

2020 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 28, 2021



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ENVIRONMENTAL \ ENGINEERING \ LAND SURVEYING

**2020 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
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Date: January 28, 2021



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1. 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, 2020 and at the end of the annual reporting period on December 31, 2020. Since the Bottom Ash Pond was operated under the assessment monitoring program in §257.95 during all of 2020, 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 2020 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.

2. INTRODUCTION

This report presents the documentation of the status of groundwater monitoring and corrective action for the year 2020 (YR2020) 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 existing 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 YR2020.

This report has been prepared in general accordance with the reporting procedures outlined in the Sherco Bottom Ash Pond CCR Groundwater Sampling Plan (NSPM, 2018). Any deviations from the requirements of the Groundwater Sampling Plan are described in subsequent sections of this report.

2.1 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 3.6.2 of the CCR Groundwater Sampling Plan (NSPM, 2018) 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.

In this report, Section 2 (Site Description) briefly describes the site location and hydrogeologic setting, Section 3 (Monitoring Results) discusses the reporting requirements of the CCR Sampling Plan and §257.90(e), and Section 4 (Discussion) summarizes key actions completed in YR2020, describes any problems reported in YR2020 and the actions to resolve the problems, and key activities projected for 2021.

3. 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.

3.1 Site Hydrogeology

The site hydrogeology 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. Facility hydrogeology is briefly summarized below for convenience. Unless otherwise cited, the data presented in this section is credited to Carlson McCain, 2017.

The Facility is located in the Anoka Sand Plain physiogeographic 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/or south toward the Mississippi River.

4. MONITORING RESULTS

Section 4.1 below presents the monitoring results obtained during YR2020 in terms of the specific requirements of §257.90(e) that are to be included in this report.

4.1 Compliance with §257.90(e)

4.1.1 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.

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

No monitoring wells that are part of the groundwater monitoring system for the BAP were installed or decommissioned during YR2020.

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

Monitoring data collected during YR2020 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 2020 monitoring results is provided on Table 4 and a summary of the fall 2020 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 YR2020:

- All wells in the BAP groundwater monitoring system were sampled during the spring monitoring event conducted on April 14, 15 and 20, 2020. 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.

- All wells in the BAP groundwater monitoring system were sampled during the fall monitoring event conducted on November 9-12, 2020, and samples were analyzed for all Appendix III constituents and only those Appendix IV constituents detected during the spring 2020 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). In accordance with the Sections 2.2 of the Statistical Analysis Plan (NSPM, 2017), 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 for each well and parameter was reviewed for outliers and trends in accordance with Section 2.3 Statistical Analysis Plan (NSPM, 2017), 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), as amended in accordance with the Statistical Analysis Plan (NSPM, 2017), 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 YR2020 monitoring data using the procedures described in the BAP's Statistical Analysis Plan (NSPM, 2017), 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 concentrations 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 2020 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 additional water level piezometers near the BAP. 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.

4.1.4 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.

4.1.5 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.

5. 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 the any 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.

5.1 Key Actions Completed

Key actions that were completed during YR2020 include the following items:

- The 2019 Annual CCR Groundwater Monitoring and Corrective Report (Carlson McCain, 2020) was completed, placed in the facility’s operating record on January 31, 2020, and posted on the BAP’s publicly available website by February 28, 2020.
- Monitoring wells were sampled during the spring event conducted on April 14, 15 and 20, 2020 and analyzed for all Appendix III and Appendix IV constituents as required by §257.95(d)(1).
- Monitoring wells were sampled during the fall event conducted on November 9-12, 2020 and analyzed for all Appendix III constituents and only those Appendix IV constituents that were detected during the spring 2020 event as part of semiannual sampling required by §257.95(d)(1).
- Laboratory reports and field datasheets for the spring and fall sampling events were placed in the operating record on July 21, 2020 and January 7, 2021, respectively.
- Statistical evaluation of the monitoring data was conducted to demonstrate compliance with §257.95(e) through (g).
- In accordance with the Sections 2.2 of the Statistical Analysis Plan (NSPM, 2017), 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 for each well and parameter was reviewed for outliers and trends in accordance with Section 2.3 Statistical Analysis Plan (NSPM, 2017), and certain outliers were discarded if a data point was determined to be an error.

5.2 Problems

5.2.1 Problems Encountered

No significant problems with the groundwater monitoring system, or deviations from the CCR Groundwater Sampling Plan were reported at the facility during YR2020. No corrective action was required at the facility during YR2020.

5.2.2 Resolution of Problems

No significant problems with the groundwater monitoring system, or deviations from the CCR Groundwater Sampling Plan requiring resolution were reported at the facility during YR2020.

5.3 Key Activities for 2021

The following key actions are anticipated at the BAP in the year 2021:

1. Routine, semi-annual assessment monitoring events at monitoring system wells are planned in the spring between March 15 and May 15, 2021 and in the fall between September 15 and November 15, 2021.
2. Statistical analysis of monitoring results will be conducted to demonstrate compliance with §257.95(e) through (g).
3. Update of the BAP CCR Groundwater Sampling Plan (NSPM, 2018) also to include an update of the Statistical Analysis Plan (NSPM, 2017), for consistency with sampling and analysis plans for other CCR units at the Sherco site.

6.0 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, 2020. 2019 CCR Annual Groundwater and Corrective Action Monitoring Report, Bottom Ash Pond, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, January 28, 2020.

NSPM, 2017. Statistical Analysis Plan, Bottom Ash Pond, Northern States Power Company, a Minnesota Corporation, October 16, 2017.

NSPM, 2018. Bottom Ash Pond CCR Ground Water Sampling Plan Revision #1. Northern States Power Company, a Minnesota Corporation, December 27, 2018.

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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-1	NA	1/4/78	2028267.7	865408.3	1002.8	2	924	922	Routine Semi-annual	Down-Gradient
P-17	NA	8/26/81	2030284.1	866284.1	964.34	20	923	903	Routine Semi-annual	Up-Gradient
P-22	NA	8/27/81	2027386.3	865147.1	964.33	20	922	902	Routine Semi-annual	Down-Gradient
P-23	NA	8/28/81	2028068.1	866241.6	967.26	30	926	896	Routine Semi-annual	Up-Gradient
P-152A	806318	10/10/14	2031471.6	866696.4	965.87	10	934	924	Routine Semi-annual	Up-Gradient
P-155	812964	9/22/15	2027791	865410	1002.72	10	927	917	Routine Semi-annual	Down-Gradient
P-156	812965	9/22/15	2028707	865410	1002.39	10	927	917	Routine Semi-annual	Down-Gradient
P-157	812966	9/22/15	2028485	866287	968.17	10	929	919	Routine Semi-annual	Up-Gradient
P-158	812967	9/23/15	2029122	866410	966.55	10	927	917	Routine Semi-annual	Up-Gradient

*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 2020 ¹	Fall 2020 ²
P-17	2	4/14/2020	11/10/2020
P-23	2	4/20/2020	11/9/2020
P-152A	2	4/14/2020	11/12/2020
P-157	2	4/20/2020	11/9/2020
P-158	2	4/15/2020	11/10/2020

Downgradient Wells			
Well ID	Number of Samples	Sample Dates	
		Spring 2020 ¹	Fall 2020 ²
P-01A-1	2	4/20/2020	11/11/2020
P-22	2	4/20/2020	11/11/2020
P-155	2	4/20/2020	11/11/2020
P-156	2	4/20/2020	11/11/2020

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 2020 as required by §257.95(d)(1).

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	2	2	2	2	2
Calcium, total (mg/L)	2	2	2	2	2	2	2	2	2
Chloride, total (mg/L)	2	2	2	2	2	2	2	2	2
Fluoride, total (mg/L)	2	2	2	2	2	2	2	2	2
pH (lab) (pH)	2	2	2	2	2	2	2	2	2
Sulfate, total (mg/L)	2	2	2	2	2	2	2	2	2
Total Dissolved Solids (mg/L)	2	2	2	2	2	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	1	1	1	1	1
Arsenic, total (mg/L)	2	2	2	2	2	2	2	2	2
Barium, total (mg/L)	2	2	2	2	2	2	2	2	2
Beryllium, total (mg/L)	1	1	1	1	1	1	1	1	1
Cadmium, total (mg/L)	1	1	1	1	1	1	1	1	1
Chromium, total (mg/L)	2	2	2	2	2	2	2	2	2
Cobalt, total (mg/L)	1	1	1	1	1	1	1	1	1
Lead, total (mg/L)	1	1	1	1	1	1	1	1	1
Lithium Total (mg/L)	2	2	2	2	2	2	2	2	2
Mercury, total (mg/L)	1	1	1	1	1	1	1	1	1
Molybdenum, total (mg/L)	1	1	1	1	1	1	1	1	1
Selenium, total (mg/L)	2	2	2	2	2	2	2	2	2
Thallium, total (mg/L)	1	1	1	1	1	1	1	1	1
Radium, 226 and 228 combined (pCi/L)	1	1	1	1	1	1	1	1	1

Table 4
Spring 2020 Groundwater Summary Data
Bottom Ash Pond

Appendix III Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 4/20/2020	P-17 4/14/2020	P-22 4/20/2020	P-23 4/20/2020	P-152A 4/14/2020	P-155 4/20/2020	P-156 4/20/2020	P-157 4/20/2020	P-158 4/15/2020
Boron, total	mg/L	NA	0.469	<0.0500	1.02	0.244	0.0616	1.45	0.157	0.221	0.909
Calcium, total	mg/L	NA	97	67.9	82	89.9	54.2	85.4	58.8	85.8	109
Chloride, total	mg/L	NA	9.75	22.2	14.3	27.5	<1.000	20.1	1.53	8.68	3.05
Fluoride, total	mg/L	NA	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500
pH, lab	pH	NA	7.83	7.85	7.98	7.96	7.8	7.93	8.03	7.86	7.63
Sulfate, total	mg/L	NA	132	24.3	122	127	7.52	197	13.8	87.2	177
Total Dissolved Solids	mg/L	NA	448	286	412	444	208	504	222	388	506

Appendix IV Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 4/20/2020	P-17 4/14/2020	P-22 4/20/2020	P-23 4/20/2020	P-152A 4/14/2020	P-155 4/20/2020	P-156 4/20/2020	P-157 4/20/2020	P-158 4/15/2020
Antimony, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic, total	mg/L	0.01	<0.0005	0.0005	<0.0005	0.0006	0.0005	<0.0005	0.0005	<0.0005	0.0006
Barium, total	mg/L	2	0.0461	0.0383	0.0553	0.0632	0.037	0.0607	0.0478	0.052	0.077
Beryllium, total	mg/L	0.004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium, total	mg/L	0.005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	<0.0001
Chromium, total	mg/L	0.1	0.0009	0.0009	0.0009	0.001	0.0007	0.0008	0.0007	0.0014	0.001
Cobalt, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fluoride, total	mg/L	4	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500
Lead, total	mg/L	0.015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lithium, total	mg/L	0.04	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	0.0278	<0.0150	<0.0150	<0.0150
Mercury, total	mg/L	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum, total	mg/L	0.1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium, total	mg/L	0.05	0.0071	<0.0005	0.0062	0.0012	<0.0005	0.006	0.0013	0.0022	0.0022
Thallium, total	mg/L	0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Radium, 226 and 228 combined	pCi/L	5	<1.4	<1.5	<1.3	<1.3	<1.5	<1.3	<1.7	<2.4	<1.7

Field Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 4/20/2020	P-17 4/14/2020	P-22 4/20/2020	P-23 4/20/2020	P-152A 4/14/2020	P-155 4/20/2020	P-156 4/20/2020	P-157 4/20/2020	P-158 4/15/2020
ORP	mV	NA	210	149	232	223	160	202	212	230	172
Oxygen, dissolved	mg/L	NA	6.6	9.4	9.8	7.5	9.8	8.3	8.2	8	10.2
pH, field	pH	NA	7.3	7.3	7.4	7.5	7.3	7.5	7.5	7.3	7.3
Specific Cond, field	µmhos/cm	NA	690	490	650	700	360	770	390	630	700
Static Water Level	ft	NA	75.56	35.48	37.65	39.74	35.62	75.75	74.83	40.25	38.07
Temperature	degrees C	NA	10.5	9	10	11.5	9.5	10.5	10.5	10.5	9.5
Turbidity, field	NTU	NA	0.9	0.7	0.9	0.7	0.9	1.3	1.3	1	0.8
Water Level Elevation	ft	NA	927.24	928.86	926.68	927.52	930.25	926.97	927.56	927.92	928.48

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 5
Fall 2020 Groundwater Summary Data
Bottom Ash Pond

Appendix III Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 11/11/2020	P-17 11/10/2020	P-22 11/11/2020	P-23 11/9/2020	P-152A 11/12/2020	P-155 11/11/2020	P-156 11/11/2020	P-157 11/9/2020	P-158 11/10/2020
Boron, total	mg/L	NA	0.815	<0.0500	0.832	0.293	<0.0500	1.61	0.118	0.199	1.29
Calcium, total	mg/L	NA	92.3	76.8	89.6	118	55.9	91.7	61.9	95.1	148
Chloride, total	mg/L	NA	14.2	21.8	15.6	26.7	<1.000	19.4	2.39	6.9	4.68
Fluoride, total	mg/L	NA	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500
pH, Lab	pH	NA	8.55	7.88	8.29	7.73	8.39	8.27	8.32	7.77	7.79
Sulfate, total	mg/L	NA	142	22.7	120	199	7.67	167	19.1	72.1	229
Total Dissolved Solids	mg/L	NA	438	298	454	562	234	510	254	370	602

Appendix IV Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 11/11/2020	P-17 11/10/2020	P-22 11/11/2020	P-23 11/9/2020	P-152A 11/12/2020	P-155 11/11/2020	P-156 11/11/2020	P-157 11/9/2020	P-158 11/10/2020
Antimony, total	mg/L	0.006	--	--	--	--	--	--	--	--	--
Arsenic, total	mg/L	0.01	0.0005	<0.0005	<0.0005	0.0005	0.0005	<0.0005	0.0006	<0.0005	0.0005
Barium, total	mg/L	2	0.0492	0.0413	0.0602	0.0832	0.0376	0.0633	0.0521	0.0544	0.093
Beryllium, total	mg/L	0.004	--	--	--	--	--	--	--	--	--
Cadmium, total	mg/L	0.005	--	--	--	--	--	--	--	--	--
Chromium, total	mg/L	0.1	0.0009	0.0011	0.001	0.0011	0.0008	0.001	0.0009	0.0013	0.0013
Cobalt, total	mg/L	0.006	--	--	--	--	--	--	--	--	--
Fluoride, total	mg/L	4	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500	<0.7500
Lead, total	mg/L	0.015	--	--	--	--	--	--	--	--	--
Lithium, total	mg/L	0.04	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	0.0306	<0.0150	<0.0150	<0.0150
Mercury, total	mg/L	0.002	--	--	--	--	--	--	--	--	--
Molybdenum, total	mg/L	0.1	--	--	--	--	--	--	--	--	--
Selenium, total	mg/L	0.05	0.0104	0.0005	0.0113	0.002	<0.0005	0.0051	0.0026	0.0022	0.0028
Thallium, total	mg/L	0.002	--	--	--	--	--	--	--	--	--
Radium, 226 and 228 combined	pCi/L	5	--	--	--	--	--	--	--	--	--

Field Parameters											
Parameter	Units	GWPS	Well ID and Sample Date								
			P-01A-1 11/11/2020	P-17 11/10/2020	P-22 11/11/2020	P-23 11/9/2020	P-152A 11/12/2020	P-155 11/11/2020	P-156 11/11/2020	P-157 11/9/2020	P-158 11/10/2020
ORP	mV	NA	195	261	191	207	194	192	199	187	243
Oxygen, dissolved	mg/L	NA	6	7.4	7.2	7.6	9.5	7.2	8	8.3	9.1
pH, field	pH	NA	7.4	7.5	7.4	7.4	7.6	7.4	7.1	8.5	7.2
Specific Cond, field	µmhos/cm	NA	670	470	650	730	340	730	390	550	780
Static Water Level	ft	NA	77.8	37.58	39.86	41.66	37.93	77.97	77.04	42.26	40.15
Temperature	degrees C	NA	9.3	8	9.4	12	9.2	9	9.4	12	7.6
Turbidity, field	NTU	NA	3.1	4.1	1.3	1	1.6	1.1	0.9	1.2	2
Water Level Elevation	ft	NA	925	926.76	924.47	925.6	927.94	924.75	925.35	925.91	926.4

GWPS = Groundwater Protection Standard

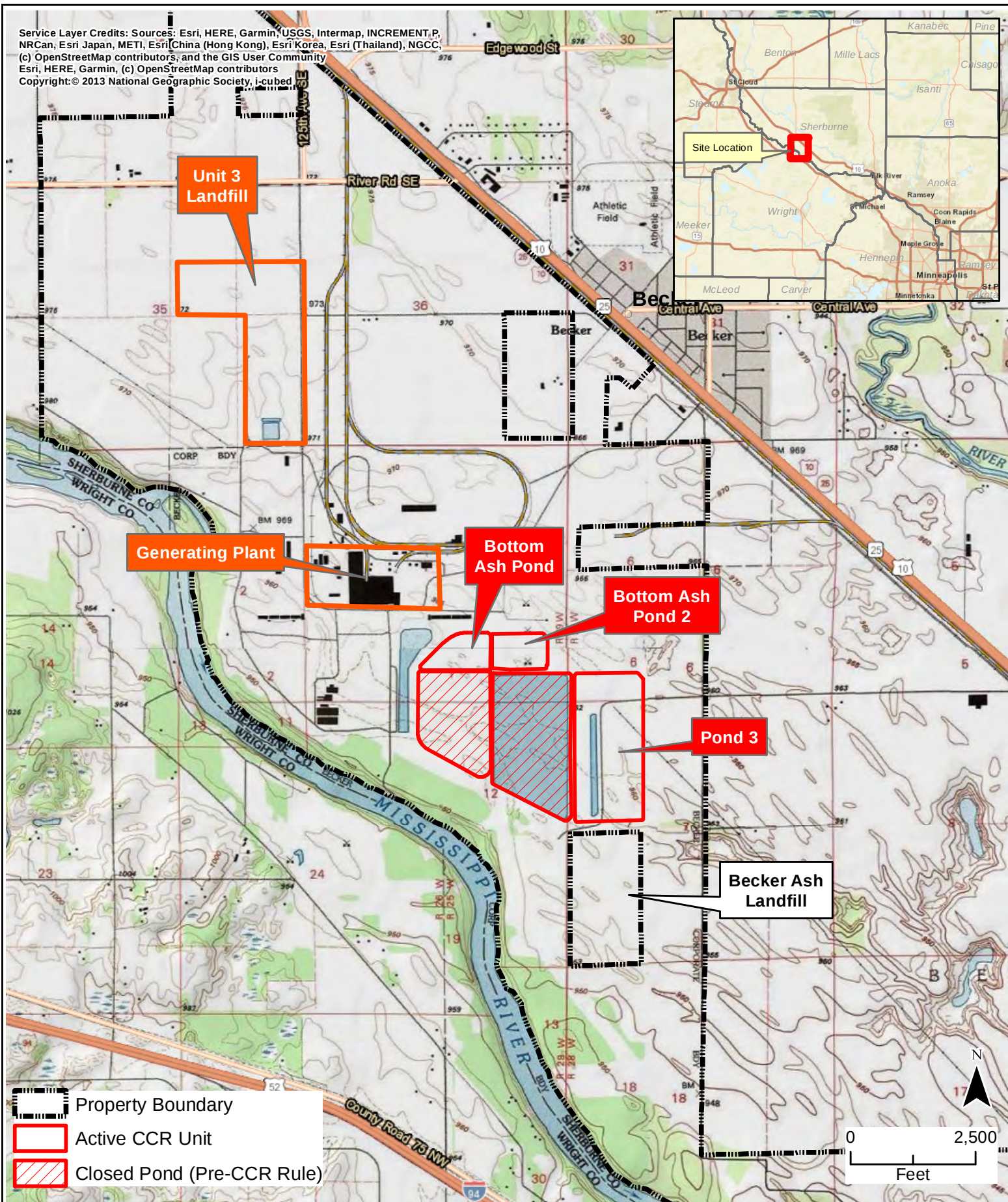
NA = Not Applicable

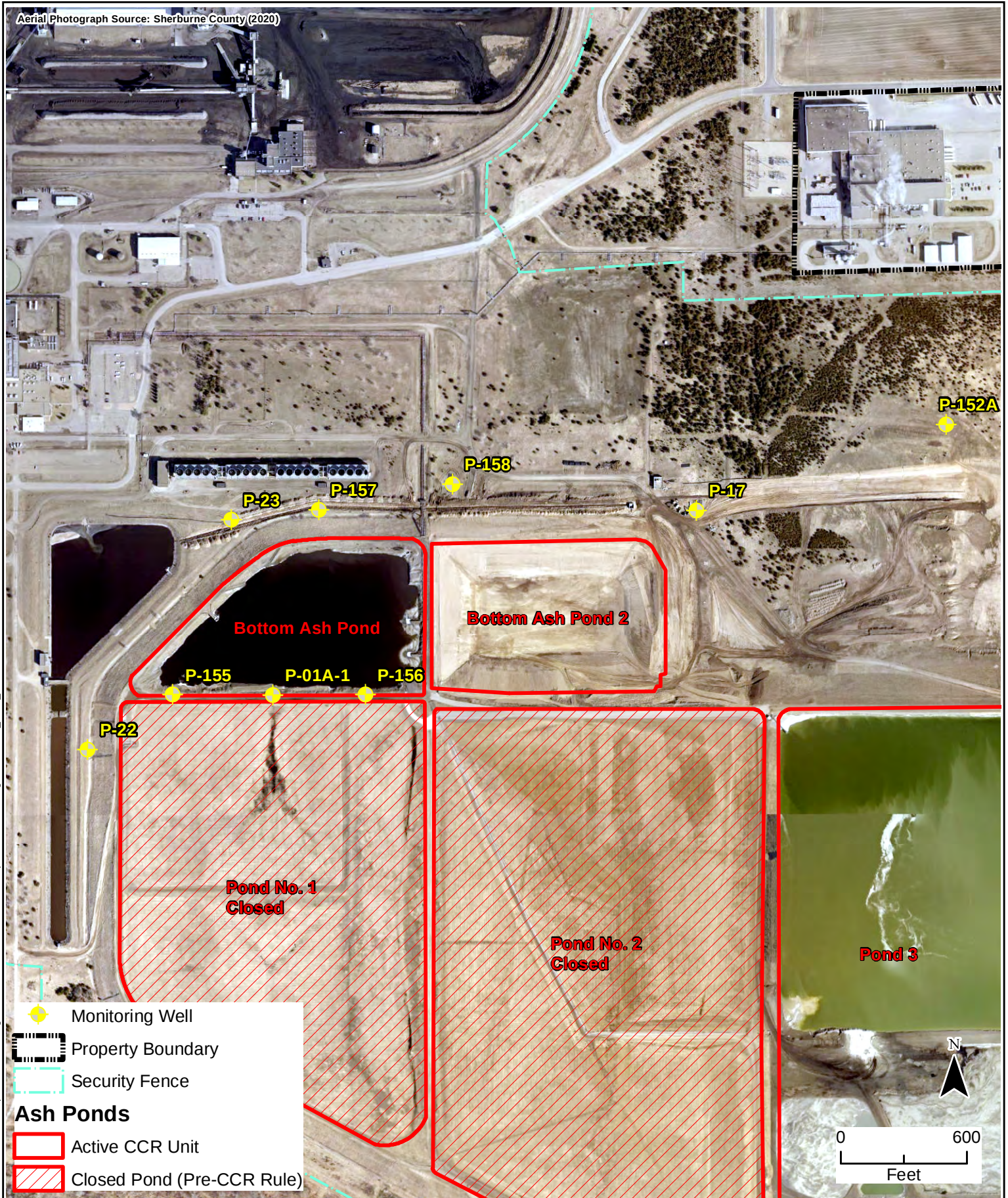
Two dashed lines = Not Analyzed

Downgradient Well

DRAFT

Figures



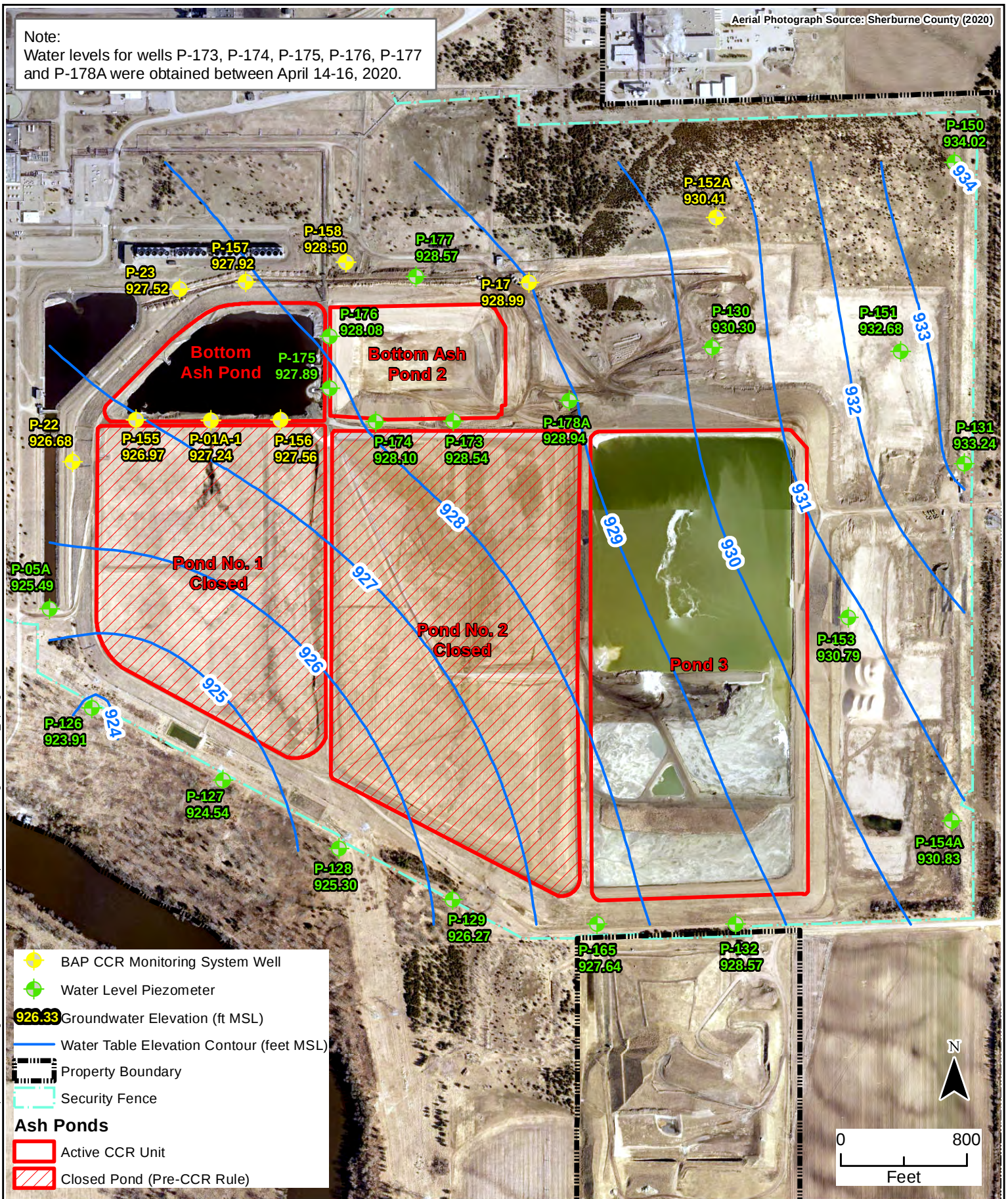


2020 CCR ANNUAL GROUNDWATER
MONITORING REPORT
Bottom Ash Pond
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 2
CCR GROUNDWATER
MONITORING SYSTEM

Note:

Water levels for wells P-173, P-174, P-175, P-176, P-177 and P-178A were obtained between April 14-16, 2020.





2020 CCR ANNUAL GROUNDWATER
MONITORING REPORT
Bottom Ash Pond
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 4
WATER TABLE
ELEVATION CONTOUR
MAP (11/09/2020)

Appendix A

Spring 2020 Assessment Monitoring Event Field Datasheets and Laboratory Reports

Well Description and Pumping Information

Client Xcel Energy Project Sherco Ponds Spring 2020 Project No. 20-03252

Monitoring Point ID P-01A-1 Labeled P-01A

Inside Diameter 2 (inches) Key # 2106 ☐ Locked ☒ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel Cover will not close

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation NA Feet

Total Well Depth 80.98 Feet

Static water level measurement before purging (Start Depth) 75.56 Feet

Static water level measurement at time of sampling (Final Depth) 75.56 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump

Pump ID PC-6

Date Purged 4/20/20

Water Column 5.42 Feet

Time Purged 1125-1149

One Casing Volume 0.9 Gallons

Pump Rate 0.12 GPM LPM

Volume Purged 2.88 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1200

Sampling Equip. above pump

Meter ID MFS-7

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.3 (units) D.O. 6.6 (mg/l)

Spec. Cond. 690 (µmhos/cm) Turbidity 0.9 (NTU)

Temp. 10.5 (°C) (ORP) Eh 210 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA

Weather Conditions During Sampling: 49° + cloudy, wind W 10-15

Sample Description: clear & odorless

Observations: DTA 4/20/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp. (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1133	7.3	690	10.5	6.9	NA	214	0.96
1141	7.3	690	10.5	6.7	NA	211	1.92
1149	7.3	690	10.5	6.6	NA	210	2.88
<u>DTA 4/20/20</u>							

Samples chilled immediately after collection: ☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/20/20

Well Description and Sampling Information

Client: Xcel Energy Project: Shared BAP 2, Baseline #3 Project No. 20-03233

Monitoring Point ID: P-17 Labeled: P-17

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: 58.76 Feet

Static water level measurement before purging (Start Depth): 35.48 Feet

Static water level measurement at time of sampling (Final Depth): 35.48 Feet

Static Water Level Elevation Before Purging: NA Feet

Purge Method: dedicated bladder pump

Pump ID: PC-6

Date Purged: 4/14/20

Water Column: 23.28 Feet

Time Purged: 1210-1238

One Casing Volume: 3.8 Gallons

Pump Rate: 0.15 GPM/LPM

Volume Purged: 11.7 Gallons

Field Sampling Data

Date Sampled: 4/14/20

Time Sampled: 1235

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O.: 9.4 (mg/l)

Spec. Cond.: 490 (µmhos/cm) Turbidity: 0.7 (NTU)

Temp.: 9.0 (°C) Eh: 149 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☒ No ☐ NA

Weather Conditions During Sampling: 27° + light snow, wind NW 10

Sample Description: clear + odorless

Observations: DTA 4/14/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (gallons)
1236	7.3	490	8.5	9.9	NA	155	3.9
1302	7.3	490	9.0	9.6	NA	152	7.8
1328	7.3	490	9.0	9.4	NA	149	11.7

DTA 4/14/20

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson Date: 4/14/20

Well Description and Sampling Information

Client Xcel Energy Project Sherco Ponds Spring 2020 Project No. 20-03252

Monitoring Point ID P-22 Labeled P-22

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 57.85 Feet

Static water level measurement before purging (Start Depth) 37.65 Feet

Static water level measurement at time of sampling (Final Depth) 37.65 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 4/20/20 Water Column 20.20 Feet

Time Purged 0905 - 0956 One Casing Volume 3.4 Gallons

Pump Rate 0.2 GPM/LPM Volume Purged 10.2 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1005

Sampling Equip. above pump

Meter ID MFS-7

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.4 (units) D.O. 9.8 (mg/l)

Spec. Cond. 650 (µmhos/cm) Turbidity 0.9 (NTU)

Temp. 10.0 (°C) (ORP) Eh 232 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA

Weather Conditions During Sampling: 45°+ = cloudy, wind W 10

Sample Description: clear + odorless

Observations: DTA 4/20/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0922	7.3	650	10.0	8.0	NA	240	3.4
0939	7.4	650	10.0	9.4	NA	236	6.8
0956	7.4	650	10.0	9.8	NA	232	10.2
<u>DTA 4/20/20</u>							

Samples chilled immediately after collection: ☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson Date: 4/20/20

Well Description and Sampling Information

Client Xcel Energy Project Sherco Ponds Spring 2020 Project No. 20-03252

Monitoring Point ID P-23 Labeled P-23

Inside Diameter 2 (inches) Key # 2106 ☐ Locked ☒ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel Had to cut off lock, needs replacing.

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation NA Feet

Total Well Depth 67.34 Feet

Static water level measurement before purging (Start Depth) 39.74 Feet

Static water level measurement at time of sampling (Final Depth) 39.74 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump

Pump ID PC-6

Date Purged 4/20/20

Water Column 27.60 Feet

Time Purged 1345-1454

One Casing Volume 4.5 Gallons

Pump Rate 0.2 GPM / LPM

Volume Purged 13.8 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1500

Sampling Equip. above pump

Meter ID MFS-7

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.5 (units) D.O. 8.2 (mg/l)

Spec. Cond. 700 (microhm/cm) Turbidity 0.7 (NTU)

Temp. 11.5 (°C) (ORP) Eh 223 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA

Weather Conditions During Sampling: 51° + cloudy wind W/S

Sample Description: clear + odorless

Observations: * Lock needs to be replaced with #2106

DTA 4/20/20

Stabilization Test

Time	pH (units)	Specific Conductance (microhm/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1408	7.6	700	11.5	8.1	NA	222	4.6
1431	7.6	700	11.5	8.2	NA	223	9.2
1454	7.5	700	11.5	8.2	NA	223	13.8
<u>DTA 4/20/20</u>							

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/20/20

Well Description and Sampling Information

Client Xcel Energy Project Sherco BAP 2, Baseline #3 Project No. 20-03223

Monitoring Point ID P-152A Labeled 806318

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 42.18 Feet

Static water level measurement before purging (Start Depth) 35.62 Feet

Static water level measurement at time of sampling (Final Depth) 35.62 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 4/14/20 Water Column 6.56 Feet

Time Purged 1010-1040 One Casing Volume 1.1 Gallons

Pump Rate 0.12 GPM/LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 4/14/20

Time Sampled 1050

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.3 (units) D.O. 9.8 (mg/l)

Spec. Cond. 360 (µmhos/cm) Turbidity 0.9 (NTU)

Temp. 9.5 (°C) Eh 160 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☒ No ☐ NA

Weather Conditions During Sampling: 26° + sunny, wind NW 10

Sample Description: clear + odorless

Observations: collected Rinse Blank at this well.

DTA 4/14/20

Stabilization Test

Time	pH	Spec. Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (gallons/gal)
1020	7.3	360	9.5	8.6	NA	175	1.2
1030	7.3	360	9.5	9.6	NA	166	2.4
1040	7.3	360	9.5	9.8	NA	160	3.6
NA 4/14/20							

Samples chilled immediately after collection: ☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson Date: 4/14/20

Well Construction and Sampling Information

Client Xcel Energy Project Sherco Ponds Project No. 20-03252

Monitoring Point ID P-155 Labeled 812964

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 85.47 Feet

Static water level measurement before purging (Start Depth) 75.75 Feet

Static water level measurement at time of sampling (Final Depth) 75.75 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump

Pump ID PC-6

Date Purged 4/20/20

Water Column 9.72 Feet

Time Purged 1030-1103

One Casing Volume 1.6 Gallons

Pump Rate 0.15 GPM/LPM

Volume Purged 4.95 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1110

Sampling Equip. above pump

Meter ID MAS-7

Analyzed by NTA

Field Parameter Measurements of Sample

pH 7.5 (unit) D.O. 8.3 (mg/l)

Spec. Cond. 770 (µmhos/cm) Turbidity 1.3 (NTU)

Temp. 10.5 (°C) (ORP) Eh 202 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA

Weather Conditions During Sampling: 46°+ cloudy, wind w 10

Sample Description: clear + odorless

Observations:

NTA 4/20/20

Stabilization Test

Time	pH (unit)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1041	7.4	770	10.5	8.2	NA	205	1.65
1052	7.5	770	10.5	8.2	NA	204	3.30
1103	7.5	770	10.5	8.3	NA	202	4.95

NTA 4/20/20

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/20/20

Well Sampling Field Data Log Sheet

Well Description and Sampling Information

Client Xcel Energy Project Shercro Ponds Spring 2020 Project No. 20-03252

Monitoring Point ID P-156 Labeled 812965

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 85.53 Feet

Static water level measurement before purging (Start Depth) 74.83 Feet

Static water level measurement at time of sampling (Final Depth) 74.83 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 4/20/20 Water Column 10.70 Feet

Time Purged 1215-1300 One Casing Volume 1.7 Gallons

Pump Rate 0.12 GPM/LPM Volume Purged 5.4 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1310

Sampling Equip. above pump

Meter ID MAS-7

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.5 (units) D.O. 8.2 (mg/l)

Spec. Cond. 390 (umhos/cm) Turbidity 1.3 (NTU)

Temp. 10.5 (°C) (ORP) Eh 212 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA

Weather Conditions During Sampling: 50° + cloudy, wind W 15

Sample Description: clear + odorless

Observations: DTA 4/20/20

Stabilization Test

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1230	7.4	390	10.5	8.4	NA	213	1.8
1245	7.5	390	10.5	8.3	NA	212	3.6
1300	7.5	390	10.5	8.2	NA	212	5.4

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/20/20

Well Description and Pumping Information

Client Xcel Energy Project Sherco Ponds Project No. 20-03252

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 49.06 Feet

Static water level measurement before purging (Start Depth) 40.25 Feet

Static water level measurement at time of sampling (Final Depth) 40.25 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump

Pump ID PC-6

Date Purged 4/20/20

Water Column 8.81 Feet

Time Purged 1515 - 1551

One Casing Volume 1.7 Gallons

Pump Rate 0.15 (GPM) / LPM

Volume Purged 5.4 Gallons

Field Sampling Data

Date Sampled 4/20/20

Time Sampled 1600

Sampling Equip. above pump

Meter ID MFS-7

Analyzed by CBTA

Field Parameter Measurements of Sample

pH 7.3 (unit) D.O. 8.0 (mg/L)

Spec. Cond. 630 (µmhos/cm) Turbidity 1.0 (NTU)

Temp. 10.5 (°C) (ORP) Eh 230 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA

Weather Conditions During Sampling: 50°+ light rain, wind W 15

Sample Description: clear + odorless

Observations: collected rinse CER-BAP at this well.
collected duplicate CER-BAP at this well.

Stabilization Test

Time	pH (unit)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/L)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1527	7.3	630	10.5	8.1	NA	232	1.8
1539	7.3	630	10.5	8.0	NA	231	3.6
1551	7.3	630	10.5	8.0	NA	230	5.4
<u>CBTA 4/20/20</u>							

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/20/20

Well Construction and Pumping Information

Client Xcel Energy Project Sherco BAP 2, Baseline #3 Project No. 20-03223

Monitoring Point ID P-158 Labeled 812967

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 49.16 Feet

Static water level measurement before purging (Start Depth) 38.07 Feet

Static water level measurement at time of sampling (Final Depth) 38.07 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method dedicated bladder pump

Pump ID PC-6

Date Purged 4/15/20

Water Column 11.09 Feet

Time Purged 1000-1045

One Casing Volume 1.8 Gallons

Pump Rate 0.12 GPM/LPM

Volume Purged 5.4 Gallons

Field Sampling Data

Date Sampled 4/15/20

Time Sampled 1055

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.3 (unit) D.O. 10.2 (mg/L)

Spec. Cond. 700 (µmho/cm) Turbidity 0.8 (NTU)

Temp. 9.5 (°C) Eh 172 (mV)

Other Appearance = clear

Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA

Sample for Soluble Metals Filtered in Field: ☐ Yes ☒ No ☐ NA

Weather Conditions During Sampling: 25° + sunny, wind NW 10

Sample Description: clear + odorless

Observations: DTA 4/15/20

Stabilization Test

Time	pH (unit)	Specific Conductance (µmho/cm)	Temp (°C)	D.O. (mg/L)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1015	7.3	700	9.5	10.5	NA	180	1.8
1030	7.3	700	9.5	10.4	NA	175	3.6
1045	7.3	700	9.5	10.2	NA	172	5.4

DTA 4/15/20

Samples chilled immediately after collection:

☒ Yes ☐ Other

Name/Affiliation of Sampler(s): David Anderson / Pace Analytical

Lead Technician Signature: David Anderson

Date: 4/15/20



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

19 May 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Sherco BAP CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 04/16/2020 12:00-04/22/2020 11:45. 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	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-152A		MFD0224-02	Water	04/14/2020 10:50	04/16/2020 12:00
P-17		MFD0224-04	Water	04/14/2020 13:35	04/16/2020 12:00
P-158		MFD0224-07	Water	04/15/2020 10:55	04/16/2020 12:00
P-22		MFD0316-12	Water	04/20/2020 10:05	04/22/2020 11:45
P-155		MFD0316-13	Water	04/20/2020 11:10	04/22/2020 11:45
P-01A-1		MFD0316-14	Water	04/20/2020 12:00	04/22/2020 11:45
P-156		MFD0316-15	Water	04/20/2020 13:10	04/22/2020 11:45
P-23		MFD0316-16	Water	04/20/2020 15:00	04/22/2020 11:45
Rinse CCR-BAP		MFD0316-17	Water	04/20/2020 15:10	04/22/2020 11:45
P-157		MFD0316-18	Water	04/20/2020 16:00	04/22/2020 11:45
Duplicate CCR-BAP		MFD0316-19	Water	04/20/2020 16:00	04/22/2020 11:45

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-152A

MFD0224-02 (Water) - Chain of Custody Number: 2277983

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	BFD0343	4/16/20 12:31	4/16/20 16:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:10	EPA 300.0	CRL
Sulfate	7.52	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:10	EPA 300.0	CRL

Wet Chemistry

pH	7.80		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 12:48	SM 4500-H+ B	CRL
Total Dissolved Solids	208	20.0	mg/L		1	BFD0355	4/17/20 8:39	4/17/20 8:39	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0354	4/17/20 7:13	4/17/20 7:13	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.539	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Barium	37.0	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Chromium	0.721	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:01	EPA 200.8	CRL

Total Metals by ICP

Boron	0.0616	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:50	EPA 200.7	HRD
Calcium	54.2	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:49	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:49	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

P-152A

MFD0224-02 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0478	4/21/20 17:17	4/22/20 13:47	EPA 245.1/7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-17

MFD0224-04 (Water) - Chain of Custody Number: 2277983

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

Chloride	22.2	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:51	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:51	EPA 300.0	CRL
Sulfate	24.3	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:51	EPA 300.0	CRL

Wet Chemistry

pH	7.85		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 12:55	SM 4500-H+ B	CRL
Total Dissolved Solids	286	20.0	mg/L		1	BFD0355	4/17/20 8:39	4/17/20 8:39	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0354	4/17/20 7:13	4/17/20 7:13	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.525	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Barium	38.3	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Chromium	0.928	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:17	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:16	EPA 200.7	HRD
Calcium	67.9	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:15	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:15	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

P-17

MFD0224-04 (Water) - Chain of Custody Number: 2277983

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	BFD0478	4/21/20 17:17	4/22/20 13:54	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-158

MFD0224-07 (Water) - Chain of Custody Number: 2277983

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

Chloride	3.05	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:52	EPA 300.0	CRL
Sulfate	177	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:52	EPA 300.0	CRL

Wet Chemistry

pH	7.63		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:06	SM 4500-H+ B	CRL
Total Dissolved Solids	506	20.0	mg/L		1	BFD0355	4/17/20 8:39	4/17/20 8:39	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0354	4/17/20 7:13	4/17/20 7:13	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.576	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Barium	77.0	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Chromium	0.985	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Selenium	2.22	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:29	EPA 200.8	CRL

Total Metals by ICP

Boron	0.909	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:31	EPA 200.7	HRD
Calcium	109	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:30	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:30	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

P-158

MFD0224-07 (Water) - Chain of Custody Number: 2277983

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	BFD0478	4/21/20 17:17	4/22/20 13:59	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-22

MFD0316-12 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	14.3	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 16:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 16:56	EPA 300.0	CRL
Sulfate	122	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 16:56	EPA 300.0	CRL

Wet Chemistry

pH	7.98		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:15	SM 4500-H+ B	CRL
Total Dissolved Solids	412	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Barium	55.3	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Chromium	0.901	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Selenium	6.16	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:08	EPA 200.8	CRL

Total Metals by ICP

Boron	1.02	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 13:56	EPA 200.7	HRD
Calcium	82.0	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 13:54	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 13:54	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

P-22

MFD0316-12 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 14:49	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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MFD0316-13 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	20.1	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:16	EPA 300.0	CRL
Sulfate	197	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:16	EPA 300.0	CRL

Wet Chemistry

pH	7.93		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:16	SM 4500-H+ B	CRL
Total Dissolved Solids	504	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Barium	60.7	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Chromium	0.819	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Selenium	5.98	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:12	EPA 200.8	CRL

Total Metals by ICP

Boron	1.45	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:01	EPA 200.7	HRD
Calcium	85.4	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 13:59	EPA 200.7	HRD
Lithium	0.0278	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 13:59	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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MFD0316-13 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 14:51	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

P-01A-1

MFD0316-14 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	9.75	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:36	EPA 300.0	CRL
Sulfate	132	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:36	EPA 300.0	CRL

Wet Chemistry

pH	7.83		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:17	SM 4500-H+ B	CRL
Total Dissolved Solids	448	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Barium	46.1	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Chromium	0.898	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Selenium	7.06	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:16	EPA 200.8	CRL

Total Metals by ICP

Boron	0.469	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:06	EPA 200.7	HRD
Calcium	97.0	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:05	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:05	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

P-01A-1

MFD0316-14 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 14:56	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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MFD0316-15 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	1.53	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:57	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:57	EPA 300.0	CRL
Sulfate	13.8	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 17:57	EPA 300.0	CRL

Wet Chemistry

pH	8.03		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:18	SM 4500-H+ B	CRL
Total Dissolved Solids	222	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.504	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Barium	47.8	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Chromium	0.726	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Selenium	1.33	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:19	EPA 200.8	CRL

Total Metals by ICP

Boron	0.157	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:11	EPA 200.7	HRD
Calcium	58.8	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:10	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:10	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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MFD0316-15 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 14:58	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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MFD0316-16 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	27.5	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:17	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:17	EPA 300.0	CRL
Sulfate	127	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:17	EPA 300.0	CRL

Wet Chemistry

pH	7.96		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:19	SM 4500-H+ B	CRL
Total Dissolved Solids	444	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.564	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Barium	63.2	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Chromium	1.01	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Selenium	1.20	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:23	EPA 200.8	CRL

Total Metals by ICP

Boron	0.244	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:16	EPA 200.7	HRD
Calcium	89.9	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:15	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:15	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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MFD0316-16 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 15:00	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Rinse CCR-BAP

MFD0316-17 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0514	4/23/20 7:51	4/25/20 18:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:38	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:38	EPA 300.0	CRL

Wet Chemistry

pH	6.21		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:20	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:37	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:22	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:20	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:20	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Rinse CCR-BAP

MFD0316-17 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 15:02	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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MFD0316-18 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	8.68	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:58	EPA 300.0	CRL
Sulfate	87.2	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 18:58	EPA 300.0	CRL

Wet Chemistry

pH	7.86		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:21	SM 4500-H+ B	CRL
Total Dissolved Solids	388	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Barium	52.0	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Chromium	1.37	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Selenium	2.15	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:41	EPA 200.8	CRL

Total Metals by ICP

Boron	0.221	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:27	EPA 200.7	HRD
Calcium	85.8	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:26	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:26	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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MFD0316-18 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 15:03	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Duplicate CCR-BAP
MFD0316-19 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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

Chloride	8.73	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 19:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 19:18	EPA 300.0	CRL
Sulfate	87.4	1.00	mg/L		1	BFD0514	4/23/20 7:51	4/25/20 19:18	EPA 300.0	CRL

Wet Chemistry

pH	7.88		pH Units	M_TTT	1	BFD0513	4/23/20 7:49	4/25/20 8:22	SM 4500-H+ B	CRL
Total Dissolved Solids	388	20.0	mg/L		1	BFD0530	4/24/20 8:56	4/24/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFD0529	4/24/20 6:55	4/24/20 6:55	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Barium	55.0	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Chromium	1.78	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Selenium	2.05	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0516	4/23/20 8:17	4/28/20 9:53	EPA 200.8	CRL

Total Metals by ICP

Boron	0.216	0.0500	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:43	EPA 200.7	HRD
Calcium	80.8	1.25	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:41	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0515	4/23/20 8:15	4/28/20 14:41	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Duplicate CCR-BAP

MFD0316-19 (Water) - Chain of Custody Number: 2277984/2277987/2277988

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	BFD0520	4/23/20 9:26	4/28/20 15:05	EPA 245.1/7470A	HRD
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0343 - Wet Prep

Blank (BFD0343-BLK1)				Prepared & Analyzed: 04/16/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BFD0343-BLK2)				Prepared & Analyzed: 04/16/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BFD0343-BS1)				Prepared & Analyzed: 04/16/2020						
Chloride	26.063	1.00	mg/L	24.938		105	90-110			
Fluoride	2.4830	0.750	mg/L	2.4938		99.6	90-110			
Sulfate	50.259	1.00	mg/L	49.876		101	90-110			

LCS (BFD0343-BS2)				Prepared & Analyzed: 04/16/2020						
Chloride	26.165	1.00	mg/L	24.938		105	90-110			
Fluoride	2.4730	0.750	mg/L	2.4938		99.2	90-110			
Sulfate	50.302	1.00	mg/L	49.876		101	90-110			

LCS (BFD0343-BS3)				Prepared & Analyzed: 04/16/2020						
Chloride	25.893	1.00	mg/L	24.938		104	90-110			
Fluoride	2.4450	0.750	mg/L	2.4938		98.0	90-110			
Sulfate	49.816	1.00	mg/L	49.876		99.9	90-110			

Duplicate (BFD0343-DUP1)				Source: MFD0224-02		Prepared & Analyzed: 04/16/2020				
Chloride	0.69700	1.00	mg/L		0.69500			0.287	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.5900	1.00	mg/L		7.5160			0.980	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0343 - Wet Prep

Duplicate (BFD0343-DUP2)		Source: MFD0224-09		Prepared & Analyzed: 04/16/2020						
Chloride	0.76900	1.00	mg/L		0.79800			3.70	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	8.7990	1.00	mg/L		8.7980			0.0114	20	

Matrix Spike (BFD0343-MS1)		Source: MFD0224-02		Prepared & Analyzed: 04/16/2020						
Chloride	31.958	1.25	mg/L	31.173	0.69500	100	90-110			
Fluoride	3.0850	0.938	mg/L	3.1173	<0.938	99.0	90-110			
Sulfate	68.884	1.25	mg/L	62.345	7.5160	98.4	90-110			

Matrix Spike (BFD0343-MS2)		Source: MFD0224-09		Prepared & Analyzed: 04/16/2020						
Chloride	32.955	1.25	mg/L	31.173	0.79800	103	90-110			
Fluoride	3.2063	0.938	mg/L	3.1173	<0.938	103	90-110			
Sulfate	71.668	1.25	mg/L	62.345	8.7980	101	90-110			

Matrix Spike Dup (BFD0343-MSD1)		Source: MFD0224-02		Prepared & Analyzed: 04/16/2020						
Chloride	32.636	1.25	mg/L	31.173	0.69500	102	90-110	2.10	20	
Fluoride	3.1163	0.938	mg/L	3.1173	<0.938	100	90-110	1.01	20	
Sulfate	69.820	1.25	mg/L	62.345	7.5160	99.9	90-110	1.35	20	

Matrix Spike Dup (BFD0343-MSD2)		Source: MFD0224-09		Prepared & Analyzed: 04/16/2020						
Chloride	32.718	1.25	mg/L	31.173	0.79800	102	90-110	0.723	20	
Fluoride	3.1450	0.938	mg/L	3.1173	<0.938	101	90-110	1.93	20	
Sulfate	71.025	1.25	mg/L	62.345	8.7980	99.8	90-110	0.901	20	

Batch BFD0514 - Wet Prep

Blank (BFD0514-BLK1)		Prepared: 04/23/2020 Analyzed: 04/25/2020								
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:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0514 - Wet Prep

Blank (BFD0514-BLK2)				Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BFD0514-BS1)				Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	25.512	1.00	mg/L	24.938		102	90-110			
Fluoride	2.6110	0.750	mg/L	2.4938		105	90-110			
Sulfate	49.314	1.00	mg/L	49.876		98.9	90-110			

LCS (BFD0514-BS2)				Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	25.842	1.00	mg/L	24.938		104	90-110			
Fluoride	2.6330	0.750	mg/L	2.4938		106	90-110			
Sulfate	49.872	1.00	mg/L	49.876		100	90-110			

LCS (BFD0514-BS3)				Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	25.689	1.00	mg/L	24.938		103	90-110			
Fluoride	2.6240	0.750	mg/L	2.4938		105	90-110			
Sulfate	49.586	1.00	mg/L	49.876		99.4	90-110			

Duplicate (BFD0514-DUP1)				Source: MFD0316-01		Prepared: 04/23/2020 Analyzed: 04/25/2020				
Chloride	1.3790	1.00	mg/L		1.4010			1.58	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	3.1940	1.00	mg/L		3.1870			0.219	20	

Duplicate (BFD0514-DUP2)				Source: MFD0316-03		Prepared: 04/23/2020 Analyzed: 04/25/2020				
Chloride	0.83200	1.00	mg/L		0.82700			0.603	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	2.4930	1.00	mg/L		2.4970			0.160	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0514 - Wet Prep

Matrix Spike (BFD0514-MS1)	Source: MFD0316-01			Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	32.335	1.25	mg/L	31.173	1.4010	99.2	90-110			
Fluoride	3.1738	0.938	mg/L	3.1173	<0.938	102	90-110			
Sulfate	63.389	1.25	mg/L	62.345	3.1870	96.6	90-110			

Matrix Spike (BFD0514-MS2)	Source: MFD0316-03			Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	32.013	1.25	mg/L	31.173	0.82700	100	90-110			
Fluoride	3.2113	0.938	mg/L	3.1173	<0.938	103	90-110			
Sulfate	63.141	1.25	mg/L	62.345	2.4970	97.3	90-110			

Matrix Spike Dup (BFD0514-MSD1)	Source: MFD0316-01			Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	32.656	1.25	mg/L	31.173	1.4010	100	90-110	0.989	20	
Fluoride	3.2838	0.938	mg/L	3.1173	<0.938	105	90-110	3.41	20	
Sulfate	64.093	1.25	mg/L	62.345	3.1870	97.7	90-110	1.10	20	

Matrix Spike Dup (BFD0514-MSD2)	Source: MFD0316-03			Prepared: 04/23/2020 Analyzed: 04/25/2020						
Chloride	32.309	1.25	mg/L	31.173	0.82700	101	90-110	0.921	20	
Fluoride	3.3288	0.938	mg/L	3.1173	<0.938	107	90-110	3.59	20	
Sulfate	63.926	1.25	mg/L	62.345	2.4970	98.5	90-110	1.24	20	

Batch BFD0569 - Wet Prep

Blank (BFD0569-BLK1)	Prepared & Analyzed: 04/27/2020									
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BFD0569-BLK2)	Prepared & Analyzed: 04/27/2020									
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:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0569 - Wet Prep

LCS (BFD0569-BS1)			Prepared & Analyzed: 04/27/2020							
Chloride	25.699	1.00	mg/L	24.938		103	90-110			
Fluoride	2.5980	0.750	mg/L	2.4938		104	90-110			
Sulfate	51.917	1.00	mg/L	49.876		104	90-110			

LCS (BFD0569-BS2)			Prepared & Analyzed: 04/27/2020							
Chloride	25.075	1.00	mg/L	24.938		101	90-110			
Fluoride	2.4370	0.750	mg/L	2.4938		97.7	90-110			
Sulfate	48.114	1.00	mg/L	49.876		96.5	90-110			

LCS (BFD0569-BS3)			Prepared & Analyzed: 04/27/2020							
Chloride	25.008	1.00	mg/L	24.938		100	90-110			
Fluoride	2.4130	0.750	mg/L	2.4938		96.8	90-110			
Sulfate	47.972	1.00	mg/L	49.876		96.2	90-110			

Duplicate (BFD0569-DUP1)			Source: MFD0316-33	Prepared & Analyzed: 04/27/2020						
Chloride	9.2360	1.00	mg/L		9.5340			3.18	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	78.180	1.00	mg/L		69.566			11.7	20	

Duplicate (BFD0569-DUP2)			Source: MFD0316-34	Prepared & Analyzed: 04/27/2020						
Chloride	9.4290	1.00	mg/L		9.6620			2.44	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	70.955	1.00	mg/L		69.609			1.92	20	

Matrix Spike (BFD0569-MS1)			Source: MFD0316-33	Prepared & Analyzed: 04/27/2020						
Chloride	40.595	1.25	mg/L	31.173	9.5340	99.6	90-110			
Fluoride	3.3163	0.938	mg/L	3.1173	<0.938	106	90-110			
Sulfate	129.76	1.25	mg/L	62.345	69.566	96.5	90-110			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0569 - Wet Prep

Matrix Spike (BFD0569-MS2)	Source: MFD0316-34			Prepared & Analyzed: 04/27/2020						
Chloride	41.019	1.25	mg/L	31.173	9.6620	101	90-110			
Fluoride	3.3600	0.938	mg/L	3.1173	<0.938	108	90-110			
Sulfate	130.49	1.25	mg/L	62.345	69.609	97.7	90-110			

Matrix Spike Dup (BFD0569-MSD1)	Source: MFD0316-33			Prepared & Analyzed: 04/27/2020						
Chloride	41.183	1.25	mg/L	31.173	9.5340	102	90-110	1.44	20	
Fluoride	3.2038	0.938	mg/L	3.1173	<0.938	103	90-110	3.45	20	
Sulfate	130.41	1.25	mg/L	62.345	69.566	97.6	90-110	0.498	20	

Matrix Spike Dup (BFD0569-MSD2)	Source: MFD0316-34			Prepared & Analyzed: 04/27/2020						
Chloride	41.118	1.25	mg/L	31.173	9.6620	101	90-110	0.240	20	
Fluoride	3.1963	0.938	mg/L	3.1173	<0.938	103	90-110	5.00	20	
Sulfate	129.86	1.25	mg/L	62.345	69.609	96.6	90-110	0.486	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0346 - Wet Prep

LCS (BFD0346-BS1)		Prepared & Analyzed: 04/16/2020								
pH	7.0200		pH Units	7.0000		100	90-110			
LCS (BFD0346-BS2)		Prepared & Analyzed: 04/16/2020								
pH	7.0700		pH Units	7.0000		101	90-110			
Duplicate (BFD0346-DUP1)		Source: MFD0224-02		Prepared & Analyzed: 04/16/2020						
pH	7.7800		pH Units		7.8000			0.257	20	
Duplicate (BFD0346-DUP2)		Source: MFD0224-11		Prepared & Analyzed: 04/16/2020						
pH	7.7700		pH Units		7.7800			0.129	20	

Batch BFD0354 - Wet Prep

Blank (BFD0354-BLK1)		Prepared & Analyzed: 04/17/2020								
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFD0354-BS1)		Prepared & Analyzed: 04/17/2020								
Total Suspended Solids	91.000	4.00	mg/L	100.00		91.0	70-130			
Duplicate (BFD0354-DUP1)		Source: MFD0224-02		Prepared & Analyzed: 04/17/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFD0354-DUP2)		Source: MFD0224-03		Prepared & Analyzed: 04/17/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	

Batch BFD0355 - Wet Prep

Blank (BFD0355-BLK1)		Prepared & Analyzed: 04/17/2020								
Total Dissolved Solids	<20.0	20.0	mg/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0355 - Wet Prep

LCS (BFD0355-BS1)				Prepared & Analyzed: 04/17/2020						
Total Dissolved Solids	38.000	20.0	mg/L	51.000		74.5	70-130			
Duplicate (BFD0355-DUP1)				Source: MFD0224-02		Prepared & Analyzed: 04/17/2020				
Total Dissolved Solids	200.00	20.0	mg/L		208.00			3.92	20	
Duplicate (BFD0355-DUP2)				Source: MFD0224-03		Prepared & Analyzed: 04/17/2020				
Total Dissolved Solids	256.00	20.0	mg/L		260.00			1.55	20	

Batch BFD0510 - Wet Prep

Blank (BFD0510-BLK1)				Prepared & Analyzed: 04/23/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFD0510-BS1)				Prepared & Analyzed: 04/23/2020						
Total Suspended Solids	89.000	4.00	mg/L	100.00		89.0	70-130			
Duplicate (BFD0510-DUP1)				Source: MFD0316-01		Prepared & Analyzed: 04/23/2020				
Total Suspended Solids	78.400	4.00	mg/L		67.200			15.4	20	

Batch BFD0511 - Wet Prep

Blank (BFD0511-BLK1)				Prepared & Analyzed: 04/23/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFD0511-BS1)				Prepared & Analyzed: 04/23/2020						
Total Dissolved Solids	46.000	20.0	mg/L	51.000		90.2	70-130			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0511 - Wet Prep

Duplicate (BFD0511-DUP1)	Source: MFD0316-01		Prepared & Analyzed: 04/23/2020							
Total Dissolved Solids	236.00	20.0	mg/L		208.00			12.6	20	

Batch BFD0513 - Wet Prep

LCS (BFD0513-BS1)	Prepared: 04/23/2020 Analyzed: 04/25/2020									
pH	7.1660		pH Units	7.0000		102	90-110			

LCS (BFD0513-BS2)	Prepared: 04/23/2020 Analyzed: 04/27/2020									
pH	7.1500		pH Units	7.0000		102	90-110			

Duplicate (BFD0513-DUP1)	Source: MFD0316-01		Prepared: 04/23/2020 Analyzed: 04/25/2020							
pH	7.9990		pH Units		8.0000			0.0125	20	

Duplicate (BFD0513-DUP2)	Source: MFD0316-11		Prepared: 04/23/2020 Analyzed: 04/25/2020							
pH	8.0200		pH Units		8.0430			0.286	20	

Duplicate (BFD0513-DUP3)	Source: MFD0316-21		Prepared: 04/23/2020 Analyzed: 04/25/2020							
pH	7.9040		pH Units		7.9200			0.202	20	

Duplicate (BFD0513-DUP4)	Source: MFD0316-31		Prepared: 04/23/2020 Analyzed: 04/27/2020							
pH	8.1000		pH Units		8.2800			2.20	20	

Batch BFD0529 - Wet Prep

Blank (BFD0529-BLK1)	Prepared & Analyzed: 04/24/2020									
Total Suspended Solids	<4.00	4.00	mg/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0529 - Wet Prep

LCS (BFD0529-BS1)				Prepared & Analyzed: 04/24/2020						
Total Suspended Solids	91.000	4.00	mg/L	100.00		91.0	70-130			
Duplicate (BFD0529-DUP1)				Source: MFD0316-11		Prepared & Analyzed: 04/24/2020				
Total Suspended Solids	891.67	16.7	mg/L		793.33			11.7	20	

Batch BFD0530 - Wet Prep

Blank (BFD0530-BLK1)				Prepared & Analyzed: 04/24/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFD0530-BS1)				Prepared & Analyzed: 04/24/2020						
Total Dissolved Solids	40.000	20.0	mg/L	51.000		78.4	70-130			
Duplicate (BFD0530-DUP1)				Source: MFD0316-11		Prepared & Analyzed: 04/24/2020				
Total Dissolved Solids	218.00	20.0	mg/L		222.00			1.82	20	

Batch BFD0550 - Wet Prep

Blank (BFD0550-BLK1)				Prepared & Analyzed: 04/25/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFD0550-BS1)				Prepared & Analyzed: 04/25/2020						
Total Suspended Solids	84.000	4.00	mg/L	100.40		83.7	70-130			
Duplicate (BFD0550-DUP1)				Source: MFD0316-21		Prepared & Analyzed: 04/25/2020				
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0551 - Wet Prep

Blank (BFD0551-BLK1)				Prepared & Analyzed: 04/25/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFD0551-BS1)				Prepared & Analyzed: 04/25/2020						
Total Dissolved Solids	52.000	20.0	mg/L	51.200		102	70-130			
Duplicate (BFD0551-DUP1)				Source: MFD0316-21		Prepared & Analyzed: 04/25/2020				
Total Dissolved Solids	488.00	20.0	mg/L		482.00			1.24	20	

Batch BFD0553 - Wet Prep

Blank (BFD0553-BLK1)				Prepared & Analyzed: 04/27/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFD0553-BS1)				Prepared & Analyzed: 04/27/2020						
Total Suspended Solids	83.000	4.00	mg/L	100.40		82.7	70-130			
Duplicate (BFD0553-DUP1)				Source: MFD0316-31		Prepared & Analyzed: 04/27/2020				
Total Suspended Solids	0.80000	4.00	mg/L		0.80000			0.00	20	

Batch BFD0554 - Wet Prep

Blank (BFD0554-BLK1)				Prepared & Analyzed: 04/27/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFD0554-BS1)				Prepared & Analyzed: 04/27/2020						
Total Dissolved Solids	52.000	20.0	mg/L	51.200		102	70-130			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0554 - Wet Prep

Duplicate (BFD0554-DUP1)	Source: MFD0316-31		Prepared & Analyzed: 04/27/2020							
Total Dissolved Solids	414.00	20.0	mg/L		404.00			2.44	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0387 - EPA 200.2, EPA 3005

Blank (BFD0387-BLK1)

Prepared: 04/20/2020 Analyzed: 04/27/2020

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

LCS (BFD0387-BS1)

Prepared: 04/20/2020 Analyzed: 04/27/2020

Thallium	100.52	0.500	ug/L	100.00	101	85-115
Molybdenum	103.90	0.500	ug/L	100.00	104	85-115
Selenium	96.855	0.500	ug/L	100.00	96.9	85-115
Antimony	100.86	0.500	ug/L	100.00	101	85-115
Chromium	104.26	0.500	ug/L	100.00	104	85-115
Cobalt	102.73	0.500	ug/L	100.00	103	85-115
Barium	100.60	0.500	ug/L	100.00	101	85-115
Cadmium	99.333	0.500	ug/L	100.00	99.3	85-115
Beryllium	101.25	0.500	ug/L	100.00	101	85-115
Arsenic	98.671	0.500	ug/L	100.00	98.7	85-115
Lead	98.695	0.500	ug/L	100.00	98.7	85-115

Duplicate (BFD0387-DUP1)

Source: MFD0224-04

Prepared: 04/20/2020 Analyzed: 04/27/2020

Molybdenum	0.22619	0.500	ug/L	0.20713	8.80	20
Thallium	<0.500	0.500	ug/L	<0.500		20
Selenium	0.47859	0.500	ug/L	0.44275	7.78	20
Antimony	<0.500	0.500	ug/L	<0.500		20
Lead	<0.500	0.500	ug/L	<0.500		20
Chromium	1.0214	0.500	ug/L	0.92820	9.56	20
Beryllium	0.021097	0.500	ug/L	<0.500		20
Barium	38.924	0.500	ug/L	38.279	1.67	20
Cobalt	<0.500	0.500	ug/L	<0.500		20
Cadmium	<0.500	0.500	ug/L	<0.500		20
Arsenic	0.50620	0.500	ug/L	0.52466	3.58	20

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0387 - EPA 200.2, EPA 3005

Duplicate (BFD0387-DUP2)		Source: MFD0224-05		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Arsenic	0.74111	0.500	ug/L		0.72674			1.96	20	
Barium	44.275	0.500	ug/L		42.834			3.31	20	
Chromium	1.0915	0.500	ug/L		1.0854			0.564	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Selenium	1.9291	0.500	ug/L		1.9452			0.829	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.089530	0.500	ug/L		0.12065			29.6	20	M_D-RL
Molybdenum	0.93949	0.500	ug/L		0.91402			2.75	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.500	0.500	ug/L		<0.500				20	

Matrix Spike (BFD0387-MS1)		Source: MFD0224-04		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Selenium	98.776	0.500	ug/L	100.00	0.44275	98.3	75-125			
Thallium	98.604	0.500	ug/L	100.00	<0.500	98.6	75-125			
Cobalt	106.11	0.500	ug/L	100.00	<0.500	106	75-125			
Lead	95.605	0.500	ug/L	100.00	<0.500	95.6	75-125			
Barium	140.61	0.500	ug/L	100.00	38.279	102	75-125			
Arsenic	102.40	0.500	ug/L	100.00	0.52466	102	75-125			
Molybdenum	103.27	0.500	ug/L	100.00	0.20713	103	75-125			
Chromium	108.00	0.500	ug/L	100.00	0.92820	107	75-125			
Cadmium	99.675	0.500	ug/L	100.00	<0.500	99.7	75-125			
Beryllium	102.26	0.500	ug/L	100.00	<0.500	102	75-125			
Antimony	101.06	0.500	ug/L	100.00	<0.500	101	75-125			

Matrix Spike (BFD0387-MS2)		Source: MFD0224-05		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Arsenic	101.90	0.500	ug/L	100.00	0.72674	101	75-125			
Antimony	100.82	0.500	ug/L	100.00	<0.500	101	75-125			
Cadmium	98.718	0.500	ug/L	100.00	<0.500	98.7	75-125			
Beryllium	103.79	0.500	ug/L	100.00	<0.500	104	75-125			
Cobalt	101.97	0.500	ug/L	100.00	0.12065	102	75-125			
Barium	137.81	0.500	ug/L	100.00	42.834	95.0	75-125			
Thallium	98.417	0.500	ug/L	100.00	<0.500	98.4	75-125			
Chromium	107.69	0.500	ug/L	100.00	1.0854	107	75-125			
Selenium	102.83	0.500	ug/L	100.00	1.9452	101	75-125			
Molybdenum	104.32	0.500	ug/L	100.00	0.91402	103	75-125			
Lead	95.029	0.500	ug/L	100.00	<0.500	95.0	75-125			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0387 - EPA 200.2, EPA 3005

Matrix Spike Dup (BFD0387-MSD1)		Source: MFD0224-04		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Chromium	103.94	0.500	ug/L	100.00	0.92820	103	75-125	3.83	20	
Arsenic	98.968	0.500	ug/L	100.00	0.52466	98.4	75-125	3.41	20	
Lead	93.605	0.500	ug/L	100.00	<0.500	93.6	75-125	2.11	20	
Cadmium	95.663	0.500	ug/L	100.00	<0.500	95.7	75-125	4.11	20	
Cobalt	102.60	0.500	ug/L	100.00	<0.500	103	75-125	3.36	20	
Thallium	96.389	0.500	ug/L	100.00	<0.500	96.4	75-125	2.27	20	
Barium	140.78	0.500	ug/L	100.00	38.279	103	75-125	0.123	20	
Beryllium	103.27	0.500	ug/L	100.00	<0.500	103	75-125	0.982	20	
Antimony	101.14	0.500	ug/L	100.00	<0.500	101	75-125	0.0789	20	
Selenium	93.577	0.500	ug/L	100.00	0.44275	93.1	75-125	5.41	20	
Molybdenum	105.05	0.500	ug/L	100.00	0.20713	105	75-125	1.70	20	

Matrix Spike Dup (BFD0387-MSD2)		Source: MFD0224-05		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Thallium	96.169	0.500	ug/L	100.00	<0.500	96.2	75-125	2.31	20	
Molybdenum	106.96	0.500	ug/L	100.00	0.91402	106	75-125	2.50	20	
Chromium	106.28	0.500	ug/L	100.00	1.0854	105	75-125	1.32	20	
Beryllium	92.926	0.500	ug/L	100.00	<0.500	92.9	75-125	11.0	20	
Lead	92.846	0.500	ug/L	100.00	<0.500	92.8	75-125	2.32	20	
Cobalt	103.95	0.500	ug/L	100.00	0.12065	104	75-125	1.92	20	
Barium	148.08	0.500	ug/L	100.00	42.834	105	75-125	7.18	20	
Arsenic	99.750	0.500	ug/L	100.00	0.72674	99.0	75-125	2.14	20	
Cadmium	99.996	0.500	ug/L	100.00	<0.500	100	75-125	1.29	20	
Selenium	97.618	0.500	ug/L	100.00	1.9452	95.7	75-125	5.20	20	
Antimony	100.50	0.500	ug/L	100.00	<0.500	100	75-125	0.323	20	

Batch BFD0516 - EPA 200.2, EPA 3005

Blank (BFD0516-BLK1)		Prepared: 04/23/2020 Analyzed: 04/28/2020								
Cadmium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0516 - EPA 200.2, EPA 3005

Blank (BFD0516-BLK2)

Prepared: 04/23/2020 Analyzed: 04/28/2020

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

LCS (BFD0516-BS1)

Prepared: 04/23/2020 Analyzed: 04/28/2020

Cadmium	100.51	0.500	ug/L	100.00	101	85-115
Lead	99.141	0.500	ug/L	100.00	99.1	85-115
Molybdenum	100.18	0.500	ug/L	100.00	100	85-115
Selenium	99.517	0.500	ug/L	100.00	99.5	85-115
Thallium	99.187	0.500	ug/L	100.00	99.2	85-115
Beryllium	98.561	0.500	ug/L	100.00	98.6	85-115
Cobalt	101.25	0.500	ug/L	100.00	101	85-115
Barium	99.102	0.500	ug/L	100.00	99.1	85-115
Antimony	98.720	0.500	ug/L	100.00	98.7	85-115
Arsenic	95.664	0.500	ug/L	100.00	95.7	85-115
Chromium	101.28	0.500	ug/L	100.00	101	85-115

LCS (BFD0516-BS2)

Prepared: 04/23/2020 Analyzed: 04/28/2020

Selenium	99.954	0.500	ug/L	100.00	100	85-115
Cadmium	97.625	0.500	ug/L	100.00	97.6	85-115
Thallium	102.01	0.500	ug/L	100.00	102	85-115
Cobalt	105.93	0.500	ug/L	100.00	106	85-115
Chromium	103.02	0.500	ug/L	100.00	103	85-115
Arsenic	97.608	0.500	ug/L	100.00	97.6	85-115
Antimony	101.24	0.500	ug/L	100.00	101	85-115
Molybdenum	101.95	0.500	ug/L	100.00	102	85-115
Beryllium	98.584	0.500	ug/L	100.00	98.6	85-115
Barium	103.04	0.500	ug/L	100.00	103	85-115
Lead	101.42	0.500	ug/L	100.00	101	85-115

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0516 - EPA 200.2, EPA 3005

Duplicate (BFD0516-DUP1)		Source: MFD0316-15		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Selenium	1.1438	0.500	ug/L		1.3330			15.3	20	
Thallium	0.030463	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.19931	0.500	ug/L		0.20840			4.46	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.79242	0.500	ug/L		0.72587			8.77	20	
Cobalt	0.065584	0.500	ug/L		0.070700			7.51	20	
Cadmium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.40497	0.500	ug/L		0.50398			21.8	20	M_D-RL
Barium	46.100	0.500	ug/L		47.814			3.65	20	

Duplicate (BFD0516-DUP2)		Source: MFD0316-16		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Chromium	1.0294	0.500	ug/L		1.0147			1.44	20	
Molybdenum	0.14530	0.500	ug/L		0.33367			78.7	20	M_D-RL
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.500	0.500	ug/L		<0.500				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Barium	66.766	0.500	ug/L		63.186			5.51	20	
Arsenic	0.52597	0.500	ug/L		0.56374			6.93	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Selenium	1.1622	0.500	ug/L		1.2010			3.29	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	

Duplicate (BFD0516-DUP3)		Source: MFD0316-18		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Barium	54.501	0.500	ug/L		51.956			4.78	20	
Arsenic	0.30607	0.500	ug/L		0.37921			21.3	20	M_D-RL
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Chromium	1.3183	0.500	ug/L		1.3670			3.62	20	
Molybdenum	0.15580	0.500	ug/L		0.15291			1.87	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.500	0.500	ug/L		<0.500				20	
Selenium	2.0753	0.500	ug/L		2.1547			3.76	20	
Lead	<0.500	0.500	ug/L		0.058798				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0516 - EPA 200.2, EPA 3005

Matrix Spike (BFD0516-MS1)		Source: MFD0316-15		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Arsenic	99.132	0.500	ug/L	100.00	0.50398	98.6	75-125			
Antimony	100.26	0.500	ug/L	100.00	<0.500	100	75-125			
Beryllium	96.430	0.500	ug/L	100.00	<0.500	96.4	75-125			
Lead	91.893	0.500	ug/L	100.00	<0.500	91.9	75-125			
Chromium	101.04	0.500	ug/L	100.00	0.72587	100	75-125			
Molybdenum	99.351	0.500	ug/L	100.00	0.20840	99.1	75-125			
Cobalt	97.712	0.500	ug/L	100.00	0.070700	97.6	75-125			
Cadmium	98.496	0.500	ug/L	100.00	<0.500	98.5	75-125			
Barium	148.57	0.500	ug/L	100.00	47.814	101	75-125			
Selenium	100.40	0.500	ug/L	100.00	1.3330	99.1	75-125			
Thallium	93.277	0.500	ug/L	100.00	<0.500	93.3	75-125			

Matrix Spike (BFD0516-MS2)		Source: MFD0316-16		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Cadmium	100.14	0.500	ug/L	100.00	<0.500	100	75-125			
Cobalt	102.35	0.500	ug/L	100.00	<0.500	102	75-125			
Lead	93.397	0.500	ug/L	100.00	<0.500	93.4	75-125			
Molybdenum	104.00	0.500	ug/L	100.00	0.33367	104	75-125			
Antimony	102.53	0.500	ug/L	100.00	<0.500	103	75-125			
Selenium	103.96	0.500	ug/L	100.00	1.2010	103	75-125			
Barium	170.68	0.500	ug/L	100.00	63.186	107	75-125			
Beryllium	99.360	0.500	ug/L	100.00	<0.500	99.4	75-125			
Arsenic	103.34	0.500	ug/L	100.00	0.56374	103	75-125			
Chromium	104.35	0.500	ug/L	100.00	1.0147	103	75-125			
Thallium	93.560	0.500	ug/L	100.00	<0.500	93.6	75-125			

Matrix Spike (BFD0516-MS3)		Source: MFD0316-18		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Selenium	104.97	0.500	ug/L	100.00	2.1547	103	75-125			
Thallium	93.308	0.500	ug/L	100.00	<0.500	93.3	75-125			
Lead	90.172	0.500	ug/L	100.00	0.058798	90.1	75-125			
Antimony	97.282	0.500	ug/L	100.00	<0.500	97.3	75-125			
Cobalt	100.54	0.500	ug/L	100.00	<0.500	101	75-125			
Molybdenum	103.76	0.500	ug/L	100.00	0.15291	104	75-125			
Cadmium	98.932	0.500	ug/L	100.00	<0.500	98.9	75-125			
Chromium	101.45	0.500	ug/L	100.00	1.3670	100	75-125			
Beryllium	97.067	0.500	ug/L	100.00	<0.500	97.1	75-125			
Arsenic	101.19	0.500	ug/L	100.00	0.37921	101	75-125			
Barium	154.11	0.500	ug/L	100.00	51.956	102	75-125			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
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 BFD0516 - EPA 200.2, EPA 3005

Matrix Spike Dup (BFD0516-MSD1)		Source: MFD0316-15		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Beryllium	97.644	0.500	ug/L	100.00	<0.500	97.6	75-125	1.25	20	
Thallium	95.670	0.500	ug/L	100.00	<0.500	95.7	75-125	2.53	20	
Molybdenum	102.01	0.500	ug/L	100.00	0.20840	102	75-125	2.65	20	
Barium	146.02	0.500	ug/L	100.00	47.814	98.2	75-125	1.73	20	
Selenium	100.88	0.500	ug/L	100.00	1.3330	99.5	75-125	0.469	20	
Antimony	97.869	0.500	ug/L	100.00	<0.500	97.9	75-125	2.41	20	
Arsenic	101.48	0.500	ug/L	100.00	0.50398	101	75-125	2.34	20	
Cobalt	99.287	0.500	ug/L	100.00	0.070700	99.2	75-125	1.60	20	
Chromium	99.097	0.500	ug/L	100.00	0.72587	98.4	75-125	1.94	20	
Cadmium	98.465	0.500	ug/L	100.00	<0.500	98.5	75-125	0.0309	20	
Lead	94.847	0.500	ug/L	100.00	<0.500	94.8	75-125	3.16	20	

Matrix Spike Dup (BFD0516-MSD2)		Source: MFD0316-16		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Arsenic	101.83	0.500	ug/L	100.00	0.56374	101	75-125	1.48	20	
Selenium	104.52	0.500	ug/L	100.00	1.2010	103	75-125	0.532	20	
Barium	167.69	0.500	ug/L	100.00	63.186	105	75-125	1.77	20	
Antimony	100.72	0.500	ug/L	100.00	<0.500	101	75-125	1.78	20	
Lead	92.063	0.500	ug/L	100.00	<0.500	92.1	75-125	1.44	20	
Cobalt	100.68	0.500	ug/L	100.00	<0.500	101	75-125	1.65	20	
Beryllium	98.613	0.500	ug/L	100.00	<0.500	98.6	75-125	0.754	20	
Chromium	103.84	0.500	ug/L	100.00	1.0147	103	75-125	0.492	20	
Molybdenum	105.88	0.500	ug/L	100.00	0.33367	106	75-125	1.79	20	
Thallium	93.657	0.500	ug/L	100.00	<0.500	93.7	75-125	0.104	20	
Cadmium	97.499	0.500	ug/L	100.00	<0.500	97.5	75-125	2.67	20	

Matrix Spike Dup (BFD0516-MSD3)		Source: MFD0316-18		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Cadmium	98.579	0.500	ug/L	100.00	<0.500	98.6	75-125	0.358	20	
Selenium	105.56	0.500	ug/L	100.00	2.1547	103	75-125	0.567	20	
Chromium	99.743	0.500	ug/L	100.00	1.3670	98.4	75-125	1.69	20	
Lead	89.865	0.500	ug/L	100.00	0.058798	89.8	75-125	0.341	20	
Molybdenum	102.53	0.500	ug/L	100.00	0.15291	102	75-125	1.20	20	
Barium	158.05	0.500	ug/L	100.00	51.956	106	75-125	2.52	20	
Cobalt	97.874	0.500	ug/L	100.00	<0.500	97.9	75-125	2.69	20	
Beryllium	99.116	0.500	ug/L	100.00	<0.500	99.1	75-125	2.09	20	
Arsenic	103.55	0.500	ug/L	100.00	0.37921	103	75-125	2.30	20	
Antimony	100.30	0.500	ug/L	100.00	<0.500	100	75-125	3.05	20	
Thallium	91.236	0.500	ug/L	100.00	<0.500	91.2	75-125	2.25	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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 BFD0386 - EPA 200.2, EPA 3005

Blank (BFD0386-BLK1)				Prepared: 04/20/2020 Analyzed: 04/26/2020						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							

LCS (BFD0386-BS1)				Prepared: 04/20/2020 Analyzed: 04/26/2020						
Calcium	106.71	1.25	mg/L	100.00		107	85-115			
Lithium	1.0340	0.0150	mg/L	1.0000		103	85-115			
Boron	1.0635	0.0500	mg/L	1.0000		106	85-115			

Duplicate (BFD0386-DUP1)				Source: MFD0224-02		Prepared: 04/20/2020 Analyzed: 04/26/2020				
Calcium	55.541	1.25	mg/L		54.169			2.50	20	
Boron	0.059446	0.0500	mg/L		0.061583			3.53	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	

Duplicate (BFD0386-DUP2)				Source: MFD0224-03		Prepared: 04/20/2020 Analyzed: 04/26/2020				
Boron	0.093819	0.0500	mg/L		0.092471			1.45	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Calcium	64.124	1.25	mg/L		59.492			7.49	20	

Matrix Spike (BFD0386-MS1)				Source: MFD0224-02		Prepared: 04/20/2020 Analyzed: 04/26/2020				
Boron	1.1010	0.0500	mg/L	1.0000	0.061583	104	70-130			
Calcium	161.93	1.25	mg/L	100.00	54.169	108	70-130			
Lithium	1.0196	0.0150	mg/L	1.0000	<0.0150	102	70-130			

Matrix Spike (BFD0386-MS2)				Source: MFD0224-03		Prepared: 04/20/2020 Analyzed: 04/26/2020				
Calcium	170.77	1.25	mg/L	100.00	59.492	111	70-130			
Lithium	1.0223	0.0150	mg/L	1.0000	<0.0150	102	70-130			
Boron	1.1311	0.0500	mg/L	1.0000	0.092471	104	70-130			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0386 - EPA 200.2, EPA 3005

Matrix Spike Dup (BFD0386-MSD1)		Source: MFD0224-02		Prepared: 04/20/2020 Analyzed: 04/26/2020						
Calcium	159.34	1.25	mg/L	100.00	54.169	105	70-130	1.61	20	
Boron	1.0907	0.0500	mg/L	1.0000	0.061583	103	70-130	0.941	20	
Lithium	1.0082	0.0150	mg/L	1.0000	<0.0150	101	70-130	1.12	20	

Matrix Spike Dup (BFD0386-MSD2)		Source: MFD0224-03		Prepared: 04/20/2020 Analyzed: 04/26/2020						
Lithium	1.0140	0.0150	mg/L	1.0000	<0.0150	101	70-130	0.816	20	
Boron	1.1233	0.0500	mg/L	1.0000	0.092471	103	70-130	0.693	20	
Calcium	169.44	1.25	mg/L	100.00	59.492	110	70-130	0.783	20	

Batch BFD0515 - EPA 200.2, EPA 3005

Blank (BFD0515-BLK1)		Prepared: 04/23/2020 Analyzed: 04/28/2020								
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.25	1.25	mg/L							
Boron	<0.0500	0.0500	mg/L							

Blank (BFD0515-BLK2)		Prepared: 04/23/2020 Analyzed: 04/28/2020								
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							

LCS (BFD0515-BS1)		Prepared: 04/23/2020 Analyzed: 04/28/2020								
Lithium	0.99468	0.0150	mg/L	1.0000		99.5	85-115			
Boron	0.95504	0.0500	mg/L	1.0000		95.5	85-115			
Calcium	102.14	1.25	mg/L	100.00		102	85-115			

LCS (BFD0515-BS2)		Prepared: 04/23/2020 Analyzed: 04/28/2020								
Calcium	103.37	1.25	mg/L	100.00		103	85-115			
Boron	0.96513	0.0500	mg/L	1.0000		96.5	85-115			
Lithium	1.0060	0.0150	mg/L	1.0000		101	85-115			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		05/19/2020 08:32
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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 BFD0515 - EPA 200.2, EPA 3005

Duplicate (BFD0515-DUP1)		Source: MFD0316-12		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Calcium	82.558	1.25	mg/L		81.978			0.705	20	
Boron	1.0210	0.0500	mg/L		1.0213			0.0256	20	
Lithium	0.0046231	0.0150	mg/L		0.0048575			4.95	20	

Duplicate (BFD0515-DUP2)		Source: MFD0316-13		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Boron	1.4125	0.0500	mg/L		1.4513			2.71	20	
Calcium	84.910	1.25	mg/L		85.403			0.579	20	
Lithium	0.027339	0.0150	mg/L		0.027811			1.71	20	

Duplicate (BFD0515-DUP3)		Source: MFD0316-14		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Calcium	96.759	1.25	mg/L		96.983			0.231	20	
Boron	0.47896	0.0500	mg/L		0.46885			2.13	20	
Lithium	0.0048981	0.0150	mg/L		0.0051684			5.37	20	

Matrix Spike (BFD0515-MS1)		Source: MFD0316-12		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Boron	2.0226	0.0500	mg/L	1.0000	1.0213	100	70-130			
Lithium	1.0053	0.0150	mg/L	1.0000	0.0048575	100	70-130			
Calcium	187.63	1.25	mg/L	100.00	81.978	106	70-130			

Matrix Spike (BFD0515-MS2)		Source: MFD0316-13		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Lithium	0.64948	0.0150	mg/L	1.0000	0.027811	62.2	70-130			M_Y
Calcium	122.81	1.25	mg/L	100.00	85.403	37.4	70-130			M_Y
Boron	1.6038	0.0500	mg/L	1.0000	1.4513	15.3	70-130			M_Y

Matrix Spike (BFD0515-MS3)		Source: MFD0316-14		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Boron	1.4760	0.0500	mg/L	1.0000	0.46885	101	70-130			
Calcium	207.07	1.25	mg/L	100.00	96.983	110	70-130			
Lithium	1.0240	0.0150	mg/L	1.0000	0.0051684	102	70-130			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

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 BFD0515 - EPA 200.2, EPA 3005

Matrix Spike Dup (BFD0515-MSD1)		Source: MFD0316-12		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Lithium	0.98190	0.0150	mg/L	1.0000	0.0048575	97.7	70-130	2.35	20	
Calcium	183.20	1.25	mg/L	100.00	81.978	101	70-130	2.39	20	
Boron	1.9604	0.0500	mg/L	1.0000	1.0213	93.9	70-130	3.13	20	
Matrix Spike Dup (BFD0515-MSD2)		Source: MFD0316-13		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Boron	2.4620	0.0500	mg/L	1.0000	1.4513	101	70-130	42.2	20	M_Ya
Calcium	191.54	1.25	mg/L	100.00	85.403	106	70-130	43.7	20	M_Ya
Lithium	1.0377	0.0150	mg/L	1.0000	0.027811	101	70-130	46.0	20	M_Ya
Matrix Spike Dup (BFD0515-MSD3)		Source: MFD0316-14		Prepared: 04/23/2020 Analyzed: 04/28/2020						
Boron	1.3813	0.0500	mg/L	1.0000	0.46885	91.2	70-130	6.63	20	
Calcium	193.86	1.25	mg/L	100.00	96.983	96.9	70-130	6.59	20	
Lithium	0.96231	0.0150	mg/L	1.0000	0.0051684	95.7	70-130	6.21	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BFD0478 - EPA 245.1, EPA 7470A

Blank (BFD0478-BLK1)				Prepared: 04/21/2020 Analyzed: 04/22/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFD0478-BS1)				Prepared: 04/21/2020 Analyzed: 04/22/2020						
Mercury	2.6813	0.200	ug/L	3.0030		89.3	85-115			
Duplicate (BFD0478-DUP1)				Source: MFD0224-06		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFD0478-DUP2)				Source: MFD0224-07		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFD0478-MS1)				Source: MFD0224-06		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	2.7057	0.200	ug/L	3.0030	<0.200	90.1	70-130			
Matrix Spike (BFD0478-MS2)				Source: MFD0224-07		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	2.6994	0.200	ug/L	3.0030	<0.200	89.9	70-130			
Matrix Spike Dup (BFD0478-MSD1)				Source: MFD0224-06		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	2.6897	0.200	ug/L	3.0030	<0.200	89.6	70-130	0.593	20	
Matrix Spike Dup (BFD0478-MSD2)				Source: MFD0224-07		Prepared: 04/21/2020 Analyzed: 04/22/2020				
Mercury	2.5599	0.200	ug/L	3.0030	<0.200	85.2	70-130	5.30	20	

Batch BFD0520 - EPA 245.1, EPA 7470A

Blank (BFD0520-BLK1)				Prepared: 04/23/2020 Analyzed: 04/28/2020						
Mercury	<0.200	0.200	ug/L							

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BFD0520 - EPA 245.1, EPA 7470A

LCS (BFD0520-BS1)				Prepared: 04/23/2020 Analyzed: 04/28/2020						
Mercury	2.6907	0.200	ug/L	3.0030		89.6	85-115			
Duplicate (BFD0520-DUP1)				Source: MFD0316-17		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	<0.200	0.200	ug/L	<0.200					20	
Duplicate (BFD0520-DUP2)				Source: MFD0316-19		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	<0.200	0.200	ug/L	<0.200					20	
Matrix Spike (BFD0520-MS1)				Source: MFD0316-17		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	2.7237	0.200	ug/L	3.0030	<0.200	90.7	70-130			
Matrix Spike (BFD0520-MS2)				Source: MFD0316-19		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	2.6670	0.200	ug/L	3.0030	<0.200	88.8	70-130			
Matrix Spike Dup (BFD0520-MSD1)				Source: MFD0316-17		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	2.6513	0.200	ug/L	3.0030	<0.200	88.3	70-130	2.69	20	
Matrix Spike Dup (BFD0520-MSD2)				Source: MFD0316-19		Prepared: 04/23/2020 Analyzed: 04/28/2020				
Mercury	2.6527	0.200	ug/L	3.0030	<0.200	88.3	70-130	0.538	20	

Batch BFD0607 - EPA 245.1, EPA 7470A

Blank (BFD0607-BLK1)				Prepared & Analyzed: 04/28/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFD0607-BS1)				Prepared & Analyzed: 04/28/2020						
Mercury	2.7722	0.200	ug/L	3.0030		92.3	85-115			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0607 - EPA 245.1, EPA 7470A										
Duplicate (BFD0607-DUP1)		Source: MFD0316-32		Prepared & Analyzed: 04/28/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFD0607-DUP2)		Source: MFD0360-01		Prepared & Analyzed: 04/28/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFD0607-MS1)		Source: MFD0316-32		Prepared & Analyzed: 04/28/2020						
Mercury	2.6683	0.200	ug/L	3.0030	<0.200	88.9	70-130			
Matrix Spike (BFD0607-MS2)		Source: MFD0360-01		Prepared & Analyzed: 04/28/2020						
Mercury	2.8277	0.200	ug/L	3.0030	<0.200	94.2	70-130			
Matrix Spike Dup (BFD0607-MSD1)		Source: MFD0316-32		Prepared & Analyzed: 04/28/2020						
Mercury	2.7202	0.200	ug/L	3.0030	<0.200	90.6	70-130	1.93	20	
Matrix Spike Dup (BFD0607-MSD2)		Source: MFD0360-01		Prepared & Analyzed: 04/28/2020						
Mercury	2.7270	0.200	ug/L	3.0030	<0.200	90.8	70-130	3.63	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2020 08:32

Qualifiers and Definitions

M_Ya	The RPD was outside the acceptance limits for the MSD due to the low recovery in the MS due to the digestion vessle cracked during digestion.
M_Y	The percent recovery was outside the acceptance limits for the MS due to the digestion vessle cracked during digestion and additional sample was lost.
M_TTT	Sample received at the lab outside of required hold time.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
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

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: <u>Xcel Energy</u>	Report To: <u>David Kotzner</u>	Company Name: <u>Steve Davis</u>	Attention: <u>Steve Davis</u>	Invoice Number: <u>2277983</u>	Page: <u>1</u> of <u>1</u>
Address: <u>Environmental Services</u>	Copy To:	Address:			
<u>MP-7</u>	Purchase Order No.:				
Email To:	Project Name: <u>Shoreline BAP3 Baseline #3</u>	Pace Quote Reference:			
Phone: <u> </u>	Project Number:	Pace Project Manager:			
Fax: <u> </u>		Pace Profile #:			
Requested Due Date/TAT:					

[illegible]

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) All metals bottles are unfiltered.	Sarah Aronson / Pace	4/16/20	12:00	Jeffrey / Xcel	4/16/20	12:00	
				Temp = 2.9°C M400841 BTL STRIPS: M400462			

SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	David Anderson	DATE Signed (MM/DD/YY):	4/16/20	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	SIGNATURE of SAMPLER:	David Anderson						

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev 00, 09Nov2017

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: Company: <u>Xcel Energy</u> Address: <u>Environmental Services</u> Email To: <u>MP-7</u> Phone: <u></u> Fax: <u></u> Requested Due Date/TAT: <u></u>		Section B Required Project Information: Report To: <u>David Katzner</u> Copy To: <u></u> Purchase Order No.: <u></u> Project Name: <u>Shetco Ponds, Spring 2020</u> Project Number: <u></u>		Section C Invoice Information: Attention: <u>Steve Davis</u> Company Name: <u></u> Address: <u></u> Pace Quote Reference: <u></u> Pace Project Manager: <u></u> Pace Profile #: <u></u>		Page: <u>1</u> of <u>3</u> 2277984
REGULATORY AGENCY ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER		Site Location STATE: <u></u>				

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water DW Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Y/N	Requested Analysis Filtered (Y/N)												Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test	G-W-D		G-W-CCR+G-W-D	G-W-CCR	Residual Chlorine (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
1	P-04A		WT G	G			4/20/20	945		3	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

ADDITIONAL COMMENTS Chappell Pace David Anderson/Pace		RELINQUISHED BY / AFFILIATION DATE: 4/20/20 TIME: 1600		ACCEPTED BY / AFFILIATION DATE: 4/20/20 TIME: 1600 David Anderson/Pace David Anderson/Pace		DATE 4/20/20 1145		TEMP IN °C 2.2		SAMPLE CONDITIONS Received on Ice (Y/N) ☒ Sealed Cooler (Y/N) ☒ Custody (Y/N) ☒ Samples Intact (Y/N) ☒	
pH Step 1: 10.000000 Temp: 20.000000										DATE SIGNED (MM/DD/YY): 4/20/20 SIGNATURE OF SAMPLER: <i>Chappell</i> PRINT NAME OF SAMPLER: Chris Keloski	

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Section A

Required Client Information:

Company: Xcel Energy

Address: Environmental Services

MP-7

Email To:

Phone:

Fax:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Katzner

Copy To:

Purchase Order No.:

Project Name:

Shetepends, Spring 2020

Project Number:

Section C

Invoice Information:

Attention: Steve Davis

Company Name:

Address:

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

Page: X 2 of 3
2277987

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Section D Required Client Information		Matrix Codes MATRIX / CODE		SAMPLE ID (A-Z, 0-9 / -)		SAMPLE TYPE (G=GRAB C=COMP)		COLLECTED		SAMPLE TEMP AT COLLECTION		PRESERVATIVES		Requested Analysis Filtered (Y/N)		Pace Project No./ Lab I.D.	
ITEM #	Matrix Codes Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	MATRIX / CODE DW WT WW P SL OL WP AR TS OT	SAMPLE ID (A-Z, 0-9 / -)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE TIME	COMPOSITE END/GRAB DATE TIME	SAMPLE TEMP AT COLLECTION DATE TIME	Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Y/N	Analysis Test	Residual Chlorine (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)		
1	P-22	WT	WT	WT	4/24/20 1005	4/24/20 1005	4/24/20 1005	4	112	6W-D	6W-CCR	2.2					
2	P-155							2	111								
3	P-01A-1							4	112								
4	P-156							2	111								
5	P-23							4	112								
6	Rinse CCR-BAP							2	111								
7	P-157							2	111								
8	Duplicate CCR-BAP							2	111								
9	Rinse CCR-P3							2	111								
10	P-150							2	111								
11	Duplicate CCR-P3							2	111								
12	P-151							2	111								
RELINQUISHED BY / AFFILIATION: <u>David Andersen / Pace</u> DATE: <u>4/22/20</u> TIME: <u>1145</u> ACCEPTED BY / AFFILIATION: <u>[Signature]</u> DATE: <u>4/21/20</u> TIME: <u>1145</u>																	
ADDITIONAL COMMENTS: <u>PH Stop at MP00762</u> <u>Tap m00841</u>																	
SAMPLER NAME AND SIGNATURE: <u>David Andersen</u> PRINT Name of SAMPLER: <u>David Andersen</u> DATE Signed (MM/DD/YYYY): <u>4/21/20</u> SIGNATURE of SAMPLER: <u>[Signature]</u>																	

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017



CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Requested Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	David Katzner	Attention:	Steve Davis
Address:	Environmental Services	Copy To:		Company Name:	
	MP-7			Address:	
Email To:		Purchase Order No.:		Pace Quote Reference:	
Phone:		Project Name:	Shertz Ponds, Spring 2020	Pace Project Manager:	
Fax:		Project Number:		Pace Profile #:	
Requested Due Date/TAT:					

Page: 3 of 3

2277988

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location
 STATE:

[illegible]

1800m d 21
2000m d 25

ORIGINAL

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

May 27, 2020

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

RE: Project: 20-03252 Xcel Energy-Revised Report
Pace Project No.: 30360455

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory between April 20, 2020 and April 27, 2020. 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

Revision 1 - This report replaces the May 18, 2020 report. This project was revised on May 27, 2020 to report results for samples P-17, P-152A, and P-158 that are also reported on Pace project 30359545 . (Greensburg, PA)

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

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Eric Ealy, 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: 20-03252 Xcel Energy-Revised Report
Pace Project No.: 30360455

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 #: 9526

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: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360455001	P-22	Water	04/20/20 10:05	04/27/20 10:20
30360455002	P-155	Water	04/20/20 11:10	04/27/20 10:20
30360455003	P-01A-1	Water	04/20/20 12:00	04/27/20 10:20
30360455004	P-156	Water	04/20/20 13:10	04/27/20 10:20
30360455005	P-23	Water	04/20/20 15:00	04/27/20 10:20
30360455006	Rinse CCR-BAP	Water	04/20/20 15:10	04/27/20 10:20
30360455007	P-157	Water	04/20/20 16:00	04/27/20 10:20
30360455008	Duplicate CCR-BAP	Water	04/20/20 16:00	04/27/20 10:20
30360455009	Rinse CCR-P3	Water	04/21/20 07:55	04/27/20 10:20
30360455010	P-150	Water	04/21/20 08:45	04/27/20 10:20
30360455011	Duplicate CCR-P3	Water	04/21/20 08:45	04/27/20 10:20
30360455012	P-151	Water	04/21/20 10:00	04/27/20 10:20
30360455013	P-131	Water	04/21/20 11:30	04/27/20 10:20
30360455014	P-153	Water	04/21/20 12:30	04/27/20 10:20
30360455015	P-154A	Water	04/21/20 13:45	04/27/20 10:20
30360455016	P-132	Water	04/21/20 14:40	04/27/20 10:20
30360455017	P-165	Water	04/21/20 15:35	04/27/20 10:20
30360455018	P-130	Water	04/21/20 16:40	04/27/20 10:20
30360455019	P-162	Water	04/22/20 08:10	04/27/20 10:20
30360455020	P-163	Water	04/22/20 09:05	04/27/20 10:20
30360455021	P-164	Water	04/22/20 09:55	04/27/20 10:20
30360455022	P-152A	Water	04/14/20 10:50	04/20/20 09:05
30360455023	P-17	Water	04/14/20 13:35	04/20/20 09:05
30360455024	P-158	Water	04/15/20 10:55	04/20/20 09:05

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30360455001	P-22	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455002	P-155	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455003	P-01A-1	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455004	P-156	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455005	P-23	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455006	Rinse CCR-BAP	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455007	P-157	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455008	Duplicate CCR-BAP	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455009	Rinse CCR-P3	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455010	P-150	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455011	Duplicate CCR-P3	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455012	P-151	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455013	P-131	EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30360455014	P-153	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30360455015	P-154A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455016	P-132	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30360455017	P-165	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30360455018	P-130	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455019	P-162	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30360455020	P-163	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30360455021	P-164	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30360455022	P-152A	EPA 903.1	CMC	1	PASI-PA
		EPA 904.0	CMC	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	CMC	1	PASI-PA
30360455023	P-17	EPA 904.0	CMC	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	CMC	1	PASI-PA
		EPA 904.0	CMC	1	PASI-PA
30360455024	P-158	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	CMC	1	PASI-PA
		EPA 904.0	CMC	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: May 27, 2020

General Information:

24 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:

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PROJECT NARRATIVE

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: May 27, 2020

General Information:

24 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:

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PROJECT NARRATIVE

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: May 27, 2020

General Information:

24 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.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-22		Lab ID: 30360455001	Collected: 04/20/20 10:05	Received: 04/27/20 10:20	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	05/17/20 13:32	13982-63-3	
	EPA 903.1	0.470 ± 0.440 (0.624) C:NA T:87%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 16:06	15262-20-1	
	EPA 904.0	0.573 ± 0.360 (0.663) C:75% T:84%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:04	7440-14-4	
	Total Radium Calculation	1.04 ± 0.800 (1.29)					

Sample: P-155		Lab ID: 30360455002	Collected: 04/20/20 11:10	Received: 04/27/20 10:20	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	0.165 ± 0.324 (0.592) C:NA T:100%		pCi/L	05/17/20 13:32	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.511 ± 0.377 (0.727) C:73% T:83%		pCi/L	05/14/20 16:06	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.676 ± 0.701 (1.32)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: P-01A-1		Lab ID: 30360455003	Collected: 04/20/20 12:00	Received: 04/27/20 10:20	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	05/17/20 13:32	13982-63-3	
	EPA 903.1	-0.0687 ± 0.314 (0.740) C:NA T:85%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 16:06	15262-20-1	
	EPA 904.0	0.592 ± 0.359 (0.661) C:75% T:92%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:04	7440-14-4	
	Total Radium Calculation	0.592 ± 0.673 (1.40)					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-156		Lab ID: 30360455004	Collected: 04/20/20 13:10	Received: 04/27/20 10:20	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	05/17/20 13:32	13982-63-3	
	EPA 903.1	0.124 ± 0.386 (0.747) C:NA T:89%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 16:06	15262-20-1	
	EPA 904.0	0.199 ± 0.415 (0.915) C:76% T:87%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:04	7440-14-4	
	Total Radium Calculation	0.323 ± 0.801 (1.66)					

Sample: P-23		Lab ID: 30360455005	Collected: 04/20/20 15:00	Received: 04/27/20 10:20	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	0.276 ± 0.332 (0.507) C:NA T:84%		pCi/L	05/17/20 13:32	13982-63-3	
Radium-228	Pace Analytical Services - Greensburg						
	EPA 904.0	0.849 ± 0.454 (0.821) C:79% T:84%		pCi/L	05/14/20 16:06	15262-20-1	
Total Radium	Pace Analytical Services - Greensburg						
	Total Radium Calculation	1.13 ± 0.786 (1.33)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: Rinse CCR-BAP		Lab ID: 30360455006	Collected: 04/20/20 15:10	Received: 04/27/20 10:20	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	05/17/20 13:32	13982-63-3	
	EPA 903.1	-0.124 ± 0.297 (0.743) C:NA T:93%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:03	15262-20-1	
	EPA 904.0	0.499 ± 0.722 (1.56) C:75% T:80%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:04	7440-14-4	
	Total Radium Calculation	0.499 ± 1.02 (2.30)					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-157		Lab ID: 30360455007	Collected: 04/20/20 16:00	Received: 04/27/20 10:20	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	0.713 ± 0.717 (1.13) C:NA T:85%		pCi/L	05/17/20 13:32	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.289 ± 0.563 (1.24) C:79% T:80%		pCi/L	05/14/20 19:03	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	1.00 ± 1.28 (2.37)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: Duplicate CCR-BAP		Lab ID: 30360455008	Collected: 04/20/20 16:00	Received: 04/27/20 10:20	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	0.139 ± 0.318 (0.513) C:NA T:86%		pCi/L	05/17/20 13:48	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	-0.0879 ± 0.584 (1.37) C:74% T:78%		pCi/L	05/14/20 19:03	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.139 ± 0.902 (1.88)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: Rinse CCR-P3		Lab ID: 30360455009	Collected: 04/21/20 07:55	Received: 04/27/20 10:20	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	05/17/20 13:48	13982-63-3	
	EPA 903.1	0.119 ± 0.273 (0.439) C:NA T:90%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:04	15262-20-1	
	EPA 904.0	-0.379 ± 0.534 (1.32) C:75% T:80%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:04	7440-14-4	
	Total Radium Calculation	0.119 ± 0.807 (1.76)					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-150		Lab ID: 30360455010	Collected: 04/21/20 08:45	Received: 04/27/20 10:20	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	0.0600 ± 0.274 (0.442) C:NA T:93%		pCi/L	05/17/20 13:48	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	0.256 ± 0.479 (1.05) C:77% T:85%		pCi/L	05/14/20 19:04	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.316 ± 0.753 (1.49)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: Duplicate CCR-P3		Lab ID: 30360455011	Collected: 04/21/20 08:45	Received: 04/27/20 10:20	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	0.378 ± 0.348 (0.205) C:NA T:83%		pCi/L	05/17/20 13:48	13982-63-3	
	Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.165 ± 0.466 (1.05) C:74% T:87%		pCi/L	05/14/20 19:04	15262-20-1	
	Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.543 ± 0.814 (1.26)		pCi/L	05/18/20 11:04	7440-14-4	

Sample: P-151		Lab ID: 30360455012	Collected: 04/21/20 10:00	Received: 04/27/20 10:20	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	05/17/20 14:07	13982-63-3	
	EPA 903.1	-0.129 ± 0.311 (0.777) C:NA T:90%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:04	15262-20-1	
	EPA 904.0	0.567 ± 0.555 (1.14) C:74% T:80%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:12	7440-14-4	
	Total Radium Calculation	0.567 ± 0.866 (1.92)					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-131		Lab ID: 30360455013	Collected: 04/21/20 11:30	Received: 04/27/20 10:20	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	05/17/20 13:48	13982-63-3	
	EPA 903.1	0.207 ± 0.359 (0.641) C:NA T:89%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:04	15262-20-1	
	EPA 904.0	0.460 ± 0.554 (1.17) C:75% T:80%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:12	7440-14-4	
	Total Radium Calculation	0.667 ± 0.913 (1.81)					

Sample: P-153		Lab ID: 30360455014	Collected: 04/21/20 12:30	Received: 04/27/20 10:20	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	0.0656 ± 0.340 (0.706) C:NA T:91%		pCi/L	05/17/20 13:48	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	1.40 ± 0.722 (1.28) C:72% T:80%		pCi/L	05/14/20 19:05	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	1.47 ± 1.06 (1.99)		pCi/L	05/18/20 11:12	7440-14-4	

Sample: P-154A		Lab ID: 30360455015	Collected: 04/21/20 13:45	Received: 04/27/20 10:20	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	05/17/20 13:48	13982-63-3	
	EPA 903.1	0.340 ± 0.612 (1.08) C:NA T:84%				
Radium-228	Pace Analytical Services - Greensburg		pCi/L	05/14/20 19:05	15262-20-1	
	EPA 904.0	0.253 ± 0.477 (1.05) C:77% T:83%				
Total Radium	Pace Analytical Services - Greensburg		pCi/L	05/18/20 11:12	7440-14-4	
	Total Radium Calculation	0.593 ± 1.09 (2.13)				

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-132		Lab ID: 30360455016	Collected: 04/21/20 14:40	Received: 04/27/20 10:20	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	05/17/20 14:02	13982-63-3	
	EPA 903.1	0.0717 ± 0.327 (0.528) C:NA T:90%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:05	15262-20-1	
	EPA 904.0	1.52 ± 0.682 (1.14) C:77% T:85%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:12	7440-14-4	
	Total Radium Calculation	1.59 ± 1.01 (1.67)					

Sample: P-165		Lab ID: 30360455017	Collected: 04/21/20 15:35	Received: 04/27/20 10:20	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	0.0579 ± 0.264 (0.426) C:NA T:98%		pCi/L	05/17/20 14:13	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	1.01 ± 0.670 (1.28) C:74% T:84%		pCi/L	05/14/20 19:47	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	1.07 ± 0.934 (1.71)		pCi/L	05/18/20 11:12	7440-14-4	

Sample: P-130		Lab ID: 30360455018	Collected: 04/21/20 16:40	Received: 04/27/20 10:20	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	05/17/20 14:02	13982-63-3	
	EPA 903.1	0.000 ± 0.445 (0.900) C:NA T:110%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/14/20 19:48	15262-20-1	
	EPA 904.0	0.285 ± 0.581 (1.28) C:70% T:86%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/18/20 11:12	7440-14-4	
	Total Radium Calculation	0.285 ± 1.03 (2.18)					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-162		Lab ID: 30360455019	Collected: 04/22/20 08:10	Received: 04/27/20 10:20	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	0.134 ± 0.306 (0.493) C:NA T:84%		pCi/L	05/17/20 14:02	13982-63-3	
	Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.566 ± 0.673 (1.42) C:75% T:85%		pCi/L	05/14/20 19:48	15262-20-1	
	Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.700 ± 0.979 (1.91)		pCi/L	05/18/20 11:12	7440-14-4	

Sample: P-163		Lab ID: 30360455020	Collected: 04/22/20 09:05	Received: 04/27/20 10:20	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	0.158 ± 0.361	(0.582)	pCi/L	05/17/20 14:02	13982-63-3	
		C:NA	T:77%				
	Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	2.37 ± 0.779	(0.990)	pCi/L	05/14/20 19:05	15262-20-1	
		C:74%	T:82%				
	Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	2.53 ± 1.14	(1.57)	pCi/L	05/18/20 11:12	7440-14-4	

Sample: P-164		Lab ID: 30360455021	Collected: 04/22/20 09:55	Received: 04/27/20 10:20	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	0.193 ± 0.334 (0.597) C:NA T:82%	pCi/L	05/15/20 13:33	13982-63-3	
Radium-228	Pace Analytical Services - Greensburg					
	EPA 904.0	-0.141 ± 0.396 (0.942) C:76% T:78%	pCi/L	05/13/20 11:05	15262-20-1	
Total Radium	Pace Analytical Services - Greensburg					
	Total Radium Calculation	0.193 ± 0.730 (1.54)	pCi/L	05/15/20 14:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

Sample: P-152A		Lab ID: 30360455022	Collected: 04/14/20 10:50	Received: 04/20/20 09:05	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	05/11/20 11:19	13982-63-3	
	EPA 903.1	0.000 ± 0.309 (0.498) C:NA T:85%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/07/20 16:37	15262-20-1	
	EPA 904.0	0.-0.00368 ± 0.413 (0.958) C:81% T:70%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/27/20 14:18	7440-14-4	
	Total Radium Calculation	0.000 ± 0.722 (1.46)					

Sample: P-17		Lab ID: 30360455023	Collected: 04/14/20 13:35	Received: 04/20/20 09:05	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	0.430 ± 0.469 (0.737) C:NA T:89%		pCi/L	05/11/20 11:19	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	-0.0583 ± 0.328 (0.774) C:93% T:76%		pCi/L	05/07/20 16:37	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.430 ± 0.797 (1.51)		pCi/L	05/27/20 14:18	7440-14-4	

Sample: P-158		Lab ID: 30360455024	Collected: 04/15/20 10:55	Received: 04/20/20 09:05	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	05/11/20 11:35	13982-63-3	
	EPA 903.1	-0.316 ± 0.330 (0.891) C:NA T:84%					
Radium-228	Pace Analytical Services - Greensburg			pCi/L	05/07/20 16:38	15262-20-1	
	EPA 904.0	0.353 ± 0.395 (0.828) C:83% T:77%					
Total Radium	Pace Analytical Services - Greensburg			pCi/L	05/27/20 14:18	7440-14-4	
	Total Radium Calculation	0.353 ± 0.725 (1.72)					

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch: 394301

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: 30360455021

METHOD BLANK: 1909670

Matrix: Water

Associated Lab Samples: 30360455021

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.322 ± 0.422 (0.703) C:NA T:78%	pCi/L	05/15/20 12:54	

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: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch:	398081	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:	30360455022, 30360455023, 30360455024		

METHOD BLANK: 1928361 Matrix: Water

Associated Lab Samples: 30360455022, 30360455023, 30360455024

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.152 ± 0.434 (0.806) C:NA T:87%	pCi/L	05/11/20 11:19	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch:	394300	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: 30360455021

METHOD BLANK: 1909669 Matrix: Water

Associated Lab Samples: 30360455021

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0468 ± 0.288 (0.663) C:77% T:87%	pCi/L	05/13/20 11:03	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch:	394303	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:	30360455001, 30360455002, 30360455003, 30360455004, 30360455005, 30360455006, 30360455007, 30360455008, 30360455009, 30360455010, 30360455011, 30360455012, 30360455013, 30360455014, 30360455015, 30360455016, 30360455017, 30360455018, 30360455019, 30360455020		

METHOD BLANK:	1909673	Matrix:	Water
Associated Lab Samples:	30360455001, 30360455002, 30360455003, 30360455004, 30360455005, 30360455006, 30360455007, 30360455008, 30360455009, 30360455010, 30360455011, 30360455012, 30360455013, 30360455014, 30360455015, 30360455016, 30360455017, 30360455018, 30360455019, 30360455020		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.632 ± 0.406 (0.757) C:74% T:81%	pCi/L	05/14/20 16:05	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch:	398082	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: 30360455022, 30360455023, 30360455024

METHOD BLANK: 1928365 Matrix: Water

Associated Lab Samples: 30360455022, 30360455023, 30360455024

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.217 ± 0.341 (0.739) C:82% T:82%	pCi/L	05/07/20 14:09	

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: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

QC Batch:	394302	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:	30360455001, 30360455002, 30360455003, 30360455004, 30360455005, 30360455006, 30360455007, 30360455008, 30360455009, 30360455010, 30360455011, 30360455012, 30360455013, 30360455014, 30360455015, 30360455016, 30360455017, 30360455018, 30360455019, 30360455020		

METHOD BLANK:	1909671	Matrix:	Water
Associated Lab Samples:	30360455001, 30360455002, 30360455003, 30360455004, 30360455005, 30360455006, 30360455007, 30360455008, 30360455009, 30360455010, 30360455011, 30360455012, 30360455013, 30360455014, 30360455015, 30360455016, 30360455017, 30360455018, 30360455019, 30360455020		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.107 ± 0.258 (0.645) C:NA T:81%	pCi/L	05/17/20 13:32	

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.

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QUALIFIERS

Project: 20-03252 Xcel Energy-Revised Report

Pace Project No.: 30360455

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.

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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WO#: 30360455



30360455

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: Xcel Energy	Report To: Chris Pelosi	Attention: Ciera Ruikka	Company Name: Pace MN Field Services	Regulatory Agency: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER	☐ UST ☐ RORA ☐ OTHER
Address: 210 Pace MN Field	Copy To:	Address:	Pace Quote Reference: Tam Halverson	Site Location: Catin Felis	STATE:
Email To:	Purchase Order No.:	Project Name: 20-032252 Xcel Energy - Sherco Pond Spring 2020	Pace Project Manager: Catin Felis		
Phone:	Fax:	Project Number: 20-032252	Pace Profile #:		
Requested Due Date/TAT:					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↑	Y/N	Requested Analysis Filtered (Y/N)												Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other														
1	P-22	WT	WT		4/20/20 1005		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
2	P-155				4/20/20 1110		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0
3	P-01A-1				1200		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
4	P-156				1310		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0
5	P-23				1500		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
6	Rinse CCR-BAP				1510		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0
7	P-157				1600		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
8	Duplicate CCR-BAP				1600		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0
9	Rinse CCR-P3				4/21/20 0755		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
10	P-150				0845		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0
11	Duplicate CCR-P3				0845		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-226 EPA 903.1
12	P-151				1000		2		2							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RA-228 EPA 904.0

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
1) Client needs to analyze for: Radium 226 + 228 pCi/L combined.	David Andersen	4/23/20	0900	David Andersen	4/27/20	10:20	N N Y
2) RA-226 EPA 903.1 RA-228 EPA 904.0 ORIGINAL	David Andersen			David Andersen	4/21/20		

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:	Chris Pelosi	Attention:	Cara Ruitkic
Address:	40 Pace Main Field	Copy To:		Company Name:	Pace Main Field Services
Email To:		Purchase Order No.:		Address:	
Phone:		Project Name:	20-03252 Xcel Energy -	Pace Quote	
Fax:		Project Number:	Shetco Ponds, Spring 2020	References:	Tom Halverson
Requested Due Date/TAT:				Pace Project Manager:	Catin Ferris
				Pace Profile #:	

Page: 2 of 2

2277985

REGULATORY AGENCY	
☐ NPDES	☐ GROUND WATER
☐ UST	☐ RCRA
Site Location	
STATE:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB							
1	P-131	WTG	WTG	4/21/20	1130	2	2	Unpreserved	PA-226 EPA 903.1			013
2	P-153	WTG	WTG	4/21/20	1230	2	2	H ₂ SO ₄	PA-226 EPA 903.1			014
3	P-154A	WTG	WTG	4/21/20	1345	2	2	HCl	PA-226 EPA 903.1			015
4	P-132	WTG	WTG	4/21/20	1440	2	2	HNO ₃	PA-226 EPA 903.1			016
5	P-165	WTG	WTG	4/21/20	1535	2	2	NaOH	PA-226 EPA 903.1			017
6	P-130	WTG	WTG	4/21/20	1640	2	2	Na ₂ S ₂ O ₃	PA-226 EPA 903.1			018
7	P-162	WTG	WTG	4/22/20	0810	2	2	Methanol	PA-226 EPA 903.1			019
8	P-163	WTG	WTG	4/22/20	0905	2	2	Other	PA-226 EPA 903.1			020
9	P-164	WTG	WTG	4/22/20	0955	2	2		PA-226 EPA 903.1			021
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Received on	Custody	Sealed Cooler	Samples Intact
① client needs to analyze for:	Chris Pelosi	4/20/20	4:00 PM	David Anderson	4/20/20	4:00 PM					
Radium 226 + 228 pCi/L combined.	David Anderson	4/23/20	0800	David Anderson	4/23/20	0800					
② PA-226 EPA 903.1 ORIGINAL	Chris Pelosi	4/20/20	4:00 PM	David Anderson	4/20/20	4:00 PM					
PA-228 EPA 904.0	Chris Pelosi	4/20/20	4:00 PM	David Anderson	4/20/20	4:00 PM					

Pittsburgh Lab Sample Condition Upon Receipt



Client Name:

Xcel Energy

Project #

30360455

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

Tracking #: 1686 7302 1753

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

Thermometer Used

NA

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

Label	<u>NA</u>
LIMS Login	<u>NA</u>

Comments:

	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	/			<u>1054191</u>	<u>NA</u>
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID Matrix:		<u>NA</u>			
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):	/				
Rush Turn Around Time Requested:	/				
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests			/		
All containers have been checked for preservation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>PH<2</u>	
All containers meet method preservation requirements.	/			Initial when completed <u>NA</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):		/			
Trip Blank Present:		/			
Trip Blank Custody Seals Present		/			
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed <u>NA</u>	Date: <u>4/27/2001</u>

Client Notification/ Resolution:

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

Comments/ Resolution: _____

3 cooler Project

☐ 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 2020 Assessment Monitoring Event Field Datasheets and Laboratory Reports

DRAFT

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel Energy</u>		Project	<u>Sharon Ponds, Fall 2020</u>		Project No.	<u>20-03972</u>
	Monitoring Point ID	<u>P-01A-1</u>		Labeled	<u>P-01A-1</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>21062</u>	☒ Locked	☒ Not Locked	
	Casing Material:	☒ PVC	☐ Steel	☐ Stainless Steel	☒ No Well Cap			
	Depth Measurement and Elevations (from top of well casing)							
	Top of Casing Elevation	<u>NA</u>	Feet					
	Well depth	<u>80.98</u>	Feet	} D.K. 11/02/20				
	Static water level measurement before purging	<u>77.80</u>	Feet					
	Static water level measurement at time of sampling	<u>77.80</u>	Feet					
	Static Water Level Elevation Before Purging	<u>NA</u>	Feet					
	Purge Method	<u>Dedicated Bladder Pump</u>		Pump ID	<u>BPL-1</u>			
	Date Purged	<u>11/11/20</u>		Water Column	<u>3.18</u>	Feet		
	Time Purged	<u>NA 1440 - 1452</u>		One Casing Volume	<u>0.52</u>	Gallons		
	Pump Rate	<u>NA 0.15</u>	GPM / LPM	Volume Purged	<u>1.8</u>	Gallons		

Field Sampling Data	Date Sampled	<u>11/11/20</u>	Field Parameter Measurements of Sample					
	Time Sampled	<u>NA (1455)</u>	pH	<u>7.4</u>	(units)	D.O.	<u>6.0</u>	(mg/l)
	Sampling Equip.	<u>Pump + Filter</u>	Spec. Cond.	<u>670</u>	(µmhos/cm)	Turbidity	<u>3.1</u>	(NTU)
	Meter ID	<u>MPS-7</u>	Temp.	<u>9.3</u>	(°C)	Eh	<u>195</u>	(mV)
	Analyzed by	<u>ROS</u>	Other	<u>NA</u>				
	Field Measurements Temp. Corrected:	☒ Yes	☐ No	☐ NA				
	Sample for Soluble Metals Filtered in Field:	☒ Yes	☐ No	☐ NA				
	Weather Conditions During Sampling: <u>NA 32°F, cloudy, S@10MPH</u>							
	Sample Description: <u>NA clear no odor</u>							
	Observations: <u>*No well cap, w/ the rain/snow mix everything froze up & could not sample - (X) Came back in afternoon & was thawed out</u>							

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1444	7.4	660	9.2	6.5	NA	194	0.60
1448	7.4	660	9.3	6.3	NA	194	1.20
1452	7.4	670	9.3	6.0	NA	195	1.8
				Red 11/11/20			

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

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jr Date: 11/11/20

① Tapped Ziplock bag over top to use as a "Cap" & keep snow/ice out this winter. ROS 11/11/20

① collected sample

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Nel Energy</u>		Project <u>Shanco Ponds, Fall 2020</u>		Project No. <u>20-03972</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			
	Well depth <u>58.76</u>		Feet		<u>(Top of pump 45.24')</u>	
	Static water level measurement before purging <u>37.58</u>		Feet		<u>(11/9/2020 11:12 by DK)</u>	
	Static water level measurement at time of sampling <u>37.58</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>11/10/2020</u>		Water Column <u>21.18</u>		Feet	
	Time Purged <u>935 - 1029</u>		One Casing Volume <u>3.45</u>		Gallons	
	Pump Rate <u>0.2</u> <u>GPM</u> / LPM		Volume Purged <u>10.8</u>		Gallons	

Field Sampling Data	Date Sampled <u>11/10/2020</u>		Field Parameter Measurements of Sample			
	Time Sampled <u>1030</u>		pH <u>7.5</u> (units)		D.O. <u>7.4</u> (mg/l)	
	Sampling Equip. <u>Pump</u>		Spec. Cond. <u>470</u> (µmhos/cm)		Turbidity <u>4.1</u> (NTU)	
	Meter ID <u>MPS-8 TM-6</u>		Temp. <u>8.0</u> (°C)		Eh <u>261</u> (mV)	
	Analyzed by <u>CLP</u>		Other <u>NA</u>			
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA					
	Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA					
	Weather Conditions During Sampling: <u>32°F partly sunny wind NWE @ 6 mph</u>					
	Sample Description: <u>clear no odor</u>					
	Observations: <u>NA</u>					

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	953	7.5	470	8.0	7.4	NA	263	3.6
	1011	7.5	470	8.0	7.4	NA	261	7.2
	1029	7.5	470	8.0	7.4	NA	261	10.8

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 09/27/2017

Name/Affiliation of Sampler(s): Chris Pelosi Pace Analytical

Lead Technician Signature: [Signature] Date: 11/10/2020

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel Energy</u>	Project <u>Shore Ponds, Fall 2020</u>	Project No. <u>20-03972</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	
	Well depth <u>57.85</u>	Feet	} D.K. 11/11/20
	Static water level measurement before purging <u>39.86</u>	Feet	
	Static water level measurement at time of sampling <u>39.86</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>11/11/20</u>	Water Column <u>17.99</u>	Feet
	Time Purged <u>1000 - 1036</u>	One Casing Volume <u>2.93</u>	Gallons
	Pump Rate <u>0.25</u> <u>GPM</u> / LPM	Volume Purged <u>9.0</u>	Gallons

Field Sampling Data	Date Sampled <u>11/11/20</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>1040</u>	pH <u>7.4</u> (units)	D.O. <u>7.2</u> (mg/l)
	Sampling Equip. <u>Pump + Filter</u>	Spec. Cond. <u>650</u> (µmhos/cm)	Turbidity <u>1.3</u> (NTU)
	Meter ID <u>MPS-7</u>	Temp. <u>9.4</u> (°C)	Eh <u>191</u> (mV)
	Analyzed by <u>RJS</u>	Other <u>NA</u>	
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA		
	Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA		
	Weather Conditions During Sampling: <u>22° Sunny, SE 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)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1012	7.5	650	9.3	7.5	NA	191	3.0
	1024	7.4	650	9.4	7.3	NA	191	6.0
	1036	7.4	650	9.4	7.2	NA	191	9.0

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 09/27/2017

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

Lead Technician Signature: Riley J Date: 11/11/20

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Nel Energy</u>	Project <u>Sherco Ponds, Fall 2020</u>	Project No. <u>20-03972</u>
	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			
Well depth <u>67.34</u> Feet			
Static water level measurement before purging <u>41.60</u> Feet			
Static water level measurement at time of sampling <u>41.60</u> Feet			
Static Water Level Elevation Before Purging <u>NA</u> Feet			
Purge Method <u>Dedicated Bladder Pump</u>		Pump ID <u>BPC-2</u>	
Date Purged <u>11/9/2020</u>		Water Column <u>25.74</u> Feet	
Time Purged <u>915 - 1018</u>		One Casing Volume <u>4.2</u> Gallons	
Pump Rate <u>0.2</u> <u>GPM</u> LPM		Volume Purged <u>12.6</u> Gallons	

Field Sampling Data	Date Sampled <u>11/9/2020</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>1020</u>		
	Sampling Equip. <u>Pump</u>	pH <u>7.4</u> (units)	D.O. <u>7.6</u> (mg/l)
	Meter ID <u>MPS-8/TM-6</u>	Spec. Cond. <u>730</u> (µmhos/cm)	Turbidity <u>1.0</u> (NTU)
Analyzed by <u>CJP</u>	Temp. <u>12.0</u> (°C)	Eh <u>207</u> (mV)	
	Other <u>NA</u>		
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA			
Sample for Soluble Metals Filtered in Field: ☒ Yes ☐ No ☐ NA			
Weather Conditions During Sampling: <u>56°F overcast heavy rain wind SE 7 mph</u>			
Sample Description: <u>clear no odor</u>			
Observations: <u>NA</u>			

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	936	7.4	730	12.0	7.8	NA	210	4.2
	957	7.4	730	12.0	7.6	NA	209	8.4
	1018	7.4	730	12.0	7.6	NA	207	12.6

Samples chilled immediately after collection:	☒ Yes ☐ Other
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Form Revised: 09/27/2017

Name/Affiliation of Sampler(s): Chris Pelosi Pace Analytical

Lead Technician Signature: [Signature] Date: 11/9/2020

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel Energy</u>	Project <u>Shannon Ponds, Fall 2020</u>	Project No. <u>20-03972</u>
	Monitoring Point ID <u>P-152A</u>	Labeled <u>806318</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>21062</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	
	Well depth <u>42.18</u>	Feet	} D.K. 11/9/20
	Static water level measurement before purging <u>37.93</u>	Feet	
	Static water level measurement at time of sampling <u>37.93</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>11/12/20</u>	Water Column <u>4.25</u>	Feet
	Time Purged <u>1450-1505</u>	One Casing Volume <u>0.69</u>	Gallons
	Pump Rate <u>0.15</u> <u>GPM</u> / LPM	Volume Purged <u>2.25</u>	Gallons

Field Sampling Data	Date Sampled <u>11/12/20</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>1510</u>	pH <u>7.6</u> (units)	D.O. <u>9.5</u> (mg/l)
	Sampling Equip. <u>Pump</u>	Spec. Cond. <u>340</u> (µmhos/cm)	Turbidity <u>1.6</u> (NTU)
	Meter ID <u>MPS-7</u>	Temp. <u>9.2</u> (°C)	Eh <u>194</u> (mV)
	Analyzed by <u>RLJ</u>	Other <u>NA</u>	
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA		
	Sample for Soluble Metals Filtered in Field: ☐ Yes ☒ No ☐ NA		
	Weather Conditions During Sampling: <u>26°F, cloudy, NW @ 13MPH</u>		
	Sample Description: <u>clear no odor</u>		
	Observations: <u>BAP, BAP2 and P3 DUPLICATES + RINSE all collected @ this well (6 samples) RINSE collected @ 1515</u>		

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	1455	7.6	340	9.1	9.9	NA	196	0.75
	1500	7.6	340	9.2	9.7	NA	195	1.50
	1505	7.6	340	9.2	9.5	NA	194	2.25
	<u>RLJ 11/12/20</u>							

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 11/12/20

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client	<u>Xcel Energy</u>		Project	<u>Shenandoah Ponds, Fall 2020</u>		Project No.	<u>20-03972</u>
	Monitoring Point ID	<u>P-155</u>		Labeled	<u>812964</u>			
	Inside Diameter	<u>2</u>	(inches)	Key #	<u>21012</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				
	Well depth		<u>85.47</u>	Feet		* D.K. 11/9/20		
	Static water level measurement before purging		<u>77.97</u>	Feet				
	Static water level measurement at time of sampling		<u>77.97</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>11/11/20</u>		Water Column	<u>7.5</u>	Feet		
	Time Purged	<u>0910 - 0937</u>		One Casing Volume	<u>1.22</u>	Gallons		
	Pump Rate	<u>0.15</u>	GPM/LPM	Volume Purged	<u>4.05</u>	Gallons		

Field Sampling Data	Date Sampled	<u>11/11/20</u>	Field Parameter Measurements of Sample			
	Time Sampled	<u>0940</u>	pH	<u>7.4</u> (units)	D.O.	<u>7.2</u> (mg/l)
	Sampling Equip.	<u>Pump +</u>	Spec. Cond.	<u>730</u> (umhos/cm)	Turbidity	<u>1.1</u> (NTU)
	Meter ID	<u>MPS-7</u>	Temp.	<u>9.0</u> (°C)	Eh	<u>192</u> (mV)
	Analyzed by	<u>RJS</u>	Other	<u>NA</u>		
	Field Measurements Temp. Corrected:		☒ Yes	☐ No	☐ NA	
	Sample for Soluble Metals Filtered in Field:		☐ Yes	☒ No	☐ NA	
	Weather Conditions During Sampling: <u>19°F, Sunny, 50-60 mph</u>					
	Sample Description: <u>clear no odor</u>					
	Observations: <u>none</u>					

Stabilization Test	Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	0919	7.3	730	9.1	7.2	NA	198	1.35
	0928	7.4	730	9.0	7.2	NA	195	2.70
	0937	7.4	730	9.0	7.2	NA	192	4.05

Samples chilled immediately after collection:	☒ Yes	☐ Other
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Form Revised: 09/27/2017

Name/Affiliation of Sampler(s):	<u>Riley Jacobson</u>	<u>Pace Analytical</u>
Lead Technician Signature:	<u>Riley Jr</u>	Date: <u>11/11/20</u>

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Xcel Energy</u>	Project <u>Sherida Ponds, Fall 2020</u>	Project No. <u>20-03972</u>
	Monitoring Point ID <u>P-156</u>	Labeled <u>812965</u>	
	Inside Diameter <u>2</u> (inches)	Key # <u>21012</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	Well depth <u>85.53</u> Feet	} 11/19/20 P.K.
	Static water level measurement before purging <u>77.04</u> Feet		
	Static water level measurement at time of sampling <u>77.04</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>11/11/20</u>	Water Column <u>8.49</u> Feet	
	Time Purged <u>0825-0846</u>	One Casing Volume <u>1.38</u> Gallons	
	Pump Rate <u>0.2</u> <u>GPM</u> / LPM	Volume Purged <u>4.2</u> Gallons	

Field Sampling Data	Date Sampled <u>11/11/20</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>0850</u>	pH <u>7.1</u> (units)	D.O. <u>8.0</u> (mg/l)
	Sampling Equip. <u>Pump</u>	Spec. Cond. <u>390</u> (umhos/cm)	Turbidity <u>0.9</u> (NTU)
	Meter ID <u>MPS-7</u>	Temp. <u>9.4</u> (°C)	Eh <u>199</u> (mV)
	Analyzed by <u>RJS</u>	Other <u>NA</u>	
	Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA		
	Sample for Soluble Metals Filtered in Field: ☐ Yes ☒ No ☐ NA		
	Weather Conditions During Sampling: <u>19°F, Sunny, SE @ 7MPH</u>		
	Sample Description: <u>clear no odor</u>		
	Observations: <u>none</u>		

Stabilization Test	Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	0832	7.0	400	9.3	8.3	NA	203	1.4
	0839	7.1	390	9.4	8.1	NA	201	2.8
	0846	7.1	390	9.4	8.0	NA	199	4.2

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 11/11/20

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>Nel Energy</u>		Project <u>Sherco Ponds, Fall 2020</u>		Project No. <u>20-03972</u>	
	Monitoring Point ID <u>P-157</u>		Labeled <u>812966</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						
Well depth <u>49.06</u> Feet						
Static water level measurement before purging <u>42.18</u> Feet						
Static water level measurement at time of sampling <u>42.18</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>11/9/2020</u> Water Column <u>6.88</u> Feet						
Time Purged <u>830 - 842</u> One Casing Volume <u>1.12</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>11/9/2020</u>		Field Parameter Measurements of Sample			
	Time Sampled <u>845</u>		pH <u>8.5</u> (units)		D.O. <u>8.3</u> (mg/l)	
	Sampling Equip. <u>Pump</u>		Spec. Cond. <u>550</u> (µmhos/cm)		Turbidity <u>1.2</u> (NTU)	
	Meter ID <u>MPS-8 TM-6</u>		Temp. <u>12.0</u> (°C)		Eh <u>187</u> (mV)	
Analyzed by <u>CSP</u>		Other <u>NA</u>				
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA						
Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA						
Weather Conditions During Sampling: <u>56°F overcast heavy rain wind SE @ 7 mph</u>						
Sample Description: <u>clear no odor</u>						
Observations: <u>NA</u>						

Stabilization Test	Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
	830	8.5	550	12.0	8.6	NA	185	1.2
	836	8.5	550	12.0	8.5	NA	186	2.4
	842	8.5	550	12.0	8.3	NA	187	3.6

Samples chilled immediately after collection:	☒ Yes ☐ Other
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Form Revised: 09/27/2017

Name/Affiliation of Sampler(s): Chris Pelosi Pace Analytical

Lead Technician Signature: [Signature] Date: 11/9/2020

Well Sampling Field Data Log Sheet

Well Description and Presampling Information	Client <u>NEL Energy</u>	Project <u>Shenandoah Ponds, Fall 2020</u>	Project No. <u>20-03972</u>
	Monitoring Point ID <u>P-158</u>	Labeled <u>812967</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			
Well depth <u>49.16</u> Feet		<u>(46.72 to top of pump)</u>	
Static water level measurement before purging <u>40.15</u> Feet		<u>(water level 11:20 AM)</u>	
Static water level measurement at time of sampling <u>40.15</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>11/10/2020</u>	Water Column <u>9.01</u> Feet		
Time Purged <u>815 - 839</u>	One Casing Volume <u>1.47</u> Gallons		
Pump Rate <u>0.2</u> GPM / LPM	Volume Purged <u>4.8</u> Gallons		

Field Sampling Data	Date Sampled <u>11/10/2020</u>	Field Parameter Measurements of Sample	
	Time Sampled <u>840</u>	pH <u>7.2</u> (units)	D.O. <u>9.1</u> (mg/l)
	Sampling Equip. <u>Pump</u>	Spec. Cond. <u>780</u> (µmhos/cm)	Turbidity <u>2.0</u> (NTU)
	Meter ID <u>MP58 / TM-6</u>	Temp. <u>7.6</u> (°C)	Eh <u>243</u> (mV)
Analyzed by <u>CLP</u>	Other <u>NA</u>		
Field Measurements Temp. Corrected: ☒ Yes ☐ No ☐ NA			
Sample for Soluble Metals Filtered in Field: ☐ Yes ☐ No ☒ NA			
Weather Conditions During Sampling: <u>27°F partly sunny and NW @ 10 mph</u>			
Sample Description: <u>clear no odor</u>			
Observations: <u>NA</u>			

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
823	7.2	780	7.6	9.1	NA	244	1.6
831	7.2	780	7.6	9.1	NA	243	3.2
839	7.2	780	7.6	9.1	NA	243	4.8

Samples chilled immediately after collection: ☒ Yes ☐ Other
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Form Revised: 09/27/2017

Name/Affiliation of Sampler(s): Chris Pelosi Pace Analytical

Lead Technician Signature: [Signature] Date: 11/10/2020



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

14 December 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Sherco BAP CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 11/11/2020 09:10-11/13/2020 09:10. 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	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFK0078-04	Water	11/10/2020 10:30	11/11/2020 9:10
P-23		MFK0078-05	Water	11/09/2020 10:20	11/11/2020 9:10
P-157		MFK0078-31	Water	11/09/2020 8:45	11/11/2020 9:10
P-158		MFK0078-32	Water	11/10/2020 8:40	11/11/2020 9:10
P-01A-1		MFK0098-01	Water	11/11/2020 14:55	11/13/2020 9:10
P-22		MFK0098-02	Water	11/11/2020 10:40	11/13/2020 9:10
P-152a		MFK0098-09	Water	11/12/2020 15:10	11/13/2020 9:10
P-155		MFK0098-12	Water	11/11/2020 9:40	11/13/2020 9:10
P-156		MFK0098-13	Water	11/11/2020 8:50	11/13/2020 9:10
Duplicate CCR-BAP		MFK0098-18	Water	11/12/2020 15:10	11/13/2020 9:10
Rinse CCR-BAP		MFK0098-19	Water	11/12/2020 15:15	11/13/2020 9:10

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

P-17

MFK0078-04 (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	21.8	1.00	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 15:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 15:44	EPA 300.0	CRL
Sulfate	22.7	1.00	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 15:44	EPA 300.0	CRL

Wet Chemistry

pH	7.88		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 11:58	SM 4500-H+ B	CRL
Total Dissolved Solids	298	25.0	mg/L		1	BFK0214	11/12/20 9:02	11/12/20 9:02	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0213	11/12/20 7:09	11/12/20 7:09	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:46	EPA 200.8	CRL
Barium	41.3	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:46	EPA 200.8	CRL
Chromium	1.05	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:46	EPA 200.8	CRL
Selenium	0.532	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:46	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:02	EPA 200.7	HRD
Calcium	76.8	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:01	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:01	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0078-05 (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	26.7	1.00	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 16:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 16:05	EPA 300.0	CRL
Sulfate	199	1.00	mg/L		1	BFK0212	11/11/20 11:40	11/11/20 16:05	EPA 300.0	CRL

Wet Chemistry

pH	7.73		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 12:04	SM 4500-H+ B	CRL
Total Dissolved Solids	562	25.0	mg/L		1	BFK0214	11/12/20 9:02	11/12/20 9:02	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0213	11/12/20 7:09	11/12/20 7:09	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.542	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:50	EPA 200.8	CRL
Barium	83.2	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:50	EPA 200.8	CRL
Chromium	1.06	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:50	EPA 200.8	CRL
Selenium	1.96	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:50	EPA 200.8	CRL

Total Metals by ICP

Boron	0.293	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:08	EPA 200.7	HRD
Calcium	118	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:06	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:06	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0078-31 (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	6.90	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:25	EPA 300.0	CRL
Sulfate	72.1	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:25	EPA 300.0	CRL

Wet Chemistry

pH	7.77		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:26	SM 4500-H+ B	CRL
Total Dissolved Solids	370	25.0	mg/L		1	BFK0285	11/14/20 9:12	11/14/20 9:12	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0284	11/14/20 7:01	11/14/20 7:01	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:54	EPA 200.8	CRL
Barium	54.4	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:54	EPA 200.8	CRL
Chromium	1.30	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:54	EPA 200.8	CRL
Selenium	2.23	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 8:54	EPA 200.8	CRL

Total Metals by ICP

Boron	0.199	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:13	EPA 200.7	HRD
Calcium	95.1	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:11	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:11	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0078-32 (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	4.68	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:46	EPA 300.0	CRL
Sulfate	229	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 16:46	EPA 300.0	CRL

Wet Chemistry

pH	7.79		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:29	SM 4500-H+ B	CRL
Total Dissolved Solids	602	25.0	mg/L		1	BFK0285	11/14/20 9:12	11/14/20 9:12	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0284	11/14/20 7:01	11/14/20 7:01	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.531	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 9:06	EPA 200.8	CRL
Barium	93.0	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 9:06	EPA 200.8	CRL
Chromium	1.31	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 9:06	EPA 200.8	CRL
Selenium	2.80	0.500	ug/L		1	BFK0230	11/12/20 7:52	11/16/20 9:06	EPA 200.8	CRL

Total Metals by ICP

Boron	1.29	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:18	EPA 200.7	HRD
Calcium	148	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:16	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:16	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

P-01A-1

MFK0098-01 (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	14.2	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:15	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:15	EPA 300.0	CRL
Sulfate	142	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:15	EPA 300.0	CRL

Wet Chemistry

pH	8.55		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 9:02	SM 4500-H+ B	CRL
Total Dissolved Solids	438	25.0	mg/L		1	BFK0310	11/16/20 8:57	11/16/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0309	11/16/20 6:49	11/16/20 6:49	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.512	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:55	EPA 200.8	CRL
Barium	49.2	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:55	EPA 200.8	CRL
Chromium	0.920	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:55	EPA 200.8	CRL
Selenium	10.4	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:55	EPA 200.8	CRL

Total Metals by ICP

Boron	0.815	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:10	EPA 200.7	HRD
Calcium	92.3	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:08	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		12/14/2020 11:10
Minneapolis MN, 55401	Project Manager: Eric Ealy	

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MFK0098-02 (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	15.6	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:36	EPA 300.0	CRL
Sulfate	120	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 14:36	EPA 300.0	CRL

Wet Chemistry

pH	8.29		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 9:09	SM 4500-H+ B	CRL
Total Dissolved Solids	454	25.0	mg/L		1	BFK0310	11/16/20 8:57	11/16/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0309	11/16/20 6:49	11/16/20 6:49	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:59	EPA 200.8	CRL
Barium	60.2	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:59	EPA 200.8	CRL
Chromium	0.989	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:59	EPA 200.8	CRL
Selenium	11.3	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 9:59	EPA 200.8	CRL

Total Metals by ICP

Boron	0.832	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:15	EPA 200.7	HRD
Calcium	89.6	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:13	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:14	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0098-09 (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	BFK0267	11/13/20 10:00	11/13/20 18:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 18:41	EPA 300.0	CRL
Sulfate	7.67	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 18:41	EPA 300.0	CRL

Wet Chemistry

pH	8.39		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 9:46	SM 4500-H+ B	CRL
Total Dissolved Solids	234	25.0	mg/L		1	BFK0317	11/17/20 8:56	11/17/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0316	11/17/20 6:47	11/17/20 6:47	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.503	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:30	EPA 200.8	CRL
Barium	37.6	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:30	EPA 200.8	CRL
Chromium	0.830	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:30	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:30	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:58	EPA 200.7	HRD
Calcium	55.9	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:56	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 14:56	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0098-12 (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	19.4	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 19:42	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 19:42	EPA 300.0	CRL
Sulfate	167	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 19:42	EPA 300.0	CRL

Wet Chemistry

pH	8.27		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:05	SM 4500-H+ B	CRL
Total Dissolved Solids	510	25.0	mg/L		1	BFK0317	11/17/20 8:56	11/17/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0316	11/17/20 6:47	11/17/20 6:47	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:42	EPA 200.8	CRL
Barium	63.3	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:42	EPA 200.8	CRL
Chromium	1.02	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:42	EPA 200.8	CRL
Selenium	5.07	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:42	EPA 200.8	CRL

Total Metals by ICP

Boron	1.61	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:12	EPA 200.7	HRD
Calcium	91.7	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:11	EPA 200.7	HRD
Lithium	0.0306	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:11	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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MFK0098-13 (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	2.39	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 20:02	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 20:02	EPA 300.0	CRL
Sulfate	19.1	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 20:02	EPA 300.0	CRL

Wet Chemistry

pH	8.32		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:08	SM 4500-H+ B	CRL
Total Dissolved Solids	254	25.0	mg/L		1	BFK0317	11/17/20 8:56	11/17/20 8:56	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0316	11/17/20 6:47	11/17/20 6:47	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	0.554	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:46	EPA 200.8	CRL
Barium	52.1	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:46	EPA 200.8	CRL
Chromium	0.900	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:46	EPA 200.8	CRL
Selenium	2.60	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 10:46	EPA 200.8	CRL

Total Metals by ICP

Boron	0.118	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/25/20 14:32	EPA 200.7	HRD
Calcium	61.9	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/25/20 14:30	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/25/20 14:30	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

Duplicate CCR-BAP
MFK0098-18 (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	BFK0267	11/13/20 10:00	11/13/20 23:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 23:26	EPA 300.0	CRL
Sulfate	7.68	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 23:26	EPA 300.0	CRL

Wet Chemistry

pH	8.37		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:26	SM 4500-H+ B	CRL
Total Dissolved Solids	220	25.0	mg/L		1	BFK0342	11/18/20 8:57	11/18/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0341	11/18/20 7:00	11/18/20 7:00	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:05	EPA 200.8	CRL
Barium	38.4	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:05	EPA 200.8	CRL
Chromium	0.666	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:05	EPA 200.8	CRL
Selenium	0.593	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:05	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:53	EPA 200.7	HRD
Calcium	59.6	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:52	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:52	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

Rinse CCR-BAP
MFK0098-19 (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	BFK0267	11/13/20 10:00	11/13/20 23:47	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 23:47	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/13/20 23:47	EPA 300.0	CRL

Wet Chemistry

pH	6.48		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:29	SM 4500-H+ B	CRL
Total Dissolved Solids	< 25.0	25.0	mg/L		1	BFK0342	11/18/20 8:57	11/18/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0341	11/18/20 7:00	11/18/20 7:00	SM 2540D	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:09	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:09	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:09	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFK0304	11/14/20 8:34	11/18/20 11:09	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 16:00	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:57	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 15:57	EPA 200.7	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0212 - Wet Prep

Blank (BKF0212-BLK1)				Prepared & Analyzed: 11/11/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BKF0212-BLK2)				Prepared & Analyzed: 11/11/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BKF0212-BS1)				Prepared & Analyzed: 11/11/2020						
Chloride	24.621	1.00	mg/L	25.000		98.5	90-110			
Fluoride	2.4730	0.750	mg/L	2.5000		98.9	90-110			
Sulfate	48.055	1.00	mg/L	50.000		96.1	90-110			

LCS (BKF0212-BS2)				Prepared & Analyzed: 11/11/2020						
Chloride	25.500	1.00	mg/L	25.000		102	90-110			
Fluoride	2.5510	0.750	mg/L	2.5000		102	90-110			
Sulfate	49.794	1.00	mg/L	50.000		99.6	90-110			

LCS (BKF0212-BS3)				Prepared & Analyzed: 11/11/2020						
Chloride	24.696	1.00	mg/L	25.000		98.8	90-110			
Fluoride	2.4450	0.750	mg/L	2.5000		97.8	90-110			
Sulfate	48.089	1.00	mg/L	50.000		96.2	90-110			

Duplicate (BKF0212-DUP1)				Source: MFK0078-01		Prepared & Analyzed: 11/11/2020				
Chloride	10.935	1.00	mg/L		10.608			3.04	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	96.527	1.00	mg/L		94.143			2.50	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		12/14/2020 11:10
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 BFK0212 - Wet Prep

Duplicate (BFK0212-DUP2)	Source: MFK0078-02			Prepared & Analyzed: 11/11/2020						
Chloride	49.784	1.00	mg/L		49.904			0.241	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	500.88	1.00	mg/L		504.53			0.726	20	

Matrix Spike (BFK0212-MS1)	Source: MFK0078-01			Prepared & Analyzed: 11/11/2020						
Chloride	41.300	1.25	mg/L	31.250	10.608	98.2	90-110			
Fluoride	2.5450	0.938	mg/L	3.1250	<0.938	81.4	90-110			M_MS
Sulfate	153.50	1.25	mg/L	62.500	94.143	95.0	90-110			

Matrix Spike (BFK0212-MS2)	Source: MFK0078-02			Prepared & Analyzed: 11/11/2020						
Chloride	81.549	1.25	mg/L	31.250	49.904	101	90-110			
Fluoride	2.9113	0.938	mg/L	3.1250	<0.938	93.2	90-110			
Sulfate	567.12	1.25	mg/L	62.500	504.53	100	90-110			

Matrix Spike Dup (BFK0212-MSD1)	Source: MFK0078-01			Prepared & Analyzed: 11/11/2020						
Chloride	42.456	1.25	mg/L	31.250	10.608	102	90-110	2.76	20	
Fluoride	3.2125	0.938	mg/L	3.1250	<0.938	103	90-110	23.2	20	M_MS
Sulfate	158.14	1.25	mg/L	62.500	94.143	102	90-110	2.98	20	

Matrix Spike Dup (BFK0212-MSD2)	Source: MFK0078-02			Prepared & Analyzed: 11/11/2020						
Chloride	80.650	1.25	mg/L	31.250	49.904	98.4	90-110	1.11	20	
Fluoride	3.1625	0.938	mg/L	3.1250	<0.938	101	90-110	8.27	20	
Sulfate	562.00	1.25	mg/L	62.500	504.53	92.0	90-110	0.907	20	

Batch BFK0232 - Wet Prep

Blank (BFK0232-BLK1)	Prepared & Analyzed: 11/12/2020									
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	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0232 - Wet Prep

Blank (BFK0232-BLK2)				Prepared & Analyzed: 11/12/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BFK0232-BS1)				Prepared & Analyzed: 11/12/2020						
Chloride	24.640	1.00	mg/L	25.000		98.6	90-110			
Fluoride	2.3150	0.750	mg/L	2.5000		92.6	90-110			
Sulfate	47.724	1.00	mg/L	50.000		95.4	90-110			

LCS (BFK0232-BS2)				Prepared & Analyzed: 11/12/2020						
Chloride	25.193	1.00	mg/L	25.000		101	90-110			
Fluoride	2.3750	0.750	mg/L	2.5000		95.0	90-110			
Sulfate	48.963	1.00	mg/L	50.000		97.9	90-110			

LCS (BFK0232-BS3)				Prepared & Analyzed: 11/12/2020						
Chloride	25.516	1.00	mg/L	25.000		102	90-110			
Fluoride	2.3990	0.750	mg/L	2.5000		96.0	90-110			
Sulfate	49.708	1.00	mg/L	50.000		99.4	90-110			

Duplicate (BFK0232-DUP1)				Source: MFK0078-20		Prepared & Analyzed: 11/12/2020				
Chloride	23.484	1.00	mg/L		23.668			0.780	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	46.978	1.00	mg/L		47.266			0.611	20	

Duplicate (BFK0232-DUP2)				Source: MFK0078-21		Prepared & Analyzed: 11/12/2020				
Chloride	25.276	1.00	mg/L		25.724			1.76	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	107.48	1.00	mg/L		109.59			1.95	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		12/14/2020 11:10
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 BFK0232 - Wet Prep

Matrix Spike (BFK0232-MS1)	Source: MFK0078-20	Prepared & Analyzed: 11/12/2020
Chloride	53.866 1.25 mg/L	31.250 23.668 96.6 90-110
Fluoride	2.9713 0.938 mg/L	3.1250 <0.938 95.1 90-110
Sulfate	105.43 1.25 mg/L	62.500 47.266 93.1 90-110

Matrix Spike (BFK0232-MS2)	Source: MFK0078-21	Prepared & Analyzed: 11/12/2020
Chloride	55.374 1.25 mg/L	31.250 25.724 94.9 90-110
Fluoride	2.9938 0.938 mg/L	3.1250 <0.938 95.8 90-110
Sulfate	163.82 1.25 mg/L	62.500 109.59 86.8 90-110

M_MS

Matrix Spike Dup (BFK0232-MSD1)	Source: MFK0078-20	Prepared & Analyzed: 11/12/2020
Chloride	54.591 1.25 mg/L	31.250 23.668 99.0 90-110 1.34 20
Fluoride	2.9388 0.938 mg/L	3.1250 <0.938 94.0 90-110 1.10 20
Sulfate	106.65 1.25 mg/L	62.500 47.266 95.0 90-110 1.15 20

Matrix Spike Dup (BFK0232-MSD2)	Source: MFK0078-21	Prepared & Analyzed: 11/12/2020
Chloride	57.161 1.25 mg/L	31.250 25.724 101 90-110 3.18 20
Fluoride	3.0050 0.938 mg/L	3.1250 <0.938 96.2 90-110 0.375 20
Sulfate	168.74 1.25 mg/L	62.500 109.59 94.6 90-110 2.96 20

Batch BFK0267 - Wet Prep

Blank (BFK0267-BLK1)	Prepared & Analyzed: 11/13/2020
Chloride	<1.00 1.00 mg/L
Fluoride	<0.750 0.750 mg/L
Sulfate	<1.00 1.00 mg/L

Blank (BFK0267-BLK2)	Prepared & Analyzed: 11/13/2020
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:
250 Marquette Plaza		12/14/2020 11:10
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 BFK0267 - Wet Prep

Blank (BFK0267-BLK3)				Prepared & Analyzed: 11/13/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BFK0267-BS1)				Prepared & Analyzed: 11/13/2020						
Chloride	25.539	1.00	mg/L	25.000		102	90-110			
Fluoride	2.2620	0.750	mg/L	2.5000		90.5	90-110			
Sulfate	49.684	1.00	mg/L	50.000		99.4	90-110			

LCS (BFK0267-BS2)				Prepared & Analyzed: 11/13/2020						
Chloride	25.855	1.00	mg/L	25.000		103	90-110			
Fluoride	2.4070	0.750	mg/L	2.5000		96.3	90-110			
Sulfate	50.455	1.00	mg/L	50.000		101	90-110			

LCS (BFK0267-BS3)				Prepared & Analyzed: 11/13/2020						
Chloride	25.525	1.00	mg/L	25.000		102	90-110			
Fluoride	2.3400	0.750	mg/L	2.5000		93.6	90-110			
Sulfate	49.719	1.00	mg/L	50.000		99.4	90-110			

LCS (BFK0267-BS4)				Prepared: 11/13/2020 Analyzed: 11/14/2020						
Chloride	25.532	1.00	mg/L	25.000		102	90-110			
Fluoride	2.3630	0.750	mg/L	2.5000		94.5	90-110			
Sulfate	49.713	1.00	mg/L	50.000		99.4	90-110			

Duplicate (BFK0267-DUP1)				Source: MFK0078-42		Prepared & Analyzed: 11/13/2020				
Chloride	25.792	1.00	mg/L		25.801			0.0349	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	110.76	1.00	mg/L		110.09			0.608	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	Reported:
250 Marquette Plaza		12/14/2020 11:10
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 BFK0267 - Wet Prep

Duplicate (BFK0267-DUP2)		Source: MFK0098-04		Prepared & Analyzed: 11/13/2020						
Chloride	0.69600	1.00	mg/L		0.71900			3.25	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	11.337	1.00	mg/L		11.275			0.548	20	

Duplicate (BFK0267-DUP3)		Source: MFK0098-24		Prepared & Analyzed: 11/13/2020						
Chloride	0.66300	1.00	mg/L		0.68500			3.26	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	10.459	1.00	mg/L		10.440			0.182	20	

Matrix Spike (BFK0267-MS1)		Source: MFK0078-42		Prepared & Analyzed: 11/13/2020						
Chloride	57.275	1.25	mg/L	31.250	25.801	101	90-110			
Fluoride	2.7988	0.938	mg/L	3.1250	<0.938	89.6	90-110			
Sulfate	170.60	1.25	mg/L	62.500	110.09	96.8	90-110			

Matrix Spike (BFK0267-MS2)		Source: MFK0098-04		Prepared & Analyzed: 11/13/2020						
Chloride	32.115	1.25	mg/L	31.250	0.71900	100	90-110			
Fluoride	2.8975	0.938	mg/L	3.1250	<0.938	92.7	90-110			
Sulfate	72.685	1.25	mg/L	62.500	11.275	98.3	90-110			

Matrix Spike (BFK0267-MS3)		Source: MFK0098-24		Prepared & Analyzed: 11/13/2020						
Chloride	31.748	1.25	mg/L	31.250	0.68500	99.4	90-110			
Fluoride	2.8975	0.938	mg/L	3.1250	<0.938	92.7	90-110			
Sulfate	71.195	1.25	mg/L	62.500	10.440	97.2	90-110			

Matrix Spike Dup (BFK0267-MSD1)		Source: MFK0078-42		Prepared & Analyzed: 11/13/2020						
Chloride	57.231	1.25	mg/L	31.250	25.801	101	90-110	0.0764	20	
Fluoride	2.9125	0.938	mg/L	3.1250	<0.938	93.2	90-110	3.98	20	
Sulfate	169.94	1.25	mg/L	62.500	110.09	95.8	90-110	0.386	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0267 - Wet Prep

Matrix Spike Dup (BKF0267-MSD2)			Source: MFK0098-04		Prepared & Analyzed: 11/13/2020					
Chloride	31.351	1.25	mg/L	31.250	0.71900	98.0	90-110	2.41	20	
Fluoride	2.8488	0.938	mg/L	3.1250	<0.938	91.2	90-110	1.70	20	
Sulfate	71.174	1.25	mg/L	62.500	11.275	95.8	90-110	2.10	20	
Matrix Spike Dup (BKF0267-MSD3)			Source: MFK0098-24		Prepared & Analyzed: 11/13/2020					
Chloride	31.591	1.25	mg/L	31.250	0.68500	98.9	90-110	0.493	20	
Fluoride	2.8975	0.938	mg/L	3.1250	<0.938	92.7	90-110	0.00	20	
Sulfate	71.058	1.25	mg/L	62.500	10.440	97.0	90-110	0.193	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0200 - Wet Prep

LCS (BFK0200-BS1)		Prepared & Analyzed: 11/11/2020								
pH	3.9800		pH Units	7.0000		56.9	90-110			
LCS (BFK0200-BS2)		Prepared & Analyzed: 11/11/2020								
pH	4.0000		pH Units	7.0000		57.1	90-110			
Duplicate (BFK0200-DUP1)		Source: MFK0078-01		Prepared & Analyzed: 11/11/2020						
pH	7.5800		pH Units		7.5800			0.00	20	
Duplicate (BFK0200-DUP2)		Source: MFK0078-11		Prepared & Analyzed: 11/11/2020						
pH	7.6100		pH Units		7.6100			0.00	20	
Duplicate (BFK0200-DUP3)		Source: MFK0078-21		Prepared & Analyzed: 11/11/2020						
pH	7.7100		pH Units		7.7200			0.130	20	
Duplicate (BFK0200-DUP4)		Source: MFK0078-31		Prepared & Analyzed: 11/11/2020						
pH	7.7600		pH Units		7.7700			0.129	20	

Batch BFK0213 - Wet Prep

Blank (BFK0213-BLK1)		Prepared & Analyzed: 11/12/2020								
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BFK0213-BS1)		Prepared & Analyzed: 11/12/2020								
Total Suspended Solids	90.000	5.00	mg/L	100.01		90.0	70-130			
Duplicate (BFK0213-DUP1)		Source: MFK0078-03		Prepared & Analyzed: 11/12/2020						
Total Suspended Solids	488.00	50.0	mg/L		512.00			4.80	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0213 - Wet Prep

Duplicate (BFK0213-DUP2)		Source: MFK0078-06		Prepared & Analyzed: 11/12/2020			
Total Suspended Solids	1408.0	25.0	mg/L	1354.0	3.91	20	

Batch BFK0214 - Wet Prep

Blank (BFK0214-BLK1)				Prepared & Analyzed: 11/12/2020			
Total Dissolved Solids	<25.0	25.0	mg/L				

LCS (BFK0214-BS1)				Prepared & Analyzed: 11/12/2020		
Total Dissolved Solids	54.000	25.0	mg/L	50.030	108	70-130

Duplicate (BFK0214-DUP1)		Source: MFK0078-03		Prepared & Analyzed: 11/12/2020			
Total Dissolved Solids	1430.0	25.0	mg/L	1408.0	1.55	20	

Duplicate (BFK0214-DUP2)		Source: MFK0078-06		Prepared & Analyzed: 11/12/2020			
Total Dissolved Solids	240.00	25.0	mg/L	230.00	4.26	20	

Batch BFK0248 - Wet Prep

Blank (BFK0248-BLK1)			Prepared & Analyzed: 11/13/2020		
Total Suspended Solids	<5.00	5.00	mg/L		

LCS (BFK0248-BS1)				Prepared & Analyzed: 11/13/2020			
Total Suspended Solids	86.000	5.00	mg/L	100.01	86.0	70-130	

Duplicate (BFK0248-DUP1)		Source: MFK0078-13		Prepared & Analyzed: 11/13/2020			
Total Suspended Solids	189.50	12.5	mg/L	194.50	2.60	20	

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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0248 - Wet Prep

Duplicate (BFK0248-DUP2)		Source: MFK0078-14		Prepared & Analyzed: 11/13/2020			
Total Suspended Solids	41.714	7.14	mg/L	39.143	6.36	20	

Batch BFK0249 - Wet Prep

Blank (BFK0249-BLK1)				Prepared & Analyzed: 11/13/2020			
Total Dissolved Solids	<25.0	25.0	mg/L				

LCS (BFK0249-BS1)				Prepared & Analyzed: 11/13/2020		
Total Dissolved Solids	52.000	25.0	mg/L	50.030	104	70-130

Duplicate (BFK0249-DUP1)		Source: MFK0078-13		Prepared & Analyzed: 11/13/2020			
Total Dissolved Solids	296.00	25.0	mg/L	330.00	10.9	20	

Duplicate (BFK0249-DUP2)		Source: MFK0078-14		Prepared & Analyzed: 11/13/2020			
Total Dissolved Solids	332.00	25.0	mg/L	354.00	6.41	20	

Batch BFK0266 - Wet Prep

LCS (BFK0266-BS1)				Prepared: 11/13/2020 Analyzed: 11/16/2020			
pH	4.1000	pH Units	7.0000	58.6	90-110		

LCS (BFK0266-BS2)				Prepared: 11/13/2020 Analyzed: 11/16/2020			
pH	4.1100	pH Units	7.0000	58.7	90-110		

Duplicate (BFK0266-DUP1)		Source: MFK0078-41		Prepared: 11/13/2020 Analyzed: 11/16/2020	
pH	8.5200	pH Units	8.5300	0.117	20

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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0266 - Wet Prep

Duplicate (BFK0266-DUP2)	Source: MFK0098-01		Prepared: 11/13/2020 Analyzed: 11/16/2020							
pH	8.5400		pH Units		8.5500			0.117	20	
Duplicate (BFK0266-DUP3)	Source: MFK0098-11		Prepared: 11/13/2020 Analyzed: 11/16/2020							
pH	8.2700		pH Units		8.2700			0.00	20	

Batch BFK0284 - Wet Prep

Blank (BFK0284-BLK1)	Prepared & Analyzed: 11/14/2020									
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BFK0284-BS1)	Prepared & Analyzed: 11/14/2020									
Total Suspended Solids	86.000	5.00	mg/L	100.01		86.0	70-130			
Duplicate (BFK0284-DUP1)	Source: MFK0078-24		Prepared & Analyzed: 11/14/2020							
Total Suspended Solids	75.667	8.33	mg/L		69.333			8.74	20	

Batch BFK0285 - Wet Prep

Blank (BFK0285-BLK1)	Prepared & Analyzed: 11/14/2020									
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BFK0285-BS1)	Prepared & Analyzed: 11/14/2020									
Total Dissolved Solids	40.000	25.0	mg/L	50.030		80.0	70-130			
Duplicate (BFK0285-DUP1)	Source: MFK0078-24		Prepared & Analyzed: 11/14/2020							
Total Dissolved Solids	906.00	25.0	mg/L		918.00			1.32	20	

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250 Marquette Plaza		Reported:
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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 BFK0307 - Wet Prep

Blank (BFK0307-BLK1)				Prepared & Analyzed: 11/15/2020						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BFK0307-BS1)				Prepared & Analyzed: 11/15/2020						
Total Suspended Solids	84.000	5.00	mg/L	100.01		84.0	70-130			
Duplicate (BFK0307-DUP1)				Source: MFK0078-35		Prepared & Analyzed: 11/15/2020				
Total Suspended Solids	208.00	25.0	mg/L		199.00			4.42	20	

Batch BFK0308 - Wet Prep

Blank (BFK0308-BLK1)				Prepared & Analyzed: 11/15/2020						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BFK0308-BS1)				Prepared & Analyzed: 11/15/2020						
Total Dissolved Solids	58.000	25.0	mg/L	50.030		116	70-130			
Duplicate (BFK0308-DUP1)				Source: MFK0078-35		Prepared & Analyzed: 11/15/2020				
Total Dissolved Solids	312.00	25.0	mg/L		294.00			5.94	20	

Batch BFK0309 - Wet Prep

Blank (BFK0309-BLK1)				Prepared & Analyzed: 11/16/2020						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BFK0309-BS1)				Prepared & Analyzed: 11/16/2020						
Total Suspended Solids	84.000	5.00	mg/L	100.01		84.0	70-130			

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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0309 - Wet Prep

Duplicate (BFK0309-DUP1)		Source: MFK0098-08		Prepared & Analyzed: 11/16/2020			
Total Suspended Solids	26.667	8.33	mg/L	27.143	1.77	20	

Batch BFK0310 - Wet Prep

Blank (BFK0310-BLK1)				Prepared & Analyzed: 11/16/2020			
Total Dissolved Solids	<25.0	25.0	mg/L				
LCS (BFK0310-BS1)				Prepared & Analyzed: 11/16/2020			
Total Dissolved Solids	46.000	25.0	mg/L	50.030	91.9	70-130	
Duplicate (BFK0310-DUP1)		Source: MFK0098-08		Prepared & Analyzed: 11/16/2020			
Total Dissolved Solids	188.00	25.0	mg/L	182.00	3.24	20	

Batch BFK0316 - Wet Prep

Blank (BFK0316-BLK1)				Prepared & Analyzed: 11/17/2020			
Total Suspended Solids	<5.00	5.00	mg/L				
LCS (BFK0316-BS1)				Prepared & Analyzed: 11/17/2020			
Total Suspended Solids	84.000	5.00	mg/L	100.01	84.0	70-130	
Duplicate (BFK0316-DUP1)		Source: MFK0098-24		Prepared & Analyzed: 11/17/2020			
Total Suspended Solids	40.333	8.33	mg/L	37.500	7.28	20	

Batch BFK0317 - Wet Prep

Blank (BFK0317-BLK1)				Prepared & Analyzed: 11/17/2020			
Total Dissolved Solids	<25.0	25.0	mg/L				

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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 BFK0317 - Wet Prep

LCS (BKF0317-BS1)				Prepared & Analyzed: 11/17/2020						
Total Dissolved Solids	48.000	25.0	mg/L	50.030		95.9	70-130			
Duplicate (BKF0317-DUP1)				Source: MFK0098-24		Prepared & Analyzed: 11/17/2020				
Total Dissolved Solids	274.00	25.0	mg/L		250.00			9.16	20	

Batch BFK0341 - Wet Prep

Blank (BKF0341-BLK1)				Prepared & Analyzed: 11/18/2020						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BKF0341-BS1)				Prepared & Analyzed: 11/18/2020						
Total Suspended Solids	86.000	5.00	mg/L	100.01		86.0	70-130			
Duplicate (BKF0341-DUP1)				Source: MFK0121-01		Prepared & Analyzed: 11/18/2020				
Total Suspended Solids	9.5000	12.5	mg/L		11.200			16.4	20	
Duplicate (BKF0341-DUP2)				Source: MFK0120-04		Prepared & Analyzed: 11/18/2020				
Total Suspended Solids	6.8817	5.38	mg/L		7.4000			7.26	20	

Batch BFK0342 - Wet Prep

Blank (BKF0342-BLK1)				Prepared & Analyzed: 11/18/2020						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BKF0342-BS1)				Prepared & Analyzed: 11/18/2020						
Total Dissolved Solids	62.000	25.0	mg/L	50.030		124	70-130			

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Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0342 - Wet Prep

Duplicate (BFK0342-DUP1)	Source: MFK0121-01		Prepared & Analyzed: 11/18/2020							
Total Dissolved Solids	522.00	25.0	mg/L		524.00			0.382	20	

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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 BFK0230 - EPA 200.2, EPA 3005

Blank (BFK0230-BLK1)

Prepared: 11/12/2020 Analyzed: 11/16/2020

Arsenic	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							

LCS (BFK0230-BS1)

Prepared: 11/12/2020 Analyzed: 11/16/2020

Arsenic	102.03	0.500	ug/L	100.00		102	85-115			
Barium	99.979	0.500	ug/L	100.00		100	85-115			
Selenium	100.27	0.500	ug/L	100.00		100	85-115			
Chromium	99.454	0.500	ug/L	100.00		99.5	85-115			

Duplicate (BFK0230-DUP1)

Source: MFK0078-04

Prepared: 11/12/2020 Analyzed: 11/16/2020

Selenium	0.54227	0.500	ug/L		0.53157			1.99	20	
Chromium	0.93139	0.500	ug/L		1.0523			12.2	20	
Barium	40.462	0.500	ug/L		41.290			2.03	20	
Arsenic	0.42457	0.500	ug/L		0.46976			10.1	20	

Matrix Spike (BFK0230-MS1)

Source: MFK0078-04

Prepared: 11/12/2020 Analyzed: 11/16/2020

Barium	139.21	0.500	ug/L	100.00	41.290	97.9	75-125			
Selenium	103.89	0.500	ug/L	100.00	0.53157	103	75-125			
Chromium	103.53	0.500	ug/L	100.00	1.0523	102	75-125			
Arsenic	103.29	0.500	ug/L	100.00	0.46976	103	75-125			

Matrix Spike Dup (BFK0230-MSD1)

Source: MFK0078-04

Prepared: 11/12/2020 Analyzed: 11/16/2020

Chromium	103.49	0.500	ug/L	100.00	1.0523	102	75-125	0.0371	20	
Arsenic	108.82	0.500	ug/L	100.00	0.46976	108	75-125	5.22	20	
Barium	145.18	0.500	ug/L	100.00	41.290	104	75-125	4.20	20	
Selenium	103.18	0.500	ug/L	100.00	0.53157	103	75-125	0.679	20	

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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 BFK0304 - EPA 200.2, EPA 3005

Blank (BFK0304-BLK1)				Prepared: 11/14/2020 Analyzed: 11/18/2020						
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							

LCS (BFK0304-BS1)				Prepared: 11/14/2020 Analyzed: 11/18/2020						
Chromium	100.80	0.500	ug/L	100.00		101	85-115			
Selenium	98.245	0.500	ug/L	100.00		98.2	85-115			
Arsenic	97.317	0.500	ug/L	100.00		97.3	85-115			
Barium	100.61	0.500	ug/L	100.00		101	85-115			

Duplicate (BFK0304-DUP1)				Source: MFK0098-04		Prepared: 11/14/2020 Analyzed: 11/18/2020				
Selenium	<0.500	0.500	ug/L		0.31564				20	
Chromium	1.1103	0.500	ug/L		1.0496			5.62	20	
Barium	91.047	0.500	ug/L		95.064			4.32	20	
Arsenic	0.53911	0.500	ug/L		0.49949			7.63	20	

Duplicate (BFK0304-DUP2)				Source: MFK0098-05		Prepared: 11/14/2020 Analyzed: 11/18/2020				
Arsenic	0.65263	0.500	ug/L		0.69805			6.73	20	
Barium	71.333	0.500	ug/L		73.059			2.39	20	
Chromium	0.65645	0.500	ug/L		0.74884			13.2	20	
Selenium	0.47288	0.500	ug/L		0.56431			17.6	20	

Matrix Spike (BFK0304-MS1)				Source: MFK0098-04		Prepared: 11/14/2020 Analyzed: 11/18/2020				
Arsenic	103.31	0.500	ug/L	100.00	0.49949	103	75-125			
Selenium	104.86	0.500	ug/L	100.00	0.31564	105	75-125			
Chromium	102.62	0.500	ug/L	100.00	1.0496	102	75-125			
Barium	202.59	0.500	ug/L	100.00	95.064	108	75-125			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
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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 BFK0304 - EPA 200.2, EPA 3005

Matrix Spike (BKF0304-MS2)		Source: MFK0098-05		Prepared: 11/14/2020 Analyzed: 11/18/2020						
Selenium	104.89	0.500	ug/L	100.00	0.56431	104	75-125			
Arsenic	101.79	0.500	ug/L	100.00	0.69805	101	75-125			
Barium	173.06	0.500	ug/L	100.00	73.059	100	75-125			
Chromium	98.684	0.500	ug/L	100.00	0.74884	97.9	75-125			

Matrix Spike Dup (BKF0304-MSD1)		Source: MFK0098-04		Prepared: 11/14/2020 Analyzed: 11/18/2020						
Arsenic	106.62	0.500	ug/L	100.00	0.49949	106	75-125	3.15	20	
Barium	203.25	0.500	ug/L	100.00	95.064	108	75-125	0.327	20	
Selenium	105.40	0.500	ug/L	100.00	0.31564	105	75-125	0.516	20	
Chromium	100.54	0.500	ug/L	100.00	1.0496	99.5	75-125	2.04	20	

Matrix Spike Dup (BKF0304-MSD2)		Source: MFK0098-05		Prepared: 11/14/2020 Analyzed: 11/18/2020						
Barium	176.04	0.500	ug/L	100.00	73.059	103	75-125	1.71	20	
Selenium	106.50	0.500	ug/L	100.00	0.56431	106	75-125	1.52	20	
Arsenic	104.08	0.500	ug/L	100.00	0.69805	103	75-125	2.22	20	
Chromium	103.68	0.500	ug/L	100.00	0.74884	103	75-125	4.94	20	

Batch BFK0306 - EPA 200.2, EPA 3005

Blank (BKF0306-BLK1)		Prepared: 11/14/2020 Analyzed: 11/19/2020								
Arsenic	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							

LCS (BKF0306-BS1)		Prepared: 11/14/2020 Analyzed: 11/19/2020								
Barium	99.307	0.500	ug/L	100.00		99.3	85-115			
Arsenic	98.153	0.500	ug/L	100.00		98.2	85-115			
Chromium	95.714	0.500	ug/L	100.00		95.7	85-115			
Selenium	97.562	0.500	ug/L	100.00		97.6	85-115			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
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Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0306 - EPA 200.2, EPA 3005

Duplicate (BFK0306-DUP1)		Source: MFK0098-17		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Selenium	0.96091	0.500	ug/L		0.91428			4.97	20	
Arsenic	0.56242	0.500	ug/L		0.61748			9.33	20	
Barium	41.055	0.500	ug/L		42.638			3.78	20	
Chromium	9.5596	0.500	ug/L		9.3479			2.24	20	

Matrix Spike (BFK0306-MS1)		Source: MFK0098-17		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Selenium	98.157	0.500	ug/L	100.00	0.91428	97.2	75-125			
Arsenic	102.64	0.500	ug/L	100.00	0.61748	102	75-125			
Barium	147.81	0.500	ug/L	100.00	42.638	105	75-125			
Chromium	102.78	0.500	ug/L	100.00	9.3479	93.4	75-125			

Matrix Spike Dup (BFK0306-MSD1)		Source: MFK0098-17		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Chromium	107.96	0.500	ug/L	100.00	9.3479	98.6	75-125	4.92	20	
Arsenic	103.39	0.500	ug/L	100.00	0.61748	103	75-125	0.730	20	
Selenium	105.30	0.500	ug/L	100.00	0.91428	104	75-125	7.02	20	
Barium	147.25	0.500	ug/L	100.00	42.638	105	75-125	0.385	20	

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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 BFK0229 - EPA 200.2, EPA 3005

Blank (BFK0229-BLK1)				Prepared: 11/12/2020 Analyzed: 11/16/2020						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							

LCS (BFK0229-BS1)				Prepared: 11/12/2020 Analyzed: 11/16/2020						
Calcium	102.97	1.25	mg/L	100.00		103	85-115			
Lithium	1.0070	0.0150	mg/L	1.0000		101	85-115			
Boron	0.98981	0.0500	mg/L	1.0000		99.0	85-115			

Duplicate (BFK0229-DUP1)				Source: MFK0076-01		Prepared: 11/12/2020 Analyzed: 11/16/2020				
Calcium	82.210	1.25	mg/L		78.158			5.05	20	
Lithium	0.019993	0.0150	mg/L		0.019376			3.14	20	
Boron	0.049098	0.0500	mg/L		0.041780			16.1	20	

Duplicate (BFK0229-DUP2)				Source: MFK0076-03		Prepared: 11/12/2020 Analyzed: 11/16/2020				
Boron	0.046468	0.0500	mg/L		0.039596			16.0	20	
Calcium	83.070	1.25	mg/L		78.243			5.98	20	
Lithium	0.019366	0.0150	mg/L		0.018441			4.89	20	

Matrix Spike (BFK0229-MS1)				Source: MFK0076-01		Prepared: 11/12/2020 Analyzed: 11/16/2020				
Calcium	181.63	1.25	mg/L	100.00	78.158	103	70-130			
Lithium	1.0195	0.0150	mg/L	1.0000	0.019376	100	70-130			
Boron	1.0861	0.0500	mg/L	1.0000	0.041780	104	70-130			

Matrix Spike (BFK0229-MS2)				Source: MFK0076-03		Prepared: 11/12/2020 Analyzed: 11/16/2020				
Lithium	1.0767	0.0150	mg/L	1.0000	0.018441	106	70-130			
Calcium	191.30	1.25	mg/L	100.00	78.243	113	70-130			
Boron	1.0777	0.0500	mg/L	1.0000	0.039596	104	70-130			

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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 BFK0229 - EPA 200.2, EPA 3005

Matrix Spike Dup (BKF0229-MSD1)		Source: MFK0076-01		Prepared: 11/12/2020 Analyzed: 11/16/2020						
Boron	1.1144	0.0500	mg/L	1.0000	0.041780	107	70-130	2.58	20	
Lithium	1.0765	0.0150	mg/L	1.0000	0.019376	106	70-130	5.44	20	
Calcium	192.21	1.25	mg/L	100.00	78.158	114	70-130	5.66	20	

Matrix Spike Dup (BKF0229-MSD2)		Source: MFK0076-03		Prepared: 11/12/2020 Analyzed: 11/16/2020						
Calcium	192.87	1.25	mg/L	100.00	78.243	115	70-130	0.816	20	
Boron	1.1203	0.0500	mg/L	1.0000	0.039596	108	70-130	3.87	20	
Lithium	1.0827	0.0150	mg/L	1.0000	0.018441	106	70-130	0.559	20	

Batch BFK0303 - EPA 200.2, EPA 3005

Blank (BKF0303-BLK1)		Prepared: 11/14/2020 Analyzed: 11/19/2020								
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							

LCS (BKF0303-BS1)		Prepared: 11/14/2020 Analyzed: 11/19/2020								
Boron	1.0120	0.0500	mg/L	1.0000		101	85-115			
Lithium	1.0269	0.0150	mg/L	1.0000		103	85-115			
Calcium	104.54	1.25	mg/L	100.00		105	85-115			

Duplicate (BKF0303-DUP1)		Source: MFK0098-01		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Calcium	99.201	1.25	mg/L		92.263			7.25	20	
Boron	0.79476	0.0500	mg/L		0.81473			2.48	20	
Lithium	0.0060069	0.0150	mg/L		0.0084264			33.5	20	M_D-RL

Duplicate (BKF0303-DUP2)		Source: MFK0098-02		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Lithium	0.0083786	0.0150	mg/L		0.0085581			2.12	20	
Calcium	90.605	1.25	mg/L		89.646			1.06	20	
Boron	0.81338	0.0500	mg/L		0.83171			2.23	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0303 - EPA 200.2, EPA 3005

Matrix Spike (BFK0303-MS1)		Source: MFK0098-01		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Lithium	1.0346	0.0150	mg/L	1.0000	0.0084264	103	70-130			
Calcium	208.35	1.25	mg/L	100.00	92.263	116	70-130			
Boron	1.8352	0.0500	mg/L	1.0000	0.81473	102	70-130			

Matrix Spike (BFK0303-MS2)		Source: MFK0098-02		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Lithium	1.0345	0.0150	mg/L	1.0000	0.0085581	103	70-130			
Calcium	200.13	1.25	mg/L	100.00	89.646	110	70-130			
Boron	1.8582	0.0500	mg/L	1.0000	0.83171	103	70-130			

Matrix Spike Dup (BFK0303-MSD1)		Source: MFK0098-01		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Boron	1.8407	0.0500	mg/L	1.0000	0.81473	103	70-130	0.299	20	
Calcium	205.82	1.25	mg/L	100.00	92.263	114	70-130	1.22	20	
Lithium	1.0313	0.0150	mg/L	1.0000	0.0084264	102	70-130	0.323	20	

Matrix Spike Dup (BFK0303-MSD2)		Source: MFK0098-02		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Lithium	1.0224	0.0150	mg/L	1.0000	0.0085581	101	70-130	1.18	20	
Calcium	195.76	1.25	mg/L	100.00	89.646	106	70-130	2.21	20	
Boron	1.8816	0.0500	mg/L	1.0000	0.83171	105	70-130	1.25	20	

Batch BFK0305 - EPA 200.2, EPA 3005

Blank (BFK0305-BLK1)		Prepared: 11/14/2020 Analyzed: 11/25/2020								
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							

LCS (BFK0305-BS1)		Prepared: 11/14/2020 Analyzed: 11/25/2020								
Calcium	102.95	1.25	mg/L	100.00		103	85-115			
Boron	0.97139	0.0500	mg/L	1.0000		97.1	85-115			

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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 BFK0305 - EPA 200.2, EPA 3005

Duplicate (BFK0305-DUP1)		Source: MFK0098-16		Prepared: 11/14/2020 Analyzed: 11/25/2020						
Calcium	75.230	1.25	mg/L		79.837			5.94	20	
Boron	0.049510	0.0500	mg/L		0.051507			3.95	20	
Matrix Spike (BFK0305-MS1)		Source: MFK0098-16		Prepared: 11/14/2020 Analyzed: 11/25/2020						
Boron	1.0572	0.0500	mg/L	1.0000	0.051507	101	70-130			
Calcium	186.38	1.25	mg/L	100.00	79.837	107	70-130			
Matrix Spike Dup (BFK0305-MSD1)		Source: MFK0098-16		Prepared: 11/14/2020 Analyzed: 11/25/2020						
Calcium	186.75	1.25	mg/L	100.00	79.837	107	70-130	0.199	20	
Boron	1.0491	0.0500	mg/L	1.0000	0.051507	99.8	70-130	0.765	20	

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:10

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_K-06	The reporting limit has been increased, the reported result is acceptable. The maximum routine sample volume was used, but the amount of residue measured was below 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.
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



CHAIN-OF-CUSTODY / Analytical Request Document

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

[illegible]

* Samples stored in coolers on ice after collection, and in a ^{cool}er at Pace in Minneapolis until being delivered on ice to the Xcel Lab. or otherwise.

17800m and 20700m

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CHAIN-OF-CUSTODY / Analytical Request Document

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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:

Company:

Xcel Energy

Address:

Environmental Services

Email To:

Chris Pelosi

Phone: (612) 587-1294

Fax:

Section B

Required Project Information:

Report To:

Chris Pelosi

Copy To:

Riley Jacobson

Purchase Order No.:

MP-7

Project Number

20-03972

Project Name:

Xcel Energy Sherco Ponds Fall

Section C

Invoice Information:

Attention:

Steve Davis

Company Name:

Address:

Pace Quote Reference:

Pace Project Manager:

Chris Pelosi

Pace Project #

Section D

Required Client Information

Valid Matrix Center

MATRIX

DRINKING WATER

WASTE WATER

PRODUCT

SOIL/SOLID

SLURRY

SLUDGE

SLIMES

CODE

GW

WW

WVW

P

S

SL

SLM

SLD

SLM

SLD

SLM

SLD

Required Client Information

SAMPLE ID

One Character per box.

(A-Z, 0-9 / -)

Sample IDs MUST BE UNIQUE

Section E

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section F

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section G

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section H

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section I

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section J

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section K

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section L

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section M

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section N

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section O

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section P

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section Q

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section R

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section S

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section T

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section U

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section V

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section W

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section X

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section Y

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section Z

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section AA

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section AB

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section AC

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section AD

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris Pelosi

Project Site #

Section AE

Required Project Information

Project Name:

Xcel Energy Sherco Ponds Fall

Project Number

20-03972

Project Manager:

Chris

* Samples stored in coolers on ice after collection, and in cooler C4 at Pace in Minneapolis until being delivered on ice to the Xcel Lab. esp. unknown

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CHAIN-OF-CUSTODY / Analytical Request Document

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* samples stored in coolers on ice after collection, and in cooler C4 at Pace in Minneapolis until being delivered on ice to the Xet Lab. CAP 01/11/2020

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