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;*

- (4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and*
- (5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.*
- (6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:*
 - (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;*
 - (ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;*
 - (iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):*
 - (A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and*
 - (B) Provide the date when the assessment monitoring program was initiated for the CCR unit.*
 - (iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:*
 - (A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;*
 - (B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;*
 - (C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and*
 - (D) Provide the date when the assessment of corrective measures was completed for the CCR unit.*
 - (v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and*
 - (vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.*

Section 5.4 of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2021a) also includes a list of items to be included in the annual report that is similar to items 1 through 5 above, with the addition of a water table contour map using data collected from the current year.

This report contains four additional sections following this introduction:

- Section 2 (Site Description) briefly describes the site location and hydrogeologic setting.
- Section 3 (Monitoring Results) discusses the reporting requirements of the CCR Sampling and Analysis Plan and §257.90(e).
- Section 4 (Discussion) summarizes key actions completed in YR2022, describes any problems reported in YR2022 and the actions to resolve the problems, and key activities projected for 2023.
- Section 5 provides a list of referenced documents.

2. SITE DESCRIPTION

The BAP is located in the City of Becker, Sherburne County, Minnesota. The BAP is approximately 18 acres in size and is part of a larger generating plant site. The BAP construction was last modified in 1982. The BAP location is shown on Figure 1 and an aerial photograph and site layout map for BAP are shown on Figure 2.

Construction of Bottom Ash Pond 2 (BAP2) was completed in 2020 and began operation as a new CCR surface impoundment (as defined in §257.53) with receipt of first CCR on October 5, 2020. On October 31, 2020, the BAP ceased receiving CCR and is now considered an inactive CCR surface impoundment as defined in §257.53. The BAP will undergo closure and post-closure care in accordance with the requirements of §257.100 through §257.104. BAP's Closure Plan (Carlson McCain, 2021c) prepared in accordance with §257.102 (f)(1)(ii) indicates that the BAP will be closed by leaving the majority of CCR in-place and BAP closure activities will be completed by October 31, 2025. Other closure options for the BAP, however, were evaluated including modified clean closure and clean closure during YR2022 and could result in selection and implementation of other closure methods for the BAP. Depending on the closure method ultimately implemented for BAP, groundwater monitoring may continue during a 30-year post-closure care period in accordance with the requirements of §257.90 through §257.98.

2.1 Site Hydrogeology

Hydrogeology of the BAP site is summarized below and is discussed in more detail in the Bottom Ash Pond Groundwater Monitoring System Certification (Carlson McCain, 2017), which was prepared for compliance with 40 CFR §257.91. Unless otherwise cited, the data presented in this section is credited to Carlson McCain, 2017.

The Facility is located in the Anoka Sand Plain physiographic region. The site consists of moderate to highly permeable alluvial deposits above and below a low-permeability glacial till. Precambrian granite, the first bed rock encountered, is considered impermeable. Groundwater flows southwest beneath the Facility toward the Mississippi River, which is the regional groundwater discharge for the surficial sand and gravel aquifer. The till layer exhibits variable thickness and is absent in some locations, and no perched groundwater conditions have been identified above the till. Groundwater travel velocities are estimated at 153 feet/year.

The conceptual model for the hypothetical (or potential) release of a constituent of concern (COC) from the BAP focuses on groundwater as the transport mechanism. The water table beneath the BAP typically occurs below the Superior till. Exfiltration from the BAP area is anticipated to move vertically downward from the base until it reaches the water table and/or till contact. If the exfiltration first contacts the till, it may flow through the till in the downgradient direction, but may also flow locally along the till contact to a zone of higher permeability within the till or a

discontinuity of the till until it reaches the water table. Upon reaching the water table, a COC would likely travel mainly horizontally to the southwest and toward the Mississippi River.

3. MONITORING RESULTS

Section 3.1 below presents the monitoring results obtained during YR2022 in terms of the specific requirements of §257.90(e) that are to be included in this report.

3.1 Compliance with §257.90(e)

3.1.1 Groundwater Monitoring System (§257.90(e)(1))

The area of the BAP and all upgradient and downgradient monitoring well locations included in the BAP CCR groundwater monitoring system are shown and labeled on Figure 2. A summary of the monitoring wells included in the BAP CCR Groundwater Monitoring System is included in Table 1.

3.1.2 Well Installation or Decommissioning (§257.90(e)(2))

Due to low groundwater levels experienced at BAP in 2021, well P-01A-1 was replaced in the same location with well P-01A-2 in April 2022. Well P-01A-1 was over-drilled with a 6-inch temporary casing to remove the old well, and then drilled deeper to facilitate installation of a new monitoring well in the deeper borehole. To the extent possible, old well materials including bentonite grout, filter pack, well casing and well screen were removed. A Monitoring Well Replacement Report (Carlson McCain, 2022b) was prepared to document the well replacement activities and was placed in BAP's operating record for compliance with §257.91(e)(1).

The Minnesota Department of Health (MDH) considers a well abandoned and sealed if an existing well is over-drilled, old well materials are removed, and a new well is constructed in the same borehole. As such, a well and boring sealing record for well P-01A-1 was issued and is provided in Appendix A of the Monitoring Well Replacement Report (Carlson McCain, 2022b).

No other monitoring wells that are part of the groundwater monitoring system for the BAP were installed or decommissioned during YR2022.

3.1.3 Summary of Monitoring Data (§257.90(e)(3))

Monitoring data collected during YR2022 is summarized in Tables 2 and 3 and results are provided in Tables 4 and 5. Table 2 summarizes the data collected and includes the number of groundwater samples that were collected for analysis for each upgradient and downgradient well, the dates the samples were collected, and whether the samples were required by the detection monitoring (i.e. constituents listed Appendix III to 40 CFR §257, hereafter referred to as "Appendix III constituents") or assessment monitoring (i.e. constituents listed in Appendix IV of 40 CFR §257, hereafter referred to as "Appendix IV constituents") programs. Table 3 summarizes the analytical parameters and the number of times that each parameter was analyzed for each well

in the groundwater monitoring system. A summary of the spring 2022 monitoring results is provided on Table 4 and a summary of the fall 2022 monitoring results is provided on Table 5.

Assessment Monitoring Data

As discussed in a Technical Memorandum dated April 13, 2018 (Carlson McCain, 2018c), NSPM initiated an assessment monitoring program at the BAP during YR2018, and assessment monitoring has continued since that time. Pursuant to the assessment monitoring semiannual sampling requirements listed in §257.95(d)(1), the following groundwater sampling events were conducted during YR2022:

- Samples were collected from eight of nine wells in the BAP groundwater monitoring system during the spring monitoring event conducted on May 3-4, 2022. Well P-152A could not be sampled due to low water levels, as described in Section 5.2 of this report. Samples were analyzed for Appendix III constituents and Appendix IV constituents. Laboratory reports and field datasheets for the spring monitoring event are included in this report as Appendix A.
- Samples were collected from eight of the nine wells in the BAP groundwater monitoring system during the fall monitoring event conducted on October 31 to November 3, 2022. Well P-152A again could not be sampled due to low water levels. Samples were analyzed for all Appendix III constituents and only those Appendix IV constituents detected during the spring 2022 assessment monitoring event. Laboratory reports and field datasheets for the fall monitoring event are included in this report as Appendix B.

Recorded Concentrations, Background Concentrations and Groundwater Protection Standards

Pursuant to §257.95(d)(3), the annual groundwater monitoring and corrective action report must include the recorded concentrations required by §257.95(d)(1), identify the background parameter concentrations established under §257.94(b) and identify the groundwater protection standards established under §257.95(d)(2).

- Recorded Concentrations: The concentrations for the spring and fall monitoring events that are recorded in the operating record are attached to this report as Appendices A and B, respectively, and summary tables of the data are also provided in Tables 4 and 5, respectively.
- Background Concentrations: The background wells at the BAP include P-17, P-23, P-152A, P-157 and P-158 and the background parameter concentrations were obtained as part of the baseline data set that was completed by collecting nine independent samples from each of the wells in the groundwater monitoring system from December 2016 through September 2017. Each of the baseline samples were analyzed for Appendix III and Appendix IV constituents. Laboratory reports and field datasheets for the baseline dataset, which includes all background concentrations, are provided in Appendix A of the 2017 CCR Annual Groundwater Monitoring and Corrective Action Report (Carlson McCain, 2018b). The

background dataset was evaluated and amended in December 2020 to include data obtained from the background wells during the fall 2017 and years 2018 and 2019. As part of the evaluation, data for each well and parameter was reviewed for outliers and trends, and certain outliers were discarded if a data point was determined to be an error.

- Groundwater Protection Standards: Pursuant to §257.95(h)(1) through §257.95(h)(3), groundwater protection standards have been established for each Appendix IV constituent as either: 1) the maximum contaminant level (MCL) established under 40 CFR §141.62 and §141.66, 2) for those constituents without an MCL (i.e. cobalt, lead, lithium, and molybdenum), the concentration listed in §257.95(h)(2), as amended on July 30, 2018, or 3) for constituents for which the background level is higher than the levels identified under 1) or 2), the background concentration.

The range of background concentrations for each Appendix III and Appendix IV constituent sampled pursuant to §257.94(b) and the groundwater protection standard for each Appendix IV constituent are summarized on the following page.

	Parameter	Background Range	Groundwater Protection Standard
Appendix III Parameters	Boron, total (mg/L)	<0.050 to 1.37	NA
	Calcium, total (mg/L)	48.6 to 145	NA
	Chloride, total (mg/L)	<1.0 to 27.5	NA
	Fluoride, total (mg/L)	<0.750	NA
	pH (lab) (pH)	7.57 to 8.01	NA
	Sulfate, total (mg/L)	6.12 to 269	NA
	Total Dissolved Solids (mg/L)	168 to 688	NA
Appendix IV Parameters	Antimony, total (mg/L)	<0.0005	0.006
	Arsenic, total (mg/L)	<0.0005 to 0.0007	0.01
	Barium, total (mg/L)	<0.05 to 0.116	2
	Beryllium, total (mg/L)	<0.0005	0.004
	Cadmium, total (mg/L)	<0.0001 to <0.0005	0.05
	Chromium, total (mg/L)	0.0005 to 0.004	0.1
	Cobalt, total (mg/L)	<0.0005	0.006
	Fluoride, total (mg/L)	<0.750	4
	Lead, total (mg/L)	<0.0005	0.015
	Lithium Total (mg/L)	<0.015 to <0.05 ¹	0.04 ¹
	Mercury, total (mg/L)	<0.0002	0.002
	Molybdenum, total (mg/L)	<0.0005 to 0.0023	0.1
	Radium, 226 and 228 combined (pCi/L)	<0.92 to 3.1	5
	Selenium, total (mg/L)	<0.0005 to 0.0033	0.05
	Thallium, total (mg/L)	<0.0005	0.002

¹ All §257.94(b) required background samples for lithium were obtained prior to amendment of §257.95(h)(2) on July 30, 2018, which implemented a groundwater protection standard of 0.04 mg/L for lithium. The analytical laboratory lowered the reporting limit for lithium from 0.05 mg/L to 0.015 mg/L in response to the rule amendment.

Statistical Analysis

Statistical analysis was performed on the YR2022 monitoring data using the procedures described in BAP's Statistical Analysis Plan (Carlson McCain, 2021b), and demonstrates compliance with §257.95(e), §257.95(f), and §257.95(g) as described below:

1. *Subpart §257.95(e) (paraphrased): If the concentrations of all Appendix III and Appendix IV constituents are shown to be at or below background values for two consecutive monitoring events, the owner or operator may return to detection monitoring of the CCR unit.*
 - a. Based on statistical comparisons of compliance data to background data for Appendix III and Appendix IV constituents, concentrations of one or more constituents continue to exceed background values, therefore the BAP will not return to detection monitoring at this time.
2. *Subpart §257.95(f) (paraphrased): If the concentrations of any Appendix III or Appendix IV constituent are above background values, but all concentrations are below the applicable groundwater protection standard, the owner or operator must continue assessment monitoring.*
 - a. Based on statistical comparisons of Appendix III and Appendix IV constituent concentrations to groundwater protection standards, all constituent statistical results are below the applicable groundwater protection standards, therefore the BAP will continue assessment monitoring.
3. *Subpart §257.95(g) (paraphrased): If one or more Appendix IV constituents are detected at statistically significant levels above the groundwater protection standard in any sampling event, the owner or operator must issue notifications of the exceedance(s) and initiate an assessment of corrective measures.*
 - a. As stated in item 2.a, above, all Appendix III and Appendix IV concentrations are below applicable groundwater protection standards, therefore no additional notifications or assessment of corrective measures are required.

Groundwater Elevations and Flow Direction

Groundwater elevations and flow direction in the vicinity of the BAP during the spring and fall of 2022 monitoring events are shown on the water table elevation contour maps in Figures 3 and 4, respectively. The contours were derived from water level measurements from the wells included in the CCR groundwater monitoring system for the BAP, along with other nearby monitoring wells and water level piezometers not included in the BAP CCR monitoring system. For both of the events,

the flow direction was generally to the southwest. The flow direction is consistent with historical data from over 20 years of monitoring at the facility and is also consistent with the regional groundwater flow direction towards the Mississippi River.

Groundwater elevations at BAP monitoring system wells continued to be low during YR2022 compared to recent years but were approximately 1.1 feet higher on average during the fall of 2022 monitoring event compared to the fall of 2021 monitoring event. Groundwater elevations for the fall 2022 monitoring event were also calculated to be approximately 1.65 feet above historic lows. The low groundwater levels at BAP are consistent with drought conditions experienced throughout Minnesota during 2021 and 2022. No significant changes in groundwater gradients or flow direction have been observed due to low groundwater levels in the vicinity of BAP.

3.1.4 Transition Between Monitoring Programs (§257.90(e)(4))

The BAP first transitioned from the detection monitoring program (§257.94) to the assessment monitoring program (§257.95) in 2018, as described in Technical Memorandums dated January 15, 2018 (Carlson McCain, 2018a) and April 13, 2018 (Carlson McCain, 2018c).

Since the initial transition to assessment monitoring program (§257.95) during YR2018, the BAP has not transitioned between monitoring programs and continues monitoring under the assessment monitoring program.

3.1.5 Other Information (§257.90(e)(5))

No other information is required to be reported in this CCR Annual Groundwater Monitoring and Corrective Action Report pursuant to §257.90 through §257.98.

4. DISCUSSION

§257.90(e) states that *“For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.”*

Pursuant to the rule requirements, Section 5.1 below discusses the key actions completed for the groundwater monitoring program at the BAP, Section 5.2 discusses problems encountered with the groundwater monitoring and actions to resolve such problems, and Section 5.3 discusses key activities that may occur in the upcoming year.

4.1 Key Actions Completed

Key actions that were completed during YR2022 include the following items:

- The 2021 Annual CCR Groundwater Monitoring and Corrective Report (Carlson McCain, 2022a) was completed, placed in the facility’s operating record on January 31, 2022, and posted on the BAP’s publicly available website by February 28, 2022.
- Eight of nine monitoring wells were sampled during the spring event conducted on May 3-4, 2022 and analyzed for all Appendix III and Appendix IV constituents as required by §257.95(d)(1). Well P-152A could not be sampled due to low water levels.
- Eight of the nine monitoring wells were sampled during the fall event conducted on October 31 to November 3, 2022 and analyzed for all Appendix III constituents and only those Appendix IV constituents that were detected during the spring 2022 event as part of semiannual sampling required by §257.95(d)(1). Well P-152A could not be sampled due to low water levels.
- Laboratory reports and field datasheets for the spring and fall sampling events were placed in the operating record on August 8, 2022 and January 12, 2023, respectively.
- Statistical evaluation of the spring and fall monitoring event data was performed on August 2, 2022 and December 23, 2022, respectively, for compliance with §257.95(e) through (g).

4.2 Problems

4.2.1 Problems Encountered

Low Groundwater Level Issues

Low groundwater levels prevented samples from being collected from well P-152A during the spring and fall monitoring events during YR2022. Attempts were made to collect samples from the well using the dedicated bladder pump installed in the well during both events and a non-dedicated

submersible pump and associated tubing during the spring event. The water level in well P-152A was below the top of the bladder pumps which prevented the bladder pumps from functioning. Submersible pumps also generally need at least a one-foot water column in wells for the pumps to work, and the water column was 0.8 feet during the spring monitoring event. The water column in well P-152A during the fall event was 2.19 feet, however, the field sampler elected to not attempt sampling the well with a submersible pump. The submersible pump was not attempted likely due to concerns with obtaining poor quality samples that tend to cause detections of certain metals that are not representative of groundwater.

Spring P-157 Sample

Certain relative percent differences (RPDs) ranged from 24.5 to 53% in the original sample from well P-157 compared to the duplicate sample from the same well during the spring monitoring event. Total suspended solids (TSS) in the original sample from well P-157 was 14 mg/L while the TSS in the duplicate sample was <5 mg/L, which indicates that the original P-157 sample was lower in quality compared to the duplicate P-157 sample.

Other Problems

No other significant problems with the groundwater monitoring system, or deviations from the CCR Groundwater Sampling Plan were reported at the facility during YR2022. No corrective action was required at the facility during YR2022.

4.2.2 Resolution of Problems

Low Groundwater Level Issues

Low groundwater levels prevented samples from being collected from well P-152A during the spring and fall monitoring events, which represents a data gap from both the spring and fall monitoring events. It is unknown whether groundwater levels will recover sufficiently to allow sampling of well P-152A using the dedicated bladder pump in the well during the spring 2023 monitoring event. As such, NSPM may take action(s) to eliminate this data gap including but not limited to the following:

- Modifying the BAP CCR groundwater monitoring system.
- Replacing well P-152A with a deeper well at the same location prior to the spring 2023 monitoring event.
- Lower the dedicated bladder pump in the well approximately 0.5 feet to maximize the ability to obtain samples from the well.

Alternatively, NSPM may elect to wait for groundwater levels to sufficiently recover to be able to sample the well with the dedicated bladder pump in the well. Considering BAP has five upgradient wells to pool for interwell statistical analysis, missing data from one background well for possibly several monitoring events should not significantly affect data interpretation at BAP. Background

water quality at BAP continues to be accurately represented without samples from well P-152A in YR2022.

Spring P-157 Sample

Due to the elevated TSS concentration in the original sample from well P-157 compared to duplicate sample, the original P-157 results were replaced with the duplicate P-157 results in NSPM's groundwater database for the BAP, and the spring 2022 P-157 duplicate sample results are used for data interpretation at the location instead of the original sample results.

4.3 Key Activities for 2023

The following key actions are anticipated at the BAP in the year 2023:

1. Routine, semi-annual assessment monitoring events at monitoring system wells are planned in the spring between March 15 and May 15, 2023 and in the fall between September 15 and November 15, 2023.
2. Statistical analysis of monitoring results will be conducted to demonstrate compliance with §257.95(e) through (g).

5.0 REFERENCES

Carlson McCain, 2017. CCR Groundwater Monitoring System Certification, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, October 16, 2017.

Carlson McCain, 2018a. SSI Determination – Bottom Ash Pond, Prepared for NSPM Environmental Services, Carlson McCain, Inc., January 15, 2018.

Carlson McCain, 2018b. 2017 CCR Annual Groundwater and Corrective Action Monitoring Report, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, January 29, 2018.

Carlson McCain, 2018c. Alternate Source Demonstration Update – Bottom Ash Pond, Prepared for NSPM Environmental Services, Carlson McCain, Inc., April 13, 2018.

Carlson McCain, 2021a. CCR Groundwater Sampling and Analysis Plan – Revision #2, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, May 6, 2021.

Carlson McCain, 2021b. Statistical Analysis Plan – Revision #1, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, May 6, 2021.

Carlson McCain, 2021c. Closure Plan (Revision No. 1). Bottom Ash Pond, Sherburne County Generating Plant. April 27, 2021.

Carlson McCain, 2022a. 2021 CCR Annual Groundwater and Corrective Action Monitoring Report, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, January 31, 2022.

Carlson McCain, 2022b. Monitoring Well Replacement Report, Sherco Generating Plant NPDES/SDS Permit No. MN0002186, prepared for Northern States Power Company, A Minnesota Corporation, June 23, 2022.

Tables

Table 1
CCR Groundwater Monitoring System
Bottom Ash Pond

Well ID	Minnesota Unique Well ID	Date Installed	Location Site Coordinates (ft)		Elevation Top of Riser Pipe	Screen Length (ft)	Elevation Top of Screen	Elevation Bottom of Screen	Monitoring Status	Hydrologic Location
			Easting	Northing						
P-01A-2	847286	4/20/2022	2028267.8	865408.4	1003.85	10	925	915	Routine Semi-annual	Downgradient
P-17	NA	8/26/1981	2030284.1	866284.1	964.34	20	923	903	Routine Semi-annual	Upgradient
P-22	NA	8/27/1981	2027386.3	865147.1	964.33	20	922	902	Routine Semi-annual	Downgradient
P-23	NA	8/28/1981	2028068.1	866241.6	967.26	30	926	896	Routine Semi-annual	Upgradient
P-152A	806318	10/10/2014	2031471.6	866696.4	965.87	10	934	924	Routine Semi-annual	Upgradient
P-155	812964	9/22/2015	2027791	865410	1002.72	10	927	917	Routine Semi-annual	Downgradient
P-156	812965	9/22/2015	2028707	865410	1002.39	10	927	917	Routine Semi-annual	Downgradient
P-157	812966	9/22/2015	2028485	866287	968.17	10	929	919	Routine Semi-annual	Upgradient
P-158	812967	9/23/2015	2029122	866410	966.55	10	927	917	Routine Semi-annual	Upgradient

*Notes:

Elevation is feet above mean sea level

Table 2
Summary of Data Collected
Bottom Ash Pond

Upgradient Wells			
Well ID	Number of Samples	Sample Dates	
		Spring 2022 ¹	Fall 2022 ²
P-17	2	5/4/2022	11/1/2022
P-23	2	5/4/2022	11/3/2022
P-152A	0	NS ³	NS ³
P-157	2	5/4/2022	11/3/2022
P-158	2	5/4/2022	11/1/2022

Downgradient Wells			
Well ID	Number of Samples	Sample Dates	
		Spring 2022 ¹	Fall 2022 ²
P-01A-2	2	5/3/2022	10/31/2022
P-22	2	5/4/2022	10/31/2022
P-155	2	5/3/2022	10/31/2022
P-156	2	5/3/2022	11/1/2022

¹ Assessment monitoring event sampled and analyzed for appendix III and appendix IV of §257 constituents as required by §257.95(b).

² Assessment monitoring semiannual resample event sampled and analyzed for appendix III of §257 and those appendix IV of §257 constituents detected during Spring 2022 as required by §257.95(d)(1).

³ No Sample. Low groundwater levels prevented a sample from being collected from the well during the specified monitoring event.

Table 3
Count of Parameters Analyzed by Well
Bottom Ash Pond

Appendix III Parameters									
Parameter	Well ID and Number of Samples								
	P-01A-1	P-17	P-22	P-23	P-152A	P-155	P-156	P-157	P-158
Boron, total (mg/L)	2	2	2	2	0	2	2	2	2
Calcium, total (mg/L)	2	2	2	2	0	2	2	2	2
Chloride, total (mg/L)	2	2	2	2	0	2	2	2	2
Fluoride, total (mg/L)	2	2	2	2	0	2	2	2	2
pH (lab) (pH)	2	2	2	2	0	2	2	2	2
Sulfate, total (mg/L)	2	2	2	2	0	2	2	2	2
Total Dissolved Solids (mg/L)	2	2	2	2	0	2	2	2	2

Appendix IV Parameters									
Parameter	Well ID and Number of Samples								
	P-01A-1	P-17	P-22	P-23	P-152A	P-155	P-156	P-157	P-158
Antimony, total (mg/L)	1	1	1	1	0	1	1	1	1
Arsenic, total (mg/L)	2	2	2	2	0	2	2	2	2
Barium, total (mg/L)	2	2	2	2	0	2	2	2	2
Beryllium, total (mg/L)	2	2	2	2	0	2	2	2	2
Cadmium, total (mg/L)	2	2	2	2	0	2	2	2	2
Chromium, total (mg/L)	2	2	2	2	0	2	2	2	2
Cobalt, total (mg/L)	2	2	2	2	0	2	2	2	2
Fluoride, total (mg/L)	2	2	2	2	0	2	2	2	2
Lead, total (mg/L)	2	2	2	2	0	2	2	2	2
Lithium Total (mg/L)	2	2	2	2	0	2	2	2	2
Mercury, total (mg/L)	1	1	1	1	0	1	1	1	1
Molybdenum, total (mg/L)	2	2	2	2	0	2	2	2	2
Selenium, total (mg/L)	2	2	2	2	0	2	2	2	2
Thallium, total (mg/L)	1	1	1	1	0	1	1	1	1
Radium, 226 and 228 combined (pCi/L)	2	2	2	2	0	2	2	2	2

Table 4
Spring 2022 Groundwater Summary Data
Bottom Ash Pond

Appendix III Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			5/3/2022	5/4/2022	5/4/2022	5/4/2022	5/5/2022	5/3/2022	5/3/2022	5/4/2022	5/4/2022
Boron, total	mg/L	NA	3.2	0.069	0.43	0.26	--	1.3	0.28	0.18	0.96
Calcium, total	mg/L	NA	150	56	68	80	--	81	78	84	100
Chloride, total	mg/L	NA	41	8.3	15	33	--	18	4.4	10	7.5
Fluoride, total	mg/L	NA	<0.75	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75
pH, lab	pH	NA	7.62	7.85	7.71	7.73	--	7.79	7.84	7.76	7.69
Sulfate, total	mg/L	NA	470	14	33	59	--	160	76	56	130
Total Dissolved Solids	mg/L	NA	990	240	280	380	--	500	360	370	480

Appendix IV Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			5/3/2022	5/4/2022	5/4/2022	5/4/2022	5/5/2022	5/3/2022	5/3/2022	5/4/2022	5/4/2022
Antimony, total	mg/L	0.006	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic, total	mg/L	0.01	0.00053	0.00051	<0.00050	0.00061	--	0.00079	0.00054	0.0012	<0.00050
Barium, total	mg/L	2	0.14	0.033	0.046	0.058	--	0.069	0.071	0.081	0.077
Beryllium, total	mg/L	0.004	0.00011	<0.00010	<0.00010	<0.00010	--	<0.00010	<0.00010	<0.00010	<0.00010
Cadmium, total	mg/L	0.005	<0.00010	<0.00010	<0.00010	<0.00010	--	<0.00010	<0.00010	<0.00010	<0.00010
Chromium, total	mg/L	0.1	0.0013	0.0011	0.00086	0.0012	--	0.0038	0.0018	0.0075	0.0013
Cobalt, total	mg/L	0.006	0.0028	<0.00050	<0.00050	<0.00050	--	0.002	<0.00050	0.0025	<0.00050
Fluoride, total	mg/L	4	<0.75	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75
Lead, total	mg/L	0.015	<0.00050	<0.00050	<0.00050	<0.00050	--	0.0008	<0.00050	0.0012	<0.00050
Lithium, total	mg/L	0.04	<0.015	<0.015	<0.015	<0.015	--	0.03	<0.015	<0.015	<0.015
Mercury, total	mg/L	0.002	<0.00020	<0.00020	<0.00020	<0.00020	--	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum, total	mg/L	0.1	0.0059	<0.00050	0.00057	<0.00050	--	<0.00050	<0.00050	0.0061	<0.00050
Selenium, total	mg/L	0.05	0.046	<0.00050	0.00057	0.00063	--	0.0019	0.011	0.0011	0.0024
Thallium, total	mg/L	0.002	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050	<0.00050	<0.00050
Radium, 226 and 228 combined	pCi/L	5	1.3	<1.2	<1.3	<1.4	--	<0.83	<1.2	<1.0	<1.1

Field Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			5/3/2022	5/4/2022	5/4/2022	5/4/2022	5/5/2022	5/3/2022	5/3/2022	5/4/2022	5/4/2022
ORP	mV	NA	164	154	108	176	--	158	143	166	154
Oxygen, dissolved	mg/L	NA	7.1	8	9	8	--	7.9	8.4	7.2	8.9
pH, field	pH	NA	7.5	7.6	7.6	7.4	--	7.6	7.4	7.3	7.3
Specific Cond, field	µmhos/cm	NA	1410	450	600	700	--	770	630	640	840
Static Water Level	ft	NA	80.58	40.41	41.45	44.16	41.45	79.78	79.18	44.83	42.58
Temperature	degrees C	NA	10.4	10.2	10	11.5	--	10.6	10.3	11.8	10.5
Turbidity, field	NTU	NA	1.6	0.6	1.8	0.2	--	4	1.1	1.4	0.3
Water Level Elevation	ft	NA	923.27	923.93	922.88	923.1	924.42	922.94	923.21	923.34	923.97

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

¹ Low groundwater levels prevented a sample from being collected from the well on the specified date.

Table 5
Fall 2022 Groundwater Summary Data
Bottom Ash Pond

Appendix III Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			10/31/2022	11/1/2022	10/31/2022	11/3/2022	11/3/2022	10/31/2022	11/1/2022	11/3/2022	11/1/2022
Boron, total	mg/L	NA	3.1	<0.050	0.89	0.24	--	1.1	0.18	0.21	0.66
Calcium, total	mg/L	NA	130	60	75	94	--	88	68	86	97
Chloride, total	mg/L	NA	44	15	13	34	--	18	4.6	7.9	4.8
Fluoride, total	mg/L	NA	<0.75	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75
pH, Lab	pH	NA	7.71	7.85	7.78	7.69	--	7.78	7.86	7.64	7.71
Sulfate, total	mg/L	NA	410	16	100	100	--	160	26	54	120
Total Dissolved Solids	mg/L	NA	890	250	390	440	--	490	290	390	430

Appendix IV Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			10/31/2022	11/1/2022	10/31/2022	11/3/2022	11/3/2022	10/31/2022	11/1/2022	11/3/2022	11/1/2022
Antimony, total	mg/L	0.006	--	--	--	--	--	--	--	--	--
Arsenic, total	mg/L	0.01	<0.00050	0.00055	<0.00050	0.0006	--	<0.00050	0.00052	<0.00050	0.0005
Barium, total	mg/L	2	0.059	0.036	0.051	0.067	--	0.06	0.054	0.065	0.08
Beryllium, total	mg/L	0.004	<0.00010	<0.00010	<0.00010	<0.00010	--	<0.00010	<0.00010	<0.00010	<0.00010
Cadmium, total	mg/L	0.005	<0.00010	<0.00010	<0.00010	<0.00010	--	<0.00010	<0.00010	<0.00010	<0.00010
Chromium, total	mg/L	0.1	0.0011	0.0013	0.0012	0.0012	--	0.0012	0.0018	0.0016	0.0012
Cobalt, total	mg/L	0.006	0.0023	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050	<0.00050	<0.00050
Fluoride, total	mg/L	4	<0.75	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75
Lead, total	mg/L	0.015	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050	<0.00050	<0.00050
Lithium, total	mg/L	0.04	0.024	<0.015	<0.015	<0.015	--	0.028	<0.015	<0.015	<0.015
Mercury, total	mg/L	0.002	--	--	--	--	--	--	--	--	--
Molybdenum, total	mg/L	0.1	0.0097	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050	<0.00050	<0.00050
Selenium, total	mg/L	0.05	0.054	0.00056	0.0025	0.0012	--	0.003	0.0019	0.0015	0.0027
Thallium, total	mg/L	0.002	--	--	--	--	--	--	--	--	--
Radium, 226 and 228 combined	pCi/L	5	<1.8	<1.7	<2.0	<1.7	--	<2.2	<2.0	<1.8	<1.9

Field Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-2	P-17	P-22	P-23	P-152A ¹	P-155	P-156	P-157	P-158
			10/31/2022	11/1/2022	10/31/2022	11/3/2022	11/3/2022	10/31/2022	11/1/2022	11/3/2022	11/1/2022
ORP	mV	NA	145	120	142	80	--	138	144	65	130
Oxygen, dissolved	mg/L	NA	7.7	7.7	7.6	8.2	--	6.4	8.8	9.1	9.1
pH, field	pH	NA	7.6	7.8	7.6	7.5	--	7	7.7	7.3	7.5
Specific Cond, field	µmhos/cm	NA	940	340	560	1230	--	140	380	1080	520
Static Water Level	ft	NA	80.1	39.46	41.35	43.36	40.16	79.48	78.59	43.97	41.83
Temperature	degrees C	NA	12.7	10.2	10.5	12	--	12.4	9.7	11.1	10.3
Turbidity, field	NTU	NA	2.3	4.1	1	0.9	--	1.2	1.3	2.1	0.81
Water Level Elevation	ft	NA	923.75	924.88	922.98	923.9	925.71	923.24	923.8	924.2	924.72

GWPS = Groundwater Protection Standard

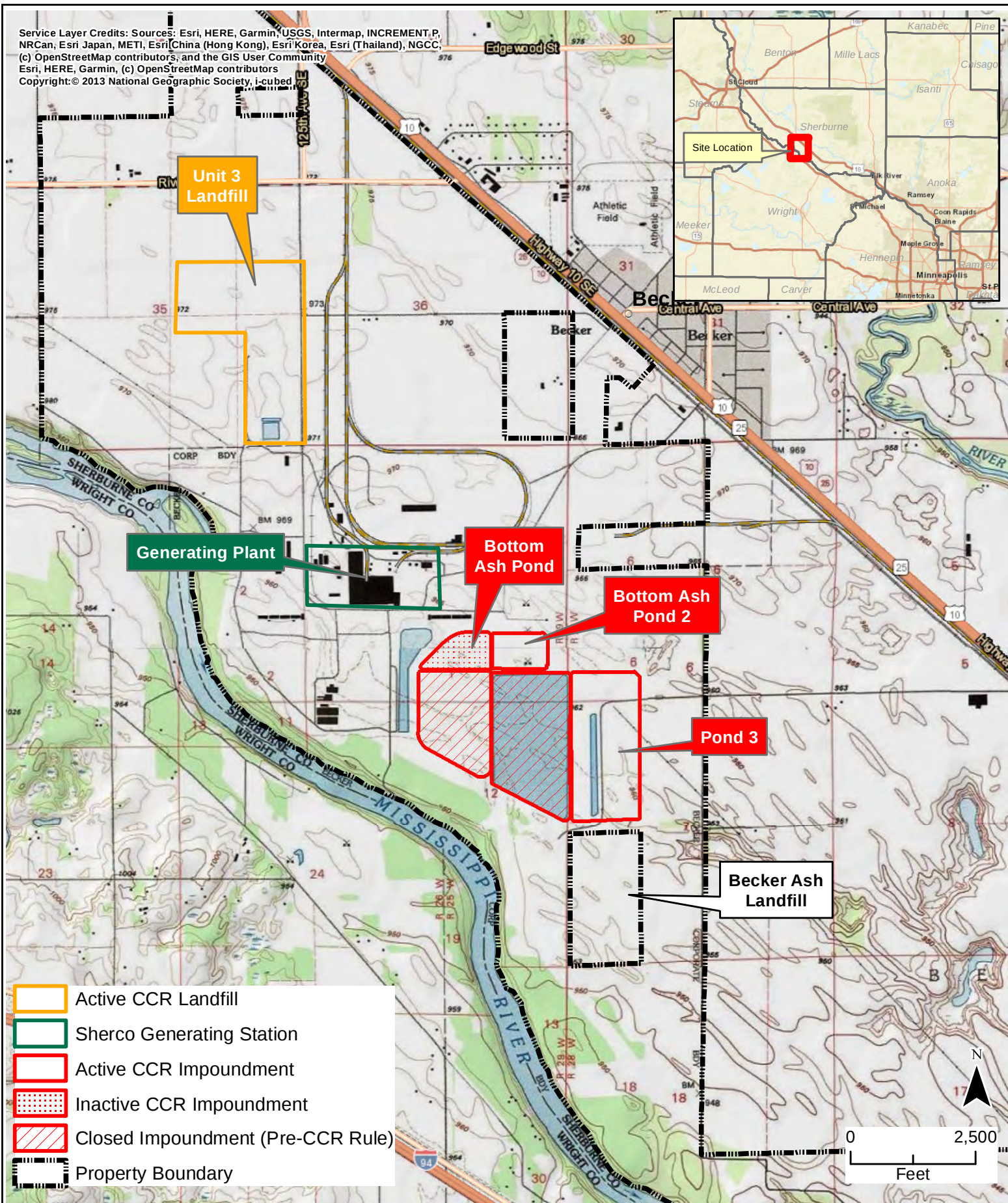
NA = Not Applicable

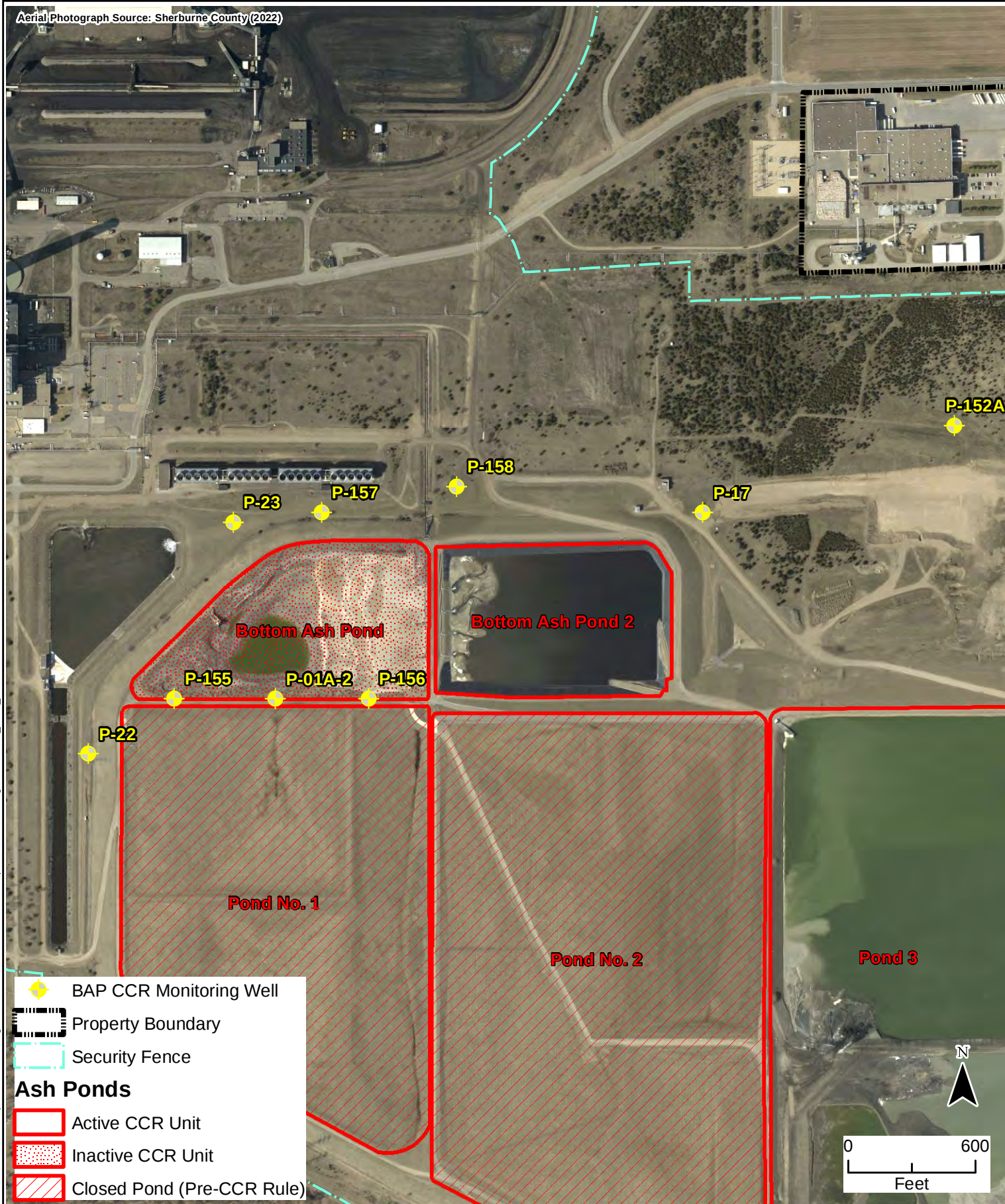
Two dashed lines = Not Analyzed

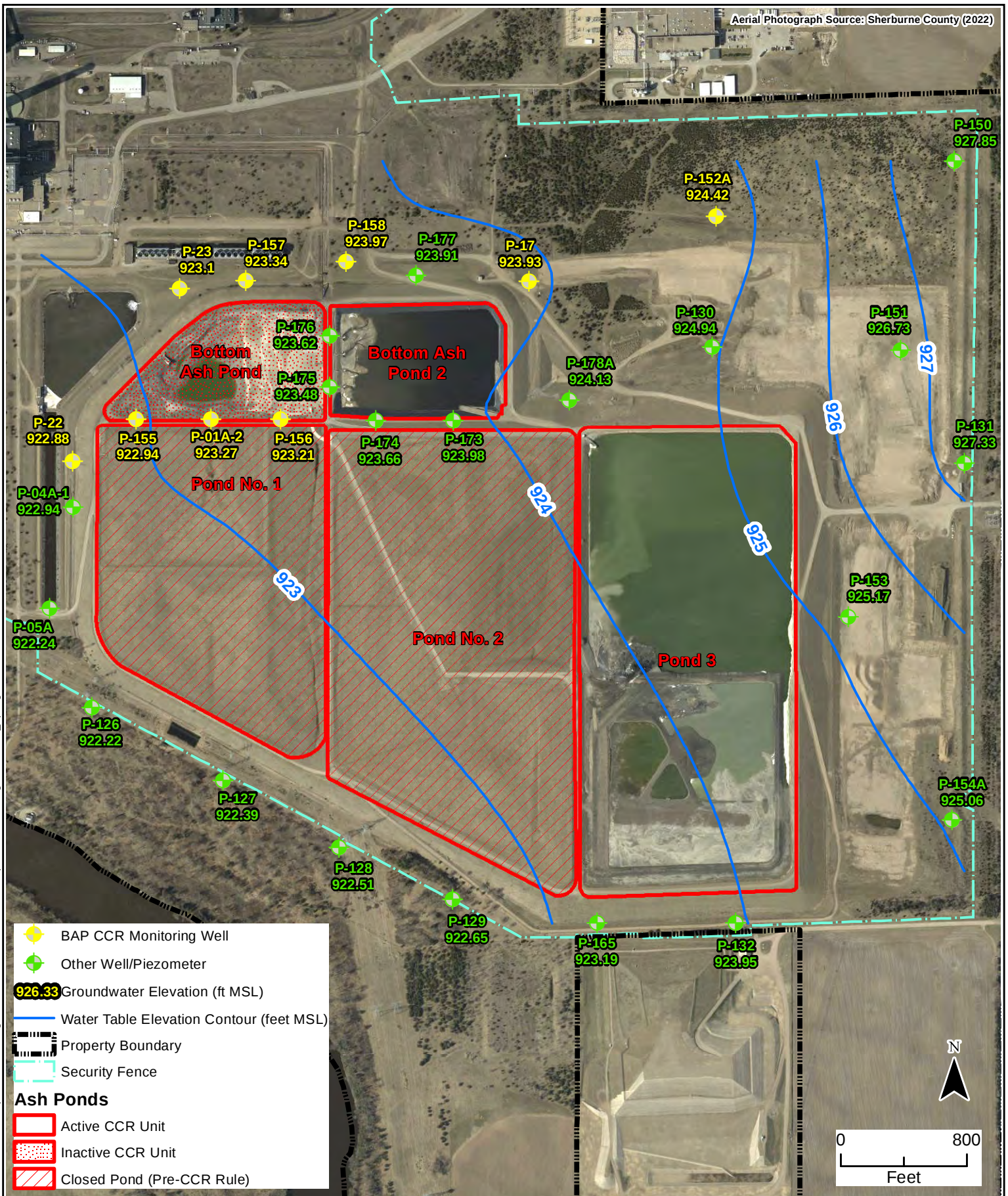
Downgradient Well

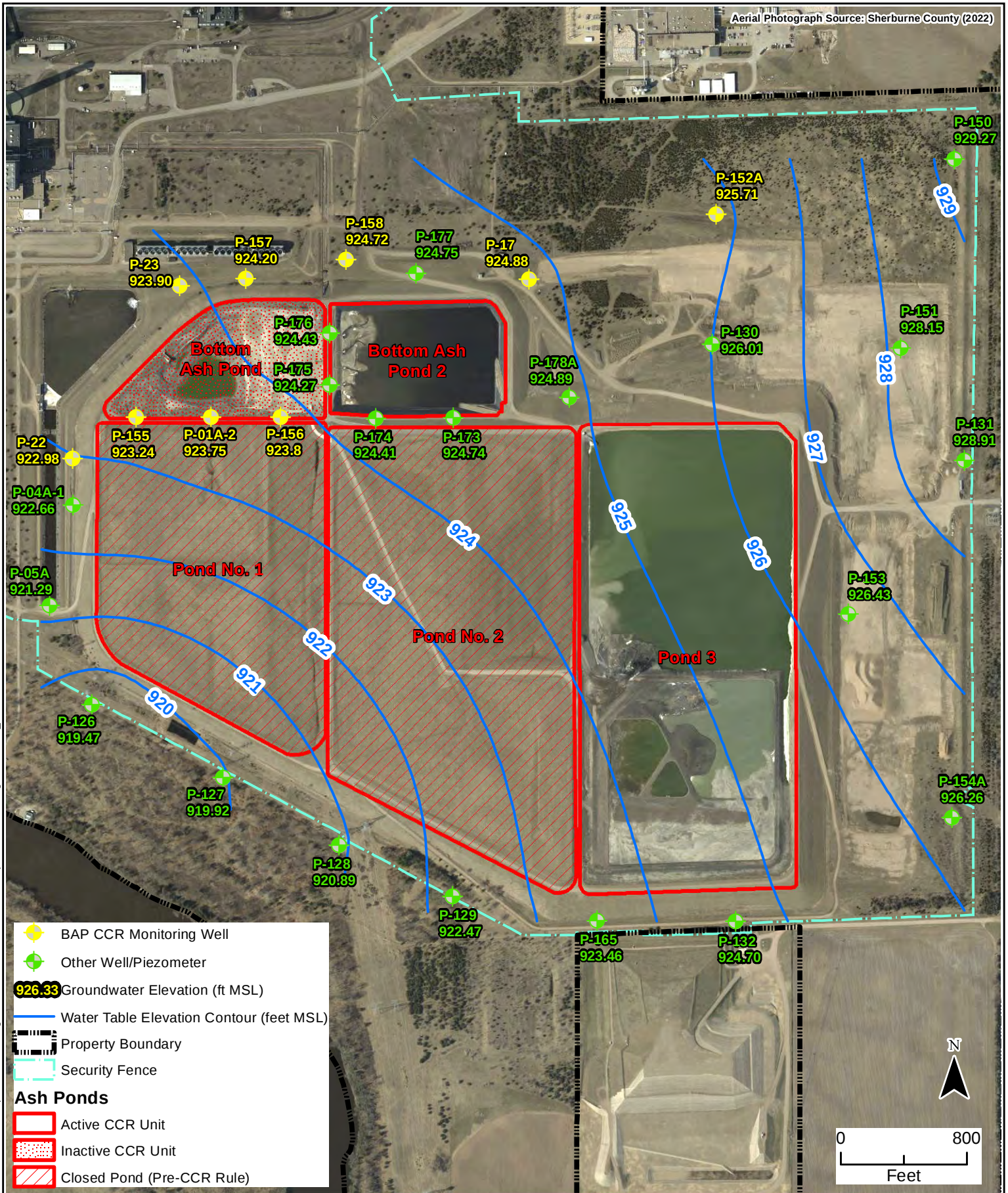
¹ Low groundwater levels prevented a sample from being collected from the well on the specified date.

Figures









2022 CCR ANNUAL GROUNDWATER
MONITORING REPORT
Bottom Ash Pond
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 4
WATER TABLE
ELEVATION CONTOUR
MAP (10/31-11/3/22)

Appendix A

Spring 2022 Assessment Monitoring Event Field Datasheets and Laboratory Reports

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shuco Ponds Spring 2022</u>		Project No.	
	Monitoring Point ID	<u>P-01A-2</u>		Labeled	<u>847286</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>	☒ Locked	☐ Not Locked	
	Casing Material:	☐ PVC	☐ Steel	☐ Stainless Steel				
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation	<u>NA</u>	Feet	<u>*NEW*</u>				
	Total Well Depth	<u>85.41</u>	Feet	<u>*Top of Bladder</u>				
	Static water level measurement before purging (Start Depth)	<u>80.58</u>	Feet	<u>*5/2/22</u>				
	Static water level measurement at time of sampling (Final Depth)	<u>80.56</u>	Feet					
	Static Water Level Elevation Before Purging	<u>NA</u>	Feet					
	Purge Method	<u>Bladder Pump</u>		Pump ID	<u>BPC1</u>			
	Date Purged	<u>5/3/22</u>		Water Column	<u>4.83</u>	Feet		
	Time Purged	<u>1400-1412</u>		One Casing Volume	<u>0.79</u>	Gallons		
	Pump Rate	<u>0.2</u>	(GPM) / LPM	Volume Purged	<u>2.4</u>	Gallons		

Field Sampling Data	Date Sampled	<u>5/3/22</u>	Field Parameter Measurements of Sample					
	Time Sampled	<u>1415</u>	pH	<u>7.5</u>	(units)	D.O.	<u>7.1</u>	(mg/l)
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond.	<u>1410</u>	(µmhos/cm)	Turbidity	<u>1.6</u>	(NTU)
	Meter ID	<u>MP3B+TM6</u>	Temp. Observed	<u>10.4</u>	(°C)	Eh	<u>164</u>	(mV)
	Analyzed by	<u>MM</u>	Temp. Corrected	<u>10.4</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:	☒ Yes	☐ No	☐ NA				
	Sample for Soluble Metals Filtered in Field:	☒ Yes	☐ No	☐ NA				
	Temperature Correction Factor:	<u>0</u>	°C					
	Weather Conditions During Sampling:	<u>54, Sunny, wind N 8 mph</u>						
	Sample Description:	<u>Clear + odorless</u>						
	Observations:	<u>NA</u>						

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1404	7.5	1410	10.4	7.2	1.6	164	0.8
1408	7.5	1410	10.4	7.2	1.6	164	1.6
1412	7.5	1410	10.4	7.1	1.6	164	2.4

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form 10-000-01 5/12/2021

Name/Affiliation of Sampler(s): Kendra Moran / Pace

Lead Technician Signature: [Signature] Date: 5/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shuco Ponds Spring 2022</u>		Project No.	
	Monitoring Point ID	<u>P-17</u>		Labeled	<u>P17</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked
	Casing Material:	☐ PVC ☐ Steel ☐ Stainless Steel						
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation		<u>NA</u>	Feet				
	Total Well Depth		<u>58.76</u>	Feet				
	Static water level measurement before purging (Start Depth)		<u>40.41</u>	Feet		<u>45/2/22</u>		
	Static water level measurement at time of sampling (Final Depth)		<u>40.41</u>	Feet				
	Static Water Level Elevation Before Purging		<u>NA</u>	Feet				
	Purge Method	<u>Bladder Pump</u>		Pump ID	<u>BPC 2</u>			
	Date Purged	<u>5/4/22</u>		Water Column	<u>18.35</u>	Feet		
	Time Purged	<u>1230-1315</u>		One Casing Volume	<u>2.99</u>	Gallons		
	Pump Rate	<u>0.2</u>	GPM / LPM	Volume Purged	<u>9</u>	Gallons		

Field Sampling Data	Date Sampled	<u>5/4/22</u>	Field Parameter Measurements of Sample				
	Time Sampled	<u>1320</u>	1245 <u>1315</u> pH <u>7.6</u> (units)	D.O. <u>8.0</u> (mg/l)			
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond. <u>450</u> (µmhos/cm)	Turbidity <u>0.60</u> (NTU)			
	Meter ID	<u>MPS-8-TM6</u>	Temp. Observed <u>10.2</u> (°C)	Eh <u>154</u> (mV)			
	Analyzed by	<u>UAM</u>	Temp. Corrected <u>10.2</u> (°C)	Other <u>na</u>			
	Field Measurements Temp. Corrected:		☒ Yes	☐ No	☐ NA		
	Sample for Soluble Metals Filtered in Field:		☒ Yes	☐ No	☐ NA		
	Temperature Correction Factor:		<u>0</u>	°C			
	Weather Conditions During Sampling: <u>59°, sunny, wind SE 4mph</u>						
	Sample Description: <u>clear, no odor</u>						
	Observations: <u>not</u>						

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1245	7.6	450	10.1	8.0	0.60	154	3
	1300	7.6	450	10.1	8.0	0.60	154	6
	1315	7.6	450	10.2	8.0	0.60	154	9

Samples chilled immediately after collection:	☒ Yes ☐ Other
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Form Revised: 11/20/2021

Name/Affiliation of Sampler(s): Kendra Moran/Pace

Lead Technician Signature: [Signature] Date: 5/4/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shuco Ponds Spring 2022</u>		Project No.	
	Monitoring Point ID	<u>P-22</u>		Labeled	<u>P22</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked
	Casing Material:	☐ PVC	☐ Steel	☐ Stainless Steel				
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation		<u>NA</u>	Feet				
	Total Well Depth		<u>57.85</u>	Feet				
	Static water level measurement before purging (Start Depth)		<u>41.45</u>	Feet		<u>* 5/1/22</u>		
	Static water level measurement at time of sampling (Final Depth)		<u>41.45</u>	Feet				
	Static Water Level Elevation Before Purging		<u>NA</u>	Feet				
	Purge Method	<u>Perforated Bladder Pump</u>		Pump ID	<u>BPL-2</u>			
	Date Purged	<u>5/4/22</u>		Water Column	<u>14.40</u>	Feet		
	Time Purged	<u>0910 - 0952</u>		One Casing Volume	<u>2.67</u>	Gallons		
	Pump Rate	<u>0.2</u>	GPM / LPM	Volume Purged	<u>8.4</u>	Gallons		

Field Sampling Data	Date Sampled	<u>5/4/22</u>	Field Parameter Measurements of Sample					
	Time Sampled	<u>1000</u>	pH	<u>7.6</u>	(units)	D.O.	<u>9.0</u>	(mg/l)
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond.	<u>600</u>	(µmhos/cm)	Turbidity	<u>1.8</u>	(NTU)
	Meter ID	<u>MPS-6</u>	Temp. Observed	<u>9.7</u>	(°C)	Eh	<u>108</u>	(mV)
	Analyzed by	<u>ROS</u>	Temp. Corrected	<u>10.0</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:		☒ Yes	☐ No	☐ NA			
	Sample for Soluble Metals Filtered in Field:		☒ Yes	☐ No	☐ NA			
	Temperature Correction Factor:		<u>+0.3</u>	°C				
	Weather Conditions During Sampling: <u>46°F, Sunny, E@.4MPH</u>							
	Sample Description: <u>clear no odor</u>							
	Observations: <u>none</u>							

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	0924	7.7	590	9.7	8.8	2.1	85	2.8
	0938	7.7	600	9.7	8.9	1.8	100	5.6
	0952	7.6	1000	9.7	9.0	1.8	108	8.4

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Ruby Jackson Pace

Lead Technician Signature: Ruby Jackson Date: 5/4/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shuco Ponds Spring 2022</u>		Project No.	
	Monitoring Point ID	<u>P-23</u>		Labeled	<u>P23</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked
	Casing Material:	☒ PVC	☐ Steel	☐ Stainless Steel				
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation		<u>NA</u>	Feet				
	Total Well Depth		<u>67.34</u>	Feet				
	Static water level measurement before purging (Start Depth)		<u>44.16</u>	Feet		<u>5/4/22</u>		
	Static water level measurement at time of sampling (Final Depth)		<u>44.16</u>	Feet				
	Static Water Level Elevation Before Purging		<u>NA</u>	Feet				
	Purge Method	<u>Det. water bladder Pump</u>		Pump ID	<u>BPC1</u>			
	Date Purged	<u>5/4/22</u>		Water Column	<u>23.18</u>	Feet		
	Time Purged	<u>0850 - 0947</u>		One Casing Volume	<u>3.78</u>	Gallons		
	Pump Rate	<u>0.2</u>	GPM / LPM	Volume Purged	<u>11.4</u>	Gallons		

Field Sampling Data	Date Sampled	<u>5/4/22</u>	Field Parameter Measurements of Sample					
	Time Sampled	<u>0950</u>	pH	<u>7.4</u>	(units)	D.O.	<u>8.0</u>	(mg/l)
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond.	<u>700</u>	(µmhos/cm)	Turbidity	<u>0.24</u>	(NTU)
	Meter ID	<u>MP58 + TMB</u>	Temp. Observed	<u>11.5</u>	(°C)	Eh	<u>176</u>	(mV)
	Analyzed by	<u>WM</u>	Temp. Corrected	<u>11.5</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:		☒ Yes	☐ No	☐ NA			
	Sample for Soluble Metals Filtered in Field:		☒ Yes	☐ No	☐ NA			
	Temperature Correction Factor:		<u>0</u>	°C				
	Weather Conditions During Sampling: <u>48 sunny, wind SE 4mph</u>							
	Sample Description: <u>Clear and odorless</u>							
	Observations: <u>NA</u>							

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	0909	7.4	720	11.5	8.0	0.24	179	3.3
	0928	7.4	710	11.5	8.0	0.24	178	7.6
	0947	7.4	700	11.5	8.0	0.24	176	11.4

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised 01/25/2021

Name/Affiliation of Sampler(s): Kendra Moran / Pace

Lead Technician Signature: [Signature] Date: 5/4/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shorelands Spring 2022</u>	Project No. _____
	Monitoring Point ID <u>P-152A</u>	Labeled <u>306318</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel		
Depth Measurement and Elevations (from top of well casing)			
Top of Casing Elevation <u>NA</u>		Feet	
Total Well Depth <u>42.35</u>		Feet	
Static water level measurement before purging (Start Depth) <u>NA - DRY</u>		Feet	
Static water level measurement at time of sampling (Final Depth) <u>NA</u>		Feet	
Static Water Level Elevation Before Purging <u>NA</u>		Feet	
Purge Method <u>Dedicated Bladder Pump</u>		Pump ID _____	
Date Purged _____		Water Column _____ Feet	
Time Purged _____		One Casing Volume _____ Gallons	
Pump Rate _____ GPM / LPM		Volume Purged _____ Gallons	

Field Sampling Data	Date Sampled _____	Field Parameter Measurements of Sample	
	Time Sampled _____	pH _____ (units)	D.O. _____ (mg/l)
	Sampling Equip. <u>Pump + Filter</u>	Spec. Cond. _____ (µmhos/cm)	Turbidity _____ (NTU)
	Meter ID _____	Temp. Observed <u>51.22</u> (°C)	Eh _____ (mV)
Analyzed by _____	Temp. Corrected _____ (°C)	Other _____	
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA			
Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA			
Temperature Correction Factor: _____ °C			
Weather Conditions During Sampling: _____			
Sample Description: _____			
Observations: <u>* Top of Bladder = 39.36ft - Removed Bladder after failed attempt to sample</u> <u>* got sample, depth = 41.45ft / 41.55 5/5/22 by RLS - Attempted Sample w/ submersible - NO SAMPLE</u>			

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)

Samples chilled immediately after collection: ☒ Yes ☐ Other _____
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Form Revised 01/25/2021

Name/Affiliation of Sampler(s): Riley Jackson

Lead Technician Signature: Riley Jackson Date: 5/5/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shirco Ponds Spring 2022</u>	Project No. _____
	Monitoring Point ID <u>P-155</u>	Labeled <u>P155</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel		
	Depth Measurement and Elevations (from top of well casing)		
	Top of Casing Elevation <u>NA</u>	Feet	
	Total Well Depth <u>85.47</u>	Feet	
	Static water level measurement before purging (Start Depth) <u>79.78</u>	Feet	*5/6/22
	Static water level measurement at time of sampling (Final Depth) <u>79.78</u>	Feet	
	Static Water Level Elevation Before Purging <u>NA</u>	Feet	
	Purge Method <u>Positive Displacement Pump</u>	Pump ID <u>BPC1</u>	
	Date Purged <u>5/3/22</u>	Water Column <u>5.69</u>	Feet
	Time Purged <u>1505</u>	One Casing Volume <u>0.93</u>	Gallons
	Pump Rate <u>0.2</u> GPM / LPM	Volume Purged <u>3</u>	Gallons

Field Sampling Data	Date Sampled <u>5/3/22</u>	Field Parameter Measurements of Sample			
	Time Sampled <u>1525</u>	pH <u>7.6</u> (units)	D.O. <u>7.9</u> (mg/l)		
	Sampling Equip. <u>Pump + Filter</u>	Spec. Cond. <u>770</u> (µmhos/cm)	Turbidity <u>4.0</u> (NTU)		
	Meter ID <u>MP58 + PMP</u>	Temp. Observed <u>10.6</u> (°C)	Eh <u>158</u> (mV)		
	Analyzed by <u>KM</u>	Temp. Corrected <u>10.6</u> (°C)	Other <u>NA</u>		
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA				
	Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA				
	Temperature Correction Factor: <u>0</u> °C				
	Weather Conditions During Sampling: <u>NR - BUS 5/6/22</u>				
	Sample Description: <u>Clear and odorless</u>				
	Observations: <u>NA</u>				

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1510	7.6	760	10.6	8.1	4.0	158	1
1515	7.6	770	10.6	8.0	4.0	158	2
1520	7.6	770	10.6	7.9	4.0	158	3

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 11/25/2021

Name/Affiliation of Sampler(s): Kendra Moran / Rice

Lead Technician Signature: [Signature] Date: 5/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>		Project <u>Shuco Ponds Sp. May 2022</u>		Project No. _____	
	Monitoring Point ID <u>P-156</u>		Labeled <u>P-156</u>			
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked	☐ Not Locked		
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel					
Depth Measurement and Elevations (from top of well casing)						
Top of Casing Elevation <u>NA</u>			Feet			
Total Well Depth <u>85.53</u>			Feet			
Static water level measurement before purging (Start Depth) <u>79.18</u>			Feet		<u>x 5/6/22</u>	
Static water level measurement at time of sampling (Final Depth) <u>74.18</u>			Feet			
Static Water Level Elevation Before Purging <u>NA</u>			Feet			
Purge Method <u>Dedicated Dedde Pump</u>			Pump ID <u>BPC-1</u>			
Date Purged <u>5/3/22</u>			Water Column <u>6.35</u>		Feet	
Time Purged <u>1304-1322</u>			One Casing Volume <u>1.04</u>		Gallons	
Pump Rate <u>0.2</u> GPM / LPM			Volume Purged <u>30</u>		Gallons	

Field Sampling Data	Date Sampled <u>5/3/22</u>		Field Parameter Measurements of Sample			
	Time Sampled <u>1325</u>		pH <u>7.41</u> (units)		D.O. <u>8.4</u> (mg/l)	
	Sampling Equip. <u>Pump + Filter</u>		Spec. Cond. <u>630</u> (umhos/cm)		Turbidity <u>1.1</u> (NTU)	
	Meter ID <u>NPS 8-TMP</u>		Temp. Observed <u>10.3</u> (°C)		Eh <u>143</u> (mV)	
Analyzed by <u>LM</u>		Temp. Corrected <u>10.3</u> (°C)		Other <u>NA</u>		
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA						
Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA						
Temperature Correction Factor: <u>0</u> °C						
Weather Conditions During Sampling: <u>53, sunny, wind NNE ampt.</u>						
Sample Description: <u>clear, odorless</u>						
Observations: <u>NA</u>						

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1310	7.4	640	10.4	8.2	1.1	146	1.2
1316	7.4	640	10.4	8.3	1.1	144	2.4
1322	7.4	630	10.3	8.4	1.1	143	3.6

Samples chilled immediately after collection: ☒ Yes ☐ Other _____
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Kendra Moran/Pace

Lead Technician Signature: [Signature] Date: 5/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	Xcel		Project	Source Ponds Spring 2022		Project No.	
	Monitoring Point ID	P-157		Labeled	812966			
	Inside Diameter	2	(inches)	Key #	2106		☒ Locked	☐ Not Locked
	Casing Material:	☒ PVC ☐ Steel ☐ Stainless Steel						
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation		NA		Feet			
	Total Well Depth		47.06		Feet			
	Static water level measurement before purging (Start Depth)		44.83		Feet		4/5/22	
	Static water level measurement at time of sampling (Final Depth)		44.83		Feet			
	Static Water Level Elevation Before Purging		NA		Feet			
	Purge Method	Dedicated Boulder Pump		Pump ID	BPL-1			
	Date Purged	5/4/22		Water Column	4.23		Feet	
	Time Purged	1005 - 1017		One Casing Volume	0.70		Gallons	
	Pump Rate	0.2 GPM / LPM		Volume Purged	2.4		Gallons	

Field Sampling Data	Date Sampled	5/4/22		Field Parameter Measurements of Sample			
	Time Sampled	1020		pH	7.3 (units)	D.O.	7.2 (mg/l)
	Sampling Equip.	Pump + Filter		Spec. Cond.	640 (umhos/cm)	Turbidity	1.4 (NTU)
	Meter ID	MP3-8-TM6		Temp. Observed	11.8 (°C)	Eh	166 (mV)
	Analyzed by	LM		Temp. Corrected	11.8 (°C)	Other	NA
	Field Measurements Temp. Corrected:			☒ Yes	☐ No	☐ NA	
	Sample for Soluble Metals Filtered in Field:			☒ Yes	☐ No	☐ NA	
	Temperature Correction Factor:			0 °C			
	Weather Conditions During Sampling: 49, sunny, wind SE 6mph						
	Sample Description: Clear and odorless						
	Observations: Collected DWP BAP and LWP BAP @ 1000						

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1009	7.3	640	11.6	7.2	1.4	166	0.8
1013	7.3	640	11.8	7.2	1.4	166	1.6
1017	7.3	640	11.8	7.2	1.4	166	2.4

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Kendra Moran/Pace

Lead Technician Signature:  Date: 5/4/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shirco Ponds Spring 2022</u>		Project No.	
	Monitoring Point ID	<u>P-158</u>		Labeled	<u>812767</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>	☒ Locked	☐ Not Locked	
	Casing Material:	☐ PVC ☐ Steel ☐ Stainless Steel						
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation		<u>NA</u>	Feet				
	Total Well Depth		<u>49.16</u>	Feet				
	Static water level measurement before purging (Start Depth)		<u>42.58</u>	Feet		<u>5/4/22</u>		
	Static water level measurement at time of sampling (Final Depth)		<u>42.58</u>	Feet				
	Static Water Level Elevation Before Purging		<u>NA</u>	Feet				
	Purge Method	<u>Dedicated Blender Pump</u>		Pump ID	<u>BPC2</u>			
	Date Purged	<u>5/4/22</u>		Water Column	<u>6.55</u>	Feet		
	Time Purged	<u>1120</u>		One Casing Volume	<u>1.07</u>	Gallons		
	Pump Rate	<u>0.2</u>		(GPM/LPM)	Volume Purged	<u>3.6</u>	Gallons	

Field Sampling Data	Date Sampled	<u>5/4/22</u>	Field Parameter Measurements of Sample					
	Time Sampled	<u>1140</u>	pH	<u>7.3</u>	(units)	D.O.	<u>8.9</u>	(mg/l)
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond.	<u>840</u>	(µmhos/cm)	Turbidity	<u>0.28</u>	(NTU)
	Meter ID	<u>MP55-TM6</u>	Temp. Observed	<u>10.5</u>	(°C)	Eh	<u>154</u>	(mV)
	Analyzed by	<u>MM</u>	Temp. Corrected	<u>10.5</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:		☒ Yes	☐ No	☐ NA			
	Sample for Soluble Metals Filtered in Field:		☒ Yes	☐ No	☐ NA			
	Temperature Correction Factor:		<u>0</u>	°C				
	Weather Conditions During Sampling: <u>54° Sunny, wind E 4mph</u>							
	Sample Description: <u>clear, no odor</u>							
	Observations: <u>NA</u>							

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1126	7.3	850	10.5	8.9	0.28	154	1.2
1132	7.3	850	10.5	8.9	0.28	154	2.4
1138	7.3	840	10.5	8.9	0.28	154	3.6

Samples chilled immediately after collection	☒ Yes ☐ Other
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Form Revised: 11/25/2021

Name/Affiliation of Sampler(s): Kendra Moran / Pace

Lead Technician Signature: [Signature] Date: 5/4/22



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

09 June 2022

Eric Ealy

Environmental Services-Water Minneapolis

414 Nicollet Mall, GO-2

Minneapolis, MN 55401

RE: Sherco BAP CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 05/05/2022 07:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager

Environmental Services-Water Minneapolis

Project Name/Location: Sherco BAP CCR

414 Nicollet Mall, GO-2

Reported:

Minneapolis MN, 55401

Project Manager: Eric Ealy

06/09/2022 10:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-01A-2		MHE0049-01	Water	05/03/2022 14:15	05/05/2022 7:30
P-17		MHE0049-06	Water	05/04/2022 13:20	05/05/2022 7:30
P-22		MHE0049-07	Water	05/04/2022 10:00	05/05/2022 7:30
P-23		MHE0049-08	Water	05/04/2022 9:50	05/05/2022 7:30
P-155		MHE0049-24	Water	05/03/2022 15:25	05/05/2022 7:30
P-156		MHE0049-25	Water	05/03/2022 13:25	05/05/2022 7:30
P-157		MHE0049-26	Water	05/04/2022 10:20	05/05/2022 7:30
P-158		MHE0049-27	Water	05/04/2022 11:40	05/05/2022 7:30
Duplicate CCR-BAP		MHE0049-40	Water	05/04/2022 10:20	05/05/2022 7:30
Rinse CCR-BAP		MHE0049-41	Water	05/04/2022 10:00	05/05/2022 7:30

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-01A-2

MHE0049-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	41.0	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 15:28	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 15:28	EPA 300.0	CRL
Sulfate	465	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 15:28	EPA 300.0	CRL

Wet Chemistry

pH	7.62		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 10:38	SM 4500-H+ B	CRL
Total Dissolved Solids	992	25.0	mg/L		1	BHE0095	5/5/22 12:12	5/5/22 12:12	SM 2540C	HSD
Total Suspended Solids	5.20	5.00	mg/L		1	BHE0094	5/5/22 9:54	5/5/22 9:54	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.532	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Barium	142	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Beryllium	0.111	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Cobalt	2.80	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Chromium	1.30	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Molybdenum	5.91	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Selenium	45.7	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:16	EPA 200.8	CRL

Total Metals by ICP

Boron	3.17	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:16	EPA 200.7	HRD
Calcium	151	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:14	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:15	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-01A-2

MHE0049-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:32	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-17

MHE0049-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	8.33	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:11	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:11	EPA 300.0	CRL
Sulfate	14.3	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:11	EPA 300.0	CRL

Wet Chemistry

pH	7.85		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 11:09	SM 4500-H+ B	CRL
Total Dissolved Solids	240	25.0	mg/L		1	BHE0095	5/5/22 12:12	5/5/22 12:12	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0094	5/5/22 9:54	5/5/22 9:54	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.508	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Barium	33.2	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Chromium	1.08	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:20	EPA 200.8	CRL

Total Metals by ICP

Boron	0.0690	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:21	EPA 200.7	HRD
Calcium	55.7	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:19	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:19	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-17

MHE0049-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:34	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-22

MHE0049-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	14.9	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:31	EPA 300.0	CRL
Sulfate	32.7	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:31	EPA 300.0	CRL

Wet Chemistry

pH	7.71		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 11:16	SM 4500-H+ B	CRL
Total Dissolved Solids	276	25.0	mg/L		1	BHE0095	5/5/22 12:12	5/5/22 12:12	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0094	5/5/22 9:54	5/5/22 9:54	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Barium	46.1	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Chromium	0.861	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Molybdenum	0.574	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Selenium	0.574	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:23	EPA 200.8	CRL

Total Metals by ICP

Boron	0.431	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:44	EPA 200.7	HRD
Calcium	67.7	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:42	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:42	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-22

MHE0049-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:40	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-23

MHE0049-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	32.8	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:52	EPA 300.0	CRL
Sulfate	59.3	1.00	mg/L		1	BHE0140	5/5/22 12:14	5/5/22 17:52	EPA 300.0	CRL

Wet Chemistry

pH	7.73		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 11:23	SM 4500-H+ B	CRL
Total Dissolved Solids	376	25.0	mg/L		1	BHE0095	5/5/22 12:12	5/5/22 12:12	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0094	5/5/22 9:54	5/5/22 9:54	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.605	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Barium	58.2	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Chromium	1.15	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Selenium	0.634	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:27	EPA 200.8	CRL

Total Metals by ICP

Boron	0.263	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:49	EPA 200.7	HRD
Calcium	79.6	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:48	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:48	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-23

MHE0049-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:41	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-155

MHE0049-24 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	18.0	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 12:55	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 12:55	EPA 300.0	CRL
Sulfate	158	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 12:55	EPA 300.0	CRL

Wet Chemistry

pH	7.79		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 13:23	SM 4500-H+ B	CRL
Total Dissolved Solids	504	25.0	mg/L		1	BHE0158	5/7/22 10:39	5/7/22 10:39	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0157	5/7/22 8:34	5/7/22 8:34	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.787	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Barium	68.8	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Cobalt	2.04	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Chromium	3.80	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Lead	0.804	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Selenium	1.91	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:43	EPA 200.8	CRL

Total Metals by ICP

Boron	1.29	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:59	EPA 200.7	HRD
Calcium	80.9	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:58	EPA 200.7	HRD
Lithium	0.0304	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 14:58	EPA 200.7	HRD

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR

Project Manager: Eric Ealy

Reported:

06/09/2022 10:18

P-155

MHE0049-24 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting		Units	Analyte			Prepared	Analyzed	Method	Analyst
		Limit			Qualifier	Dilution	Batch				

Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:45	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-156

MHE0049-25 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	4.39	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:15	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:15	EPA 300.0	CRL
Sulfate	76.4	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:15	EPA 300.0	CRL

Wet Chemistry

pH	7.84		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 13:27	SM 4500-H+ B	CRL
Total Dissolved Solids	360	25.0	mg/L		1	BHE0158	5/7/22 10:39	5/7/22 10:39	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0157	5/7/22 8:34	5/7/22 8:34	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.542	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Barium	71.1	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Chromium	1.84	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Selenium	11.0	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:47	EPA 200.8	CRL

Total Metals by ICP

Boron	0.283	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:04	EPA 200.7	HRD
Calcium	78.3	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:03	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:03	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-156

MHE0049-25 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:46	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-157

MHE0049-26 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	11.6	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:36	EPA 300.0	CRL
Sulfate	58.4	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:36	EPA 300.0	CRL

Wet Chemistry

pH	7.72		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 13:30	SM 4500-H+ B	CRL
Total Dissolved Solids	370	25.0	mg/L		1	BHE0158	5/7/22 10:39	5/7/22 10:39	SM 2540C	HSD
Total Suspended Solids	13.6	5.00	mg/L		1	BHE0157	5/7/22 8:34	5/7/22 8:34	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	2.02	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Barium	111	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Beryllium	0.160	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Cadmium	0.140	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Cobalt	5.29	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Chromium	14.5	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Molybdenum	4.85	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Lead	2.54	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Selenium	1.21	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:51	EPA 200.8	CRL

Total Metals by ICP

Boron	0.197	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:09	EPA 200.7	HRD
Calcium	96.5	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:08	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-157

MHE0049-26 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:48	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-158

MHE0049-27 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	7.52	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:56	EPA 300.0	CRL
Sulfate	132	1.00	mg/L		1	BHE0153	5/6/22 7:22	5/6/22 13:56	EPA 300.0	CRL

Wet Chemistry

pH	7.69		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 13:34	SM 4500-H+ B	CRL
Total Dissolved Solids	482	25.0	mg/L		1	BHE0158	5/7/22 10:39	5/7/22 10:39	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0157	5/7/22 8:34	5/7/22 8:34	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Barium	76.5	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Chromium	1.33	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Selenium	2.35	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:55	EPA 200.8	CRL

Total Metals by ICP

Boron	0.959	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:14	EPA 200.7	HRD
Calcium	103	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:13	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 15:13	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

P-158

MHE0049-27 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:50	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Duplicate CCR-BAP
MHE0049-40 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	10.4	1.00	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:10	EPA 300.0	CRL
Sulfate	55.6	1.00	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:10	EPA 300.0	CRL

Wet Chemistry

pH	7.76		pH Units	M_TTT	1	BHE0115	5/5/22 9:40	5/5/22 14:54	SM 4500-H+ B	CRL
Total Dissolved Solids	368	25.0	mg/L		1	BHE0171	5/8/22 9:45	5/8/22 9:45	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0170	5/8/22 7:42	5/8/22 7:42	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	1.21	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Barium	81.4	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Cobalt	2.50	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Chromium	7.51	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Molybdenum	6.12	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Lead	1.19	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Selenium	1.14	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0173	5/9/22 10:17	5/10/22 8:59	EPA 200.8	CRL

Total Metals by ICP

Boron	0.177	0.0500	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 16:02	EPA 200.7	HRD
Calcium	84.4	1.50	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 16:00	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0172	5/9/22 9:56	5/11/22 16:01	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Duplicate CCR-BAP

MHE0049-40 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:51	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Rinse CCR-BAP
MHE0049-41 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:31	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BHE0178	5/9/22 7:39	5/9/22 11:31	EPA 300.0	CRL

Wet Chemistry

pH	6.49		pH Units	M_TTT	1	BHE0179	5/9/22 7:43	5/9/22 9:03	SM 4500-H+ B	CRL
Total Dissolved Solids	< 25.0	25.0	mg/L	M_ES	1	BHE0171	5/8/22 9:45	5/8/22 9:45	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHE0170	5/8/22 7:42	5/8/22 7:42	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Chromium	0.669	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BHE0199	5/9/22 10:52	5/10/22 9:33	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BHE0198	5/9/22 10:51	5/11/22 16:55	EPA 200.7	HRD
Calcium	< 1.50	1.50	mg/L		1	BHE0198	5/9/22 10:51	5/11/22 16:53	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHE0198	5/9/22 10:51	5/11/22 16:53	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Rinse CCR-BAP

MHE0049-41 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Mercury

Mercury	< 0.200	0.200	ug/L		1	BHE0148	5/9/22 9:00	5/9/22 13:53	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0140 - Wet Prep

Blank (BHE0140-BLK1)				Prepared & Analyzed: 05/05/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BHE0140-BLK2)				Prepared & Analyzed: 05/05/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BHE0140-BS1)				Prepared & Analyzed: 05/05/2022						
Chloride	24.822	1.00	mg/L	25.000		99.3	90-110			
Fluoride	2.5520	0.750	mg/L	2.5000		102	90-110			
Sulfate	24.482	1.00	mg/L	25.000		97.9	90-110			

LCS (BHE0140-BS2)				Prepared & Analyzed: 05/05/2022						
Chloride	24.979	1.00	mg/L	25.000		99.9	90-110			
Fluoride	2.5860	0.750	mg/L	2.5000		103	90-110			
Sulfate	24.568	1.00	mg/L	25.000		98.3	90-110			

LCS (BHE0140-BS3)				Prepared & Analyzed: 05/05/2022						
Chloride	25.067	1.00	mg/L	25.000		100	90-110			
Fluoride	2.5940	0.750	mg/L	2.5000		104	90-110			
Sulfate	24.616	1.00	mg/L	25.000		98.5	90-110			

Duplicate (BHE0140-DUP1)				Source: MHE0040-01		Prepared & Analyzed: 05/05/2022				
Chloride	8.1310	1.00	mg/L		8.1420		0.135	20		
Fluoride	0.063000	0.750	mg/L		0.063000		0.00	20		
Sulfate	8.3250	1.00	mg/L		8.3340		0.108	20		

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0140 - Wet Prep

Duplicate (BHE0140-DUP2)		Source: MHE0049-02		Prepared & Analyzed: 05/05/2022						
Chloride	0.66100	1.00	mg/L		0.66000			0.151	20	
Fluoride	0.087000	0.750	mg/L		0.086000			1.16	20	
Sulfate	6.3450	1.00	mg/L		6.3290			0.252	20	

Matrix Spike (BHE0140-MS1)		Source: MHE0040-01		Prepared & Analyzed: 05/05/2022						
Chloride	34.833	1.11	mg/L	27.778	8.1420	96.1	90-110			
Fluoride	2.7900	0.833	mg/L	2.7778	<0.833	100	90-110			
Sulfate	34.910	1.11	mg/L	27.778	8.3340	95.7	90-110			

Matrix Spike (BHE0140-MS2)		Source: MHE0049-02		Prepared & Analyzed: 05/05/2022						
Chloride	28.587	1.11	mg/L	27.778	0.66000	101	90-110			
Fluoride	3.0233	0.833	mg/L	2.7778	0.086000	106	90-110			
Sulfate	34.514	1.11	mg/L	27.778	6.3290	101	90-110			

Matrix Spike Dup (BHE0140-MSD1)		Source: MHE0040-01		Prepared & Analyzed: 05/05/2022						
Chloride	35.474	1.11	mg/L	27.778	8.1420	98.4	90-110	1.82	20	
Fluoride	2.8778	0.833	mg/L	2.7778	<0.833	104	90-110	3.10	20	
Sulfate	35.540	1.11	mg/L	27.778	8.3340	97.9	90-110	1.79	20	

Matrix Spike Dup (BHE0140-MSD2)		Source: MHE0049-02		Prepared & Analyzed: 05/05/2022						
Chloride	27.902	1.11	mg/L	27.778	0.66000	98.1	90-110	2.42	20	
Fluoride	2.9522	0.833	mg/L	2.7778	0.086000	103	90-110	2.38	20	
Sulfate	33.844	1.11	mg/L	27.778	6.3290	99.1	90-110	1.96	20	

Batch BHE0153 - Wet Prep

Blank (BHE0153-BLK1)		Prepared & Analyzed: 05/06/2022								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0153 - Wet Prep

Blank (BHE0153-BLK2)				Prepared & Analyzed: 05/06/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BHE0153-BS1)				Prepared & Analyzed: 05/06/2022						
Chloride	25.241	1.00	mg/L	25.000		101	90-110			
Fluoride	2.6500	0.750	mg/L	2.5000		106	90-110			
Sulfate	24.906	1.00	mg/L	25.000		99.6	90-110			

LCS (BHE0153-BS2)				Prepared & Analyzed: 05/06/2022						
Chloride	25.117	1.00	mg/L	25.000		100	90-110			
Fluoride	2.6260	0.750	mg/L	2.5000		105	90-110			
Sulfate	24.653	1.00	mg/L	25.000		98.6	90-110			

LCS (BHE0153-BS3)				Prepared & Analyzed: 05/06/2022						
Chloride	25.277	1.00	mg/L	25.000		101	90-110			
Fluoride	2.6410	0.750	mg/L	2.5000		106	90-110			
Sulfate	24.845	1.00	mg/L	25.000		99.4	90-110			

Duplicate (BHE0153-DUP1)				Source: MHE0049-19		Prepared & Analyzed: 05/06/2022				
Chloride	37.393	1.00	mg/L		37.398			0.0134	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	54.150	1.00	mg/L		54.165			0.0277	20	

Duplicate (BHE0153-DUP2)				Source: MHE0049-20		Prepared & Analyzed: 05/06/2022				
Chloride	34.104	1.00	mg/L		34.112			0.0235	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	111.41	1.00	mg/L		111.21			0.182	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0153 - Wet Prep

Matrix Spike (BHE0153-MS1)			Source: MHE0049-19		Prepared & Analyzed: 05/06/2022					
Chloride	65.421	1.11	mg/L	27.778	37.398	101	90-110			
Fluoride	2.9811	0.833	mg/L	2.7778	<0.833	107	90-110			
Sulfate	82.354	1.11	mg/L	27.778	54.165	101	90-110			

Matrix Spike (BHE0153-MS2)			Source: MHE0049-20		Prepared & Analyzed: 05/06/2022					
Chloride	61.564	1.11	mg/L	27.778	34.112	98.8	90-110			
Fluoride	2.9144	0.833	mg/L	2.7778	<0.833	105	90-110			
Sulfate	138.59	1.11	mg/L	27.778	111.21	98.6	90-110			

Matrix Spike Dup (BHE0153-MSD1)			Source: MHE0049-19		Prepared & Analyzed: 05/06/2022					
Chloride	65.168	1.11	mg/L	27.778	37.398	100	90-110	0.388	20	
Fluoride	2.9589	0.833	mg/L	2.7778	<0.833	107	90-110	0.748	20	
Sulfate	82.076	1.11	mg/L	27.778	54.165	100	90-110	0.339	20	

Matrix Spike Dup (BHE0153-MSD2)			Source: MHE0049-20		Prepared & Analyzed: 05/06/2022					
Chloride	61.641	1.11	mg/L	27.778	34.112	99.1	90-110	0.124	20	
Fluoride	2.9311	0.833	mg/L	2.7778	<0.833	106	90-110	0.570	20	
Sulfate	138.67	1.11	mg/L	27.778	111.21	98.9	90-110	0.0625	20	

Batch BHE0178 - Wet Prep

Blank (BHE0178-BLK1)			Prepared & Analyzed: 05/09/2022							
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BHE0178-BLK2)			Prepared & Analyzed: 05/09/2022							
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0178 - Wet Prep

LCS (BHE0178-BS1)				Prepared & Analyzed: 05/09/2022						
Chloride	24.864	1.00	mg/L	25.000		99.5	90-110			
Fluoride	2.6070	0.750	mg/L	2.5000		104	90-110			
Sulfate	24.474	1.00	mg/L	25.000		97.9	90-110			

LCS (BHE0178-BS2)				Prepared & Analyzed: 05/09/2022						
Chloride	24.726	1.00	mg/L	25.000		98.9	90-110			
Fluoride	2.5950	0.750	mg/L	2.5000		104	90-110			
Sulfate	24.262	1.00	mg/L	25.000		97.0	90-110			

LCS (BHE0178-BS3)				Prepared & Analyzed: 05/09/2022						
Chloride	24.692	1.00	mg/L	25.000		98.8	90-110			
Fluoride	2.5870	0.750	mg/L	2.5000		103	90-110			
Sulfate	24.223	1.00	mg/L	25.000		96.9	90-110			

Duplicate (BHE0178-DUP1)				Source: MHE0049-40		Prepared & Analyzed: 05/09/2022				
Chloride	10.838	1.00	mg/L		10.380			4.32	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	57.982	1.00	mg/L		55.592			4.21	20	

Duplicate (BHE0178-DUP2)				Source: MHE0049-42		Prepared & Analyzed: 05/09/2022				
Chloride	6.5370	1.00	mg/L		6.5390			0.0306	20	
Fluoride	0.074000	0.750	mg/L		<0.750				20	
Sulfate	23.912	1.00	mg/L		23.962			0.209	20	

Matrix Spike (BHE0178-MS1)				Source: MHE0049-40		Prepared & Analyzed: 05/09/2022				
Chloride	37.709	1.11	mg/L	27.778	10.380	98.4	90-110			
Fluoride	2.8056	0.833	mg/L	2.7778	<0.833	101	90-110			
Sulfate	85.400	1.11	mg/L	27.778	55.592	107	90-110			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0178 - Wet Prep

Matrix Spike (BHE0178-MS2)	Source: MHE0049-42			Prepared & Analyzed: 05/09/2022						
Chloride	34.266	1.11	mg/L	27.778	6.5390	99.8	90-110			
Fluoride	2.9489	0.833	mg/L	2.7778	<0.833	106	90-110			
Sulfate	51.892	1.11	mg/L	27.778	23.962	101	90-110			

Matrix Spike Dup (BHE0178-MSD1)	Source: MHE0049-40			Prepared & Analyzed: 05/09/2022						
Chloride	38.472	1.11	mg/L	27.778	10.380	101	90-110	2.00	20	
Fluoride	2.9067	0.833	mg/L	2.7778	<0.833	105	90-110	3.54	20	
Sulfate	85.968	1.11	mg/L	27.778	55.592	109	90-110	0.663	20	

Matrix Spike Dup (BHE0178-MSD2)	Source: MHE0049-42			Prepared & Analyzed: 05/09/2022						
Chloride	34.074	1.11	mg/L	27.778	6.5390	99.1	90-110	0.559	20	
Fluoride	2.9311	0.833	mg/L	2.7778	<0.833	106	90-110	0.605	20	
Sulfate	51.719	1.11	mg/L	27.778	23.962	99.9	90-110	0.335	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0094 - Wet Prep

Blank (BHE0094-BLK1)				Prepared & Analyzed: 05/05/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHE0094-BS1)				Prepared & Analyzed: 05/05/2022						
Total Suspended Solids	78.000	5.00	mg/L	102.20		76.3	70-130			
Duplicate (BHE0094-DUP1)				Source: MHE0049-01		Prepared & Analyzed: 05/05/2022				
Total Suspended Solids	5.5000	12.5	mg/L		5.2000			5.61	20	M_ES
Duplicate (BHE0094-DUP2)				Source: MHE0049-02		Prepared & Analyzed: 05/05/2022				
Total Suspended Solids	6.5000	12.5	mg/L		7.0000			7.41	20	M_ES

Batch BHE0095 - Wet Prep

Blank (BHE0095-BLK1)				Prepared & Analyzed: 05/05/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BHE0095-BS1)				Prepared & Analyzed: 05/05/2022						
Total Dissolved Solids	116.00	25.0	mg/L	104.10		111	70-130			
Duplicate (BHE0095-DUP1)				Source: MHE0049-01		Prepared & Analyzed: 05/05/2022				
Total Dissolved Solids	984.00	25.0	mg/L		992.00			0.810	20	
Duplicate (BHE0095-DUP2)				Source: MHE0049-02		Prepared & Analyzed: 05/05/2022				
Total Dissolved Solids	220.00	25.0	mg/L		230.00			4.44	20	

Batch BHE0115 - Wet Prep

LCS (BHE0115-BS1)				Prepared & Analyzed: 05/05/2022						
pH	7.0800		pH Units	7.0000		101	90-110			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0115 - Wet Prep

LCS (BHE0115-BS2)				Prepared & Analyzed: 05/05/2022						
pH	7.0900		pH Units	7.0000		101	90-110			
Duplicate (BHE0115-DUP1)				Source: MHE0049-01		Prepared & Analyzed: 05/05/2022				
pH	7.5900		pH Units		7.6200			0.394	20	
Duplicate (BHE0115-DUP2)				Source: MHE0049-11		Prepared & Analyzed: 05/05/2022				
pH	7.6200		pH Units		7.6200			0.00	20	
Duplicate (BHE0115-DUP3)				Source: MHE0049-21		Prepared & Analyzed: 05/05/2022				
pH	7.7900		pH Units		7.7900			0.00	20	
Duplicate (BHE0115-DUP4)				Source: MHE0049-31		Prepared & Analyzed: 05/05/2022				
pH	7.7400		pH Units		7.7400			0.00	20	

Batch BHE0141 - Wet Prep

Blank (BHE0141-BLK1)				Prepared & Analyzed: 05/06/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHE0141-BS1)				Prepared & Analyzed: 05/06/2022						
Total Suspended Solids	76.000	5.00	mg/L	102.20		74.4	70-130			
Duplicate (BHE0141-DUP1)				Source: MHE0049-10		Prepared & Analyzed: 05/06/2022				
Total Suspended Solids	6.0000	12.5	mg/L		7.2000			18.2	20	M_ES
Duplicate (BHE0141-DUP2)				Source: MHE0049-11		Prepared & Analyzed: 05/06/2022				
Total Suspended Solids	76.667	16.7	mg/L		79.600			3.75	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0142 - Wet Prep

Blank (BHE0142-BLK1)				Prepared & Analyzed: 05/06/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BHE0142-BS1)				Prepared & Analyzed: 05/06/2022						
Total Dissolved Solids	98.000	25.0	mg/L	104.10		94.1	70-130			
Duplicate (BHE0142-DUP1)				Source: MHE0049-10		Prepared & Analyzed: 05/06/2022				
Total Dissolved Solids	456.00	25.0	mg/L		450.00			1.32	20	
Duplicate (BHE0142-DUP2)				Source: MHE0049-11		Prepared & Analyzed: 05/06/2022				
Total Dissolved Solids	1598.0	25.0	mg/L		1686.0			5.36	20	

Batch BHE0157 - Wet Prep

Blank (BHE0157-BLK1)				Prepared & Analyzed: 05/07/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHE0157-BS1)				Prepared & Analyzed: 05/07/2022						
Total Suspended Solids	74.000	5.00	mg/L	102.20		72.4	70-130			
Duplicate (BHE0157-DUP1)				Source: MHE0049-24		Prepared & Analyzed: 05/07/2022				
Total Suspended Solids	3.0000	12.5	mg/L		2.8000			6.90	20	M_ES

Batch BHE0158 - Wet Prep

Blank (BHE0158-BLK1)				Prepared & Analyzed: 05/07/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0158 - Wet Prep

LCS (BHE0158-BS1)				Prepared & Analyzed: 05/07/2022						
Total Dissolved Solids	100.00	25.0	mg/L	104.10		96.1	70-130			
Duplicate (BHE0158-DUP1)				Source: MHE0049-24		Prepared & Analyzed: 05/07/2022				
Total Dissolved Solids	500.00	25.0	mg/L		504.00			0.797	20	

Batch BHE0170 - Wet Prep

Blank (BHE0170-BLK1)				Prepared & Analyzed: 05/08/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHE0170-BS1)				Prepared & Analyzed: 05/08/2022						
Total Suspended Solids	76.000	5.00	mg/L	102.20		74.4	70-130			
Duplicate (BHE0170-DUP1)				Source: MHE0049-34		Prepared & Analyzed: 05/08/2022				
Total Suspended Solids	60.500	12.5	mg/L		58.800			2.85	20	

Batch BHE0171 - Wet Prep

Blank (BHE0171-BLK1)				Prepared & Analyzed: 05/08/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BHE0171-BS1)				Prepared & Analyzed: 05/08/2022						
Total Dissolved Solids	74.000	25.0	mg/L	104.10		71.1	70-130			
Duplicate (BHE0171-DUP1)				Source: MHE0049-34		Prepared & Analyzed: 05/08/2022				
Total Dissolved Solids	470.00	25.0	mg/L		458.00			2.59	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0179 - Wet Prep

LCS (BHE0179-BS1)		Prepared & Analyzed: 05/09/2022								
pH	7.0800		pH Units	7.0000		101	90-110			
LCS (BHE0179-BS2)		Prepared & Analyzed: 05/09/2022								
pH	7.0900		pH Units	7.0000		101	90-110			
Duplicate (BHE0179-DUP1)		Source: MHE0072-01		Prepared & Analyzed: 05/09/2022						
pH	7.6100		pH Units		7.6600			0.655	20	
Duplicate (BHE0179-DUP2)		Source: MHE0072-11		Prepared & Analyzed: 05/09/2022						
pH	7.8000		pH Units		7.8100			0.128	20	
Duplicate (BHE0179-DUP3)		Source: MHE0072-22		Prepared & Analyzed: 05/09/2022						
pH	8.0800		pH Units		8.0400			0.496	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0173 - EPA 200.2, EPA 3005

Blank (BHE0173-BLK1)

Prepared: 05/09/2022 Analyzed: 05/10/2022

Antimony	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Barium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L

LCS (BHE0173-BS1)

Prepared: 05/09/2022 Analyzed: 05/10/2022

Selenium	95.254	0.500	ug/L	100.00	95.3	85-115
Barium	97.606	0.500	ug/L	100.00	97.6	85-115
Molybdenum	97.947	0.500	ug/L	100.00	97.9	85-115
Lead	93.791	0.500	ug/L	100.00	93.8	85-115
Arsenic	97.362	0.500	ug/L	100.00	97.4	85-115
Cobalt	97.073	0.500	ug/L	100.00	97.1	85-115
Antimony	97.180	0.500	ug/L	100.00	97.2	85-115
Cadmium	97.687	0.100	ug/L	100.00	97.7	85-115
Thallium	93.945	0.500	ug/L	100.00	93.9	85-115
Beryllium	96.547	0.500	ug/L	100.00	96.5	85-115
Chromium	98.441	0.500	ug/L	100.00	98.4	85-115

Duplicate (BHE0173-DUP1)

Source: MHE0049-07

Prepared: 05/09/2022 Analyzed: 05/10/2022

Barium	48.020	0.500	ug/L	46.131	4.01	20
Selenium	0.60903	0.500	ug/L	0.57354	6.00	20
Arsenic	0.41292	0.500	ug/L	0.39798	3.69	20
Chromium	0.95728	0.500	ug/L	0.86110	10.6	20
Cobalt	0.069844	0.500	ug/L	0.058403	17.8	20
Cadmium	<0.100	0.100	ug/L	<0.100		20
Beryllium	0.095465	0.500	ug/L	<0.500		20
Antimony	<0.500	0.500	ug/L	<0.500		20
Thallium	0.066516	0.500	ug/L	<0.500		20
Lead	<0.500	0.500	ug/L	<0.500		20
Molybdenum	0.66256	0.500	ug/L	0.57365	14.4	20

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0173 - EPA 200.2, EPA 3005

Matrix Spike (BHE0173-MS1)		Source: MHE0049-07		Prepared: 05/09/2022 Analyzed: 05/10/2022						
Chromium	100.28	0.500	ug/L	100.00	0.86110	99.4	75-125			
Arsenic	103.09	0.500	ug/L	100.00	0.39798	103	75-125			
Cobalt	96.323	0.500	ug/L	100.00	0.058403	96.3	75-125			
Lead	90.516	0.500	ug/L	100.00	<0.500	90.5	75-125			
Barium	150.07	0.500	ug/L	100.00	46.131	104	75-125			
Beryllium	99.160	0.500	ug/L	100.00	<0.500	99.2	75-125			
Cadmium	95.794	0.100	ug/L	100.00	<0.100	95.8	75-125			
Selenium	98.725	0.500	ug/L	100.00	0.57354	98.2	75-125			
Thallium	93.305	0.500	ug/L	100.00	<0.500	93.3	75-125			
Antimony	101.87	0.500	ug/L	100.00	<0.500	102	75-125			
Molybdenum	104.01	0.500	ug/L	100.00	0.57365	103	75-125			

Matrix Spike Dup (BHE0173-MSD1)		Source: MHE0049-07		Prepared: 05/09/2022 Analyzed: 05/10/2022						
Antimony	100.67	0.500	ug/L	100.00	<0.500	101	75-125	1.18	20	
Molybdenum	102.51	0.500	ug/L	100.00	0.57365	102	75-125	1.45	20	
Cobalt	100.25	0.500	ug/L	100.00	0.058403	100	75-125	4.00	20	
Thallium	92.972	0.500	ug/L	100.00	<0.500	93.0	75-125	0.358	20	
Chromium	104.24	0.500	ug/L	100.00	0.86110	103	75-125	3.87	20	
Beryllium	97.992	0.500	ug/L	100.00	<0.500	98.0	75-125	1.18	20	
Barium	147.45	0.500	ug/L	100.00	46.131	101	75-125	1.76	20	
Cadmium	98.645	0.100	ug/L	100.00	<0.100	98.6	75-125	2.93	20	
Selenium	96.837	0.500	ug/L	100.00	0.57354	96.3	75-125	1.93	20	
Lead	90.671	0.500	ug/L	100.00	<0.500	90.7	75-125	0.171	20	
Arsenic	101.97	0.500	ug/L	100.00	0.39798	102	75-125	1.09	20	

Batch BHE0199 - EPA 200.2, EPA 3005

Blank (BHE0199-BLK1)		Prepared: 05/09/2022 Analyzed: 05/10/2022								
Chromium	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		06/09/2022 10:18
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0199 - EPA 200.2, EPA 3005

LCS (BHE0199-BS1)				Prepared: 05/09/2022 Analyzed: 05/10/2022						
Cadmium	94.431	0.100	ug/L	100.00		94.4	85-115			
Molybdenum	100.27	0.500	ug/L	100.00		100	85-115			
Barium	98.069	0.500	ug/L	100.00		98.1	85-115			
Cobalt	95.207	0.500	ug/L	100.00		95.2	85-115			
Arsenic	98.327	0.500	ug/L	100.00		98.3	85-115			
Beryllium	96.766	0.500	ug/L	100.00		96.8	85-115			
Selenium	94.627	0.500	ug/L	100.00		94.6	85-115			
Thallium	93.995	0.500	ug/L	100.00		94.0	85-115			
Lead	95.089	0.500	ug/L	100.00		95.1	85-115			
Chromium	96.322	0.500	ug/L	100.00		96.3	85-115			
Antimony	98.815	0.500	ug/L	100.00		98.8	85-115			

Duplicate (BHE0199-DUP1)				Source: MHE0072-18		Prepared: 05/09/2022 Analyzed: 05/10/2022				
Antimony	<0.500	0.500	ug/L		<0.500			20		
Cadmium	<0.100	0.100	ug/L		<0.100			20		
Chromium	0.58485	0.500	ug/L		0.92570		45.1	20		M_D
Cobalt	0.12183	0.500	ug/L		0.11728		3.81	20		
Thallium	0.060411	0.500	ug/L		<0.500			20		
Barium	50.549	0.500	ug/L		49.687		1.72	20		
Arsenic	1.3526	0.500	ug/L		1.3245		2.10	20		
Lead	<0.500	0.500	ug/L		<0.500			20		
Molybdenum	0.84681	0.500	ug/L		0.74701		12.5	20		
Selenium	<0.500	0.500	ug/L		<0.500			20		
Beryllium	0.075460	0.500	ug/L		<0.500			20		

Matrix Spike (BHE0199-MS1)				Source: MHE0072-18		Prepared: 05/09/2022 Analyzed: 05/10/2022				
Chromium	101.70	0.500	ug/L	100.00	0.92570	101	75-125			
Barium	150.86	0.500	ug/L	100.00	49.687	101	75-125			
Antimony	99.582	0.500	ug/L	100.00	<0.500	99.6	75-125			
Beryllium	96.376	0.500	ug/L	100.00	<0.500	96.4	75-125			
Selenium	92.919	0.500	ug/L	100.00	<0.500	92.9	75-125			
Thallium	90.762	0.500	ug/L	100.00	<0.500	90.8	75-125			
Lead	88.629	0.500	ug/L	100.00	<0.500	88.6	75-125			
Molybdenum	100.87	0.500	ug/L	100.00	0.74701	100	75-125			
Cadmium	98.387	0.100	ug/L	100.00	<0.100	98.4	75-125			
Arsenic	103.44	0.500	ug/L	100.00	1.3245	102	75-125			
Cobalt	98.827	0.500	ug/L	100.00	0.11728	98.7	75-125			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0199 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHE0199-MSD1)	Source: MHE0072-18			Prepared: 05/09/2022 Analyzed: 05/10/2022						
Lead	89.061	0.500	ug/L	100.00	<0.500	89.1	75-125	0.486	20	
Cobalt	95.981	0.500	ug/L	100.00	0.11728	95.9	75-125	2.92	20	
Selenium	95.142	0.500	ug/L	100.00	<0.500	95.1	75-125	2.36	20	
Chromium	101.23	0.500	ug/L	100.00	0.92570	100	75-125	0.464	20	
Thallium	90.968	0.500	ug/L	100.00	<0.500	91.0	75-125	0.227	20	
Beryllium	95.932	0.500	ug/L	100.00	<0.500	95.9	75-125	0.462	20	
Antimony	98.475	0.500	ug/L	100.00	<0.500	98.5	75-125	1.12	20	
Arsenic	102.24	0.500	ug/L	100.00	1.3245	101	75-125	1.17	20	
Cadmium	96.775	0.100	ug/L	100.00	<0.100	96.8	75-125	1.65	20	
Barium	148.60	0.500	ug/L	100.00	49.687	98.9	75-125	1.51	20	
Molybdenum	99.426	0.500	ug/L	100.00	0.74701	98.7	75-125	1.44	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0172 - EPA 200.2, EPA 3005

Blank (BHE0172-BLK1)

Prepared: 05/07/2022 Analyzed: 05/11/2022

Boron	<0.0500	0.0500	mg/L
Lithium	<0.0150	0.0150	mg/L
Calcium	<1.50	1.50	mg/L

LCS (BHE0172-BS1)

Prepared: 05/07/2022 Analyzed: 05/11/2022

Boron	1.0046	0.0500	mg/L	1.0000	100	85-115
Calcium	99.194	1.50	mg/L	100.00	99.2	85-115
Lithium	0.98063	0.0150	mg/L	1.0000	98.1	85-115

Duplicate (BHE0172-DUP1)

Source: MHE0049-01

Prepared: 05/07/2022 Analyzed: 05/11/2022

Calcium	149.40	1.50	mg/L	151.41	1.34	20
Boron	3.1090	0.0500	mg/L	3.1679	1.88	20
Lithium	0.010729	0.0150	mg/L	0.010605	1.16	20

Duplicate (BHE0172-DUP2)

Source: MHE0049-06

Prepared: 05/07/2022 Analyzed: 05/11/2022

Boron	0.056383	0.0500	mg/L	0.069011	20.1	20	M_D
Lithium	0.0050285	0.0150	mg/L	0.0043832	13.7	20	
Calcium	52.248	1.50	mg/L	55.747	6.48	20	

Matrix Spike (BHE0172-MS1)

Source: MHE0049-01

Prepared: 05/07/2022 Analyzed: 05/11/2022

Lithium	1.0255	0.0150	mg/L	1.0000	0.010605	101	70-130
Calcium	247.29	1.50	mg/L	100.00	151.41	95.9	70-130
Boron	4.1186	0.0500	mg/L	1.0000	3.1679	95.1	70-130

Matrix Spike (BHE0172-MS2)

Source: MHE0049-06

Prepared: 05/07/2022 Analyzed: 05/11/2022

Lithium	1.0087	0.0150	mg/L	1.0000	0.0043832	100	70-130
Boron	1.0786	0.0500	mg/L	1.0000	0.069011	101	70-130
Calcium	158.14	1.50	mg/L	100.00	55.747	102	70-130

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0172 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHE0172-MSD1)		Source: MHE0049-01		Prepared: 05/07/2022		Analyzed: 05/11/2022				
Boron	4.1837	0.0500	mg/L	1.0000	3.1679	102	70-130	1.57	20	
Calcium	250.73	1.50	mg/L	100.00	151.41	99.3	70-130	1.38	20	
Lithium	1.0586	0.0150	mg/L	1.0000	0.010605	105	70-130	3.18	20	

Matrix Spike Dup (BHE0172-MSD2)		Source: MHE0049-06		Prepared: 05/07/2022		Analyzed: 05/11/2022				
Calcium	159.37	1.50	mg/L	100.00	55.747	104	70-130	0.775	20	
Lithium	1.0191	0.0150	mg/L	1.0000	0.0043832	101	70-130	1.03	20	
Boron	1.1183	0.0500	mg/L	1.0000	0.069011	105	70-130	3.61	20	

Batch BHE0198 - EPA 200.2, EPA 3005

Blank (BHE0198-BLK1)				Prepared: 05/09/2022		Analyzed: 05/11/2022				
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.50	1.50	mg/L							

LCS (BHE0198-BS1)				Prepared: 05/09/2022		Analyzed: 05/11/2022				
Boron	0.99905	0.0500	mg/L	1.0000		99.9	85-115			
Lithium	0.99609	0.0150	mg/L	1.0000		99.6	85-115			
Calcium	100.20	1.50	mg/L	100.00		100	85-115			

Duplicate (BHE0198-DUP1)		Source: MHE0072-17		Prepared: 05/09/2022		Analyzed: 05/11/2022				
Lithium	0.0062576	0.0150	mg/L		0.0077459			21.3	20	M_D-RL
Boron	0.034914	0.0500	mg/L		0.035910			2.81	20	
Calcium	24.514	1.50	mg/L		24.981			1.89	20	

Matrix Spike (BHE0198-MS1)		Source: MHE0072-17		Prepared: 05/09/2022		Analyzed: 05/11/2022				
Lithium	1.0069	0.0150	mg/L	1.0000	0.0077459	99.9	70-130			
Calcium	125.73	1.50	mg/L	100.00	24.981	101	70-130			
Boron	1.0529	0.0500	mg/L	1.0000	0.035910	102	70-130			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0198 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHE0198-MSD1)	Source: MHE0072-17	Prepared: 05/09/2022	Analyzed: 05/11/2022							
Calcium	125.20	1.50	mg/L	100.00	24.981	100	70-130	0.421	20	
Lithium	1.0044	0.0150	mg/L	1.0000	0.0077459	99.7	70-130	0.250	20	
Boron	1.0408	0.0500	mg/L	1.0000	0.035910	100	70-130	1.16	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2022 10:18

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHE0148 - EPA 245.1, EPA 7470A

Blank (BHE0148-BLK1)				Prepared & Analyzed: 05/09/2022						
Mercury	<0.200	0.200	ug/L							
LCS (BHE0148-BS1)				Prepared & Analyzed: 05/09/2022						
Mercury	2.7048	0.200	ug/L	3.0000		90.2	85-115			
Duplicate (BHE0148-DUP1)				Source: MHE0049-23		Prepared & Analyzed: 05/09/2022				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BHE0148-DUP2)				Source: MHE0049-24		Prepared & Analyzed: 05/09/2022				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BHE0148-MS1)				Source: MHE0049-23		Prepared & Analyzed: 05/09/2022				
Mercury	2.6383	0.200	ug/L	3.0000	<0.200	87.9	70-130			
Matrix Spike (BHE0148-MS2)				Source: MHE0049-24		Prepared & Analyzed: 05/09/2022				
Mercury	2.6540	0.200	ug/L	3.0000	<0.200	88.5	70-130			
Matrix Spike Dup (BHE0148-MSD1)				Source: MHE0049-23		Prepared & Analyzed: 05/09/2022				
Mercury	2.5878	0.200	ug/L	3.0000	<0.200	86.3	70-130	1.93	20	
Matrix Spike Dup (BHE0148-MSD2)				Source: MHE0049-24		Prepared & Analyzed: 05/09/2022				
Mercury	2.6223	0.200	ug/L	3.0000	<0.200	87.4	70-130	1.20	20	

Environmental Services-Water Minneapolis

Project Name/Location: Sherco BAP CCR

414 Nicollet Mall, GO-2

Reported:

Minneapolis MN, 55401

Project Manager: Eric Ealy

06/09/2022 10:18

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_ES	The reported value is an estimate. The amount of residue measured during analysis was outside of reference method limits.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_D	The RPD for the sample duplicate was outside of QC acceptance limits possibly due to non-homogeneous matrix.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



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[illegible]

Additional Comments:

***All Metals Are Field Filtered Except Leachate

pitstop. n. 13.4
 temp m. 0004: 1.3°C



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Brad Jacobson	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number		Pace Project Manager:	Brad Jacobson
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Spring	Pace Profile #:	

#	ITEM	Section D Required Client Information		Valid Matrix Codes	MATRIX	CODE	COLLECTED			# OF CONTAINERS	Preservatives	Other			
		SAMPLE ID	One Character per box. (A-Z, 0-9 / -)				SAMPLE TYPE	MATRIX CODE	COMPOSITE START				COMPOSITE END/GRAB	DATE	TIME
1		P-50D		WT	G		5/3/12	1225							
2		P-56		WT	G										
3		P-60		WT	G										
4		P-62		WT	G										
5		P-66		WT	G										
6		P-88		WT	G										
7		P-89-1		WT	G										
8		P-90		WT	G		5/2/12	1205							
9		P-90A		WT	G		5/2/12	1240							
10		P-92A		WT	G		5/3/12	1040							
11		P-92D		WT	G		5/3/12	1010							
12		P-93A		WT	G		5/3/12	1130							

Additional Comments:	
pH Steps. Matrix & Temp related to 1.3°C	
**All Metals Are Field Filtered Except Leachate	

RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		SAMPLE CONDITIONS	
W. Pau	5/5/12 0730	HF Xcel	5/5/12 0730	Temp in °C	1.3
				Received on	Y/N
				Sealed Cooler	Y/N
				Custody	Y/N
				Samples Intact	Y/N

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER	Riley Jacobson
SIGNATURE of SAMPLER	[Signature]
DATE Signed (MM/DD/YY)	5/4/12



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:			Section B Required Project Information:			Section C Invoice Information:			Section D Required Client Information					
Company: Xcel Energy			Report To: Brad Jacobson			Attention: Steve Davis			Valid Matrix Codes					
Address: Environmental Services			Copy To: Riley Jacobson			Company Name:			SAMPLE ID					
MP-7						Address:			One Character per box.					
Email To: Brad Jacobson						Pace Quote Reference:			(A-Z, 0-9 / -)					
Phone: (612) 597-7254			Project Number:			Pace Project Manager: Brad Jacobson			Sample IDs MUST BE UNIQUE					
Requested Due Date/TAT: 2 Weeks			Project Name: Xcel Energy Sherco Ponds Spring			Pace Profile #:								
#	ITEM	CODE	MATRIX	SAMPLE TYPE	MATRIX CODE	COLLECTED		# OF CONTAINERS	PRESERVATIVES	Request Analysis:	Filtered (Y/N)	LOCATION	SITE	REGULATORY AGENCY
						COMPOSITE START	COMPOSITE END							
						DATE	TIME							
1	P-93D	WT	G			5/14/12	1215							
2	P-94A	WT	G			5/14/12	1255							
3	P-101A	WT	G			5/14/12	1440							
4	P-101B	WT	G			5/14/12	1515							
5	P-126	WT	G			5/14/12	1545							
6	P-126D	WT	G			5/14/12	1405							
7	P-127	WT	G											
8	P-128	WT	G											
9	P-128D	WT	G											
10	P-129	WT	G											
11	P-130	WT	G											
12	P-130D	WT	G											

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Brad Jacobson	5/15/12	0730	Steve Davis	5/15/12	0730	Temp in °C 13.3
						Received on Ice
						Custody Sealed Cooler
						Samples Intact

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Riley Jacobson	DATE Signed (MM/DD/YY): 5/14/12
SIGNATURE of SAMPLER: [Signature]	

Additional Comments:

**All Metals Are Field Filtered Except Leachate

pH strips. metal 13.3
Tap metal 9.41: 13.3



CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Brad Jacobson	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number		Pace Project Manager:	Brad Jacobson
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Shero Ponds Spring	Pace Profile #:	

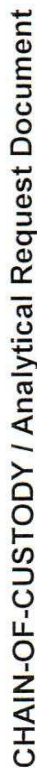
#	ITEM	Section D Required Client Information		Valid Matrix Codes		COLLECTED				SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives								Request Analysis:				Pace Project No. Lab ID				
		SAMPLE ID	One Character per box. (A-Z, 0-9 / , -)	MATRIX	CODE	MATRIX CODE	SAMPLE TYPE	COMPOSITE START		COMPOSITE END/CHAB			DATE	TIME	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ O ₂	Methanol	Other	GW-CR	GW-CR-BAP2	GW-D		(REPORT) NPDES	(REPORT) CCR-BAP	(REPORT) CCR-P3	Residual Chlorine (Y/N)
								DATE	TIME	DATE	TIME																		
1		P-131			WT	G																							
2		P-131D			WT	G																							
3		P-132			WT	G			5/4/22	1435																			
4		P-150			WT	G																							
5		P-151			WT	G																							
6		P-152A			WT	G																							
7		P-153			WT	G																							
8		P-154A			WT	G																							
9		P-155			WT	G			5/3/22	1525																			
10		P-156			WT	G			5/3/22	1325																			
11		P-157			WT	G			5/4/22	1020																			
12		P-158			WT	G			5/4/22	1140																			

Additional Comments:	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
	WJ/aa	5/5/22	0730	HSC/KC	5/5/22	0730	Temp in °C	Received on Ice
								Custody
								Sealed Cooler
								Samples Intact

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Riley Jacobson + Kendra Mason
SIGNATURE of SAMPLER:	[Signature]
DATE Signed (MM/DD/YY)	5/4/22

**All Metals Are Field Filtered Except Leachate

pit strip: mtd 0130
Top mtd 041' 1.3'



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*** All Metals Are Field Filtered Except Leachate

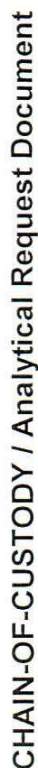
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[illegible]

e-File(ALLQ020rev.3,31Mar05)22Jun2005



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Additional Comments:

***All Metals Are Field Filtered Except Leachate

pH stops. mHauze
Temp mda 34: 1.3°C

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

pH stops. M400134
Tap m400511: 1.3°C

CHAIN-OF-CUSTODY / Analytical Request Document

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[illegible]

Section C

Section B

Section A

Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Brad Jacobson	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number		Pace Project Manager:	Brad Jacobson
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Spring	Pace Profile #:	

[illegible][illegible]

12	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
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RELINQUISHED BY / AFFILIATION	DATE	TIME	ADULTIFIED BY / AFFILIATION	DATE	TIME
Additional Comments:					
Additional Comments:					

5522 0730
Paa
#5151
Xce
2730

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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NOTE: All Metals Are Field Filtered Except Leachate

[illegible][illegible][illegible]

CANDIDATE NAME AND SIGNATURE

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SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Elizabeth + Kendra Moran

DATE SIGNED (MM/DD/YY)	5/1/00
SIGNATURE OF SAMPLER	[Signature]

[illegible]

e-11e(ALLQ020rev.3)



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:			Section B Required Project Information:			Section C Invoice Information:		
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis			
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:				
	MP-7	Purchase Order No.:		Address:				
Email To:	Brad Jacobson	Project Number		Pace Quote Reference:				
Phone: (612) 997-7254	Fax:	Project Name:	Xcel Energy Sherco Ponds Spring	Pace Project Manager:	Brad Jacobson			
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Spring	Pace Profile #:				

ITEM #	Section D Required Client Information	Valid Matrix Codes	MATRIX CODE	SAMPLE TYPE	MATRIX CODE	COLLECTED			SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Request Analysis:	Filtered (Y/N)	SAMPLER NAME AND SIGNATURE	SAMPLE CONDITIONS				
						DATE	TIME	DATE							TIME	DATE	TIME	DATE	TIME
1	P-179D	DRINKING WATER	WT	G	WT	G	5/3/12	1400							Temp in °C	Received on	Custody	Sealed Cooler	Samples Intact
2	P-180A	WASTE WATER	WT	G	WT	G	5/3/12	1535											
3	P-180D	WASTE WATER	WT	G	WT	G	5/3/12	1505											
4	Duplicate NPDES	WASTE WATER	WT	G	WT	G	5/3/12	1010											
5	Rinse NPDES	WASTE WATER	WT	G	WT	G	5/3/12	1015											
6	Duplicate BAP	WASTE WATER	WT	G	WT	G	5/4/12	1020											
7	Rinse BAP	WASTE WATER	WT	G	WT	G	5/4/12	1000											
8	Duplicate BAP2	WASTE WATER	WT	G	WT	G	5/3/12	0945											
9	Rinse BAP2	WASTE WATER	WT	G	WT	G	5/3/12	0920											
10	Duplicate P3	WASTE WATER	WT	G	WT	G													
11	Rinse P3	WASTE WATER	WT	G	WT	G													
12		WASTE WATER	WT	G	WT	G													

Additional Comments:	
pH strips in house Temp 14.00841 = 1.3°C	

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: <i>Brad Jacobson</i>	DATE Signed (MM/DD/YY): <i>5/3/12</i>
SIGNATURE of SAMPLER: <i>[Signature]</i>	DATE Signed (MM/DD/YY): <i>5/3/12</i>

ACCEPTED BY / AFFILIATION	
<i>[Signature]</i>	<i>[Signature]</i>

RELINQUISHED BY / AFFILIATION	
<i>[Signature]</i>	<i>[Signature]</i>

SAMPLE CONDITIONS	
Temp in °C	Received on
	Custody
	Sealed Cooler
	Samples Intact

June 29, 2022

Christopher Pelosi
Pace Analytical Minnesota
1700 Elm Street SE
Suite 200
Minneapolis, MN 55414

RE: Project: Xcel Energy
Pace Project No.: 30489340

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on May 16, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Megan A. Rager
megan.rager@pacelabs.com
(724)850-5600
Project Manager

Enclosures

cc: Eric Ealy, Xcel Energy
Brad Jacobson, Pace Minneapolis Field
David Katzner, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Xcel Energy

Pace Project No.: 30489340

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Xcel Energy

Pace Project No.: 30489340

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30489340001	P-01A-2	Water	05/03/22 14:15	05/16/22 09:55
30489340002	P-17	Water	05/04/22 13:20	05/16/22 09:55
30489340003	P-22	Water	05/04/22 10:00	05/16/22 09:55
30489340004	P-23	Water	05/04/22 09:50	05/16/22 09:55
30489340005	P-130	Water	05/06/22 10:05	05/16/22 09:55
30489340006	P-131	Water	05/05/22 10:50	05/16/22 09:55
30489340007	P-132	Water	05/04/22 14:35	05/16/22 09:55
30489340008	P-151	Water	05/05/22 11:25	05/16/22 09:55
30489340009	P-153	Water	05/05/22 12:20	05/16/22 09:55
30489340010	P-154A	Water	05/05/22 13:30	05/16/22 09:55
30489340011	P-155	Water	05/03/22 15:25	05/16/22 09:55
30489340012	P-156	Water	05/03/22 13:25	05/16/22 09:55
30489340013	P-157	Water	05/04/22 10:20	05/16/22 09:55
30489340014	P-158	Water	05/04/22 11:40	05/16/22 09:55
30489340015	P-162	Water	05/05/22 14:25	05/16/22 09:55
30489340016	P-165	Water	05/06/22 09:05	05/16/22 09:55
30489340017	Duplicate Bap	Water	05/04/22 10:20	05/16/22 09:55
30489340018	Rinse Bap	Water	05/04/22 10:00	05/16/22 09:55
30489340019	Duplicate P3	Water	05/05/22 13:30	05/16/22 09:55
30489340020	Rinse P3	Water	05/05/22 12:50	05/16/22 09:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Xcel Energy
Pace Project No.: 30489340

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30489340001	P-01A-2	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340002	P-17	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340003	P-22	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340004	P-23	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340005	P-130	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340006	P-131	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340007	P-132	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340008	P-151	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340009	P-153	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340010	P-154A	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340011	P-155	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340012	P-156	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340013	P-157	EPA 903.1	RPS	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Xcel Energy

Pace Project No.: 30489340

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30489340014	P-158	EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
30489340015	P-162	Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340016	P-165	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
30489340017	Duplicate Bap	EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
30489340018	Rinse Bap	Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30489340019	Duplicate P3	EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
30489340020	Rinse P3	EPA 904.0	JSM	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	RPS	1	PASI-PA
		EPA 904.0	JSM	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Xcel Energy

Pace Project No.: 30489340

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: June 29, 2022

General Information:

20 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Xcel Energy

Pace Project No.: 30489340

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: June 29, 2022

General Information:

20 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Xcel Energy

Pace Project No.: 30489340

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: June 29, 2022

General Information:

20 samples were analyzed for Total Radium Calculation by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-01A-2		Lab ID: 30489340001	Collected: 05/03/22 14:15	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 16:36	13982-63-3	
	EPA 903.1	0.509 ± 0.322 (0.364) C:NA T:88%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:04	15262-20-1	
	EPA 904.0	0.757 ± 0.381 (0.646) C:70% T:88%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	06/29/22 07:57	7440-14-4	
	Total Radium Calculation	1.27 ± 0.703 (1.01)					

Sample: P-17		Lab ID: 30489340002	Collected: 05/04/22 13:20	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	0.0959 ± 0.297 (0.576) C:NA T:91%		pCi/L	06/21/22 16:36	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.380 ± 0.330 (0.657) C:72% T:91%		pCi/L	06/10/22 12:04	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.476 ± 0.627 (1.23)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-22		Lab ID: 30489340003	Collected: 05/04/22 10:00	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 16:50	13982-63-3	
	EPA 903.1	0.156 ± 0.307 (0.551) C:NA T:91%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:04	15262-20-1	
	EPA 904.0	0.376 ± 0.375 (0.772) C:65% T:91%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	06/29/22 07:57	7440-14-4	
	Total Radium Calculation	0.532 ± 0.682 (1.32)					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-23		Lab ID: 30489340004	Collected: 05/04/22 09:50	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 16:36	13982-63-3	
	EPA 903.1	0.280 ± 0.285 (0.431) C:NA T:94%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:05	15262-20-1	
	EPA 904.0	0.0686 ± 0.428 (0.981) C:53% T:94%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	06/29/22 07:57	7440-14-4	
	Total Radium Calculation	0.349 ± 0.713 (1.41)					

Sample: P-130		Lab ID: 30489340005	Collected: 05/06/22 10:05	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg						
	EPA 903.1	0.0651 ± 0.156 (0.302) C:NA T:104%		pCi/L	06/21/22 16:36	13982-63-3	
Radium-228	Pace Analytical Services - Greensburg						
	EPA 904.0	0.212 ± 0.334 (0.724) C:67% T:104%		pCi/L	06/10/22 12:05	15262-20-1	
Total Radium	Pace Analytical Services - Greensburg						
	Total Radium Calculation	0.277 ± 0.490 (1.03)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-131		Lab ID: 30489340006	Collected: 05/05/22 10:50	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 16:36	13982-63-3	
	EPA 903.1	0.109 ± 0.166 (0.266) C:NA T:97%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:05	15262-20-1	
	EPA 904.0	0.268 ± 0.289 (0.599) C:74% T:97%					
Total Radium	Pace Analytical Services - Greensburg Total Radium Calculation	0.377 ± 0.455 (0.865)		pCi/L	06/29/22 07:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-132		Lab ID: 30489340007	Collected: 05/04/22 14:35	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	0.000 ± 0.364 (0.737) C:NA T:90%		pCi/L	06/21/22 16:36	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.0795 ± 0.311 (0.706) C:75% T:90%		pCi/L	06/10/22 12:05	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.0795 ± 0.675 (1.44)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-151		Lab ID: 30489340008	Collected: 05/05/22 11:25	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.191 (0.113) C:NA T:86%		pCi/L	06/21/22 17:02	13982-63-3	
	Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	-0.0143 ± 0.307 (0.725) C:70% T:86%		pCi/L	06/10/22 12:05	15262-20-1	
	Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.000 ± 0.498 (0.838)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-153		Lab ID: 30489340009	Collected: 05/05/22 12:20	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 17:02	13982-63-3	
	EPA 903.1	0.108 ± 0.234 (0.432) C:NA T:98%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:06	15262-20-1	
	EPA 904.0	0.402 ± 0.280 (0.530) C:76% T:98%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	06/29/22 07:57	7440-14-4	
	Total Radium Calculation	0.510 ± 0.514 (0.962)					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-154A		Lab ID: 30489340010	Collected: 05/05/22 13:30	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 17:40	13982-63-3	
	EPA 903.1	0.120 ± 0.322 (0.598) C:NA T:95%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:06	15262-20-1	
	EPA 904.0	0.515 ± 0.336 (0.631) C:74% T:95%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	06/29/22 07:57	7440-14-4	
	Total Radium Calculation	0.635 ± 0.658 (1.23)					

Sample: P-155		Lab ID: 30489340011	Collected: 05/03/22 15:25	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg						
	EPA 903.1	0.0874 ± 0.200 (0.118) C:NA T:92%		pCi/L	06/21/22 17:02	13982-63-3	
Radium-228	Pace Analytical Services - Greensburg						
	EPA 904.0	0.317 ± 0.341 (0.711) C:72% T:92%		pCi/L	06/10/22 12:06	15262-20-1	
Total Radium	Pace Analytical Services - Greensburg						
	Total Radium Calculation	0.404 ± 0.541 (0.829)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-156		Lab ID: 30489340012	Collected: 05/03/22 13:25	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg			pCi/L	06/21/22 17:02	13982-63-3	
	EPA 903.1	0.000 ± 0.287 (0.587) C:NA T:92%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	06/10/22 12:06	15262-20-1	
	EPA 904.0	0.169 ± 0.276 (0.600) C:78% T:92%					
Total Radium	Pace Analytical Services - Greensburg						
	Total Radium Calculation	0.169 ± 0.563 (1.19)		pCi/L	06/29/22 07:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-157		Lab ID: 30489340013	Collected: 05/04/22 10:20	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	-0.0786 ± 0.218 (0.515) C:NA T:94%		pCi/L	06/21/22 17:02	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.302 ± 0.296 (0.607) C:79% T:94%		pCi/L	06/10/22 12:06	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.302 ± 0.514 (1.12)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-158		Lab ID: 30489340014	Collected: 05/04/22 11:40	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.0864 ± 0.208 (0.519)		pCi/L	06/21/22 17:02	13982-63-3	
		C:NA T:91%					
	Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.344 ± 0.304 (0.610)		pCi/L	06/10/22 12:07	15262-20-1	
		C:73% T:91%					
	Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.344 ± 0.512 (1.13)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: P-162		Lab ID: 30489340015	Collected: 05/05/22 14:25	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	Pace Analytical Services - Greensburg						
	EPA 903.1	-0.0897 ± 0.352 (0.747)		pCi/L	06/21/22 17:02	13982-63-3	
	C:NA T:88%						
Radium-228	Pace Analytical Services - Greensburg						
	EPA 904.0	0.390 ± 0.275 (0.518)		pCi/L	06/10/22 12:07	15262-20-1	
	C:80% T:88%						
Total Radium	Pace Analytical Services - Greensburg						
	Total Radium Calculation	0.390 ± 0.627 (1.27)		pCi/L	06/29/22 07:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy
Pace Project No.: 30489340

Sample: P-165		Lab ID: 30489340016	Collected: 05/06/22 09:05	Received: 05/16/22 09:55	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.233 ± 0.188 (0.105) C:NA T:96%	pCi/L	06/21/22 17:23	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	-0.00829 ± 0.207 (0.495) C:78% T:96%	pCi/L	06/10/22 12:07	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.233 ± 0.395 (0.600)	pCi/L	06/29/22 07:57	7440-14-4	

Sample: Duplicate Bap		Lab ID: 30489340017	Collected: 05/04/22 10:20	Received: 05/16/22 09:55	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.111 ± 0.218 (0.398) C:NA T:94%	pCi/L	06/21/22 17:23	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.513 ± 0.328 (0.612) C:74% T:94%	pCi/L	06/10/22 12:07	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.624 ± 0.546 (1.01)	pCi/L	06/29/22 07:57	7440-14-4	

Sample: Rinse Bap		Lab ID: 30489340018	Collected: 05/04/22 10:00	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	0.0394 ± 0.204 (0.424) C:NA T:91%		pCi/L	06/21/22 17:23	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.357 ± 0.368 (0.761) C:68% T:91%		pCi/L	06/10/22 12:07	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.396 ± 0.572 (1.19)		pCi/L	06/29/22 07:57	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy

Pace Project No.: 30489340

Sample: Duplicate P3		Lab ID: 30489340019	Collected: 05/05/22 13:30	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	0.0376 ± 0.171 (0.102) C:NA T:91%		pCi/L	06/21/22 17:23	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.106 ± 0.265 (0.591) C:80% T:91%		pCi/L	06/10/22 12:07	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.144 ± 0.436 (0.693)		pCi/L	06/29/22 07:57	7440-14-4	

Sample: Rinse P3		Lab ID: 30489340020	Collected: 05/05/22 12:50	Received: 05/16/22 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	0.111 ± 0.169 (0.271) C:NA T:95%		pCi/L	06/21/22 17:23	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.248 ± 0.327 (0.697) C:70% T:95%		pCi/L	06/10/22 12:07	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.359 ± 0.496 (0.968)		pCi/L	06/29/22 07:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy

Pace Project No.: 30489340

QC Batch:	506544	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30489340001, 30489340002, 30489340003, 30489340004, 30489340005, 30489340006, 30489340007, 30489340008, 30489340009, 30489340010, 30489340011, 30489340012, 30489340013, 30489340014, 30489340015, 30489340016, 30489340017, 30489340018, 30489340019, 30489340020		

METHOD BLANK:	2453907	Matrix:	Water
Associated Lab Samples:	30489340001, 30489340002, 30489340003, 30489340004, 30489340005, 30489340006, 30489340007, 30489340008, 30489340009, 30489340010, 30489340011, 30489340012, 30489340013, 30489340014, 30489340015, 30489340016, 30489340017, 30489340018, 30489340019, 30489340020		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.297 ± 0.282 (0.575) C:76% T:98%	pCi/L	06/10/22 12:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy

Pace Project No.: 30489340

QC Batch:	506543	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30489340001, 30489340002, 30489340003, 30489340004, 30489340005, 30489340006, 30489340007, 30489340008, 30489340009, 30489340010, 30489340011, 30489340012, 30489340013, 30489340014, 30489340015, 30489340016, 30489340017, 30489340018, 30489340019, 30489340020		

METHOD BLANK:	2453906	Matrix:	Water
Associated Lab Samples:	30489340001, 30489340002, 30489340003, 30489340004, 30489340005, 30489340006, 30489340007, 30489340008, 30489340009, 30489340010, 30489340011, 30489340012, 30489340013, 30489340014, 30489340015, 30489340016, 30489340017, 30489340018, 30489340019, 30489340020		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.179 (0.289) C:NA T:98%	pCi/L	06/21/22 16:36	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Xcel Energy
Pace Project No.: 30489340

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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W0#: 30489340



30489340

uest Document
st be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Chris Pelosi	Attention:	Ciara Ruikkie
Address:	c/o Pace MN Field	Copy To:	Dave Anderson	Company Name:	Pace MN Field Services
	RADIUM			Address:	1700 SE Elm St, Minneapolis, MN 55408
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	Tom Halverson
Phone: (612) 597-7254	Fax:	Project Number		Pace Project Manager:	Carin Ferris
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Spring		

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE	G=GRAB C=COMP	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						
		CODE	MATRIX			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol
						DATE	TIME	DATE	TIME									
1	P-01A-2			WT	G			5/3/22	1415		2							
2	P-17			WT	G			5/4/22	1320		2							
3	P-22			WT	G			5/4/22	1000		2							
4	P-23			WT	G			5/4/22	950		2							
5	P-130			WT	G			5/4/22	1005		2							
6	P-131			WT	G			5/5/22	1050		2							
7	P-132			WT	G			5/4/22	1435		2							
8	P-150			WT	G						2							
9	P-151			WT	G			5/5/22	1125		2							
10	P-152A			WT	G						2							
11	P-153			WT	G			5/5/22	1200		2							
12	P-154A			WT	G			5/5/22	1330		2							

Additional Comments:

① DRY WELLS - NO SAMPLE
RDS 5/6/22

RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Pace		5/6/22	1630	Supplied	5/9/22	955	MT

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on	Custody	Sealed Cooler	Samples Intact
Pace						

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

304899340

Section A
Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
RADIUM
Email To: Chris Pelosi
Phone: (612) 587-7254
Fax:

Section B
Required Project Information:

Report To: Chris Pelosi
Copy To: Dave Anderson
Purchase Order No.:
Project Number:
Project Name: Xcel Energy Sherco Ponds Spring

Section C
Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address: 1700 SE Elm St, Minneapolis, MN 55408
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

Page: 2 of 2

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MOES

SITE ☒ MN ☐ IL ☐ IN ☐ MI
LOCATION ☐ OH ☐ SC ☐ WI ☐ OTHER

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / .)	Matrix Code	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Other	Pace Project No. Lab ID.			
			DATE	TIME			DATE	TIME	DATE	TIME	DATE	TIME					
1	P-155	WT G	5/13/22	1525		2								RA-228 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	011
2	P-156	WT G	5/13/22	1325		2											012
3	P-157	WT G	5/14/22	1020		2											013
4	P-158	WT G	5/14/22	1140		2											014
5	P-162	WT G	5/15/22	1425		2											015
6	P-163	WT G				2											
7	P-164	WT G				2											
8	P-165	WT G	5/16/22	905		2											016
9	DUPLICATE BAP	WT G	5/14/22	1020		2											017
10	RINSE BAP	WT G	5/14/22	1000		2											018
11	DUPLICATE P3	WT G	5/15/22	1330		2											019
12	RINSE P3	WT G	5/15/22	1250		2											020

Additional Comments:

② NO SAMPLE - RUC 5/16/22

RELINQUISHED BY / AFFILIATION **DATE** **TIME** **ACCEPTED BY / AFFILIATION** **DATE** **TIME** **SAMPLE CONDITIONS**

Chris Pelosi *Pace* *5/16/22* *1030* *Chris Pelosi* *5/16/22* *955*

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: *Chris Pelosi*
 SIGNATURE of SAMPLER: *Chris Pelosi* **DATE** *5/16/22*



W0#: 30489340

30489340

1/2

Trainer Count

PM: MAR Due Date: 06/07/22

CLIENT: PaceMN Field

Profile Number

7484

Notes

Xcel energy

Client

Site

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WG9U	WGKU	ZPLC
1	WT											2																
2												2																
3												2																
4												2																
5												2																
6												2																
7												2																
8												2																
9												2																
10												2																
11												2																
12												2																

Container Codes

Glass									
GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4						
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial						
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosulfate						
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl						
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar						
AG1H	1L amber glass HCl	WG9U	4oz wide jar unpreserved						
AG1T	1L amber glass Na Thiosulfate	BG2U	500mL clear glass unpreserved						
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved						
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved						
AG3U	250mL amber glass unpreserved								

Plastic / Misc.									
GCUB	1 Gallon Cubitainer	EZI	5g Encore						
12GN	1/2 Gallon Cubitainer	VOAK	Kit for Volatile Solid						
SP5T	120mL Coliform Na Thiosulfate	I	Wipe/Swab						
BP1N	1L plastic HNO3	ZPLC	Ziploc Bag						
BP1U	1L plastic unpreserved								
BP3S	250mL plastic H2SO4	WT	Water						
BP3N	250mL plastic HNO3	SL	Solid						
BP3U	250mL plastic unpreserved	OL	Non-aqueous liquid						
BP3C	250mL plastic NAOH	WP	Wipe						
BP2S	500mL plastic H2SO4								
BP2U	500mL plastic unpreserved								



WO# : 30489340

PM: MAR Due Date: 06/07/22

CLIENT: PaceMN Field

Container Count

Client

Profile Number

Site

Xcel energy

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGCU	ZPLC
13	WT											2															
14												2															
15												2															
16												2															
17												2															
18												2															
19												2															
20												2															
21																											
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25																											
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27																											
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31																											
32																											

Container Codes

Glass		DG9S	VG9U	VG9T	VG9H	JG9U	WG9U	BG2U	AG2U	WGCU
GJN	1 Gallon Jug with HNO3	40mL amber VOA vial H2SO4	40mL clear VOA vial	40mL clear VOA vial Na Thiosulfate	40mL clear VOA vial HCl	4oz amber wide jar	4oz wide jar unpreserved	500mL clear glass unpreserved	500mL amber glass unpreserved	8oz wide jar unpreserved
AG5U	100mL amber glass unpreserved									
AG5T	100mL amber glass Na Thiosulfate									
GJN	1 Gallon Jug									
AG1S	1L amber glass H2SO4									
AG1H	1L amber glass HCl									
AG1T	1L amber glass Na Thiosulfate									
BG1U	1L clear glass unpreserved									
AG3S	250mL amber glass H2SO4									
AG3U	250mL amber glass unpreserved									

Plastic / Misc.		GCUB	12GN	SP5T	BP1N	BP1U	BP3S	BP3N	BP3C	BP2U	BP2S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGCU	ZPLC
	1 Gallon Cubitainer		1/2 Gallon Cubitainer	120mL Coliform Na Thiosulfate	1L plastic HNO3	1L plastic unpreserved	250mL plastic H2SO4	250mL plastic HNO3	250mL plastic unpreserved	250mL plastic NAOH	500mL plastic H2SO4	500mL plastic unpreserved								
	5g Encore																			
	Kit for Volatile Solid																			
	Wipe/Swab																			
	Ziploc Bag																			
	Water																			
	Solid																			
	Non-aqueous liquid																			
	Wipe																			

Pittsburgh Lab Sample Condition Upon Receipt



Client Name:

Pace MN field Sewer Project # 30489340

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 5466 8884 5340

Label <u>MJS</u>
LIMS Login <u>VP</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

pH paper Lot# <u>10D4611</u>	Date and Initials of person examining contents: <u>MJS 5-16-22</u>
---------------------------------	--

Comments:

Yes No N/A

Chain of Custody Present: ☒ ☐ ☐

1.

Chain of Custody Filled Out: ☒ ☐ ☐

2.

Chain of Custody Relinquished: ☒ ☐ ☐

3.

Sampler Name & Signature on COC: ☒ ☐ ☐

4.

Sample Labels match COC: ☒ ☐ ☐

5.

-Includes date/time/ID Matrix: WT

Samples Arrived within Hold Time: ☒ ☐ ☐

6.

Short Hold Time Analysis (<72hr remaining): ☐ ☒ ☐

7.

Rush Turn Around Time Requested: ☐ ☒ ☐

8.

Sufficient Volume: ☒ ☐ ☐

9.

Correct Containers Used: ☒ ☐ ☐

10.

-Pace Containers Used: ☒ ☐ ☐

Containers Intact: ☒ ☐ ☐

11.

Orthophosphate field filtered ☐ ☐ ☒

12.

Hex Cr Aqueous sample field filtered ☐ ☐ ☒

13.

Organic Samples checked for dechlorination: ☐ ☐ ☒

14.

Filtered volume received for Dissolved tests ☐ ☐ ☒

15.

All containers have been checked for preservation. ☒ ☐ ☐

16. pull

exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix

All containers meet method preservation requirements. ☒ ☐ ☐

Initial when completed MJS

Date/time of preservation

Lot # of added preservative

Headspace in VOA Vials (>6mm): ☐ ☐ ☒

17.

Trip Blank Present: ☐ ☐ ☒

18.

Trip Blank Custody Seals Present ☐ ☐ ☒

Rad Samples Screened < 0.5 mrem/hr ☒ ☐ ☐

Initial when completed: MJS

Date: 5-16-22

Survey Meter SN: 15603

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Appendix B

Fall 2022 Assessment Monitoring Event Field Datasheets and Laboratory Reports

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shore Ponds Fall 2022</u>		Project No.	<u>22-06308</u>	
	Monitoring Point ID	<u>P-01A-2</u>				Labeled	<u>847286</u>		
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked	
	Casing Material:	☒ PVC		☐ Steel		☐ Stainless Steel			
	Depth Measurement and Elevations (from top of well casing)								
	Top of Casing Elevation				<u>NA</u>	Feet			
	Total Well Depth				<u>85.41</u>	Feet			
	Static water level measurement before purging (Start Depth)				<u>80.10</u>	Feet			
	Static water level measurement at time of sampling (Final Depth)				<u>80.1</u>	Feet			
	Static Water Level Elevation Before Purging				<u>NA</u>	Feet			
	Purge Method	<u>Designated Bladder pump</u>				Pump ID	<u>BPC-1</u>		
	Date Purged	<u>10/31/22</u>				Water Column	<u>5.31</u>	Feet	
	Time Purged	<u>1500-1515</u>				One Casing Volume	<u>0.87</u>	Gallons	
	Pump Rate	<u>0.2</u>	<u>GPM/LPM</u>		Volume Purged	<u>3</u>	Gallons		

Field Sampling Data	Date Sampled	<u>10/31/22</u>		Field Parameter Measurements of Sample				
	Time Sampled	<u>1520</u>		pH	<u>7.6</u>	(units)	<u>10/31/22 D.O. 2.3</u> (mg/l)	
	Sampling Equip.	<u>pump+filter</u>		Spec. Cond.	<u>940</u>	(μmhos/cm)	Turbidity	<u>2.3</u> (NTU)
	Meter ID	<u>MP5-3</u>		Temp. Observed	<u>12.2</u>	(°C)	Eh	<u>145</u> (mV)
	Analyzed by	<u>Sam</u>		Temp. Corrected	<u>12.7</u>	(°C)	Other	<u>NA</u>
	Field Measurements Temp. Corrected:			☒ Yes	☐ No	☐ NA		
	Sample for Soluble Metals Filtered in Field:			☒ Yes	☐ No	☐ NA		
	Temperature Correction Factor:			<u>10</u>	°C			
	Weather Conditions During Sampling: <u>64°f & sunny, wind S @ 9 mph</u>							
	Sample Description: <u>clear w/ no odor</u>							
	Observations: <u>none</u>							

Stabilization Test	Time	pH (units)	Specific Conductance (μmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1505	7.6	940	12.2	7.7	2.3	145	1
	1510	7.6	940	12.2	7.7	2.3	145	2
	1515	7.6	940	12.2	7.7	2.3	145	3

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Seena Ralls

Lead Technician Signature: [Signature]

Date: 10/31/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shorelands Fall 2022</u>		Project No.	<u>22-06308</u>		
	Monitoring Point ID	<u>P-17</u>				Labeled	<u>P17</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked		
	Casing Material:	☒ PVC		☐ Steel		☐ Stainless Steel				
	Depth Measurement and Elevations (from top of well casing)									
	Top of Casing Elevation				<u>NA</u>	Feet				
	Total Well Depth				<u>58.76</u>	Feet				
	Static water level measurement before purging (Start Depth)				<u>39.46</u>	Feet				
	Static water level measurement at time of sampling (Final Depth)				<u>39.46</u>	Feet				
	Static Water Level Elevation Before Purging				<u>NA</u>	Feet				
	Purge Method	<u>Dedicated Bladder pump</u>				Pump ID	<u>BPC-1</u>			
	Date Purged	<u>11/11/22</u>				Water Column	<u>19.3</u>	Feet		
	Time Purged	<u>1025-1113</u>				One Casing Volume	<u>3.15</u>	Gallons		
	Pump Rate	<u>0.2</u>	(GPM/LPM)		Volume Purged	<u>9.6</u>	Gallons			

Field Sampling Data	Date Sampled	<u>11/11/22</u>		Field Parameter Measurements of Sample					
	Time Sampled	<u>1025 1115</u>		pH	<u>7.8</u>	(units)	D.O.	<u>7.7</u>	(mg/l)
	Sampling Equip.	<u>pump</u>		Spec. Cond.	<u>340</u>	(µmhos/cm)	Turbidity	<u>4.1</u>	(NTU)
	Meter ID	<u>MP5-9</u>		Temp. Observed	<u>10.2</u>	(°C)	Eh	<u>120</u>	(mV)
	Analyzed by	<u>SR</u>		Temp. Corrected	<u>10.2</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:			☒ Yes	☐ No	☐ NA			
	Sample for Soluble Metals Filtered in Field:			☐ Yes	☐ No	☒ NA			
	Temperature Correction Factor:			<u>0.0</u> °C					
	Weather Conditions During Sampling: <u>50°F & sunny, wind N@1mph</u>								
	Sample Description: <u>clear w/ no odor</u>								
	Observations: <u>none</u>								

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1041	7.8	340	10.2	7.7	4.1	120	3.2
	1057	7.8	340	10.2	7.7	4.1	120	6.4
	1113	7.8	340	10.2	7.7	4.1	120	9.6
	<u>SR 11/11/22</u>							

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Serena Kohn

Lead Technician Signature: [Signature] Date: 11/11/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shorelands Fall 2022</u>	Project No. <u>22-06308</u>
	Monitoring Point ID <u>P-22</u>		Labeled <u>P-22</u>
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel		
	Depth Measurement and Elevations (from top of well casing)		
	Top of Casing Elevation <u>NA</u>		Feet
	Total Well Depth <u>57.85</u>		Feet
	Static water level measurement before purging (Start Depth) <u>41.35</u>		Feet
	Static water level measurement at time of sampling (Final Depth) <u>41.35</u>		Feet
	Static Water Level Elevation Before Purging <u>NA</u>		Feet
	Purge Method <u>Dedicated Bladder pump</u>	Pump ID <u>BPC1</u>	
	Date Purged <u>10/31/22</u>	Water Column <u>16.5</u>	Feet
	Time Purged <u>1220-1302</u>	One Casing Volume <u>2.6</u>	Gallons
	Pump Rate <u>0.2</u>	GPM / LPM	Volume Purged _____ Gallons

Field Sampling Data	Date Sampled <u>10/31/22</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>1305</u>	pH <u>7.6</u> (units)	D.O. <u>7.6</u> (mg/l)
	Sampling Equip. <u>pump filter</u>	Spec. Cond. <u>560</u> (µmhos/cm)	Turbidity <u>1.0</u> (NTU)
	Meter ID <u>mps8</u>	Temp. Observed <u>10.5</u> (°C)	Eh <u>142</u> (mV)
	Analyzed by <u>SPR</u>	Temp. Corrected <u>10.5</u> (°C)	Other <u>NA</u>
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA		
	Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA		
	Temperature Correction Factor: <u>0.0</u> °C		
	Weather Conditions During Sampling: <u>56°F & sunny, wind SE @ 6mph</u>		
	Sample Description: <u>clear w/ no odor</u>		
	Observations: <u>none</u>		

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1234	7.6	560	10.6	7.1	1.0	145	2.8
1248	7.6	560	10.5	7.3	1.0	142	5.6
1302	7.6	560	10.5	7.3	1.0	142	8.4

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Seera Ralls

Lead Technician Signature: [Signature] Date: 10/31/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel</u>		Project	<u>Shorelands Fall 2022</u>		Project No.	<u>22-06308</u>	
	Monitoring Point ID	<u>P-23</u>				Labeled	<u>823</u>		
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>2106</u>		☒ Locked	☐ Not Locked	
	Casing Material:	☒ PVC		☐ Steel		☐ Stainless Steel			
	Depth Measurement and Elevations (from top of well casing)								
	Top of Casing Elevation				<u>NA</u>	Feet			
	Total Well Depth				<u>67.34</u>	Feet			
	Static water level measurement before purging (Start Depth)				<u>43.36</u>	Feet			
	Static water level measurement at time of sampling (Final Depth)				<u>43.36</u>	Feet			
	Static Water Level Elevation Before Purging				<u>NA</u>	Feet			
	Purge Method	<u>Bladder Pump</u>				Pump ID	<u>BPC-1</u>		
	Date Purged	<u>11/3/22</u>				Water Column	<u>23.98</u>	Feet	
	Time Purged	<u>0835 - 0935</u>				One Casing Volume	<u>3.91</u>	Gallons	
	Pump Rate	<u>0.2</u>	GPM / LPM		Volume Purged	<u>12.0</u>	Gallons		

Field Sampling Data	Date Sampled	<u>11/3/22</u>		Field Parameter Measurements of Sample					
	Time Sampled	<u>0940</u>		pH	<u>7.5</u>	(units)	D.O.	<u>8.2</u>	(mg/l)
	Sampling Equip.	<u>Pump</u>		Spec. Cond.	<u>1230</u>	(µmhos/cm)	Turbidity	<u>0.9</u>	(NTU)
	Meter ID	<u>MPS-6/TM3</u>		Temp. Observed	<u>11.7</u>	(°C)	Eh	<u>80</u>	(mV)
	Analyzed by	<u>RCS</u>		Temp. Corrected	<u>12.0</u>	(°C)	Other	<u>NA</u>	
	Field Measurements Temp. Corrected:			☒ Yes	☐ No	☐ NA			
	Sample for Soluble Metals Filtered in Field:			☒ Yes	☐ No	☐ NA			
	Temperature Correction Factor:			<u>10.3</u> °C					
	Weather Conditions During Sampling: <u>60°F, Sunny, S @ 10 MPH</u>								
	Sample Description: <u>clear no odor</u>								
Observations: <u>none</u>									

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	<u>0855</u>	<u>7.5</u>	<u>1230</u>	<u>11.7</u>	<u>8.5</u>	<u>1.3</u>	<u>78</u>	<u>4.0</u>
	<u>0915</u>	<u>7.5</u>	<u>1230</u>	<u>11.7</u>	<u>8.3</u>	<u>1.2</u>	<u>79</u>	<u>8.0</u>
	<u>0935</u>	<u>7.5</u>	<u>1230</u>	<u>11.7</u>	<u>8.2</u>	<u>0.9</u>	<u>80</u>	<u>12.0</u>

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Riley Jacobson

Lead Technician Signature: Riley Jacobson Date: 11/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shorelands Fall 2022</u>	Project No. <u>22-06308</u>
	Monitoring Point ID <u>P-152A</u>	Labeled <u>P-152A</u>	
	Inside Diameter _____ (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☐ PVC ☐ Steel ☐ Stainless Steel		
	Depth Measurement and Elevations (from top of well casing)		
	Top of Casing Elevation <u>NA</u>	Feet	
	Total Well Depth <u>42.35</u>	Feet	
	Static water level measurement before purging (Start Depth) <u>* DRY</u>	Feet	
	Static water level measurement at time of sampling (Final Depth) <u>NA</u>	Feet	
	Static Water Level Elevation Before Purging <u>NA</u>	Feet	
	Purge Method _____	Pump ID _____	
	Date Purged _____	Water Column _____	Feet
	Time Purged _____	One Casing Volume _____	Gallons
	Pump Rate _____ GPM / LPM	Volume Purged _____	Gallons

Field Sampling Data	Date Sampled <u>11/3/22</u>	Field Parameter Measurements of Sample			
	Time Sampled <u>NA</u>	pH _____ (units)	D.O. _____ (mg/l)		
	Sampling Equip. <u>↓</u>	Spec. Cond. _____ (µmhos/cm)	Turbidity _____ (NTU)		
	Meter ID <u>↓</u>	Temp. Observed _____ (°C)	Eh _____ (mV)		
	Analyzed by <u>↓</u>	Temp. Corrected _____ (°C)	Other <u>NA</u>		
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA				
	Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☐ NA				
	Temperature Correction Factor: <u>+0.3</u> °C				
	Weather Conditions During Sampling: <u>NA</u>				
	Sample Description: <u>↓</u>				
	Observations: <u>*Top of Bladder Pump @ 39.36' - DRY; Removed Bladder & got water level @ 40.16' - NO SAMPLE</u>				

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)

Samples chilled immediately after collection: ☒ Yes ☐ Other _____
--

Name/Affiliation of Sampler(s): Riley Jacobson Pace

Lead Technician Signature: Riley Date: 11/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shorelands Fall 2022</u>	Project No. <u>22-06308</u>
	Monitoring Point ID <u>P-155</u>	Labeled <u>P155</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel		
	Depth Measurement and Elevations (from top of well casing)		
	Top of Casing Elevation <u>NA</u>	Feet	
	Total Well Depth <u>85.47</u>	Feet	
	Static water level measurement before purging (Start Depth) <u>79.48</u>	Feet	
	Static water level measurement at time of sampling (Final Depth) <u>79.43</u>	Feet	
	Static Water Level Elevation Before Purging <u>NA</u>	Feet	
	Purge Method <u>Dedicated bladder pump</u>	Pump ID <u>BPC-1</u>	
	Date Purged <u>10/3/22</u>	Water Column <u>5.99</u>	Feet
	Time Purged <u>1315-1330</u>	One Casing Volume <u>0.98</u>	Gallons
	Pump Rate <u>0.2</u> GPM / LPM	Volume Purged <u>3</u>	Gallons

Field Sampling Data	Date Sampled <u>10/3/22</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>1335</u>	pH <u>7.0</u> (units)	D.O. <u>6.4</u> (mg/l)
	Sampling Equip. <u>pump + filter</u>	Spec. Cond. <u>140</u> (µmhos/cm)	Turbidity <u>1.2</u> (NTU)
	Meter ID <u>MP58</u>	Temp. Observed <u>12.4</u> (°C)	Eh <u>138</u> (mV)
	Analyzed by <u>sch</u>	Temp. Corrected <u>12.4</u> (°C)	Other <u>NA</u>
	Field Measurements Temp. Corrected: <u>10/3/22</u> ☒ Yes ☐ No ☐ NA		
	Sample for Soluble Metals Filtered in Field: <u>10/3/22</u> ☒ Yes ☐ No ☒ NA		
	Temperature Correction Factor: <u>0.0</u> °C		
	Weather Conditions During Sampling: <u>50°F, sunny, wind S @ 8 mph</u>		
	Sample Description: <u>clear w/ no odor</u>		
	Observations: <u>ALERT # DUPLICATE collected here @ 1335 & RINSE collected here @ 1345</u>		

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1320	7.0	130	12.4	6.4	1.2	138	1
	1325	7.0	140	12.4	6.4	1.2	138	2
	1330	7.0	140	12.4	6.4	1.2	138	3

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Serena Roth

Lead Technician Signature: [Signature] Date: 10/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>	Project <u>Shorelands Fall 2022</u>	Project No. <u>22-06308</u>
	Monitoring Point ID <u>P-156</u>	Labeled <u>P156</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked ☐ Not Locked
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel		
Depth Measurement and Elevations (from top of well casing)			
Top of Casing Elevation <u>NA</u>		Feet	
Total Well Depth <u>85.53</u>		Feet	
Static water level measurement before purging (Start Depth) <u>78.59</u>		Feet	
Static water level measurement at time of sampling (Final Depth) <u>78.59</u>		Feet	
Static Water Level Elevation Before Purging <u>NA</u>		Feet	
Purge Method <u>Dedicated Bladder Pump</u>	Pump ID <u>BPC-1</u>		
Date Purged <u>11/11/22</u>	Water Column <u>12.94-6.94</u>	Feet	
Time Purged <u>0800-0818</u>	One Casing Volume <u>1.13</u>	Gallons	
Pump Rate <u>0.2</u> <u>GPM</u> / LPM	Volume Purged <u>3.6</u>	Gallons	

Field Sampling Data	Date Sampled <u>11/11/22</u>	Field Parameter Measurements of Sample			
	Time Sampled <u>0820</u>	pH <u>7.7</u> (units)	D.O. <u>8.8</u> (mg/l)		
	Sampling Equip. <u>pump</u>	Spec. Cond. <u>380</u> (µmhos/cm)	Turbidity <u>1.3</u> (NTU)		
	Meter ID <u>MPS-8</u>	Temp. Observed <u>9.7</u> (°C)	Eh <u>144</u> (mV)		
Analyzed by <u>SKR</u>	Temp. Corrected <u>9.7</u> (°C)	Other <u>NA</u>			
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA					
Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA					
Temperature Correction Factor: <u>0.0</u> °C					
Weather Conditions During Sampling: <u>36°F & sunny, wind N @ 10mph</u>					
Sample Description: <u>clear w/ no odor</u>					
Observations: <u>none</u>					

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	0806	7.7	380	9.7	8.8	1.3	144	1.2
	0812	7.7	390	9.7	8.8	1.3	144	2.4
	0818	7.7	390	9.7	8.8	1.3	144	3.6

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Seamon Ralho

Lead Technician Signature: [Signature] Date: 11/11/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>		Project <u>Shoreland Ponds Fall 2022</u>		Project No. <u>22-06308</u>	
	Monitoring Point ID <u>P-157</u>		Labeled <u>P-157</u>			
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked		☐ Not Locked	
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel					
Depth Measurement and Elevations (from top of well casing)						
			Top of Casing Elevation <u>NA</u>		Feet	
			Total Well Depth <u>49.06</u>		Feet	
			Static water level measurement before purging (Start Depth) <u>43.97</u>		Feet	
			Static water level measurement at time of sampling (Final Depth) <u>43.97</u>		Feet	
			Static Water Level Elevation Before Purging <u>NA</u>		Feet	
Purge Method <u>Bladder Pump</u>			Pump ID <u>RPC-1</u>			
Date Purged <u>11/3/22</u>			Water Column <u>5.09</u>		Feet	
Time Purged <u>0800 - 0815</u>			One Casing Volume <u>0.83</u>		Gallons	
Pump Rate <u>0.2</u> <u>GPM</u> / LPM			Volume Purged <u>3</u>		Gallons	

Field Sampling Data	Date Sampled <u>11/3/22</u>	Field Parameter Measurements of Sample			
	Time Sampled <u>0820</u>	pH <u>7.3</u> (units)		D.O. <u>9.1</u> (mg/l)	
	Sampling Equip. <u>Pump</u>	Spec. Cond. <u>1080</u> (µmhos/cm)		Turbidity <u>2.1</u> (NTU)	
	Meter ID <u>MPS-6/TM3</u>	Temp. Observed <u>10.8</u> (°C)		Eh <u>105</u> (mV)	
Analyzed by <u>RL</u>	Temp. Corrected <u>11.1</u> (°C)		Other <u>NA</u>		
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA					
Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☒ NA					
Temperature Correction Factor: <u>10.3</u> °C <u>11/3/22</u>					
Weather Conditions During Sampling: <u>59°F, Sunny, SE 10MPH</u>					
Sample Description: <u>clear no odor</u>					
Observations: <u>none</u>					

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0805	7.3	1090	10.8	8.9	2.9	48	1.0
0810	7.3	1080	10.8	9.0	2.4	56	2.0
0815	7.3	1080	10.8	9.1	2.1	65	3.0

Samples chilled immediately after collection:	☒ Yes ☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Piley Lubson Pare

Lead Technician Signature: [Signature] Date: 11/3/22

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel</u>		Project <u>Shorelands Fall 2022</u>		Project No. <u>22-06308</u>	
	Monitoring Point ID <u>P-158</u>		Labeled <u>812 967</u>			
	Inside Diameter <u>2</u> (inches)	Key # <u>2106</u>	☒ Locked		☐ Not Locked	
	Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel					
	Depth Measurement and Elevations (from top of well casing)					
		Top of Casing Elevation <u>NA</u>		Feet		
		Total Well Depth <u>49.16</u>		Feet		
		Static water level measurement before purging (Start Depth) <u>41.83</u>		Feet		
		Static water level measurement at time of sampling (Final Depth) <u>41.83</u>		Feet		
		Static Water Level Elevation Before Purging <u>NA</u>		Feet		
Purge Method <u>Dedicated Bladder pump</u>		Pump ID <u>BPC-1</u>				
Date Purged <u>11/11/22</u>		Water Column <u>7.33</u>		Feet		
Time Purged <u>0935-0953</u>		One Casing Volume <u>1.19</u>		Gallons		
Pump Rate <u>0.2</u>		GPM/LPM		Volume Purged <u>3.6</u> Gallons		

Field Sampling Data	Date Sampled <u>11/11/22</u>	Field Parameter Measurements of Sample			
	Time Sampled <u>0955</u>	pH <u>7.5</u> (units)	D.O. <u>9.1</u> (mg/l)		
	Sampling Equip. <u>Pump</u>	Spec. Cond. <u>525</u> ($\mu\text{mhos/cm}$)	Turbidity <u>0.81</u> (NTU)		
	Meter ID <u>MP5-8</u>	Temp. Observed <u>10.3</u> ($^{\circ}\text{C}$)	Eh <u>130</u> (mV)		
	Analyzed by <u>SKR</u>	Temp. Corrected <u>10.3</u> ($^{\circ}\text{C}$)	Other <u>NA</u>		
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA					
Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA					
Temperature Correction Factor: <u>0.0</u> $^{\circ}\text{C}$					
Weather Conditions During Sampling: <u>43°F & sunny, wind N @ 0 mph</u>					
Sample Description: <u>clear w/ no odor</u>					
Observations: <u>None</u>					

Time	pH (units)	Specific Conductance ($\mu\text{mhos/cm}$)	Temp ($^{\circ}\text{C}$) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0941	7.5	525	10.3	9.1	0.81	130	1.2
0947	7.5	525	10.3	9.1	0.81	130	2.4
0953	7.5	525	10.3	9.1	0.81	130	3.6
<u>SKR 11/11/22</u>							

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Shorelands

Lead Technician Signature: [Signature] Date: 11/11/22



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

05 December 2022

Eric Ealy

Environmental Services-Water Minneapolis

414 Nicollet Mall, GO-2

Minneapolis, MN 55401

RE: Sherco BAP CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 11/01/2022 12:50-11/04/2022 05:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-01A-2		MHK0004-01	Water	10/31/2022 15:20	11/01/2022 12:50
P-17		MHK0004-02	Water	11/01/2022 11:15	11/01/2022 12:50
P-22		MHK0004-03	Water	10/31/2022 13:05	11/01/2022 12:50
P-155		MHK0004-11	Water	10/31/2022 13:35	11/01/2022 12:50
P-156		MHK0004-12	Water	11/01/2022 8:20	11/01/2022 12:50
P-158		MHK0004-13	Water	11/01/2022 9:55	11/01/2022 12:50
Duplicate CCR-BAP		MHK0004-23	Water	10/31/2022 13:25	11/01/2022 12:50
Rinse CCR-BAP		MHK0004-24	Water	10/31/2022 13:45	11/01/2022 12:50
P-23		MHK0019-24	Water	11/03/2022 9:40	11/04/2022 5:30
P-157		MHK0019-34	Water	11/03/2022 8:20	11/04/2022 5:30



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

P-01A-2

MHK0004-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	43.7	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 11:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 11:39	EPA 300.0	CRL
Sulfate	414	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 11:39	EPA 300.0	CRL

Wet Chemistry

pH	7.71		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 7:57	SM 4500-H+ B	CRL
Total Dissolved Solids	894	25.0	mg/L		1	BHK0037	11/2/22 9:20	11/2/22 9:20	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0036	11/2/22 7:20	11/2/22 7:20	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Barium	58.7	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Cobalt	2.25	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Chromium	1.11	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Molybdenum	9.67	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL
Selenium	54.2	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 10:57	EPA 200.8	CRL

Total Metals by ICP

Boron	3.09	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:12	EPA 200.7	HRD
Calcium	129	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:11	EPA 200.7	HRD
Lithium	0.0237	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:11	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-17

MHK0004-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	14.6	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:00	EPA 300.0	CRL
Sulfate	16.2	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:00	EPA 300.0	CRL

Wet Chemistry

pH	7.85		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 8:00	SM 4500-H+ B	CRL
Total Dissolved Solids	254	25.0	mg/L		1	BHK0037	11/2/22 9:20	11/2/22 9:20	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0036	11/2/22 7:20	11/2/22 7:20	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.551	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Barium	36.1	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Chromium	1.31	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL
Selenium	0.564	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:09	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 15:13	EPA 200.7	HRD
Calcium	60.2	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 15:12	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 15:12	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

P-22

MHK0004-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	12.7	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:21	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:21	EPA 300.0	CRL
Sulfate	102	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 12:21	EPA 300.0	CRL

Wet Chemistry

pH	7.78		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 8:08	SM 4500-H+ B	CRL
Total Dissolved Solids	390	25.0	mg/L		1	BHK0037	11/2/22 9:20	11/2/22 9:20	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0036	11/2/22 7:20	11/2/22 7:20	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Barium	50.5	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Chromium	1.23	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL
Selenium	2.48	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:13	EPA 200.8	CRL

Total Metals by ICP

Boron	0.886	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:36	EPA 200.7	HRD
Calcium	74.8	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:35	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:35	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-155

MHK0004-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	18.2	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 16:49	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 16:49	EPA 300.0	CRL
Sulfate	164	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 16:49	EPA 300.0	CRL

Wet Chemistry

pH	7.78		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 9:10	SM 4500-H+ B	CRL
Total Dissolved Solids	494	25.0	mg/L		1	BHK0037	11/2/22 9:20	11/2/22 9:20	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0036	11/2/22 7:20	11/2/22 7:20	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Barium	60.4	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Chromium	1.19	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL
Selenium	2.96	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:17	EPA 200.8	CRL

Total Metals by ICP

Boron	1.12	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:40	EPA 200.7	HRD
Calcium	88.3	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:39	EPA 200.7	HRD
Lithium	0.0284	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:39	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

P-156

MHK0004-12 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	4.61	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:10	EPA 300.0	CRL
Sulfate	25.6	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:10	EPA 300.0	CRL

Wet Chemistry

pH	7.86		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 9:14	SM 4500-H+ B	CRL
Total Dissolved Solids	290	25.0	mg/L		1	BHK0037	11/2/22 9:20	11/2/22 9:20	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0036	11/2/22 7:20	11/2/22 7:20	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.522	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Barium	54.2	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Chromium	1.75	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL
Selenium	1.91	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:21	EPA 200.8	CRL

Total Metals by ICP

Boron	0.180	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:44	EPA 200.7	HRD
Calcium	67.6	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:43	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:43	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-158

MHK0004-13 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	4.77	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:31	EPA 300.0	CRL
Sulfate	119	1.00	mg/L		1	BHK0039	11/2/22 7:20	11/2/22 17:31	EPA 300.0	CRL

Wet Chemistry

pH	7.71		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 9:17	SM 4500-H+ B	CRL
Total Dissolved Solids	434	25.0	mg/L		1	BHK0044	11/3/22 9:06	11/3/22 9:06	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0043	11/3/22 7:03	11/3/22 7:03	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.502	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Barium	79.6	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Chromium	1.18	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL
Selenium	2.72	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:25	EPA 200.8	CRL

Total Metals by ICP

Boron	0.658	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:48	EPA 200.7	HRD
Calcium	97.3	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:47	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:47	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Duplicate CCR-BAP
MHK0004-23 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	18.2	1.00	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:30	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:30	EPA 300.0	CRL
Sulfate	164	1.00	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:30	EPA 300.0	CRL

Wet Chemistry

pH	7.86		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 10:13	SM 4500-H+ B	CRL
Total Dissolved Solids	508	25.0	mg/L		1	BHK0044	11/3/22 9:06	11/3/22 9:06	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0043	11/3/22 7:03	11/3/22 7:03	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Barium	59.8	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Chromium	1.18	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL
Selenium	2.87	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:29	EPA 200.8	CRL

Total Metals by ICP

Boron	1.05	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:19	EPA 200.7	HRD
Calcium	86.7	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:18	EPA 200.7	HRD
Lithium	0.0274	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:18	EPA 200.7	HRD



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Rinse CCR-BAP
MHK0004-24 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:51	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:51	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BHK0071	11/4/22 7:24	11/4/22 12:51	EPA 300.0	CRL

Wet Chemistry

pH	6.25		pH Units	M_TTT	1	BHK0038	11/2/22 6:59	11/2/22 10:17	SM 4500-H+ B	CRL
Total Dissolved Solids	< 25.0	25.0	mg/L	M_ES	1	BHK0044	11/3/22 9:06	11/3/22 9:06	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0043	11/3/22 7:03	11/3/22 7:03	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:33	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:28	EPA 200.7	HRD
Calcium	< 1.50	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:27	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 13:27	EPA 200.7	HRD



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Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

P-23

MHK0019-24 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	33.6	1.00	mg/L		1	BHK0091	11/7/22 6:45	11/7/22 16:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0091	11/7/22 6:45	11/7/22 16:38	EPA 300.0	CRL
Sulfate	103	1.00	mg/L		1	BHK0091	11/7/22 6:45	11/7/22 16:38	EPA 300.0	CRL

Wet Chemistry

pH	7.69		pH Units	M_TTT	1	BHK0086	11/4/22 13:18	11/4/22 14:10	SM 4500-H+ B	CRL
Total Dissolved Solids	442	25.0	mg/L		1	BHK0088	11/7/22 8:57	11/7/22 8:57	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0087	11/7/22 6:45	11/7/22 6:45	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.600	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Barium	67.4	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Chromium	1.20	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL
Selenium	1.22	0.500	ug/L		1	BHK0193	11/9/22 11:19	11/10/22 11:45	EPA 200.8	CRL

Total Metals by ICP

Boron	0.241	0.0500	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:39	EPA 200.7	HRD
Calcium	94.0	1.50	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:38	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0192	11/9/22 11:15	11/10/22 14:38	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

P-157

MHK0019-34 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
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Anions by Ion Chromatography

Chloride	7.92	1.00	mg/L		1	BHK0179	11/9/22 6:34	11/9/22 10:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BHK0179	11/9/22 6:34	11/9/22 10:16	EPA 300.0	CRL
Sulfate	54.1	1.00	mg/L		1	BHK0179	11/9/22 6:34	11/9/22 10:16	EPA 300.0	CRL

Wet Chemistry

pH	7.64		pH Units	M_TTT	1	BHK0086	11/4/22 13:18	11/4/22 15:15	SM 4500-H+ B	CRL
Total Dissolved Solids	392	25.0	mg/L		1	BHK0178	11/9/22 9:31	11/9/22 9:31	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_ES	1	BHK0177	11/9/22 7:23	11/9/22 7:23	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Barium	64.7	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Chromium	1.56	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL
Selenium	1.49	0.500	ug/L		1	BHK0198	11/9/22 11:24	11/10/22 12:41	EPA 200.8	CRL

Total Metals by ICP

Boron	0.209	0.0500	mg/L		1	BHK0197	11/9/22 11:22	11/10/22 15:55	EPA 200.7	HRD
Calcium	86.3	1.50	mg/L		1	BHK0197	11/9/22 11:22	11/10/22 15:54	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BHK0197	11/9/22 11:22	11/10/22 15:54	EPA 200.7	HRD



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0039 - Wet Prep

Blank (BHK0039-BLK1)				Prepared & Analyzed: 11/02/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BHK0039-BLK2)				Prepared & Analyzed: 11/02/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BHK0039-BS1)				Prepared & Analyzed: 11/02/2022						
Chloride	24.866	1.00	mg/L	25.000		99.5	90-110			
Fluoride	2.5360	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.678	1.00	mg/L	25.000		98.7	90-110			

LCS (BHK0039-BS2)				Prepared & Analyzed: 11/02/2022						
Chloride	24.888	1.00	mg/L	25.000		99.6	90-110			
Fluoride	2.5250	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.626	1.00	mg/L	25.000		98.5	90-110			

LCS (BHK0039-BS3)				Prepared & Analyzed: 11/02/2022						
Chloride	24.869	1.00	mg/L	25.000		99.5	90-110			
Fluoride	2.5220	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.603	1.00	mg/L	25.000		98.4	90-110			

Duplicate (BHK0039-DUP1)				Source: MHK0004-14		Prepared & Analyzed: 11/02/2022				
Chloride	6.9940	1.00	mg/L		7.0050			0.157	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	26.102	1.00	mg/L		26.130			0.107	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0039 - Wet Prep

Duplicate (BHK0039-DUP2)		Source: MHK0004-15		Prepared & Analyzed: 11/02/2022						
Chloride	3.3150	1.00	mg/L		3.3090			0.181	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	56.440	1.00	mg/L		56.479			0.0691	20	

Matrix Spike (BHK0039-MS1)		Source: MHK0004-14		Prepared & Analyzed: 11/02/2022						
Chloride	34.093	1.11	mg/L	27.778	7.0050	97.5	90-110			
Fluoride	2.8933	0.833	mg/L	2.7778	<0.833	104	90-110			
Sulfate	53.433	1.11	mg/L	27.778	26.130	98.3	90-110			

Matrix Spike (BHK0039-MS2)		Source: MHK0004-15		Prepared & Analyzed: 11/02/2022						
Chloride	31.753	1.11	mg/L	27.778	3.3090	102	90-110			
Fluoride	2.9978	0.833	mg/L	2.7778	<0.833	108	90-110			
Sulfate	84.912	1.11	mg/L	27.778	56.479	102	90-110			

Matrix Spike Dup (BHK0039-MSD1)		Source: MHK0004-14		Prepared & Analyzed: 11/02/2022						
Chloride	34.548	1.11	mg/L	27.778	7.0050	99.2	90-110	1.32	20	
Fluoride	2.9011	0.833	mg/L	2.7778	<0.833	104	90-110	0.268	20	
Sulfate	53.918	1.11	mg/L	27.778	26.130	100	90-110	0.903	20	

Matrix Spike Dup (BHK0039-MSD2)		Source: MHK0004-15		Prepared & Analyzed: 11/02/2022						
Chloride	30.897	1.11	mg/L	27.778	3.3090	99.3	90-110	2.73	20	
Fluoride	2.8822	0.833	mg/L	2.7778	<0.833	104	90-110	3.93	20	
Sulfate	84.210	1.11	mg/L	27.778	56.479	99.8	90-110	0.830	20	

Batch BHK0071 - Wet Prep

Blank (BHK0071-BLK1)		Prepared & Analyzed: 11/04/2022								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							



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1518 Chestnut Ave N
Minneapolis, MN 55043
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0071 - Wet Prep

Blank (BHK0071-BLK2)				Prepared & Analyzed: 11/04/2022						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BHK0071-BS1)				Prepared & Analyzed: 11/04/2022						
Chloride	24.700	1.00	mg/L	25.000		98.8	90-110			
Fluoride	2.4680	0.750	mg/L	2.5000		98.7	90-110			
Sulfate	24.471	1.00	mg/L	25.000		97.9	90-110			

LCS (BHK0071-BS2)				Prepared & Analyzed: 11/04/2022						
Chloride	24.952	1.00	mg/L	25.000		99.8	90-110			
Fluoride	2.5270	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.673	1.00	mg/L	25.000		98.7	90-110			

LCS (BHK0071-BS3)				Prepared & Analyzed: 11/04/2022						
Chloride	25.064	1.00	mg/L	25.000		100	90-110			
Fluoride	2.5360	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.786	1.00	mg/L	25.000		99.1	90-110			

Duplicate (BHK0071-DUP1)				Source: MHK0019-03		Prepared & Analyzed: 11/04/2022				
Chloride	1.6330	1.00	mg/L		1.6370			0.245	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	10.826	1.00	mg/L		10.998			1.58	20	

Duplicate (BHK0071-DUP2)				Source: MHK0019-04		Prepared & Analyzed: 11/04/2022				
Chloride	18.770	1.00	mg/L		18.781			0.0586	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	53.900	1.00	mg/L		53.896			0.00742	20	

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Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0071 - Wet Prep

Matrix Spike (BHK0071-MS1)		Source: MHK0019-03		Prepared & Analyzed: 11/04/2022						
Chloride	26.283	1.11	mg/L	27.778	1.6370	88.7	90-110			M_MS
Fluoride	2.6278	0.833	mg/L	2.7778	<0.833	94.6	90-110			
Sulfate	35.149	1.11	mg/L	27.778	10.998	86.9	90-110			M_MS

Matrix Spike (BHK0071-MS2)		Source: MHK0019-04		Prepared & Analyzed: 11/04/2022						
Chloride	47.062	1.11	mg/L	27.778	18.781	102	90-110			
Fluoride	2.9844	0.833	mg/L	2.7778	<0.833	107	90-110			
Sulfate	82.022	1.11	mg/L	27.778	53.896	101	90-110			

Matrix Spike Dup (BHK0071-MSD1)		Source: MHK0019-03		Prepared & Analyzed: 11/04/2022						
Chloride	28.394	1.11	mg/L	27.778	1.6370	96.3	90-110	7.72	20	
Fluoride	2.8344	0.833	mg/L	2.7778	<0.833	102	90-110	7.57	20	
Sulfate	37.950	1.11	mg/L	27.778	10.998	97.0	90-110	7.66	20	

Matrix Spike Dup (BHK0071-MSD2)		Source: MHK0019-04		Prepared & Analyzed: 11/04/2022						
Chloride	46.067	1.11	mg/L	27.778	18.781	98.2	90-110	2.14	20	
Fluoride	2.8667	0.833	mg/L	2.7778	<0.833	103	90-110	4.03	20	
Sulfate	81.162	1.11	mg/L	27.778	53.896	98.2	90-110	1.05	20	

Batch BHK0091 - Wet Prep

Blank (BHK0091-BLK1)		Prepared & Analyzed: 11/07/2022								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BHK0091-BLK2)		Prepared & Analyzed: 11/07/2022								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

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414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
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Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0091 - Wet Prep

LCS (BHK0091-BS1)

Prepared & Analyzed: 11/07/2022

Chloride	24.983	1.00	mg/L	25.000		99.9	90-110			
Fluoride	2.5270	0.750	mg/L	2.5000		101	90-110			
Sulfate	24.829	1.00	mg/L	25.000		99.3	90-110			

LCS (BHK0091-BS2)

Prepared & Analyzed: 11/07/2022

Chloride	25.095	1.00	mg/L	25.000		100	90-110			
Fluoride	2.5660	0.750	mg/L	2.5000		103	90-110			
Sulfate	24.898	1.00	mg/L	25.000		99.6	90-110			

LCS (BHK0091-BS3)

Prepared & Analyzed: 11/07/2022

Chloride	25.087	1.00	mg/L	25.000		100	90-110			
Fluoride	2.5540	0.750	mg/L	2.5000		102	90-110			
Sulfate	24.869	1.00	mg/L	25.000		99.5	90-110			

Duplicate (BHK0091-DUP1)

Source: MHK0019-16

Prepared & Analyzed: 11/07/2022

Chloride	2.4660	1.00	mg/L		2.8690			15.1	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	8.7300	1.00	mg/L		10.282			16.3	20	

Duplicate (BHK0091-DUP2)

Source: MHK0019-17

Prepared & Analyzed: 11/07/2022

Chloride	27.998	1.00	mg/L		27.936			0.222	20	
Fluoride	<0.750	0.750	mg/L		0.066000				20	
Sulfate	49.544	1.00	mg/L		49.515			0.0585	20	

Matrix Spike (BHK0091-MS1)

Source: MHK0019-16

Prepared & Analyzed: 11/07/2022

Chloride	30.017	1.11	mg/L	27.778	2.8690	97.7	90-110			
Fluoride	2.8356	0.833	mg/L	2.7778	<0.833	102	90-110			
Sulfate	37.709	1.11	mg/L	27.778	10.282	98.7	90-110			



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Minneapolis, MN 55043
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414 Nicollet Mall, GO-2		12/05/2022 10:19
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0091 - Wet Prep

Matrix Spike (BHK0091-MS2)	Source: MHK0019-17	Prepared & Analyzed: 11/07/2022
Chloride	56.669	1.11 mg/L 27.778 27.936 103 90-110
Fluoride	3.0933	0.833 mg/L 2.7778 <0.833 111 90-110
Sulfate	78.206	1.11 mg/L 27.778 49.515 103 90-110

M_MS

Matrix Spike Dup (BHK0091-MSD1)	Source: MHK0019-16	Prepared & Analyzed: 11/07/2022
Chloride	30.430	1.11 mg/L 27.778 2.8690 99.2 90-110 1.37 20
Fluoride	2.8700	0.833 mg/L 2.7778 <0.833 103 90-110 1.21 20
Sulfate	38.120	1.11 mg/L 27.778 10.282 100 90-110 1.08 20

Matrix Spike Dup (BHK0091-MSD2)	Source: MHK0019-17	Prepared & Analyzed: 11/07/2022
Chloride	55.797	1.11 mg/L 27.778 27.936 100 90-110 1.55 20
Fluoride	3.0033	0.833 mg/L 2.7778 <0.833 108 90-110 2.95 20
Sulfate	77.382	1.11 mg/L 27.778 49.515 100 90-110 1.06 20

Batch BHK0179 - Wet Prep

Blank (BHK0179-BLK1)	Prepared & Analyzed: 11/09/2022
Chloride	<1.00 1.00 mg/L
Fluoride	<0.750 0.750 mg/L
Sulfate	<1.00 1.00 mg/L

LCS (BHK0179-BS1)	Prepared & Analyzed: 11/09/2022
Chloride	24.793 1.00 mg/L 25.000 99.2 90-110
Fluoride	2.5680 0.750 mg/L 2.5000 103 90-110
Sulfate	24.600 1.00 mg/L 25.000 98.4 90-110

LCS (BHK0179-BS2)	Prepared & Analyzed: 11/09/2022
Chloride	24.784 1.00 mg/L 25.000 99.1 90-110
Fluoride	2.5450 0.750 mg/L 2.5000 102 90-110
Sulfate	24.393 1.00 mg/L 25.000 97.6 90-110



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Christine Keefe, Supervisor (612) 630-4506

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Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0179 - Wet Prep

Duplicate (BHK0179-DUP1)	Source: MHK0056-01			Prepared & Analyzed: 11/09/2022						
Chloride	13.334	1.00	mg/L		13.376			0.314	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	8.9550	1.00	mg/L		8.9890			0.379	20	

Matrix Spike (BHK0179-MS1)	Source: MHK0056-01			Prepared & Analyzed: 11/09/2022						
Chloride	41.143	1.11	mg/L	27.778	13.376	100	90-110			
Fluoride	2.8978	0.833	mg/L	2.7778	<0.833	104	90-110			
Sulfate	36.741	1.11	mg/L	27.778	8.9890	99.9	90-110			

Matrix Spike Dup (BHK0179-MSD1)	Source: MHK0056-01			Prepared & Analyzed: 11/09/2022						
Chloride	41.662	1.11	mg/L	27.778	13.376	102	90-110	1.25	20	
Fluoride	3.0233	0.833	mg/L	2.7778	<0.833	109	90-110	4.24	20	
Sulfate	37.219	1.11	mg/L	27.778	8.9890	102	90-110	1.29	20	



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

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414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0036 - Wet Prep

Blank (BHK0036-BLK1)

Prepared & Analyzed: 11/02/2022

Total Suspended Solids <5.00 5.00 mg/L

LCS (BHK0036-BS1)

Prepared & Analyzed: 11/02/2022

Total Suspended Solids 92.000 5.00 mg/L 106.90 86.1 70-130

Duplicate (BHK0036-DUP1)

Source: MHK0004-02

Prepared & Analyzed: 11/02/2022

Total Suspended Solids <12.5 12.5 mg/L <12.5 20 M_ES

Duplicate (BHK0036-DUP2)

Source: MHK0004-03

Prepared & Analyzed: 11/02/2022

Total Suspended Solids <12.5 12.5 mg/L <12.5 20 M_ES

Batch BHK0037 - Wet Prep

Blank (BHK0037-BLK1)

Prepared & Analyzed: 11/02/2022

Total Dissolved Solids <25.0 25.0 mg/L

LCS (BHK0037-BS1)

Prepared & Analyzed: 11/02/2022

Total Dissolved Solids 104.00 25.0 mg/L 107.80 96.5 70-130

Duplicate (BHK0037-DUP1)

Source: MHK0004-02

Prepared & Analyzed: 11/02/2022

Total Dissolved Solids 240.00 25.0 mg/L 254.00 5.67 20

Duplicate (BHK0037-DUP2)

Source: MHK0004-03

Prepared & Analyzed: 11/02/2022

Total Dissolved Solids 388.00 25.0 mg/L 390.00 0.514 20

Batch BHK0038 - Wet Prep

LCS (BHK0038-BS1)

Prepared & Analyzed: 11/02/2022

pH 7.1000 pH Units 7.0000 101 90-110



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414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0038 - Wet Prep

LCS (BHK0038-BS2)				Prepared & Analyzed: 11/02/2022						
pH	7.1100		pH Units	7.0000		102	90-110			
Duplicate (BHK0038-DUP1)				Source: MHK0004-01		Prepared & Analyzed: 11/02/2022				
pH	7.6600		pH Units		7.7100			0.651	20	
Duplicate (BHK0038-DUP2)				Source: MHK0004-11		Prepared & Analyzed: 11/02/2022				
pH	7.7900		pH Units		7.7800			0.128	20	
Duplicate (BHK0038-DUP3)				Source: MHK0004-21		Prepared & Analyzed: 11/02/2022				
pH	7.8600		pH Units		7.8500			0.127	20	

Batch BHK0043 - Wet Prep

Blank (BHK0043-BLK1)				Prepared & Analyzed: 11/03/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHK0043-BS1)				Prepared & Analyzed: 11/03/2022						
Total Suspended Solids	98.000	5.00	mg/L	106.90		91.7	70-130			
Duplicate (BHK0043-DUP1)				Source: MHK0004-13		Prepared & Analyzed: 11/03/2022				
Total Suspended Solids	<12.5	12.5	mg/L		<12.5			20		M_ES
Duplicate (BHK0043-DUP2)				Source: MHK0004-14		Prepared & Analyzed: 11/03/2022				
Total Suspended Solids	<12.5	12.5	mg/L		0.60000			20		M_ES

Batch BHK0044 - Wet Prep

Blank (BHK0044-BLK1)				Prepared & Analyzed: 11/03/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							



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Minneapolis, MN 55043
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414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0044 - Wet Prep

LCS (BHK0044-BS1)				Prepared & Analyzed: 11/03/2022						
Total Dissolved Solids	118.00	25.0	mg/L	107.80		109	70-130			
Duplicate (BHK0044-DUP1)				Source: MHK0004-13		Prepared & Analyzed: 11/03/2022				
Total Dissolved Solids	424.00	25.0	mg/L		434.00			2.33	20	
Duplicate (BHK0044-DUP2)				Source: MHK0004-14		Prepared & Analyzed: 11/03/2022				
Total Dissolved Solids	324.00	25.0	mg/L		320.00			1.24	20	

Batch BHK0061 - Wet Prep

Blank (BHK0061-BLK1)				Prepared & Analyzed: 11/04/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHK0061-BS1)				Prepared & Analyzed: 11/04/2022						
Total Suspended Solids	98.000	5.00	mg/L	106.90		91.7	70-130			
Duplicate (BHK0061-DUP1)				Source: MHK0004-25		Prepared & Analyzed: 11/04/2022				
Total Suspended Solids	1.5000	12.5	mg/L		0.80000			60.9	20	M_D-RL, M_ES
Duplicate (BHK0061-DUP2)				Source: MHK0019-02		Prepared & Analyzed: 11/04/2022				
Total Suspended Solids	14.500	12.5	mg/L		12.000			18.9	20	

Batch BHK0062 - Wet Prep

Blank (BHK0062-BLK1)				Prepared & Analyzed: 11/05/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							



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1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0062 - Wet Prep

LCS (BHK0062-BS1)

Prepared & Analyzed: 11/05/2022

Total Dissolved Solids	110.00	25.0	mg/L	107.80		102	70-130		
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Duplicate (BHK0062-DUP1)

Source: MHK0004-25

Prepared & Analyzed: 11/05/2022

Total Dissolved Solids	276.00	25.0	mg/L	282.00		2.15	20		
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Duplicate (BHK0062-DUP2)

Source: MHK0019-02

Prepared & Analyzed: 11/05/2022

Total Dissolved Solids	1102.0	25.0	mg/L	1112.0		0.903	20		
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Batch BHK0069 - Wet Prep

LCS (BHK0069-BS1)

Prepared & Analyzed: 11/04/2022

pH	7.0900		pH Units	7.0000		101	90-110		
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LCS (BHK0069-BS2)

Prepared & Analyzed: 11/04/2022

pH	7.1100		pH Units	7.0000		102	90-110		
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Duplicate (BHK0069-DUP1)

Source: MHK0019-01

Prepared & Analyzed: 11/04/2022

pH	7.4900		pH Units	7.5100		0.267	20		
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Duplicate (BHK0069-DUP2)

Source: MHK0019-11

Prepared & Analyzed: 11/04/2022

pH	7.7200		pH Units	7.7400		0.259	20		
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Duplicate (BHK0069-DUP3)

Source: MHK0019-21

Prepared & Analyzed: 11/04/2022

pH	7.6100		pH Units	7.6300		0.262	20		
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Batch BHK0077 - Wet Prep

Blank (BHK0077-BLK1)

Prepared & Analyzed: 11/05/2022

Total Suspended Solids	<5.00	5.00	mg/L						
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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0077 - Wet Prep

LCS (BHK0077-BS1)				Prepared & Analyzed: 11/05/2022						
Total Suspended Solids	92.000	5.00	mg/L	106.90		86.1	70-130			
Duplicate (BHK0077-DUP1)				Source: MHK0019-12		Prepared & Analyzed: 11/05/2022				
Total Suspended Solids	372.00	25.0	mg/L		372.00			0.00	20	
Duplicate (BHK0077-DUP2)				Source: MHK0019-13		Prepared & Analyzed: 11/05/2022				
Total Suspended Solids	297.33	16.7	mg/L		290.00			2.50	20	

Batch BHK0078 - Wet Prep

Blank (BHK0078-BLK1)				Prepared & Analyzed: 11/05/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BHK0078-BS1)				Prepared & Analyzed: 11/05/2022						
Total Dissolved Solids	76.000	25.0	mg/L	107.80		70.5	70-130			
Duplicate (BHK0078-DUP1)				Source: MHK0019-12		Prepared & Analyzed: 11/05/2022				
Total Dissolved Solids	626.00	25.0	mg/L		616.00			1.61	20	
Duplicate (BHK0078-DUP2)				Source: MHK0019-13		Prepared & Analyzed: 11/05/2022				
Total Dissolved Solids	402.00	25.0	mg/L		402.00			0.00	20	

Batch BHK0086 - Wet Prep

LCS (BHK0086-BS1)				Prepared & Analyzed: 11/04/2022						
pH	7.0900		pH Units	7.0000		101	90-110			



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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0086 - Wet Prep

LCS (BHK0086-BS2)				Prepared & Analyzed: 11/04/2022						
pH	7.0900		pH Units	7.0000		101	90-110			
Duplicate (BHK0086-DUP1)				Source: MHK0019-24		Prepared & Analyzed: 11/04/2022				
pH	7.6400		pH Units		7.6900			0.652	20	
Duplicate (BHK0086-DUP2)				Source: MHK0019-34		Prepared & Analyzed: 11/04/2022				
pH	7.6400		pH Units		7.6400			0.00	20	

Batch BHK0087 - Wet Prep

Blank (BHK0087-BLK1)				Prepared & Analyzed: 11/07/2022						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BHK0087-BS1)				Prepared & Analyzed: 11/07/2022						
Total Suspended Solids	92.000	5.00	mg/L	106.90		86.1	70-130			
Duplicate (BHK0087-DUP1)				Source: MHK0019-24		Prepared & Analyzed: 11/07/2022				
Total Suspended Solids	<12.5	12.5	mg/L		<12.5			20	M_ES	

Batch BHK0088 - Wet Prep

Blank (BHK0088-BLK1)				Prepared & Analyzed: 11/07/2022						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BHK0088-BS1)				Prepared & Analyzed: 11/07/2022						
Total Dissolved Solids	112.00	25.0	mg/L	107.80		104	70-130			



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414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0088 - Wet Prep

Duplicate (BHK0088-DUP1)	Source: MHK0019-24		Prepared & Analyzed: 11/07/2022							
Total Dissolved Solids	452.00	25.0	mg/L		442.00			2.24	20	

Batch BHK0177 - Wet Prep

Blank (BHK0177-BLK1)			Prepared & Analyzed: 11/09/2022							
Total Suspended Solids	<5.00	5.00	mg/L							

LCS (BHK0177-BS1)			Prepared & Analyzed: 11/09/2022							
Total Suspended Solids	98.000	5.00	mg/L	106.90		91.7	70-130			

Duplicate (BHK0177-DUP1)	Source: MHK0019-33		Prepared & Analyzed: 11/09/2022							
Total Suspended Solids	<12.5	12.5	mg/L		0.40000				20	

Duplicate (BHK0177-DUP2)	Source: MHK0055-02		Prepared & Analyzed: 11/09/2022							
Total Suspended Solids	0.70000	5.00	mg/L		1.1000			44.4	20	M_D-RL

Batch BHK0178 - Wet Prep

Blank (BHK0178-BLK1)			Prepared & Analyzed: 11/09/2022							
Total Dissolved Solids	<25.0	25.0	mg/L							

LCS (BHK0178-BS1)			Prepared & Analyzed: 11/09/2022							
Total Dissolved Solids	118.00	25.0	mg/L	107.80		109	70-130			

Duplicate (BHK0178-DUP1)	Source: MHK0019-33		Prepared & Analyzed: 11/09/2022							
Total Dissolved Solids	256.00	25.0	mg/L		258.00			0.778	20	



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Environmental Services-Water Minneapolis
414 Nicollet Mall, GO-2
Minneapolis MN, 55401

Project Name/Location: Sherco BAP CCR
Project Manager: Eric Ealy

Reported:
12/05/2022 10:19

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0193 - EPA 200.2, EPA 3005

Blank (BHK0193-BLK1)

Prepared: 11/09/2022 Analyzed: 11/10/2022

Cobalt	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Beryllium	<0.100	0.100	ug/L
Cadmium	<0.100	0.100	ug/L
Selenium	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L

LCS (BHK0193-BS1)

Prepared: 11/09/2022 Analyzed: 11/10/2022

Cobalt	96.652	0.500	ug/L	100.00	96.7	85-115
Barium	98.770	0.500	ug/L	100.00	98.8	85-115
Chromium	96.824	0.500	ug/L	100.00	96.8	85-115
Lead	98.512	0.500	ug/L	100.00	98.5	85-115
Molybdenum	95.790	0.500	ug/L	100.00	95.8	85-115
Arsenic	97.840	0.500	ug/L	100.00	97.8	85-115
Cadmium	100.18	0.100	ug/L	100.00	100	85-115
Beryllium	96.344	0.100	ug/L	100.00	96.3	85-115
Selenium	94.390	0.500	ug/L	100.00	94.4	85-115

Duplicate (BHK0193-DUP1)

Source: MHK0004-03

Prepared: 11/09/2022 Analyzed: 11/10/2022

Beryllium	0.13964	0.100	ug/L	<0.100		20
Chromium	1.3137	0.500	ug/L	1.2341		20
Arsenic	0.48552	0.500	ug/L	0.44088		20
Cadmium	<0.100	0.100	ug/L	<0.100		20
Lead	<0.500	0.500	ug/L	<0.500		20
Molybdenum	0.59858	0.500	ug/L	0.48900		20
Selenium	2.5299	0.500	ug/L	2.4796		20
Cobalt	0.13764	0.500	ug/L	0.12161		20
Barium	51.312	0.500	ug/L	50.526		20



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414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0193 - EPA 200.2, EPA 3005

Duplicate (BHK0193-DUP2)		Source: MHK0004-11		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Cobalt	0.15821	0.500	ug/L		0.17886			12.3	20	
Chromium	1.1428	0.500	ug/L		1.1906			4.10	20	
Molybdenum	0.12414	0.500	ug/L		0.12541			1.02	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Barium	61.505	0.500	ug/L		60.400			1.81	20	
Arsenic	0.38216	0.500	ug/L		0.42824			11.4	20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Selenium	3.0001	0.500	ug/L		2.9588			1.39	20	

Matrix Spike (BHK0193-MS1)		Source: MHK0004-03		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Lead	95.389	0.500	ug/L	100.00	<0.500	95.4	75-125			
Barium	157.02	0.500	ug/L	100.00	50.526	106	75-125			
Arsenic	106.03	0.500	ug/L	100.00	0.44088	106	75-125			
Molybdenum	101.87	0.500	ug/L	100.00	0.48900	101	75-125			
Chromium	102.50	0.500	ug/L	100.00	1.2341	101	75-125			
Selenium	100.97	0.500	ug/L	100.00	2.4796	98.5	75-125			
Beryllium	104.92	0.100	ug/L	100.00	<0.100	105	75-125			
Cobalt	98.141	0.500	ug/L	100.00	0.12161	98.0	75-125			
Cadmium	100.28	0.100	ug/L	100.00	<0.100	100	75-125			

Matrix Spike (BHK0193-MS2)		Source: MHK0004-11		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Arsenic	104.93	0.500	ug/L	100.00	0.42824	104	75-125			
Cobalt	99.336	0.500	ug/L	100.00	0.17886	99.2	75-125			
Beryllium	100.09	0.100	ug/L	100.00	<0.100	100	75-125			
Chromium	104.39	0.500	ug/L	100.00	1.1906	103	75-125			
Lead	92.881	0.500	ug/L	100.00	<0.500	92.9	75-125			
Molybdenum	102.16	0.500	ug/L	100.00	0.12541	102	75-125			
Cadmium	99.642	0.100	ug/L	100.00	<0.100	99.6	75-125			
Selenium	100.33	0.500	ug/L	100.00	2.9588	97.4	75-125			
Barium	164.77	0.500	ug/L	100.00	60.400	104	75-125			



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414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0193 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHK0193-MSD1)		Source: MHK0004-03		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Beryllium	101.98	0.100	ug/L	100.00	<0.100	102	75-125	2.84	20	
Lead	95.611	0.500	ug/L	100.00	<0.500	95.6	75-125	0.232	20	
Selenium	101.65	0.500	ug/L	100.00	2.4796	99.2	75-125	0.675	20	
Arsenic	107.27	0.500	ug/L	100.00	0.44088	107	75-125	1.16	20	
Barium	158.65	0.500	ug/L	100.00	50.526	108	75-125	1.03	20	
Molybdenum	103.75	0.500	ug/L	100.00	0.48900	103	75-125	1.82	20	
Cadmium	101.03	0.100	ug/L	100.00	<0.100	101	75-125	0.743	20	
Chromium	103.97	0.500	ug/L	100.00	1.2341	103	75-125	1.43	20	
Cobalt	100.28	0.500	ug/L	100.00	0.12161	100	75-125	2.16	20	

Matrix Spike Dup (BHK0193-MSD2)		Source: MHK0004-11		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Cobalt	96.481	0.500	ug/L	100.00	0.17886	96.3	75-125	2.92	20	
Barium	165.17	0.500	ug/L	100.00	60.400	105	75-125	0.245	20	
Molybdenum	102.49	0.500	ug/L	100.00	0.12541	102	75-125	0.330	20	
Lead	94.937	0.500	ug/L	100.00	<0.500	94.9	75-125	2.19	20	
Beryllium	101.84	0.100	ug/L	100.00	<0.100	102	75-125	1.73	20	
Cadmium	100.67	0.100	ug/L	100.00	<0.100	101	75-125	1.02	20	
Chromium	100.86	0.500	ug/L	100.00	1.1906	99.7	75-125	3.44	20	
Selenium	101.90	0.500	ug/L	100.00	2.9588	98.9	75-125	1.55	20	
Arsenic	106.09	0.500	ug/L	100.00	0.42824	106	75-125	1.10	20	

Batch BHK0198 - EPA 200.2, EPA 3005

Blank (BHK0198-BLK1)		Prepared: 11/09/2022 Analyzed: 11/10/2022								
Cobalt	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Chromium	<0.500	0.500	ug/L							
Beryllium	<0.100	0.100	ug/L							
Lead	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0198 - EPA 200.2, EPA 3005

LCS (BHK0198-BS1)				Prepared: 11/09/2022 Analyzed: 11/10/2022						
Arsenic	100.70	0.500	ug/L	100.00		101	85-115			
Cobalt	96.441	0.500	ug/L	100.00		96.4	85-115			
Beryllium	105.14	0.100	ug/L	100.00		105	85-115			
Barium	102.30	0.500	ug/L	100.00		102	85-115			
Lead	101.78	0.500	ug/L	100.00		102	85-115			
Cadmium	97.595	0.100	ug/L	100.00		97.6	85-115			
Selenium	95.778	0.500	ug/L	100.00		95.8	85-115			
Chromium	100.72	0.500	ug/L	100.00		101	85-115			
Molybdenum	98.569	0.500	ug/L	100.00		98.6	85-115			

Duplicate (BHK0198-DUP1)				Source: MHK0019-32		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Lead	<0.500	0.500	ug/L		<0.500			20		
Selenium	0.64939	0.500	ug/L		0.62326			4.11	20	
Molybdenum	0.93489	0.500	ug/L		0.78471			17.5	20	
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	0.16401	0.100	ug/L		<0.100				20	
Arsenic	1.3795	0.500	ug/L		1.3806			0.0784	20	
Chromium	0.97081	0.500	ug/L		1.0360			6.50	20	
Barium	17.120	0.500	ug/L		17.217			0.567	20	

Matrix Spike (BHK0198-MS1)				Source: MHK0019-32		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Cadmium	97.754	0.100	ug/L	100.00	<0.100	97.8	75-125			
Selenium	96.303	0.500	ug/L	100.00	0.62326	95.7	75-125			
Barium	119.73	0.500	ug/L	100.00	17.217	103	75-125			
Molybdenum	98.931	0.500	ug/L	100.00	0.78471	98.1	75-125			
Cobalt	94.844	0.500	ug/L	100.00	<0.500	94.8	75-125			
Chromium	97.362	0.500	ug/L	100.00	1.0360	96.3	75-125			
Beryllium	103.14	0.100	ug/L	100.00	<0.100	103	75-125			
Arsenic	101.17	0.500	ug/L	100.00	1.3806	99.8	75-125			
Lead	98.461	0.500	ug/L	100.00	<0.500	98.5	75-125			



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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0198 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHK0198-MSD1)	Source: MHK0019-32	Prepared: 11/09/2022	Analyzed: 11/10/2022							
Chromium	101.43	0.500	ug/L	100.00	1.0360	100	75-125	4.09	20	
Arsenic	103.85	0.500	ug/L	100.00	1.3806	102	75-125	2.62	20	
Lead	98.887	0.500	ug/L	100.00	<0.500	98.9	75-125	0.432	20	
Barium	118.04	0.500	ug/L	100.00	17.217	101	75-125	1.42	20	
Cadmium	99.933	0.100	ug/L	100.00	<0.100	99.9	75-125	2.21	20	
Cobalt	95.582	0.500	ug/L	100.00	<0.500	95.6	75-125	0.775	20	
Beryllium	107.14	0.100	ug/L	100.00	<0.100	107	75-125	3.80	20	
Selenium	96.269	0.500	ug/L	100.00	0.62326	95.6	75-125	0.0354	20	
Molybdenum	100.36	0.500	ug/L	100.00	0.78471	99.6	75-125	1.43	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0192 - EPA 200.2, EPA 3005

Blank (BHK0192-BLK1)				Prepared: 11/09/2022 Analyzed: 11/10/2022						
Calcium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							

LCS (BHK0192-BS1)				Prepared: 11/09/2022 Analyzed: 11/10/2022						
Boron	0.98919	0.0500	mg/L	1.0000		98.9	85-115			
Calcium	97.611	1.50	mg/L				85-115			
Lithium	0.96210	0.0150	mg/L				85-115			

Duplicate (BHK0192-DUP1)				Source: MHK0004-01		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Boron	3.1603	0.0500	mg/L		3.0859			2.38	20	
Lithium	0.021591	0.0150	mg/L		0.023732			9.45	20	
Calcium	131.40	1.50	mg/L		129.37			1.56	20	

Duplicate (BHK0192-DUP2)				Source: MHK0004-02		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Boron	0.040047	0.0500	mg/L		0.042554			6.07	20	
Calcium	60.094	1.50	mg/L		60.218			0.206	20	

Matrix Spike (BHK0192-MS1)				Source: MHK0004-01		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Lithium	1.0154	0.0150	mg/L		0.023732		70-130			
Boron	4.1958	0.0500	mg/L	1.0000	3.0859	111	70-130			
Calcium	226.71	1.50	mg/L		129.37		70-130			

Matrix Spike (BHK0192-MS2)				Source: MHK0004-02		Prepared: 11/09/2022 Analyzed: 11/10/2022				
Calcium	161.97	1.50	mg/L		60.218		70-130			
Lithium	0.99080	0.0150	mg/L		<0.0150		70-130			
Boron	0.99800	0.0500	mg/L	1.0000	0.042554	95.5	70-130			



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0192 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHK0192-MSD1)		Source: MHK0004-01		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Lithium	1.0087	0.0150	mg/L		0.023732		70-130	0.664	20	
Boron	4.1468	0.0500	mg/L	1.0000	3.0859	106	70-130	1.17	20	
Calcium	227.86	1.50	mg/L		129.37		70-130	0.505	20	

Matrix Spike Dup (BHK0192-MSD2)		Source: MHK0004-02		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Calcium	161.54	1.50	mg/L		60.218		70-130	0.264	20	
Boron	0.98611	0.0500	mg/L	1.0000	0.042554	94.4	70-130	1.20	20	
Lithium	0.98041	0.0150	mg/L		<0.0150		70-130	1.05	20	

Batch BHK0197 - EPA 200.2, EPA 3005

Blank (BHK0197-BLK1)		Prepared: 11/09/2022 Analyzed: 11/10/2022								
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							

LCS (BHK0197-BS1)		Prepared: 11/09/2022 Analyzed: 11/10/2022								
Lithium	0.97230	0.0150	mg/L	1.0000		97.2	85-115			
Boron	0.95137	0.0500	mg/L	1.0000		95.1	85-115			
Calcium	101.52	1.50	mg/L	100.00		102	85-115			

Duplicate (BHK0197-DUP1)		Source: MHK0019-31		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Boron	0.038881	0.0500	mg/L		0.039899			2.58	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Calcium	36.928	1.50	mg/L		36.992			0.171	20	

Matrix Spike (BHK0197-MS1)		Source: MHK0019-31		Prepared: 11/09/2022 Analyzed: 11/10/2022						
Lithium	0.97614	0.0150	mg/L	1.0000	<0.0150	97.6	70-130			
Calcium	138.60	1.50	mg/L	100.00	36.992	102	70-130			
Boron	1.0052	0.0500	mg/L	1.0000	0.039899	96.5	70-130			



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BHK0197 - EPA 200.2, EPA 3005

Matrix Spike Dup (BHK0197-MSD1)	Source: MHK0019-31			Prepared: 11/09/2022 Analyzed: 11/10/2022						
Lithium	0.97140	0.0150	mg/L	1.0000	<0.0150	97.1	70-130	0.488	20	
Boron	1.0027	0.0500	mg/L	1.0000	0.039899	96.3	70-130	0.244	20	
Calcium	136.04	1.50	mg/L	100.00	36.992	99.0	70-130	1.87	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
414 Nicollet Mall, GO-2		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/05/2022 10:19

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_ES	The reported value is an estimate. The amount of residue measured during analysis was outside of reference method limits.
M_E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_DIL	Sample was diluted. The MDL and MRL were raised due to the dilution.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Integration: Sdats für



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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis
Address:	Environmental Services MP-7	Copy To:	Riley Jacobson	Company Name:	
Email To:	Brad Jacobson	Purchase Order No.:		Address:	
Phone: (612) 587-1254	Fax:	Project Number:		Pace Quote Reference:	
Requested Due Date/TAT:		Project Name:		Pace Profile #:	
		Xcel Energy Sherco Ponds Fall 22		Brad Jacobson	
Section D Required Client Information		COLLECTED			
Valid Matrix Codes: MATRIX DRINKING WATER WASTE WATER PRODUCT SEMI-FINISHED OR		MATRIX CODE	G=GRAB C-COMP	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS
CODE DW WW WP PW PL PF PS PT TS					
SAMPLE ID One Character per box. (A-Z, 0-9 / -)					
Sample IDs MUST BE UNIQUE					
ITEM #		DATE	TIME	DATE	TIME
1	P-01A-2	-	-	-	-
2	P-03A	-	-	11/2/22	0935
3	P-03B	-	-	11/2/22	0905
4	P-04A-1	-	-	11/2/22	1010
5	P-05A-1	-	-	11/2/22	N/A
6	P-17	-	-	-	-
7	P-22	-	-	-	-
8	P-23	-	-	11/3/22	0940
9	P-42	-	-	-	-
10	P-43	-	-	11/1/22	1320
11	P-50	-	-	-	-
12	P-50B	-	-	-	-

Additional Comments:
① Submitted 11/1/22 by SKR
② NO SAMPLE - ROSU 11/22
put strips 11/01/23
typo 11/00/24

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
[Signature] Pace	11/1/22	1200	HK/XCL	11/4/22	1250	Temp In °C Received on Ice Y/N Sealed Cooler Y/N Samples Intact Y/N

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Riley Jacobson + Serena Rautava
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed (MM/DD/YY): 11/4/22

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PRINT Name of SAMPLER: Piley Accession + Genevieve Flores

SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YY):

File:ALLO020rev.3.31Mar05))22Jun2005

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Page: 3 of 6

Page: 3 of 6	
REGULATORY AGENCY	
☐ NPDES ☒	GROUND WATER ☐ DRINKING WATER
☐ UST ☐	RCRA ☐ OTHER <u>MCES</u>
SITE	☒ NC ☐ MN ☐ IL ☐ IN ☐ MI
	LOCATION ☐ OH ☐ SC ☐ WI ☒ OTHER
Filtered (Y/N)	

Requested Analysis:	Pace Project No.							
	Lab I.D.							
GWD								
GW-CCR-BAP							X	
GW-CCR-BAP2								
GW-CCR-P3								
(REPORT) NPDES								
(REPORT) CCR-BAP								
(REPORT) CCR-P3								
Residual Chlorine (Y/N)								

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Glenn Kobb Gene	11/12	1240	HSO/Xcel	11.12.12	1250	N/A
						N/A
						N/A
						N/A

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice	Custody Sealed Cooler	Samples Intact
PRINT Name of SAMPLER: <i>Peter Jacobson</i> SIGNATURE of SAMPLER: <i>Peter Jacobson</i>					

Page 40 of 59 MHK0004,MHK0019 Xcel General Report - CCR FINAL 12 05 2022 1019

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:				
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis			
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:				
Email To:	MP-7	Purchase Order No.:		Address:				
Phone: (612) 597-7254	Brad Jacobson	Project Number		Pace Quote Reference:				
Fax:		Project Name:	Xcel Energy Sherco Ponds Fall 22	Pace Project Manager:	Brad Jacobson			
Requested Due Date/TAT:	2 Weeks	Pace Profile #:						
Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE								
#	ITEM #	Valid Matrix Codes	MATRIX CODE	G=GRAB C=COMP	COLLECTED	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives
1	P-131	DRAINAGE WATER WATER WASTE WATER SEMI-SOLID OIL	WT	G	-			Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol
2	P-131D		WT	G	-			
3	P-132		WT	G	-			
4	P-150		WT	G	-			
5	P-151		WT	G	-			
6	P-152A		WT	G	-			
7	P-153		WT	G	-			
8	P-154A		WT	G	-			
9	P-155		WT	G	-	10/31/22	1335	
10	P-156		WT	G	-	11/1/22	0820	
11	P-157		WT	G	-			
12	P-158		WT	G	-	11/1/22	0955	
			RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	
			Sara Ram/Pace		11/1/22	1240	WJ/Xcel	

Additional Comments:
 pH strips: m400130
 Temp m400841

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Riley Jacobson + Sara Ram
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed: [Date]

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① submitted 11/1/22 by SKL
② NO SAMPLE - RESUBMIT
pH strips: 6.0 to 13.0
Temp 20.841



Additional Comments:

① Scatter 11/122-17542
② NO SAMPLE - RDS 11/122

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice	Custody	Sealed Cooler	Samples Intact
PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY)					
11/4/20 1250	ATX	11/4/20 1150	3.0	Y/N	Y/N	Y/N	Y/N
				Y/N	Y/N	Y/N	Y/N
				Y/N	Y/N	Y/N	Y/N
				Y/N	Y/N	Y/N	Y/N
				Y/N	Y/N	Y/N	Y/N
				Y/N	Y/N	Y/N	Y/N

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ingorn dnt
g3102nd: s dats fd



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① NO SAMPLE - RUS 10/31/22
pH strips: nvtar30
Temp M400841



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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: Xcel Energy		Report To: Brad Jacobson		Attention: Steve Davis	
Address: Environmental Services		Copy To: Riley Jacobson		Company Name:	
MP-7				Address:	
Email To: Brad Jacobson		Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254 Fax:		Project Number		Pace Project Manager: Brad Jacobson	
Requested Due Date/TAT: 2 Weeks		Project Name: Xcel Energy Sherco Ponds Fall 22		Pace Profile #:	

Section D Required Client Information

SAMPLE ID

One Character per box.
(A-Z, 0-9 / . -)

Sample IDs MUST BE UNIQUE

# ITEM	Valid Matrix Codes MATRIX CODE DRINKING WATER WATER WASTE WATER INDUSTRIAL WASTEWATER SEWER TREATMENT PLANT EFFLUENT TANKS LAKES RIVERS OIL	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ SO ₃ Methanol
		COMPOSITE START		COMPOSITE END/GRAB				
		DATE	TIME	DATE	TIME			
1	P-131	WT	G	-	-			
2	P-131D	WT	G	-	-			
3	P-132	WT	G	-	-			
4	P-150	WT	G	-	-			
5	P-151	WT	G	-	-			
6	P-152A	WT	G	-	-			
7	P-153	WT	G	-	-			
8	P-154A	WT	G	-	-			
9	P-155	WT	G	-	-	10/31/22 1335		
10	P-156	WT	G	-	-	11/1/22 0820		
11	P-157	WT	G	-	-			
12	P-158	WT	G	-	-	11/1/22 0755		

Additional Comments:

24 strips: R44001738
Temp M400841

RELINQUISHED BY / AFFILIATION: Sana Ram/Pace DATE: 11/1/22 TIME: 1240 ACCEPTED BY / AFFILIATION: [Signature] / xcel

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson + Sana Ram
SIGNATURE of SAMPLER: [Signatures]
DATE Signed: MM/DD/YYYY

e-File(ALLQ020rev.3,31Mar05))22Jun2005



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1 mg cobalamin daily
plus 250 mg vitamin B12

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Section A Required Client Information:				Section B Required Project Information:				Section C Invoice Information:				Section D Required Client Information				
Company: Xcel Energy				Report To: Brad Jacobson				Attention: Steve Davis				Matrix				
Address: Environmental Services				Copy To: Riley Jacobson				Company Name:				Valid Matrix Codes				
MP-7								Address:				DRINKING WATER				
Email To: Brad Jacobson								Purchase Order No.:				WASTE WATER				
Phone: (612) 587-7254								Pace Quote Reference:				FACILITY				
Fax:								Pace Project Manager: Brad Jacobson				SOLID WASTE				
Requested Due Date/TAT: 2 Weeks				Project Name: Xcel Energy Sherco Ponds Fall 22				Pace Profile #:				OTHER				
ITEM #	CODE	MATRIX	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
1	P-01A-2	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
2	P-03A	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
3	P-03B	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
4	P-04A-1	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
5	P-05A-1	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
6	P-17	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
7	P-22	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
8	P-23	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
9	P-42	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
10	P-43	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
11	P-50	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-
12	P-50B	WT	G	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Comments:

① Submitted 11/12/22 by SKR

② NO SAMPLE - RESULTS 12/22

PLT steps: 11/00138

11/24/2024

RELINQUISHED BY / AFFILIATION				ACCEPTED BY / AFFILIATION				SAMPLE CONDITIONS					
DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	TEMP IN °C	RECEIVED ON	ICE	CUSTODY	SEALED COOLER	SAMPLES INTACT
11/14/22	12:50	11/14/22	12:50	11/14/22	12:50	11/14/22	12:50	3.0	Y/N	Y/N	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Riley Jacobson + Serena Pentecost	DATE Signed (MM/DD/YY): 11/14/22
SIGNATURE of SAMPLER: [Signature]	





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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 5 of 6												
Company:	Xcel Energy	Report To:	Brad Jacobson	Attention:	Steve Davis													
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:														
	MP-7			Address:														
Email To:	Brad Jacobson	Purchase Order No.:		Pace Quote Reference:														
Phone: (612) 597-7254	Fax:	Project Number:		Pace Project Manager:	Brad Jacobson													
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Fall 22	Pace Profile #:														
Section D Required Client Information		Valid Matrix Codes		REGULATORY AGENCY														
SAMPLE ID		CODE		NPDES ☐ GROUND WATER ☐ DRINKING WATER														
One Character per box.		DW		UST ☐ RCRA ☐ OTHER MCES														
(A-Z, 0-9 / -)		WV		SITE ☒ MN ☐ IL ☐ IN ☐ MI														
Sample IDs MUST BE UNIQUE		P		LOCATION ☐ OH ☐ SC ☐ WI ☒ OTHER														
		SL																
		VR																
		AH																
		TS																
ITEM #		MATRIX	DISPERSED WATER	COMPOSITE START	DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Temp in °C	Received on	Sealed Cooler	Samples Intact	
1	P-162	②	WT	G	-	-	11/4/22	N/A					11/4/22	11:50	3.0	Y/N	Y/N	Y/N
2	P-163		WT	G	-	-	11/4/22	1055										
3	P-164		WT	G	-	-	11/4/22	1000										
4	P-165		WT	G	-	-	11/4/22	1110										
5	P-173	①	WT	G	-	-	-	-										
6	P-174	①	WT	G	-	-	-	-										
7	P-175	①	WT	G	-	-	-	-										
8	P-176	①	WT	G	-	-	-	-										
9	P-177	①	WT	G	-	-	-	-										
10	P-178A		WT	G	-	-	11/2/22	1520										
11	P-178B		WT	G	-	-	11/2/22	1545										
12	P-179A	①	WT	G	-	-	-	-										
Additional Comments:																		
① Submitted 11/12/22 by SKR																		
② NO SAMPLE - RDS 11/12/22																		
pit stops: MTH0038																		
Top mudover:																		
SAMPLER NAME AND SIGNATURE																		
PRINT Name of SAMPLER																		
SIGNATURE of SAMPLER																		
DATE Signed (MM/DD/YY)																		
11/4/22																		

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Additional Comments:

Submitted
① 11/1/22 by SKR
put Strip 5' into 3's
Temp 40.00 841