2020 CCR Annual Groundwater Monitoring and Corrective Action Report

Bottom Ash Pond 2

Sherburne County (Sherco) Generating Plant
Becker, Minnesota

Prepared for:
Northern States Power Company, a Minnesota Corporation

January 28, 2021

CARLSON McCAIN

15650 36th Avenue N, Suite 110
Plymouth, MN 55446
Tel 952-346-3900
Fax 952-346-3901
www.carlsonmccain.com
ENVIRONMENTAL \ ENGINEERING \ LAND SURVEYING

2020 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

Bottom Ash Pond 2
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

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

Date: January 28, 2021



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1. EXECUTIVE SUMMARY

The Bottom Ash Pond 2 at the Sherburne County Generating Plant is a "new coal combustion residual surface impoundment" according to U.S. Code of Federal Regulations, Title 40, Part §257.53 and is subject to groundwater monitoring and corrective action requirements under 40 CFR §257.90 to §257.98. In accordance with §257.94, detection monitoring began at Bottom Ash Pond 2 on March 2, 2020 when the first samples were collected for the baseline dataset. The baseline sampling consisted of eight independent samples from each background and downgradient well which were collected and analyzed for the constituents listed in appendices III and IV to 40 CFR §257 in accordance with §257.94(b). In accordance with §257.94(c), the first semiannual sampling event occurred at the Bottom Ash Pond 2 during the fall of 2020 and statistical analysis of the fall 2020 data indicated no statistically significant increases over background for Appendix III to 40 CFR §257 constituents pursuant to §257.94(e). As such, no additional notifications were required and the Bottom Ash Pond 2 ended the current annual reporting period in detection monitoring under §257.94.

Due to status of the Bottom Ash Pond 2, which operated under the detection monitoring program in §257.94 during 2020, statistical analysis to determine statistically significant levels above groundwater protection standards for one or more of the constituents listed in Appendix IV to 40 CFR §257 pursuant to §257.95(g) was not performed. 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 2 (BAP2) at the Sherburne County Generating Plant (Sherco) located in Becker, Minnesota. The BAP2 is owned and operated by Northern States Power Company, a Minnesota Corporation (NSPM).

The BAP2 is a "new coal combustion residual (CCR) surface 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 CCR 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 2 CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2020b). Any deviations from the requirements of the Groundwater Sampling and Analysis 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 5.4 of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2020b) also includes a list of items to be included in the annual report that are 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 3 (Site Description) briefly describes the site location and hydrogeologic setting, Section 4 (Monitoring Results) discusses the reporting requirements of the CCR Sampling and Analysis Plan and §257.90(e), and Section 5 (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 BAP2 is located in the City of Becker, Sherburne County, Minnesota. The BAP2 is approximately 18 acres in size and is part of a larger generating plant site. The BAP2 is a "new coal combustion residual (CCR) surface impoundment" and construction of the BAP2 was completed in 2020. The BAP2 location is shown on Figure 1 and an aerial photograph and site layout map for BAP2 are shown on Figure 2.

3.1 Site Hydrogeology

The site hydrogeology is discussed in more detail in the Bottom Ash Pond 2 Groundwater Monitoring System Certification (Carlson McCain, 2020a), 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, 2020a.

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 identified as the Superior 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 4 to 54 feet/year.

The conceptual model for the hypothetical (or potential) release of a constituent of concern (COC) from the BAP2 focuses on groundwater as the transport mechanism. The water table beneath the BAP2 typically occurs below the Superior till. Exfiltration from BAP2 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 and 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 BAP2 and all upgradient and downgradient monitoring well locations included in the BAP2 CCR groundwater monitoring system are shown and labeled on Figure 2. A summary of the monitoring wells included in the BAP2 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 BAP2 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. 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.

Baseline and Detection Monitoring Data

As required by §257.94(b), a baseline data set was completed by collecting eight independent samples from each of the wells in the groundwater monitoring system from March 2 through July 30, 2020. Each of the baseline samples were analyzed for the detection monitoring/Appendix III constituents and the assessment monitoring/Appendix IV constituents. Laboratory reports and field datasheets for the baseline dataset are included in Appendix A. Pursuant to §257.94(c), the first semiannual detection monitoring event was conducted on November 10-12, 2020, and consisted of sampling each well in the monitoring system and analyzing the samples for the detection monitoring/Appendix III constituents. As such, a total of nine rounds of samples were analyzed for Appendix III constituents and eight rounds of samples were analyzed for Appendix IV constituents. Summary data from the eight baseline monitoring events is provided on Tables 4 to 11 and a summary of the fall 2020 monitoring data is provided on Table 12. Laboratory reports and field

datasheets for the baseline dataset and the November detection monitoring event are included in Appendices A and B, respectively.

Groundwater Elevations and Flow Direction

Groundwater elevations and flow direction in the vicinity of the BAP2 during April and November of 2020 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 BAP2 along with additional water level piezometers near the BAP2. For both months, 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))

No transition from the detection monitoring program to the assessment monitoring program occurred during YR2020.

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 BAP2; Section 5.2 discusses 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 for which compliance was required by October 5, 2020 (the date of initial receipt of CCR at BAP2) as specified in §257.90(b)(2):

- (i): The groundwater monitoring system was installed at the facility as required by §257.91 and described by Carlson McCain, 2020c;
- (ii): The groundwater sampling and analysis program was developed and the selection of statistical procedures to be used for evaluating groundwater monitoring data was included in the program as required by §257.93 and described by Carlson McCain, 2020c;
- (iii): Initiation of the detection monitoring program including obtaining a minimum of eight independent samples for each background and downgradient well as required by §257.94(b) was completed as described in Section 4.1.3 of this report; and
- (iv): Statistical analysis to evaluate groundwater monitoring data for statistically significant increases over background levels for Appendix III Constituents as required by §257.94 was completed on the groundwater data from the first semi-annual detection monitoring event which occurred on November 10-12, 2020.

Other key actions include the following items:

- The BAP2 CCR Groundwater Monitoring System Certification (Carlson McCain, 2020a) was placed in the operating record on October 2, 2020 and on the facility's website by October 31, 2020.
- The BAP2 Statistical Analysis Plan (Carlson McCain, 2020c) was placed in the operating record on October 2, 2020 and on the facility's website by October 31, 2020.

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 BAP2 in the year 2021:

1. Routine, semi-annual detection 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 groundwater monitoring results will be conducted to evaluate for statistically significant increases over background levels in accordance with §257.94(e).

6.0 REFERENCES

Carlson McCain, 2020a. CCR Groundwater Monitoring System Certification, Bottom Ash Pond 2, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, September 21, 2020.

Carlson McCain, 2020b. CCR Groundwater Sampling and Analysis Plan, Bottom Ash Pond 2, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, September 21, 2020.

Carlson McCain, 2020c. Statistical Analysis Plan, Bottom Ash Pond 2, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, September 21, 2020.

Tables

Table 1

CCR Groundwater Monitoring System

Bottom Ash Pond 2

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-17	NA	8/26/81	2030284.10	866284.10	964.34	20	923	903	Routine Semi-annual	Up-Gradient
P-152A	806318	10/10/14	2031471.60	866696.40	965.87	10	934	924	Routine Semi-annual	Up-Gradient
P-158	812967	9/23/15	2029122.00	866410.00	966.55	10	927	917	Routine Semi-annual	Up-Gradient
P-173	844707	10/30/19	2029804.64	865401.54	998.49	10	928	918	Routine Semi-annual	Downgradient
P-174	844706	10/31/19	2029310.84	865400.22	1000.67	10	929	919	Routine Semi-annual	Downgradient
P-175	844705	10/31/19	2029018.22	865613.31	1002.92	10	929	919	Routine Semi-annual	Downgradient
P-176	844703	11/1/19	2029018.73	865941.35	1002.65	10	929	919	Routine Semi-annual	Downgradient
P-177	844704	11/4/19	2029567.92	866324.19	966.26	10	930	920	Routine Semi-annual	Up-Gradient
P-178A	844708	10/29/19	2030540.43	865533.40	966.46	10	929	919	Routine Semi-annual	Up-Gradient

*Notes:

Elevation is feet above mean sea level

Table 2
Summary of Data Collected
Bottom Ash Pond 2

Upgradient Wells										
		Sample Dates								
Well ID	Number of Samples	Baseline #1[1]	Baseline #2[1]	Baseline #3[1]	Baseline #4[1]	Baseline #5[1]	Baseline #6[1]	Baseline #7[1]	Baseline #8[1]	Fall 2020[2]
P-17	9	3/2/2020	3/25/2020	4/14/2020	5/7/2020	5/27/2020	6/17/2020	7/9/2020	7/30/2020	11/10/2020
P-152A	9	3/2/2020	3/24/2020	4/14/2020	5/6/2020	5/26/2020	6/16/2020	7/8/2020	7/29/2020	11/12/2020
P-158	9	3/2/2020	3/25/2020	4/15/2020	5/7/2020	5/27/2020	6/17/2020	7/9/2020	7/30/2020	11/10/2020
P-177	9	3/2/2020	3/24/2020	4/14/2020	5/7/2020	5/27/2020	6/17/2020	7/9/2020	7/30/2020	11/10/2020
P-178A	9	3/2/2020	3/24/2020	4/15/2020	5/7/2020	5/27/2020	6/17/2020	7/9/2020	7/29/2020	11/10/2020

Downgradient Wells										
		Sample Dates								
Well ID	Number of Samples	Baseline #1[1]	Baseline #2[1]	Baseline #3[1]	Baseline #4[1]	Baseline #5[1]	Baseline #6[1]	Baseline #7[1]	Baseline #8[1]	Fall 2020[2]
P-173	9	3/3/2020	3/24/2020	4/16/2020	5/6/2020	5/26/2020	6/16/2020	7/8/2020	7/29/2020	11/10/2020
P-174	9	3/3/2020	3/24/2020	4/16/2020	5/6/2020	5/26/2020	6/16/2020	7/8/2020	7/29/2020	11/10/2020
P-175	9	3/3/2020	3/25/2020	4/15/2020	5/6/2020	5/26/2020	6/16/2020	7/8/2020	7/29/2020	11/10/2020
P-176	9	3/3/2020	3/25/2020	4/15/2020	5/6/2020	5/26/2020	6/16/2020	7/8/2020	7/29/2020	11/10/2020

[1] Sampled for the detection monitoring background data set for parameters listed in Appendix III and IV of 40 CFR §257 as required by §257.94(b).

[2] Sampled for detection monitoring for parameters listed in Appendix III of 40 CFR §257 as required by §257.94(a).

Table 3

Count of Parameters Analyzed by Well

Bottom Ash Pond 2

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)	9	9	9	9	9	9	9	9	9
Calcium, total (mg/L)	9	9	9	9	9	9	9	9	9
Chloride, total (mg/L)	9	9	9	9	9	9	9	9	9
Fluoride, total (mg/L)	9	9	9	9	9	9	9	9	9
pH (lab) (pH)	9	9	9	9	9	9	9	9	9
Sulfate, total (mg/L)	9	9	9	9	9	9	9	9	9
Total Dissolved Solids (mg/L)	9	9	9	9	9	9	9	9	9

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)	8	8	8	8	8	8	8	8	8
Arsenic, total (mg/L)	8	8	8	8	8	8	8	8	8
Barium, total (mg/L)	8	8	8	8	8	8	8	8	8
Beryllium, total (mg/L)	8	8	8	8	8	8	8	8	8
Cadmium,total (mg/L)	8	8	8	8	8	8	8	8	8
Chromium, total (mg/L)	8	8	8	8	8	8	8	8	8
Cobalt, total (mg/L)	8	8	8	8	8	8	8	8	8
Lead, total (mg/L)	8	8	8	8	8	8	8	8	8
Lithium Total (mg/L)	8	8	8	8	8	8	8	8	8
Mercury, total (mg/L)	8	8	8	8	8	8	8	8	8
Molybdenum, total (mg/L)	8	8	8	8	8	8	8	8	8
Selenium, total (mg/L)	8	8	8	8	8	8	8	8	8
Thallium, total (mg/L)	8	8	8	8	8	8	8	8	8
Radium, 226 and 228 combined (pCi/L)	8	8	8	8	8	8	8	8	8

Table 4
Baseline Monitoring Event #1 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/2/2020	P-152A 3/2/2020	P-158 3/2/2020	P-173 3/3/2020	P-174 3/3/2020	P-175 3/3/2020	P-176 3/3/2020	P-177 3/2/2020	P-178A 3/2/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	1.01	0.167	0.182	0.132	0.682	0.0704	0.399
Calcium, total	mg/L	NA	72.1	54.1	121	65.3	111	68.2	102	65.1	46.7
Chloride, total	mg/L	NA	20.6	<1.000	3.48	5.41	1.27	<1.000	33	2.53	3.3
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	7.86	7.85	7.67	7.83	7.48	7.75	7.6	7.82	7.89
Sulfate, total	mg/L	NA	23.6	7.19	194	33.7	43.1	11.1	104	41.8	65.7
Total Dissolved Solids	mg/L	NA	284	194	532	294	422	244	442	250	290

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/2/2020	P-152A 3/2/2020	P-158 3/2/2020	P-173 3/3/2020	P-174 3/3/2020	P-175 3/3/2020	P-176 3/3/2020	P-177 3/2/2020	P-178A 3/2/2020
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	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	0.0008
Barium, total	mg/L	2	0.0389	0.0339	0.0815	0.0564	0.086	0.0566	0.103	0.0565	0.0467
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.001	0.0008	0.0009	0.0005	0.0009	0.0026	0.0012	0.0011	0.0019
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	<0.0150	<0.0150	<0.0150	0.0172
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	0.0305	0.0065	0.0006	<0.0005	0.0094	0.0009
Selenium, total	mg/L	0.05	0.0006	<0.0005	0.0021	0.0018	0.0021	0.001	0.0052	0.0013	0.0024
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	<1.5	<1.5	<1.5	<1.2	<1.6	<1.5	<1.3	<1.4	<1.5

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/2/2020	P-152A 3/2/2020	P-158 3/2/2020	P-173 3/3/2020	P-174 3/3/2020	P-175 3/3/2020	P-176 3/3/2020	P-177 3/2/2020	P-178A 3/2/2020
ORP	mV	NA	96	60	101	72	63	14	120	-4	70
Oxygen, dissolved	mg/L	NA	7.5	8.8	8.9	6.4	6.5	7.1	7.5	7.2	7.9
pH, field	pH	NA	7.4	7.5	7.3	7.5	7.5	7.5	7.4	7.3	7.2
Specific Cond, field	µmhos/cm	NA	520	350	820	500	740	420	690	440	510
Static Water Level	ft	NA	35.5	35.4	38.17	70.19	72.83	75.24	74.76	37.72	37.77
Temperature	degrees C	NA	9	9.5	9.5	8.5	8.5	8.5	9	9	9.5
Turbidity, field	NTU	NA	1.3	2.2	0.8	2.9	2.7	23.1	2	8.5	9.8
Water Level Elevation	ft	NA	928.84	930.47	928.38	928.3	927.84	927.68	927.89	928.54	928.69

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 5
Baseline Monitoring Event #2 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/24/2020	P-152A 3/25/2020	P-158 3/25/2020	P-173 3/24/2020	P-174 3/24/2020	P-175 3/25/2020	P-176 3/25/2020	P-177 3/24/2020	P-178A 3/24/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	1.46	0.172	0.182	0.119	0.759	0.0876	0.345
Calcium, total	mg/L	NA	75	56.6	157	64.9	111	71.1	113	68.2	49.8
Chloride, total	mg/L	NA	20.7	<1.000	2.32	5.3	1.25	<1.000	7.21	1.73	3.13
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	7.84	7.78	7.6	7.77	7.38	7.77	7.55	7.77	7.84
Sulfate, total	mg/L	NA	23.5	7.16	285	31.2	35.9	8.22	117	26.2	66.5
Total Dissolved Solids	mg/L	NA	262	210	694	278	396	224	460	244	296

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/24/2020	P-152A 3/25/2020	P-158 3/25/2020	P-173 3/24/2020	P-174 3/24/2020	P-175 3/25/2020	P-176 3/25/2020	P-177 3/24/2020	P-178A 3/24/2020
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	0.0006	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.0008
Barium, total	mg/L	2	0.0404	0.0373	0.104	0.0545	0.0837	0.0611	0.115	0.0547	0.0459
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.001	0.0006	0.0009	0.0005	0.001	0.0024	0.0012	0.0012	0.001
Cobalt, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<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	<0.0150	<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	0.0236	0.0053	<0.0005	<0.0005	0.0039	0.0008
Selenium, total	mg/L	0.05	<0.0005	<0.0005	0.0025	0.0015	0.0021	0.0009	0.0064	0.001	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	<1.3	<1.4	<1.6	<1.5	<1.6	<1.7	<1.5	<1.4	<1.6

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 3/24/2020	P-152A 3/25/2020	P-158 3/25/2020	P-173 3/24/2020	P-174 3/24/2020	P-175 3/25/2020	P-176 3/25/2020	P-177 3/24/2020	P-178A 3/24/2020
ORP	mV	NA	63	101	88	72	88	51	78	84	67
Oxygen, dissolved	mg/L	NA	5.2	6.6	6.6	4.2	5	5.3	5.6	6.4	5.7
pH, field	pH	NA	7.3	7.3	7.2	7.4	7.2	7.4	7.3	7.4	7.4
Specific Cond, field	µmhos/cm	NA	500	360	930	510	690	410	700	420	500
Static Water Level	ft	NA	35.65	35.77	38.24	70.19	72.82	75.33	74.85	37.82	37.88
Temperature	degrees C	NA	9	9.5	9.5	9	9.5	8.5	9	9	9.5
Turbidity, field	NTU	NA	0.8	1.1	0.7	2.8	2.4	27.2	0.7	2.4	2.1
Water Level Elevation	ft	NA	928.69	930.1	928.31	928.3	927.85	927.59	927.8	928.44	928.58

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 6
Baseline Monitoring Event #3 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 4/14/2020	P-152A 4/14/2020	P-158 4/15/2020	P-173 4/16/2020	P-174 4/16/2020	P-175 4/15/2020	P-176 4/15/2020	P-177 4/14/2020	P-178A 4/15/2020
Boron, total	mg/L	NA	<0.0500	0.0616	0.909	0.183	0.212	0.132	0.727	0.0925	0.333
Calcium, total	mg/L	NA	67.9	54.2	109	61.9	103	64.4	102	59.5	47
Chloride, total	mg/L	NA	22.2	<1.000	3.05	5.67	1.23	<1.000	7.51	2.17	3.25
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	7.85	7.8	7.63	7.78	7.41	7.74	7.54	7.76	7.84
Sulfate, total	mg/L	NA	24.3	7.52	177	29.3	35.6	8.8	118	31.8	60
Total Dissolved Solids	mg/L	NA	286	208	506	290	408	248	460	260	284

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 4/14/2020	P-152A 4/14/2020	P-158 4/15/2020	P-173 4/16/2020	P-174 4/16/2020	P-175 4/15/2020	P-176 4/15/2020	P-177 4/14/2020	P-178A 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	0.0006	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0007
Barium, total	mg/L	2	0.0383	0.037	0.077	0.0536	0.0794	0.0552	0.11	0.0524	0.0428
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.0009	0.0007	0.001	0.0006	0.0009	0.0018	0.0013	0.0007	0.0011
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	<0.0150	<0.0150	<0.0150	0.0158
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	0.0162	0.0043	<0.0005	<0.0005	0.0041	0.0009
Selenium, total	mg/L	0.05	<0.0005	<0.0005	0.0022	0.0014	0.0022	0.0009	0.0062	0.001	0.002
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	<1.5	<1.5	<1.7	<1.6	<1.5	<1.4	<1.8	<1.7	<1.5

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 4/14/2020	P-152A 4/14/2020	P-158 4/15/2020	P-173 4/16/2020	P-174 4/16/2020	P-175 4/15/2020	P-176 4/15/2020	P-177 4/14/2020	P-178A 4/15/2020
ORP	mV	NA	149	160	172	180	177	156	160	163	160
Oxygen, dissolved	mg/L	NA	9.4	9.8	10.2	9.1	9	8.8	8.7	9.7	10.5
pH, field	pH	NA	7.3	7.3	7.3	7.4	7.3	7.4	7.3	7.4	7.4
Specific Cond, field	µmhos/cm	NA	490	360	700	470	680	400	670	430	460
Static Water Level	ft	NA	35.48	35.62	38.07	69.95	72.57	75.03	74.57	37.69	37.64
Temperature	degrees C	NA	9	9.5	9.5	9	8.5	8.5	9	9	9
Turbidity, field	NTU	NA	0.7	0.9	0.8	1.4	3.7	20.1	0.7	2.1	1.2
Water Level Elevation	ft	NA	928.86	930.25	928.48	928.54	928.1	927.89	928.08	928.57	928.82

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 7
Baseline Monitoring Event #4 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/7/2020	P-152A 5/6/2020	P-158 5/7/2020	P-173 5/6/2020	P-174 5/6/2020	P-175 5/6/2020	P-176 5/6/2020	P-177 5/7/2020	P-178A 5/7/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	0.903	0.185	0.226	0.129	0.717	0.091	0.262
Calcium, total	mg/L	NA	71	57.4	108	72.6	106	70.7	106	68.4	44.9
Chloride, total	mg/L	NA	21.2	<1.000	3.59	5.93	1.18	<1.000	7.22	2.28	3.64
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	7.89	7.87	7.73	7.82	7.55	7.81	7.66	7.86	7.94
Sulfate, total	mg/L	NA	23	6.68	158	27.9	30.8	8.43	111	33.3	47.6
Total Dissolved Solids	mg/L	NA	276	214	462	280	402	224	450	262	254

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/7/2020	P-152A 5/6/2020	P-158 5/7/2020	P-173 5/6/2020	P-174 5/6/2020	P-175 5/6/2020	P-176 5/6/2020	P-177 5/7/2020	P-178A 5/7/2020
Antimony, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005
Arsenic, total	mg/L	0.01	0.0006	0.0005	0.0007	0.0009	<0.0005	0.0006	0.0005	0.0005	0.001
Barium, total	mg/L	2	0.0389	0.0383	0.0705	0.0769	0.0814	0.0598	0.113	0.0532	0.041
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.001	0.0006	0.0009	0.0097	0.0011	0.0023	0.0012	0.0008	0.0011
Cobalt, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	0.0011	<0.0005	0.0006	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	0.0006	<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	<0.0150	<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	0.0118	0.0039	<0.0005	<0.0005	0.0035	0.001
Selenium, total	mg/L	0.05	0.0007	<0.0005	0.0024	0.0015	0.0025	0.0009	0.0062	0.0013	0.002
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	<1.7	<0.10	<1.3	<1.5	<2.1	1.7	2.1	<1.5

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/7/2020	P-152A 5/6/2020	P-158 5/7/2020	P-173 5/6/2020	P-174 5/6/2020	P-175 5/6/2020	P-176 5/6/2020	P-177 5/7/2020	P-178A 5/7/2020
ORP	mV	NA	165	162	155	180	175	171	181	167	203
Oxygen, dissolved	mg/L	NA	8.3	10.1	10.5	7.6	7.7	8.3	8.5	9.3	9.6
pH, field	pH	NA	7.6	7.3	7.4	7.1	7	7.2	7	7.4	7.3
Specific Cond, field	µmhos/cm	NA	510	370	730	500	710	430	700	450	460
Static Water Level	ft	NA	35.27	35.22	37.86	69.69	72.3	74.77	74.31	37.43	37.43
Temperature	degrees C	NA	9.5	10.5	10	10	10.5	11	11.5	10	9.5
Turbidity, field	NTU	NA	2.2	3.3	1.8	40	5.8	4.7	3.1	2.3	2.9
Water Level Elevation	ft	NA	929.07	930.65	928.69	928.8	928.37	928.15	928.34	928.83	929.03

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 8
Baseline Monitoring Event #5 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/27/2020	P-152A 5/26/2020	P-158 5/27/2020	P-173 5/26/2020	P-174 5/26/2020	P-175 5/26/2020	P-176 5/26/2020	P-177 5/27/2020	P-178A 5/27/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	0.529	0.154	0.193	0.135	0.7	0.0836	0.218
Calcium, total	mg/L	NA	71.6	52.7	88.9	68.6	102	72.1	104	64.3	41.4
Chloride, total	mg/L	NA	20.4	<1.000	4.88	6.26	1.04	<1.000	7.32	1.92	3.51
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	8.1	8.03	7.74	7.81	7.51	7.77	7.97	7.86	8.17
Sulfate, total	mg/L	NA	22.7	6.69	102	26	27.8	10.8	115	29.1	45.9
Total Dissolved Solids	mg/L	NA	284	212	398	284	396	254	462	262	236

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/27/2020	P-152A 5/26/2020	P-158 5/27/2020	P-173 5/26/2020	P-174 5/26/2020	P-175 5/26/2020	P-176 5/26/2020	P-177 5/27/2020	P-178A 5/27/2020
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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008
Barium, total	mg/L	2	0.0379	0.0382	0.0613	0.0513	0.0768	0.0546	0.113	0.0494	0.0386
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.001	0.0006	0.0009	0.0007	0.0009	0.001	0.0011	0.0006	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	<0.0150	<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	0.0097	0.0032	<0.0005	<0.0005	0.0022	0.0007
Selenium, total	mg/L	0.05	0.0006	<0.0005	0.0019	0.0012	0.0023	0.001	0.0062	0.0011	0.0017
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	<1.3	<1.5	<1.5	<1.7	<1.4	<1.8	<1.4	<1.5	<0.82

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 5/27/2020	P-152A 5/26/2020	P-158 5/27/2020	P-173 5/26/2020	P-174 5/26/2020	P-175 5/26/2020	P-176 5/26/2020	P-177 5/27/2020	P-178A 5/27/2020
ORP	mV	NA	125	145	119	146	162	152	149	139	148
Oxygen, dissolved	mg/L	NA	9.4	9.6	10.8	7.7	7.8	8.2	8.7	10	9.5
pH, field	pH	NA	7.7	7.3	7.3	7.4	7.1	7.5	7.3	7.3	7.5
Specific Cond, field	µmhos/cm	NA	510	370	630	500	710	460	750	430	450
Static Water Level	ft	NA	35.27	35.36	37.9	69.88	72.5	74.89	74.39	37.39	37.52
Temperature	degrees C	NA	10	10.5	11	10.5	11	11	11.5	10.5	10.5
Turbidity, field	NTU	NA	2.2	0.8	0.8	2.9	0.3	2.9	0.4	0.2	0.6
Water Level Elevation	ft	NA	929.07	930.51	928.65	928.61	928.17	928.03	928.26	928.87	928.94

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 9
Baseline Monitoring Event #6 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 6/17/2020	P-152A 6/16/2020	P-158 6/17/2020	P-173 6/16/2020	P-174 6/16/2020	P-175 6/16/2020	P-176 6/16/2020	P-177 6/17/2020	P-178A 6/17/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	0.532	0.13	0.199	0.119	0.738	0.0749	0.216
Calcium, total	mg/L	NA	70.8	53.9	93.5	68.8	108	67.9	111	58.3	41.9
Chloride, total	mg/L	NA	21.7	<1.000	5.3	6.59	1.17	<1.000	8.4	1.6	3.32
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	7.86	7.85	7.72	7.83	7.51	7.81	7.61	7.88	7.92
Sulfate, total	mg/L	NA	23.4	6.7	102	25	35.6	7.61	134	20.1	50.1
Total Dissolved Solids	mg/L	NA	272	184	382	256	410	228	468	218	258

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 6/17/2020	P-152A 6/16/2020	P-158 6/17/2020	P-173 6/16/2020	P-174 6/16/2020	P-175 6/16/2020	P-176 6/16/2020	P-177 6/17/2020	P-178A 6/17/2020
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	0.0006	0.0006	<0.0005	<0.0005	0.0006	0.0005	0.0005	0.0009
Barium, total	mg/L	2	0.0378	0.036	0.0601	0.0485	0.0759	0.0596	0.113	0.044	0.0394
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.0009	0.0007	0.001	0.0009	0.001	0.0023	0.0012	0.0007	0.001
Cobalt, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<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	<0.0150	<0.0150	<0.0150	0.0167
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	0.0053	0.002	<0.0005	<0.0005	0.0019	0.0006
Selenium, total	mg/L	0.05	0.0008	0.0005	0.0022	0.0014	0.0026	0.0011	0.0072	0.0014	0.0021
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	<1.5	<1.5	<1.9	<1.8	<1.9	<1.6	<2.2	<1.5	<1.4

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 6/17/2020	P-152A 6/16/2020	P-158 6/17/2020	P-173 6/16/2020	P-174 6/16/2020	P-175 6/16/2020	P-176 6/16/2020	P-177 6/17/2020	P-178A 6/17/2020
ORP	mV	NA	112	100	121	189	149	170	116	127	131
Oxygen, dissolved	mg/L	NA	8	9.8	10	4.4	7	8.9	8.2	10.3	8.9
pH, field	pH	NA	7.6	7.3	7.3	7.2	7	7.1	7	7.4	7.3
Specific Cond, field	µmhos/cm	NA	530	380	640	480	750	440	790	420	470
Static Water Level	ft	NA	35.65	35.67	38.21	70.24	72.8	75.2	74.65	37.75	37.89
Temperature	degrees C	NA	10.5	12	12	11.5	12.5	13	14.5	11.5	10.5
Turbidity, field	NTU	NA	0.8	0.6	0.4	5.1	1.9	18	2.6	0.5	0.6
Water Level Elevation	ft	NA	928.69	930.2	928.34	928.25	927.87	927.72	928	928.51	928.57

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 10
Baseline Monitoring Event #7 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/9/2020	P-152A 7/8/2020	P-158 7/9/2020	P-173 7/8/2020	P-174 7/8/2020	P-175 7/8/2020	P-176 7/8/2020	P-177 7/9/2020	P-178A 7/9/2020
Boron, total	mg/L	NA	<0.0500	0.051	0.393	0.142	0.19	0.133	0.849	0.0735	0.329
Calcium, total	mg/L	NA	73	53.9	83.7	70.6	101	72.8	122	58	44.9
Chloride, total	mg/L	NA	20.5	<1.000	5.36	6.15	1.04	1.41	9.12	1.36	3.29
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	7.82	7.82	7.67	7.72	7.46	7.73	7.5	7.79	7.87
Sulfate, total	mg/L	NA	23.1	7.16	74.6	25.3	22.9	13.1	152	18.5	61.2
Total Dissolved Solids	mg/L	NA	274	188	354	274	376	256	550	226	292

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/9/2020	P-152A 7/8/2020	P-158 7/9/2020	P-173 7/8/2020	P-174 7/8/2020	P-175 7/8/2020	P-176 7/8/2020	P-177 7/9/2020	P-178A 7/9/2020
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	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009
Barium, total	mg/L	2	0.0392	0.0348	0.0558	0.0487	0.071	0.0577	0.123	0.0437	0.0426
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.0009	0.0007	0.001	0.0007	0.001	0.0018	0.0013	0.0006	0.001
Cobalt, total	mg/L	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<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	<0.0150	<0.0150	<0.0150	0.0171
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	0.0046	0.0017	<0.0005	<0.0005	0.0022	0.0008
Selenium, total	mg/L	0.05	<0.0005	<0.0005	0.002	0.0011	0.0022	0.0008	0.0077	0.0011	0.0026
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	<1.7	<1.5	<1.4	<1.8	<2.0	<1.6	<1.1	<1.3	<1.6

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/9/2020	P-152A 7/8/2020	P-158 7/9/2020	P-173 7/8/2020	P-174 7/8/2020	P-175 7/8/2020	P-176 7/8/2020	P-177 7/9/2020	P-178A 7/9/2020
ORP	mV	NA	149	151	139	124	145	141	148	128	147
Oxygen, dissolved	mg/L	NA	6.5	8.9	9.6	8.5	8.6	8.6	8.9	7.3	7
pH, field	pH	NA	7.5	7.4	7.2	7.3	7.1	7.4	7.2	7.4	7.5
Specific Cond, field	µmhos/cm	NA	510	350	560	480	660	440	840	400	490
Static Water Level	ft	NA	36.08	36.2	38.58	70.71	73.3	75.6	75.08	38.15	38.42
Temperature	degrees C	NA	11	12	11	12	13	13	13	11.5	11
Turbidity, field	NTU	NA	0.2	0.9	1	1.6	1.2	13.3	1.3	0.4	0.5
Water Level Elevation	ft	NA	928.26	929.67	927.97	927.78	927.37	927.32	927.57	928.11	928.04

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 11
Baseline Monitoring Event #8 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/30/2020	P-152A 7/29/2020	P-158 7/30/2020	P-173 7/29/2020	P-174 7/29/2020	P-175 7/29/2020	P-176 7/29/2020	P-177 7/30/2020	P-178A 7/29/2020
Boron, total	mg/L	NA	<0.0500	0.0551	0.43	0.139	0.201	0.143	0.98	0.0693	0.296
Calcium, total	mg/L	NA	70.1	52	86.9	66	100	69.1	121	55	38.2
Chloride, total	mg/L	NA	19.6	<1.000	4.79	6.03	1.06	1.51	8.77	1	3.95
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	7.78	7.79	7.65	7.7	7.41	7.69	7.48	7.78	7.87
Sulfate, total	mg/L	NA	22.8	7.08	93.3	24.1	28.6	12.2	151	13.6	36.8
Total Dissolved Solids	mg/L	NA	286	192	360	268	390	240	530	204	256

Appendix IV Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/30/2020	P-152A 7/29/2020	P-158 7/30/2020	P-173 7/29/2020	P-174 7/29/2020	P-175 7/29/2020	P-176 7/29/2020	P-177 7/30/2020	P-178A 7/29/2020
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	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0009
Barium, total	mg/L	2	0.0381	0.0342	0.0584	0.0463	0.073	0.0563	0.127	0.0409	0.0385
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium, total	mg/L	0.1	0.0008	0.0007	0.0013	0.0009	0.0011	0.0013	0.0015	0.0007	0.0009
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	<0.0150	<0.0150	<0.0150	0.0175
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	0.003	0.0016	<0.0005	<0.0005	0.0019	0.0009
Selenium, total	mg/L	0.05	0.0006	<0.0005	0.0024	0.0011	0.0022	0.0011	0.0087	0.0013	0.0016
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	<1.3	<1.9	<1.5	<1.3	<1.4	<1.4	<1.5	<1.5	<1.5

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 7/30/2020	P-152A 7/29/2020	P-158 7/30/2020	P-173 7/29/2020	P-174 7/29/2020	P-175 7/29/2020	P-176 7/29/2020	P-177 7/30/2020	P-178A 7/29/2020
ORP	mV	NA	150	163	165	141	158	158	165	159	150
Oxygen, dissolved	mg/L	NA	6.6	8	7.8	7.6	7.3	6.5	6.6	7.4	6.7
pH, field	pH	NA	7.6	7.6	7.4	7.2	7.1	7.5	7.2	7.5	7.7
Specific Cond, field	µmhos/cm	NA	530	360	610	480	700	450	850	390	470
Static Water Level	ft	NA	36.53	36.64	39	71.15	73.7	76.09	75.59	38.57	38.86
Temperature	degrees C	NA	10.5	11	11	11.5	12	14	12.5	11	11.5
Turbidity, field	NTU	NA	0.9	1.2	1.6	1.9	0.6	2	0.9	1.2	1.4
Water Level Elevation	ft	NA	927.81	929.23	927.55	927.34	926.97	926.83	927.06	927.69	927.6

GWPS = Groundwater Protection Standard

NA = Not Applicable

Downgradient Well

Table 12
Fall 2020 Groundwater Summary Data
Bottom Ash Pond 2

Appendix III Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 11/10/2020	P-152A 11/12/2020	P-158 11/10/2020	P-173 11/10/2020	P-174 11/10/2020	P-175 11/10/2020	P-176 11/10/2020	P-177 11/10/2020	P-178A 11/10/2020
Boron, total	mg/L	NA	<0.0500	<0.0500	1.29	0.132	0.181	0.113	0.938	0.084	0.178
Calcium, total	mg/L	NA	76.8	55.9	148	71.1	104	84.7	114	80.8	44.6
Chloride, total	mg/L	NA	21.8	<1.000	4.68	5.89	1.04	2.33	5.59	1.49	3.4
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	7.88	8.39	7.79	7.83	7.62	7.91	7.71	7.78	8
Sulfate, total	mg/L	NA	22.7	7.67	229	23.2	32	19.5	112	35.4	47.1
Total Dissolved Solids	mg/L	NA	298	234	602	276	412	294	346	288	286

Field Parameters										
Parameter	Units	GWPS	Well ID and Sample Date							
			P-17 11/10/2020	P-152A 11/12/2020	P-158 11/10/2020	P-173 11/10/2020	P-174 11/10/2020	P-175 11/10/2020	P-176 11/10/2020	P-177 11/10/2020	P-178A 11/10/2020
ORP	mV	NA	261	194	243	248	265	271	287	253	265
Oxygen, dissolved	mg/L	NA	7.4	9.5	9.1	8.7	9.2	10.5	9.5	9.2	9.2
pH, field	pH	NA	7.5	7.6	7.2	8.2	7.8	7.6	7.3	7.2	7.4
Specific Cond, field	µmhos/cm	NA	470	340	780	430	560	370	660	460	440
Static Water Level	ft	NA	37.58	37.93	40.15	72.11	74.68	77.05	76.58	39.62	39.77
Temperature	degrees C	NA	8	9.2	7.6	7.4	7	6	7.4	8	8.6
Turbidity, field	NTU	NA	4.1	1.6	2	1.6	3	4	2.9	2.7	3.1
Water Level Elevation	ft	NA	926.76	927.94	926.4	926.38	925.99	925.87	926.07	926.64	926.69

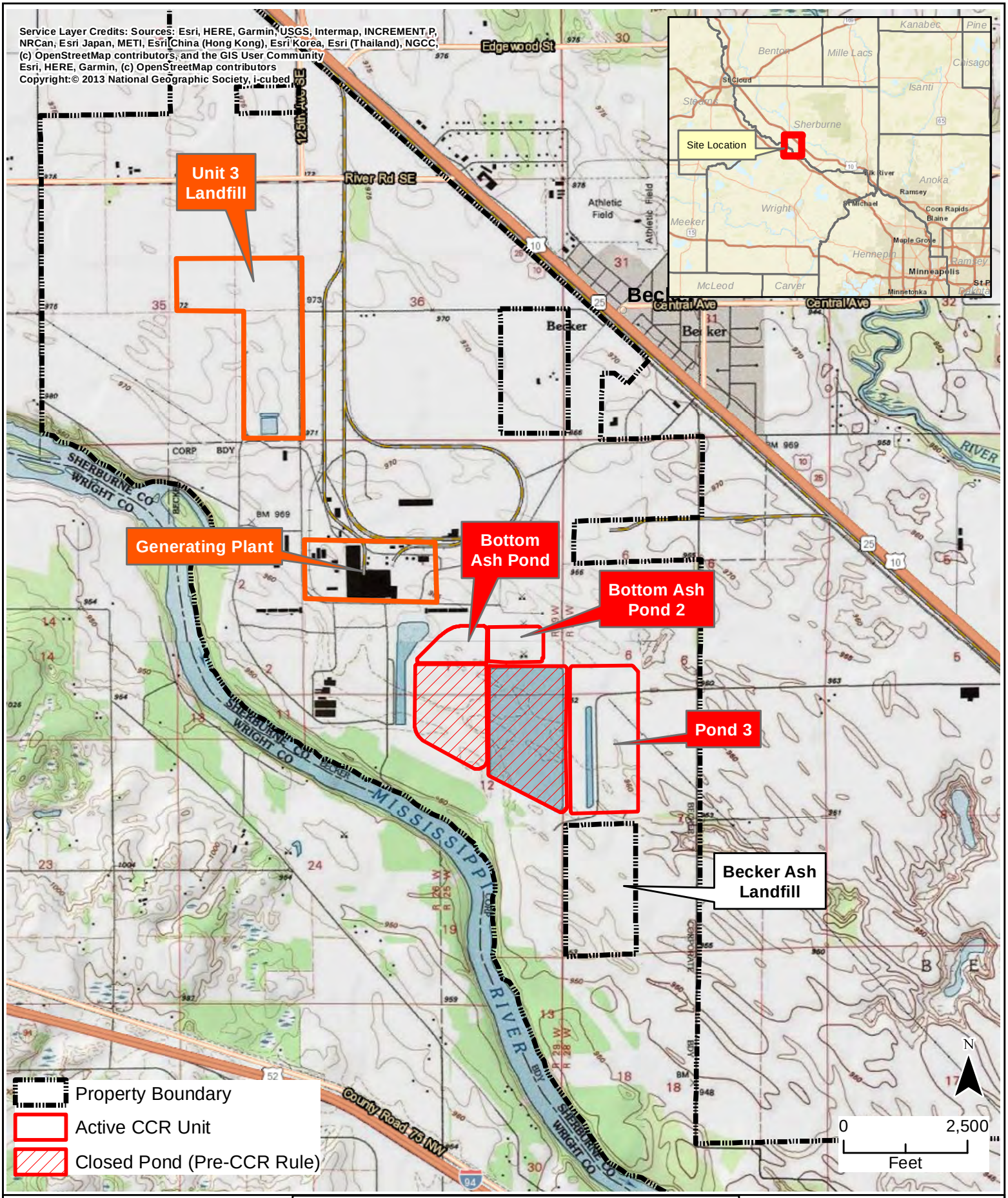
GWPS = Groundwater Protection Standard

NA = Not Applicable

Two dashed lines = Not Analyzed

Downgradient Well

Figures



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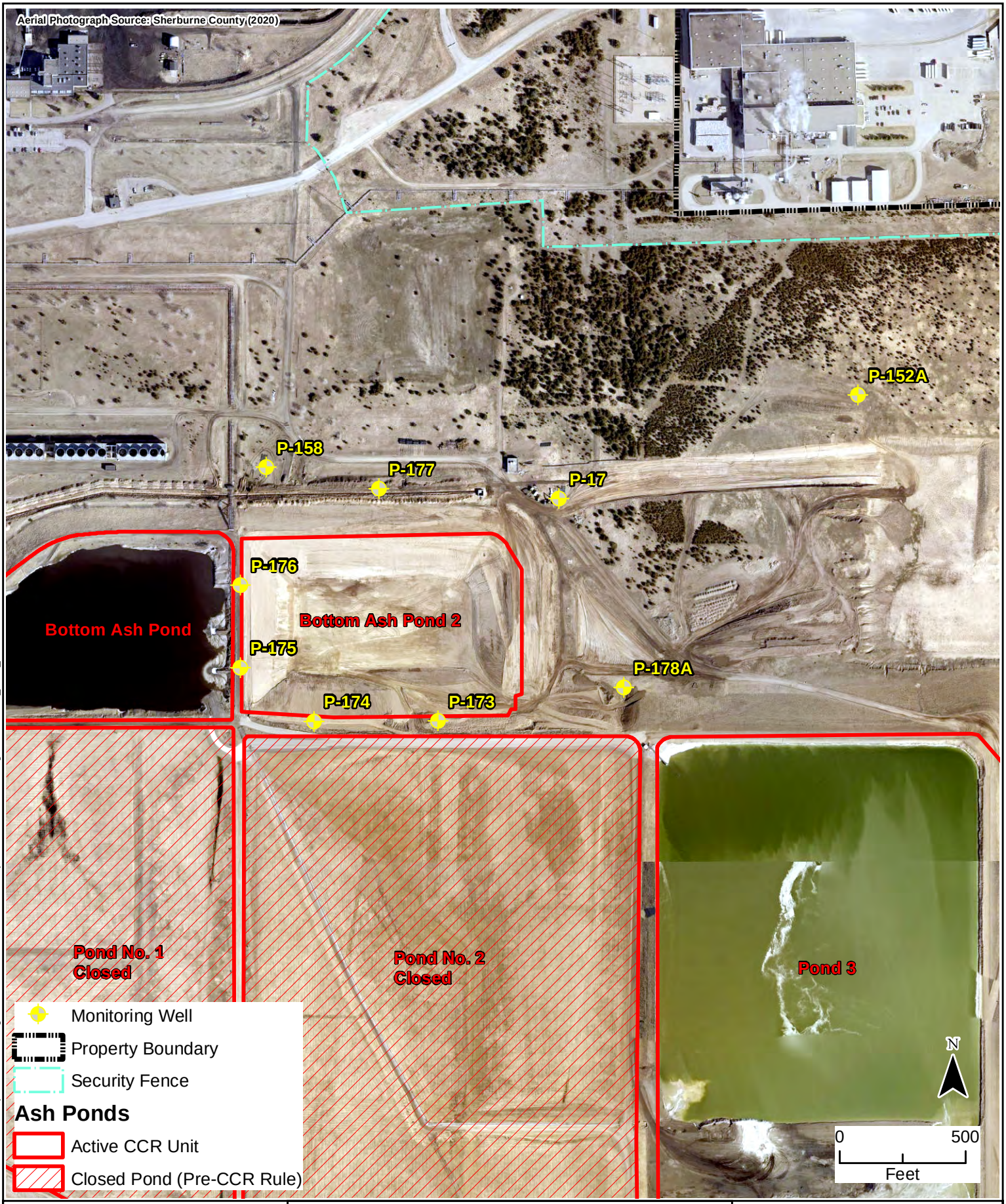
2020 CCR ANNUAL GROUNDWATER MONITORING REPORT

Bottom Ash Pond 2

Sherburne County Generating Plant
Becker, Minnesota

FIGURE 1

SITE LOCATION MAP



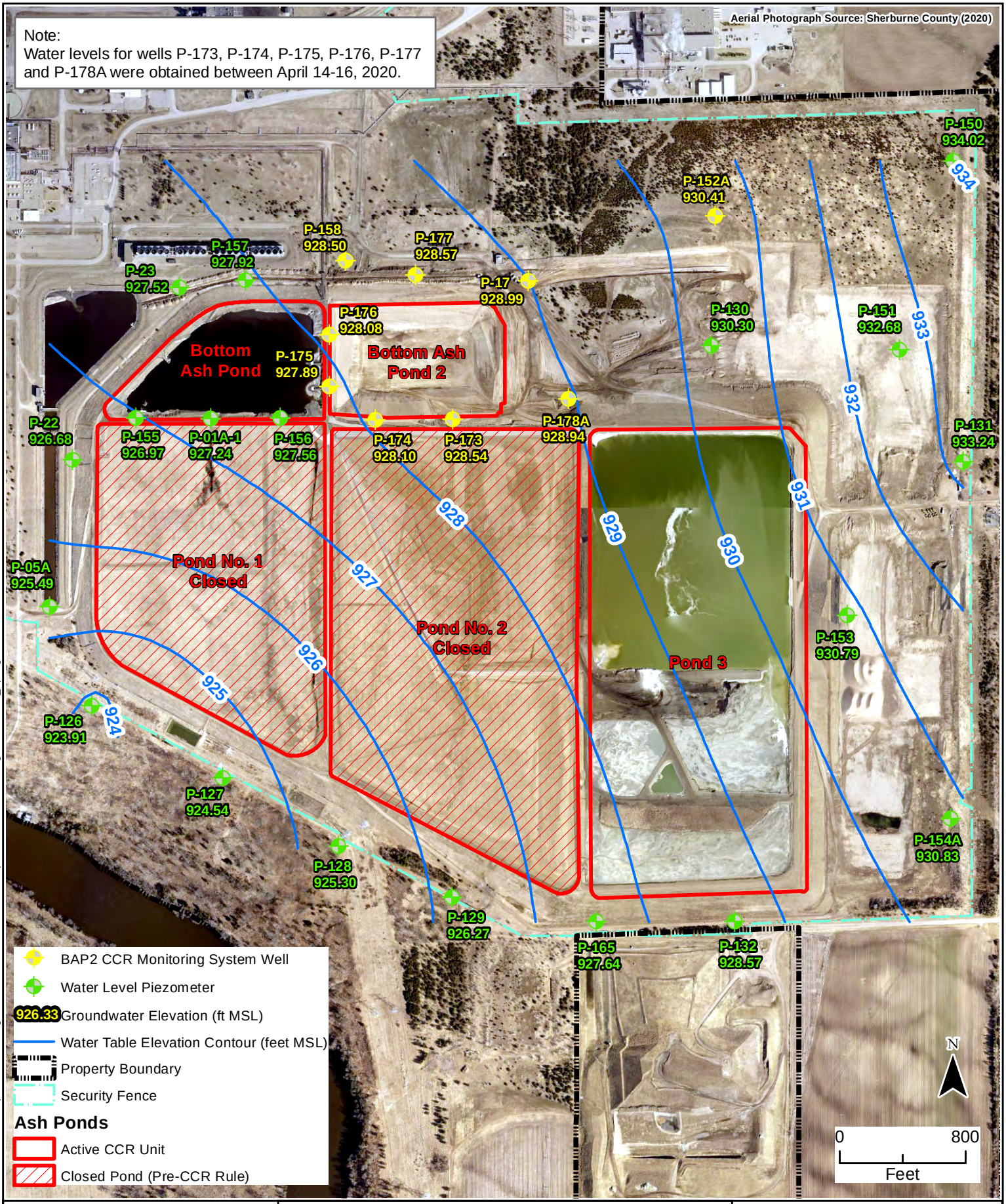
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Bottom Ash Pond 2
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 2

CCR GROUNDWATER MONITORING SYSTEM



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2020 CCR ANNUAL GROUNDWATER MONITORING REPORT
Bottom Ash Pond 2
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 3
WATER TABLE ELEVATION CONTOUR MAP (04/20/2020)



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2020 CCR ANNUAL GROUNDWATER MONITORING REPORT
Bottom Ash Pond 2
Sherburne County Generating Plant
Becker, Minnesota

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

Appendix A

March 2020 to July 2020 Baseline Dataset
Field Datasheets and Laboratory Reports

Baseline Monitoring Event #1
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

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

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] 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)	35.50	Feet
Static water level measurement at time of sampling (Final Depth)	35.50	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/2/20 Water Column: 23.26 Feet

Time Purged: 0930 - 1106 One Casing Volume: 3.8 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 11.52 Gallons

Field Sampling Data

Date Sampled: 3/2/20

Time Sampled: 1110

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 7.5 (mg/l)

Spec. Cond.: ~~7.04~~ 520 (umhos/cm) Turbidity: 1.3 (NTU)

DTA 3/2/20

Temp.: 9.0 (°C) (ORP) Eh: 96 (mV)

Other: ~~NA~~ Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 29° + partly cloudy, wind W 10

Sample Description: clear + odorless

Observations: collected Rinse Blank at this well.

DTA 3/2/20

Stabilization Test

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1002	7.5	520	9.0	7.3	NA	70	3.84
1034	7.5	520	9.0	7.4	NA	87	7.68
1106	7.4	520	9.0	7.5	1.3	96	11.52
			DTA 3/2/20				

Samples chilled immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/2/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-152A Labeled: 806318

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] 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)	35.40	Feet
Static water level measurement at time of sampling (Final Depth)	35.40	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/2/20 Water Column: 6.78 Feet

Time Purged: 1130-1200 One Casing Volume: 1.1 Gallons

Pump Rate: 0.12 (GPM)/ LPM Volume Purged: 3.6 Gallons

Field Sampling Data

Date Sampled: 3/2/20

Time Sampled: 1210

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 8.8 (mg/l)

Spec. Cond.: 350 (µmhos/cm) Turbidity: 2.2 (NTU)

Temp.: 9.5 (°C) (ORP) Eh: 60 (mV)

Other: ~~NA~~ Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 30° + partly cloudy, wind W 10

Sample Description: clear + odorless

Observations: ~~DJA 3/2/20~~

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1140	7.5	350	9.5	8.9	NA	62	1.2
1150	7.6	350	9.5	8.8	NA	60	2.4
1200	7.5	350	9.5	8.8	2.2	60	3.6

~~DJA 3/2/20~~

Samples chilled immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/2/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

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)	38.17	Feet
Static water level measurement at time of sampling (Final Depth)	38.17	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/2/20 Water Column: 10.99 Feet

Time Purged: 1430-1506 One Casing Volume: 1.8 Gallons

Pump Rate: 0.15 (GPM)/ LPM Volume Purged: 5.4 Gallons

Field Sampling Data

Date Sampled: 3/2/20

Time Sampled: 1515

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 8.9 (mg/l)

Spec. Cond.: 820 (µmhos/cm) Turbidity: 0.8 (NTU)

Temp.: 9.5 (°C) (ORP) Eh: 101 (mV)

Other: ~~NA~~ Appearance = clear

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

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

Weather Conditions During Sampling: 34°+ sunny, wind W10

Sample Description: clear + odorless

Observations:

DJA 3/2/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1442	7.3	840	9.5	9.0	NA	96	1.8
1454	7.3	830	9.5	9.0	NA	99	3.6
1506	7.3	820	9.5	8.9	0.8	101	5.4

DJA 3/2/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

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

Lead Technician Signature: David Anderson Date: 3/2/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-173 Labeled: 844707

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	80.30	Feet
Static water level measurement before purging (Start Depth)	70.19	Feet
Static water level measurement at time of sampling (Final Depth)	70.19	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/3/20 Water Column: 10.11 Feet

Time Purged: 1240 - 1328 One Casing Volume: 1.6 Gallons

Pump Rate: 0.10 (GPM) / LPM Volume Purged: 4.8 Gallons

Field Sampling Data

Date Sampled: 3/3/20

Time Sampled: 1340

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 6.4 (mg/l)

Spec. Cond.: 500 (µmhos/cm) Turbidity: 2.9 (NTU)

Temp.: 8.5 (°C) (ORP) Eh: 72 (mV)

Other: ~~N/A~~ Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 35°+ sunny, wind W20

Sample Description: clear + odorless

Observations: DTA 3/3/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1256	7.5	510	8.5	6.4	NA	98	1.6
1312	7.5	500	8.5	6.4	NA	84	3.2
1328	7.5	500	8.5	6.4	2.9	72	4.8
				DTA 3/3/20			

Samples chilled/ immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/3/20

Pace Analytical
Well Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-174 Labeled: 844706

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	82.27	Feet
Static water level measurement before purging (Start Depth)	72.83	Feet
Static water level measurement at time of sampling (Final Depth)	72.83	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/3/20 Water Column: 9.44 Feet

Time Purged: 1125-1213 One Casing Volume: 1.6 Gallons

Pump Rate: 0.10 (GPM) / LPM Volume Purged: 4.8 Gallons

Field Sampling Data

Date Sampled: 3/3/20

Time Sampled: 1220

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 6.5 (mg/l)

Spec. Cond.: 740 (µmhos/cm) Turbidity: 2.7 (NTU)

Temp.: 8.5 (°C) (ORP) Eh: 63 (mV)

Other: ~~AA~~ Appearance = clear

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

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

Weather Conditions During Sampling: 34° + sunny, wind W 20

Sample Description: clear + odor less

Observations: DTA 3/3/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1141	7.5	740	8.5	6.3	NA	89	1.6
1157	7.5	740	8.5	6.5	NA	75	3.2
1213	7.5	740	8.5	6.5	2.7	63	4.8

DTA 3/3/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

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

Lead Technician Signature: David Anderson Date: 3/3/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-175 Labeled: 844705

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	84.11	Feet
Static water level measurement before purging (Start Depth)	75.24	Feet
Static water level measurement at time of sampling (Final Depth)	75.24	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/3/20 Water Column: 8.87 Feet

Time Purged: 1010 - 1052 One Casing Volume: 1.4 Gallons

Pump Rate: 0.10 (GPM)/ LPM Volume Purged: 4.2 Gallons

Field Sampling Data

Date Sampled: 3/3/20

Time Sampled: 1100

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 7.1 (mg/l)

Spec. Cond.: 420 (µmhos/cm) Turbidity: 23.1 (NTU)

Temp.: 8.5 (°C) (ORP) Eh: 14 (mV)

Other: ~~NA~~ Appearance = clear

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

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

Weather Conditions During Sampling: 33° + sunny, wind W 20

Sample Description: clear + odorless

Observations: Collected Duplicate at this well.

DTA 3/3/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1024	7.6	410	8.5	7.1	NA	101	1.4
1038	7.5	420	8.5	7.1	NA	43	2.8
1052	7.5	420	8.5	7.1	23.1	14	4.2

DTA 3/3/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

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

Lead Technician Signature: David Anderson Date: 3/3/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco BAP 2, Baseline #1 Project No. 20-03022

Monitoring Point ID P-176 Labeled 844703

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	84.18	Feet
Static water level measurement before purging (Start Depth)	74.76	Feet
Static water level measurement at time of sampling (Final Depth)	74.76	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 3/3/20 Water Column 9.42 Feet

Time Purged 0900-0945 One Casing Volume 1.5 Gallons

Pump Rate 0.10 (GPM)/ LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 3/3/20

Time Sampled 0953

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 7.5 (mg/l)

Spec. Cond. 690 (µmhos/cm) Turbidity 2.0 (NTU)

Temp. 9.0 (°C) (ORP) Eh 120 (mV)

Other ~~NA~~ Appearance = clear

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

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

Weather Conditions During Sampling: 32° + sunny, wind was

Sample Description: clear + odorless

Observations:

DVA 3/3/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0915	7.5	690	9.0	7.8	NA	121	1.5
0930	7.4	690	9.0	7.6	NA	121	3.0
0945	7.4	690	9.0	7.5	2.0	120	4.5

DVA 3/3/20

Samples chilled immediately after collection? ☒ Yes ☐ Other

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

Lead Technician Signature: David Anderson Date: 3/3/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-177 Labeled: 844704

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	46.53	Feet
Static water level measurement before purging (Start Depth)	37.72	Feet
Static water level measurement at time of sampling (Final Depth)	37.72	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/2/20 Water Column: 8.81 Feet

Time Purged: 1330 - 1406 One Casing Volume: 1.4 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.32 Gallons

Field Sampling Data

Date Sampled: 3/2/20

Time Sampled: 1415

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 7.2 (mg/l)

Spec. Cond.: 440 (µmhos/cm) Turbidity: 8.5 (NTU)

Temp.: 9.0 (°C) (ORP) Eh: -4 (mV)

Other: ~~NA~~ Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 32° + sunny, wind W 10

Sample Description: clear + odorless

Observations:

DTA 3/2/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1342	7.4	440	9.0	7.1	NA	-1	1.44
1354	7.4	440	9.0	7.2	NA	-3	2.88
1406	7.3	440	9.0	7.2	8.5	-4	4.32

DTA 3/2/20

Samples chilled immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/2/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #1 Project No.: 20-03022

Monitoring Point ID: P-178A Labeled: 844708

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	47.41	Feet
Static water level measurement before purging (Start Depth)	37.77	Feet
Static water level measurement at time of sampling (Final Depth)	37.77	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/2/20 Water Column: 9.64 Feet

Time Purged: 1225-1307 One Casing Volume: 1.6 Gallons

Pump Rate: 0.12 (GPM)/ LPM Volume Purged: 5.04 Gallons

Field Sampling Data

Date Sampled: 3/2/20

Time Sampled: 1315

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 7.9 (mg/l)

Spec. Cond.: 510 (µmhos/cm) Turbidity: 9.8 (NTU)

Temp.: 9.5 (°C) (ORP) Eh: 70 (mV)

Other: ~~AA~~ Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 31° + sunny, wind W 10

Sample Description: clear + odorless

Observations: ~~DTA 3/2/20~~

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1239	7.3	510	9.5	8.1	NA	71	1.68
1253	7.2	510	9.5	8.0	21.2	70	3.36
1307	7.2	510	9.5	7.9	9.8	70	5.04
			~~DTA 3/2/20~~				

Samples chilled immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/2/20

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

01 April 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Sherco BAP2 CCR Monitoring

cc: Added CCR parameters to sample per client request. HSD 12/16/19

Enclosed are the results of analyses for samples received by the laboratory on 03/04/2020 10:52. If you have any questions concerning this report, please feel free to contact me.

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

Sincerely,

Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Rinse		MFC0077-01	Water	03/02/2020 9:25	03/04/2020 10:52
P-17		MFC0077-02	Water	03/02/2020 11:10	03/04/2020 10:52
P-152A		MFC0077-03	Water	03/02/2020 12:10	03/04/2020 10:52
P-178A		MFC0077-04	Water	03/02/2020 13:15	03/04/2020 10:52
P-177		MFC0077-05	Water	03/02/2020 14:15	03/04/2020 10:52
P-158		MFC0077-06	Water	03/02/2020 15:15	03/04/2020 10:52
P-176		MFC0077-07	Water	03/03/2020 9:55	03/04/2020 10:52
P-175		MFC0077-08	Water	03/03/2020 11:00	03/04/2020 10:52
Duplicate		MFC0077-09	Water	03/03/2020 11:00	03/04/2020 10:52
P-174		MFC0077-10	Water	03/03/2020 12:20	03/04/2020 10:52
P-173		MFC0077-11	Water	03/03/2020 13:40	03/04/2020 10:52

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Rinse

MFC0077-01 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 11:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 11:52	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 11:52	EPA 300.0	CRL
Wet Chemistry										
pH	6.01		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 6:49	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:11	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:51	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:49	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:49	EPA 200.7	HRD

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Rinse

MFC0077-01 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:46	EPA 245.1/7470A	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-02 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	20.6	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:13	EPA 300.0	CRL
Sulfate	23.6	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:13	EPA 300.0	CRL
Wet Chemistry										
pH	7.86		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:02	SM 4500-H+ B	CRL
Total Dissolved Solids	284	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.517	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Barium	38.9	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Chromium	0.957	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Selenium	0.622	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:15	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:30	EPA 200.7	HRD
Calcium	72.1	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:29	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:29	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-02 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:48	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-03 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:33	EPA 300.0	CRL
Sulfate	7.19	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:33	EPA 300.0	CRL
Wet Chemistry										
pH	7.85		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:06	SM 4500-H+ B	CRL
Total Dissolved Solids	194	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.507	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Barium	33.9	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Chromium	0.781	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:26	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:35	EPA 200.7	HRD
Calcium	54.1	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:34	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:34	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-03 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:49	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-04 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.30	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:53	EPA 300.0	CRL
Sulfate	65.7	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 12:53	EPA 300.0	CRL
Wet Chemistry										
pH	7.89		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:09	SM 4500-H+ B	CRL
Total Dissolved Solids	290	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	5.60	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.761	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Barium	46.7	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Chromium	1.85	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Molybdenum	0.898	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Selenium	2.44	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:30	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.399	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:56	EPA 200.7	HRD
Calcium	46.7	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:54	EPA 200.7	HRD
Lithium	0.0172	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:54	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

P-178A

MFC0077-04 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:51	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-05 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.53	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:14	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:14	EPA 300.0	CRL
Sulfate	41.8	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:14	EPA 300.0	CRL
Wet Chemistry										
pH	7.82		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:13	SM 4500-H+ B	CRL
Total Dissolved Solids	250	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	10.4	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Barium	56.5	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Chromium	1.11	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Molybdenum	9.37	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Selenium	1.25	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:34	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0704	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:01	EPA 200.7	HRD
Calcium	65.1	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:59	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 16:59	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-05 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:53	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-06 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.48	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:34	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:34	EPA 300.0	CRL
Sulfate	194	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:34	EPA 300.0	CRL
Wet Chemistry										
pH	7.67		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:16	SM 4500-H+ B	CRL
Total Dissolved Solids	532	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.501	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Barium	81.5	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Chromium	0.941	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Selenium	2.07	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:38	EPA 200.8	CRL
Total Metals by ICP										
Boron	1.01	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:05	EPA 200.7	HRD
Calcium	121	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:04	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:04	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-06 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 14:54	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-07 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	6.64	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:55	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:55	EPA 300.0	CRL
Sulfate	104	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 13:55	EPA 300.0	CRL
Wet Chemistry										
pH	7.60		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:20	SM 4500-H+ B	CRL
Total Dissolved Solids	442	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Barium	103	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Chromium	1.17	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Selenium	5.19	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:42	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.682	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:11	EPA 200.7	HRD
Calcium	102	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:09	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:09	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-07 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 15:00	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-08 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 15:57	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 15:57	EPA 300.0	CRL
Sulfate	11.1	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 15:57	EPA 300.0	CRL
Wet Chemistry										
pH	7.75		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:24	SM 4500-H+ B	CRL
Total Dissolved Solids	244	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	30.8	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.593	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Barium	56.6	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Cobalt	0.536	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Chromium	2.57	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Molybdenum	0.583	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Selenium	1.04	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:46	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.132	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:16	EPA 200.7	HRD
Calcium	68.2	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:14	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:14	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

P-175

MFC0077-08 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 15:01	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Duplicate

MFC0077-09 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:18	EPA 300.0	CRL
Sulfate	11.0	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:18	EPA 300.0	CRL
Wet Chemistry										
pH	7.77		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:27	SM 4500-H+ B	CRL
Total Dissolved Solids	240	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	36.0	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.657	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Barium	59.3	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Cobalt	0.566	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Chromium	2.36	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Molybdenum	0.566	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Selenium	1.03	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.130	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:21	EPA 200.7	HRD
Calcium	66.9	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:19	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:19	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Duplicate

MFC0077-09 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 15:03	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-10 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.27	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:38	EPA 300.0	CRL
Sulfate	43.1	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:38	EPA 300.0	CRL
Wet Chemistry										
pH	7.48		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:31	SM 4500-H+ B	CRL
Total Dissolved Solids	422	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Barium	86.0	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Chromium	0.852	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Molybdenum	6.46	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Selenium	2.05	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:54	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.182	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:26	EPA 200.7	HRD
Calcium	111	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:24	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:24	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

P-174

MFC0077-10 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 15:05	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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MFC0077-11 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.41	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:58	EPA 300.0	CRL
Sulfate	33.7	1.00	mg/L		1	BFC0159	3/6/20 5:51	3/6/20 16:58	EPA 300.0	CRL
Wet Chemistry										
pH	7.83		pH Units	M_TTT	1	BFC0066	3/4/20 11:43	3/5/20 7:34	SM 4500-H+ B	CRL
Total Dissolved Solids	294	20.0	mg/L		1	BFC0158	3/6/20 8:57	3/6/20 8:57	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0157	3/6/20 7:21	3/6/20 7:21	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Barium	56.4	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Chromium	0.521	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Molybdenum	30.5	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Selenium	1.78	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0233	3/11/20 10:26	3/18/20 10:58	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.167	0.0500	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:31	EPA 200.7	HRD
Calcium	65.3	1.25	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:29	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0232	3/11/20 10:24	3/24/20 17:29	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

P-173

MFC0077-11 (Water) - Chain of Custody Number: 2279317

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFC0276	3/12/20 9:31	3/12/20 15:06	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0159 - Wet Prep										
Blank (BFC0159-BLK1)				Prepared & Analyzed: 03/06/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFC0159-BLK2)				Prepared & Analyzed: 03/06/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFC0159-BS1)				Prepared & Analyzed: 03/06/2020						
Chloride	24.888	1.00	mg/L	25.000		99.6	90-110			
Fluoride	2.6040	0.750	mg/L	2.5000		104	90-110			
Sulfate	49.998	1.00	mg/L	50.150		99.7	90-110			
LCS (BFC0159-BS2)				Prepared & Analyzed: 03/06/2020						
Chloride	24.225	1.00	mg/L	25.000		96.9	90-110			
Fluoride	2.5210	0.750	mg/L	2.5000		101	90-110			
Sulfate	48.680	1.00	mg/L	50.150		97.1	90-110			
LCS (BFC0159-BS3)				Prepared & Analyzed: 03/06/2020						
Chloride	24.094	1.00	mg/L	25.000		96.4	90-110			
Fluoride	2.5080	0.750	mg/L	2.5000		100	90-110			
Sulfate	48.436	1.00	mg/L	50.150		96.6	90-110			
Duplicate (BFC0159-DUP1)		**Source: MFC0029-01**		Prepared & Analyzed: 03/06/2020						
Chloride	11.528	1.00	mg/L		11.644			1.00	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.7850	1.00	mg/L		7.8100			0.321	20	

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0159 - Wet Prep										
Duplicate (BFC0159-DUP2)		**Source: MFC0077-03**		Prepared & Analyzed: 03/06/2020						
Chloride	0.68600	1.00	mg/L		0.68200			0.585	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.2380	1.00	mg/L		7.1920			0.638	20	
Matrix Spike (BFC0159-MS1)		**Source: MFC0029-01**		Prepared & Analyzed: 03/06/2020						
Chloride	33.608	1.00	mg/L	25.000	11.644	87.9	90-110			M_MS
Fluoride	2.4660	0.750	mg/L	2.5000	<0.750	98.6	90-110			
Sulfate	54.718	1.00	mg/L	50.150	7.8100	93.5	90-110			
Matrix Spike (BFC0159-MS2)		**Source: MFC0077-03**		Prepared & Analyzed: 03/06/2020						
Chloride	24.808	1.00	mg/L	25.000	0.68200	96.5	90-110			
Fluoride	2.4650	0.750	mg/L	2.5000	<0.750	98.6	90-110			
Sulfate	54.748	1.00	mg/L	50.150	7.1920	94.8	90-110			
Matrix Spike Dup (BFC0159-MSD1)		**Source: MFC0029-01**		Prepared & Analyzed: 03/06/2020						
Chloride	33.763	1.00	mg/L	25.000	11.644	88.5	90-110	0.460	20	M_MS
Fluoride	2.6340	0.750	mg/L	2.5000	<0.750	105	90-110	6.59	20	
Sulfate	55.443	1.00	mg/L	50.150	7.8100	95.0	90-110	1.32	20	
Matrix Spike Dup (BFC0159-MSD2)		**Source: MFC0077-03**		Prepared & Analyzed: 03/06/2020						
Chloride	24.749	1.00	mg/L	25.000	0.68200	96.3	90-110	0.238	20	
Fluoride	2.5910	0.750	mg/L	2.5000	<0.750	104	90-110	4.98	20	
Sulfate	54.777	1.00	mg/L	50.150	7.1920	94.9	90-110	0.0530	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0066 - Wet Prep										
LCS (BFC0066-BS1)				Prepared: 03/04/2020 Analyzed: 03/05/2020						
pH	7.0400		pH Units	7.0000		101	90-110			
LCS (BFC0066-BS2)				Prepared: 03/04/2020 Analyzed: 03/05/2020						
pH	7.0600		pH Units	7.0000		101	90-110			
Duplicate (BFC0066-DUP1)		**Source: MFC0029-01**		Prepared: 03/04/2020 Analyzed: 03/05/2020						
pH	7.9100		pH Units		7.9700			0.756	20	
Duplicate (BFC0066-DUP2)		**Source: MFC0077-02**		Prepared: 03/04/2020 Analyzed: 03/05/2020						
pH	7.8400		pH Units		7.8600			0.255	20	
Batch BFC0157 - Wet Prep										
Blank (BFC0157-BLK1)				Prepared & Analyzed: 03/06/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFC0157-BS1)				Prepared & Analyzed: 03/06/2020						
Total Suspended Solids	89.000	4.00	mg/L	101.20		87.9	70-130			
Duplicate (BFC0157-DUP1)		**Source: MFC0077-02**		Prepared & Analyzed: 03/06/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFC0157-DUP2)		**Source: MFC0077-03**		Prepared & Analyzed: 03/06/2020						
Total Suspended Solids	2.4000	4.00	mg/L		1.2000			66.7	20	M_D-RL
Batch BFC0158 - Wet Prep										
Blank (BFC0158-BLK1)				Prepared & Analyzed: 03/06/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0158 - Wet Prep										
LCS (BFC0158-BS1)				Prepared & Analyzed: 03/06/2020						
Total Dissolved Solids	54.000	20.0	mg/L	51.800		104	70-130			
Duplicate (BFC0158-DUP1)			**Source: MFC0029-01**	Prepared & Analyzed: 03/06/2020						
Total Dissolved Solids	182.00	20.0	mg/L		198.00			8.42	20	
Duplicate (BFC0158-DUP2)			**Source: MFC0077-02**	Prepared & Analyzed: 03/06/2020						
Total Dissolved Solids	292.00	20.0	mg/L		284.00			2.78	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0233 - EPA 200.2, EPA 3005										
Blank (BFC0233-BLK1)				Prepared: 03/11/2020 Analyzed: 03/18/2020						
Thallium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Beryllium	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
LCS (BFC0233-BS1)				Prepared: 03/11/2020 Analyzed: 03/18/2020						
Barium	99.797	0.500	ug/L	100.00		99.8	85-115			
Arsenic	95.591	0.500	ug/L	100.00		95.6	85-115			
Lead	98.933	0.500	ug/L	100.00		98.9	85-115			
Cadmium	101.97	0.100	ug/L	100.00		102	85-115			
Cobalt	102.55	0.500	ug/L	100.00		103	85-115			
Thallium	101.88	0.500	ug/L	100.00		102	85-115			
Chromium	105.43	0.500	ug/L	100.00		105	85-115			
Selenium	98.762	0.500	ug/L	100.00		98.8	85-115			
Molybdenum	100.50	0.500	ug/L	100.00		101	85-115			
Beryllium	105.54	0.500	ug/L	100.00		106	85-115			
Antimony	97.094	0.500	ug/L	100.00		97.1	85-115			
Duplicate (BFC0233-DUP1)		**Source: MFC0077-04**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Thallium	0.019580	0.500	ug/L		<0.500				20	
Selenium	2.6339	0.500	ug/L		2.4378			7.73	20	
Antimony	0.24729	0.500	ug/L		0.21141			15.6	20	
Lead	0.16976	0.500	ug/L		0.14185			17.9	20	
Chromium	1.7760	0.500	ug/L		1.8524			4.21	20	
Molybdenum	0.96262	0.500	ug/L		0.89778			6.97	20	
Beryllium	0.019727	0.500	ug/L		<0.500				20	
Barium	49.122	0.500	ug/L		46.726			5.00	20	
Cobalt	0.42214	0.500	ug/L		0.42420			0.487	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Arsenic	0.85954	0.500	ug/L		0.76066			12.2	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0233 - EPA 200.2, EPA 3005										
Duplicate (BFC0233-DUP2)		**Source: MFC0077-05**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Antimony	0.17346	0.500	ug/L		0.15567			10.8	20	
Chromium	1.0463	0.500	ug/L		1.1080			5.74	20	
Cobalt	0.21221	0.500	ug/L		0.20974			1.17	20	
Lead	0.091431	0.500	ug/L		0.095898			4.77	20	
Arsenic	0.41343	0.500	ug/L		0.49443			17.8	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Molybdenum	9.4751	0.500	ug/L		9.3749			1.06	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Selenium	1.1907	0.500	ug/L		1.2521			5.03	20	
Barium	60.066	0.500	ug/L		56.513			6.10	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Matrix Spike (BFC0233-MS1)		**Source: MFC0077-04**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Selenium	93.890	0.500	ug/L	100.00	2.4378	91.5	75-125			
Lead	93.659	0.500	ug/L	100.00	0.14185	93.5	75-125			
Molybdenum	102.54	0.500	ug/L	100.00	0.89778	102	75-125			
Beryllium	110.01	0.500	ug/L	100.00	<0.500	110	75-125			
Thallium	98.124	0.500	ug/L	100.00	<0.500	98.1	75-125			
Antimony	102.91	0.500	ug/L	100.00	0.21141	103	75-125			
Cobalt	104.10	0.500	ug/L	100.00	0.42420	104	75-125			
Arsenic	101.19	0.500	ug/L	100.00	0.76066	100	75-125			
Cadmium	103.04	0.100	ug/L	100.00	<0.100	103	75-125			
Chromium	109.96	0.500	ug/L	100.00	1.8524	108	75-125			
Barium	146.39	0.500	ug/L	100.00	46.726	99.7	75-125			
Matrix Spike (BFC0233-MS2)		**Source: MFC0077-05**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Beryllium	99.045	0.500	ug/L	100.00	<0.500	99.0	75-125			
Thallium	93.678	0.500	ug/L	100.00	<0.500	93.7	75-125			
Arsenic	98.725	0.500	ug/L	100.00	0.49443	98.2	75-125			
Selenium	101.93	0.500	ug/L	100.00	1.2521	101	75-125			
Barium	159.67	0.500	ug/L	100.00	56.513	103	75-125			
Chromium	103.34	0.500	ug/L	100.00	1.1080	102	75-125			
Antimony	100.58	0.500	ug/L	100.00	0.15567	100	75-125			
Lead	91.624	0.500	ug/L	100.00	0.095898	91.5	75-125			
Cadmium	99.553	0.100	ug/L	100.00	<0.100	99.6	75-125			
Molybdenum	109.32	0.500	ug/L	100.00	9.3749	99.9	75-125			
Cobalt	100.01	0.500	ug/L	100.00	0.20974	99.8	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0233 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFC0233-MSD1)		**Source: MFC0077-04**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Cadmium	100.51	0.100	ug/L	100.00	<0.100	101	75-125	2.48	20	
Lead	89.231	0.500	ug/L	100.00	0.14185	89.1	75-125	4.84	20	
Arsenic	98.557	0.500	ug/L	100.00	0.76066	97.8	75-125	2.64	20	
Barium	143.79	0.500	ug/L	100.00	46.726	97.1	75-125	1.80	20	
Beryllium	98.755	0.500	ug/L	100.00	<0.500	98.8	75-125	10.8	20	
Cobalt	100.96	0.500	ug/L	100.00	0.42420	101	75-125	3.06	20	
Molybdenum	101.53	0.500	ug/L	100.00	0.89778	101	75-125	0.996	20	
Antimony	97.129	0.500	ug/L	100.00	0.21141	96.9	75-125	5.78	20	
Thallium	96.848	0.500	ug/L	100.00	<0.500	96.8	75-125	1.31	20	
Selenium	103.01	0.500	ug/L	100.00	2.4378	101	75-125	9.26	20	
Chromium	104.79	0.500	ug/L	100.00	1.8524	103	75-125	4.82	20	
Matrix Spike Dup (BFC0233-MSD2)		**Source: MFC0077-05**		Prepared: 03/11/2020 Analyzed: 03/18/2020						
Antimony	99.948	0.500	ug/L	100.00	0.15567	99.8	75-125	0.630	20	
Arsenic	98.537	0.500	ug/L	100.00	0.49443	98.0	75-125	0.190	20	
Cadmium	99.168	0.100	ug/L	100.00	<0.100	99.2	75-125	0.388	20	
Molybdenum	110.26	0.500	ug/L	100.00	9.3749	101	75-125	0.854	20	
Lead	90.217	0.500	ug/L	100.00	0.095898	90.1	75-125	1.55	20	
Beryllium	104.84	0.500	ug/L	100.00	<0.500	105	75-125	5.69	20	
Barium	156.52	0.500	ug/L	100.00	56.513	100	75-125	1.99	20	
Cobalt	102.65	0.500	ug/L	100.00	0.20974	102	75-125	2.60	20	
Thallium	97.139	0.500	ug/L	100.00	<0.500	97.1	75-125	3.63	20	
Selenium	99.547	0.500	ug/L	100.00	1.2521	98.3	75-125	2.37	20	
Chromium	104.24	0.500	ug/L	100.00	1.1080	103	75-125	0.860	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0232 - EPA 200.2, EPA 3005										
Blank (BFC0232-BLK1)				Prepared: 03/11/2020 Analyzed: 03/24/2020						
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.25	1.25	mg/L							
LCS (BFC0232-BS1)				Prepared: 03/11/2020 Analyzed: 03/24/2020						
Calcium	103.95	1.25	mg/L	100.00		104	85-115			
Boron	1.0398	0.0500	mg/L	1.0000		104	85-115			
Lithium	1.0186	0.0150	mg/L	1.0000		102	85-115			
Duplicate (BFC0232-DUP1)		**Source: MFC0077-02**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Lithium	0.0046257	0.0150	mg/L		0.0038466			18.4	20	
Calcium	68.432	1.25	mg/L		72.076			5.19	20	
Boron	0.023668	0.0500	mg/L		0.027228			14.0	20	
Duplicate (BFC0232-DUP2)		**Source: MFC0077-03**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Calcium	52.848	1.25	mg/L		54.133			2.40	20	
Boron	0.046978	0.0500	mg/L		0.047906			1.96	20	
Lithium	<0.0150	0.0150	mg/L		0.0035200				20	
Matrix Spike (BFC0232-MS1)		**Source: MFC0077-02**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Calcium	181.51	1.25	mg/L	100.00	72.076	109	70-130			
Lithium	1.0488	0.0150	mg/L	1.0000	0.0038466	104	70-130			
Boron	1.0843	0.0500	mg/L	1.0000	0.027228	106	70-130			
Matrix Spike (BFC0232-MS2)		**Source: MFC0077-03**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Lithium	1.0528	0.0150	mg/L	1.0000	0.0035200	105	70-130			
Boron	1.1076	0.0500	mg/L	1.0000	0.047906	106	70-130			
Calcium	162.56	1.25	mg/L	100.00	54.133	108	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0232 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFC0232-MSD1)		**Source: MFC0077-02**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Calcium	178.49	1.25	mg/L	100.00	72.076	106	70-130	1.67	20	
Lithium	1.0383	0.0150	mg/L	1.0000	0.0038466	103	70-130	1.01	20	
Boron	1.0883	0.0500	mg/L	1.0000	0.027228	106	70-130	0.371	20	
Matrix Spike Dup (BFC0232-MSD2)		**Source: MFC0077-03**		Prepared: 03/11/2020 Analyzed: 03/24/2020						
Boron	1.1223	0.0500	mg/L	1.0000	0.047906	107	70-130	1.32	20	
Lithium	1.0582	0.0150	mg/L	1.0000	0.0035200	105	70-130	0.510	20	
Calcium	163.72	1.25	mg/L	100.00	54.133	110	70-130	0.713	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0276 - EPA 245.1, EPA 7470A										
Blank (BFC0276-BLK1)				Prepared & Analyzed: 03/12/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFC0276-BS1)				Prepared & Analyzed: 03/12/2020						
Mercury	2.7866	0.200	ug/L	3.0030		92.8	85-115			
Duplicate (BFC0276-DUP1)		**Source: MFC0077-06**		Prepared & Analyzed: 03/12/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFC0276-DUP2)		**Source: MFC0077-07**		Prepared & Analyzed: 03/12/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFC0276-MS1)		**Source: MFC0077-06**		Prepared & Analyzed: 03/12/2020						
Mercury	2.8115	0.200	ug/L	3.0030	<0.200	93.6	70-130			
Matrix Spike (BFC0276-MS2)		**Source: MFC0077-07**		Prepared & Analyzed: 03/12/2020						
Mercury	2.7633	0.200	ug/L	3.0030	<0.200	92.0	70-130			
Matrix Spike Dup (BFC0276-MSD1)		**Source: MFC0077-06**		Prepared & Analyzed: 03/12/2020						
Mercury	2.8147	0.200	ug/L	3.0030	<0.200	93.7	70-130	0.114	20	
Matrix Spike Dup (BFC0276-MSD2)		**Source: MFC0077-07**		Prepared & Analyzed: 03/12/2020						
Mercury	2.7192	0.200	ug/L	3.0030	<0.200	90.5	70-130	1.61	20	

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/01/2020 12:14

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_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

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

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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.

Page: 1 of 1

2279317

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Xcel Energy	Report To: David Katzner	Attention: Steve Davis
Address: Environmental Services MP-7	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Sherco BAP2, Baseline #1	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: GW-CCR	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Rinse	WT				3/2/20	0925		2	1		1						✓		
2	P-17						1110		2	1		1						✓		
3	P-152A						1210		2	1		1						✓		
4	P-178A						1315		2	1		1						✓		
5	P-177						1415		2	1		1						✓		
6	P-158	↓				↓	1515		2	1		1						✓		
7	P-176	WT				3/3/20	0955		2	1		1						✓		
8	P-175						1100		2	1		1						✓		
9	Duplicate						1100		2	1		1						✓		
10	P-174						1220		2	1		1						✓		
11	P-173	↓				↓	1340		2	1		1						✓		
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
All metals bottles are unfiltered.	David Anderson/Pace	3/4/20	1045	[signature]	3/4/20	1052	4.7°C

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson

DATE Signed (MM/DD/YY): 3/3/20

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*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.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

March 26, 2020

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

RE: Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Dear Dave Anderson:
Enclosed are the analytical results for sample(s) received by the laboratory on March 06, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Carin A. Ferris

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

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CERTIFICATIONS

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

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

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SAMPLE SUMMARY

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30353639001	**Rinse**	Water	03/02/20 09:25	03/06/20 09:10
30353639002	**P-17**	Water	03/02/20 11:10	03/06/20 09:10
30353639003	**P-152A**	Water	03/02/20 12:10	03/06/20 09:10
30353639004	**P-178A**	Water	03/02/20 13:15	03/06/20 09:10
30353639005	**P-177**	Water	03/02/20 14:15	03/06/20 09:10
30353639006	**P-158**	Water	03/02/20 15:15	03/06/20 09:10
30353639007	**P-176**	Water	03/03/20 09:55	03/06/20 09:10
30353639008	**P-175**	Water	03/03/20 11:00	03/06/20 09:10
30353639009	**Duplicate**	Water	03/03/20 11:00	03/06/20 09:10
30353639010	**P-174**	Water	03/03/20 12:20	03/06/20 09:10
30353639011	**P-173**	Water	03/03/20 13:40	03/06/20 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30353639001	**Rinse**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639002	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639003	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639004	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639005	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639006	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639008	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639009	**Duplicate**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639010	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30353639011	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: March 26, 2020

General Information:
11 samples were analyzed for EPA 903.1. 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: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: March 26, 2020

General Information:
11 samples were analyzed for EPA 904.0. 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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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: March 26, 2020

General Information:
11 samples were analyzed for Total Radium Calculation. 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: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Sample: Rinse **Lab ID: 30353639001** Collected: 03/02/20 09:25 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**4.48 ± 1.07 (0.452) C:NA T:96%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.321 ± 0.377 (0.793) C:75% T:75%**	pCi/L	03/25/20 11:30	15262-20-1	
Total Radium	Total Radium Calculation	**4.80 ± 1.45 (1.25)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-17 **Lab ID: 30353639002** Collected: 03/02/20 11:10 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.0552 ± 0.252 (0.513) C:NA T:85%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.283 ± 0.440 (0.953) C:70% T:87%**	pCi/L	03/25/20 11:30	15262-20-1	
Total Radium	Total Radium Calculation	**0.283 ± 0.692 (1.47)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-152A **Lab ID: 30353639003** Collected: 03/02/20 12:10 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.184 ± 0.362 (0.650) C:NA T:96%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.397 ± 0.420 (0.876) C:75% T:80%**	pCi/L	03/25/20 11:30	15262-20-1	
Total Radium	Total Radium Calculation	**0.581 ± 0.782 (1.53)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-178A **Lab ID: 30353639004** Collected: 03/02/20 13:15 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.364 ± 0.336 (0.489) C:NA T:98%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**1.13 ± 0.565 (1.01) C:70% T:80%**	pCi/L	03/25/20 11:30	15262-20-1	
Total Radium	Total Radium Calculation	**1.49 ± 0.901 (1.50)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-177 **Lab ID: 30353639005** Collected: 03/02/20 14:15 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.403 ± 0.365 (0.538) C:NA T:93%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.232 ± 0.411 (0.897) C:73% T:88%**	pCi/L	03/25/20 11:30	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Sample: P-177 **Lab ID: 30353639005** Collected: 03/02/20 14:15 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	**0.635 ± 0.776 (1.44)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-158 **Lab ID: 30353639006** Collected: 03/02/20 15:15 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.396 (0.794) C:NA T:92%**	pCi/L	03/25/20 11:39	13982-63-3	
Radium-228	EPA 904.0	**0.613 ± 0.381 (0.704) C:72% T:84%**	pCi/L	03/25/20 11:30	15262-20-1	
Total Radium	Total Radium Calculation	**0.613 ± 0.777 (1.50)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-176 **Lab ID: 30353639007** Collected: 03/03/20 09:55 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.128 ± 0.222 (0.397) C:NA T:99%**	pCi/L	03/25/20 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.374 ± 0.419 (0.876) C:69% T:79%**	pCi/L	03/25/20 11:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.502 ± 0.641 (1.27)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-175 **Lab ID: 30353639008** Collected: 03/03/20 11:00 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.0988 ± 0.306 (0.697) C:NA T:89%**	pCi/L	03/25/20 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.411 ± 0.403 (0.827) C:71% T:79%**	pCi/L	03/25/20 11:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.411 ± 0.709 (1.52)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: Duplicate **Lab ID: 30353639009** Collected: 03/03/20 11:00 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.340 ± 0.275 (0.154) C:NA T:81%**	pCi/L	03/25/20 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.325 ± 0.437 (0.936) C:69% T:85%**	pCi/L	03/25/20 11:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.665 ± 0.712 (1.09)**	pCi/L	03/26/20 11:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

Sample: P-174 **Lab ID: 30353639010** Collected: 03/03/20 12:20 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.0499 ± 0.379 (0.791) C:NA T:86%**	pCi/L	03/25/20 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.995 ± 0.473 (0.805) C:73% T:82%**	pCi/L	03/25/20 11:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.995 ± 0.852 (1.60)**	pCi/L	03/26/20 11:18	7440-14-4	

Sample: P-173 **Lab ID: 30353639011** Collected: 03/03/20 13:40 Received: 03/06/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0469 ± 0.214 (0.345) C:NA T:95%**	pCi/L	03/25/20 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.199 ± 0.378 (0.831) C:70% T:81%**	pCi/L	03/25/20 11:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.246 ± 0.592 (1.18)**	pCi/L	03/26/20 11:18	7440-14-4	

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

QC Batch: 387214 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30353639001, 30353639002, 30353639003, 30353639004, 30353639005, 30353639006, 30353639007, 30353639008, 30353639009, 30353639010, 30353639011

METHOD BLANK: 1875705 Matrix: Water
Associated Lab Samples: 30353639001, 30353639002, 30353639003, 30353639004, 30353639005, 30353639006, 30353639007, 30353639008, 30353639009, 30353639010, 30353639011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.550 ± 0.414 (0.814) C:74% T:82%	pCi/L	03/25/20 11:29	

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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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

QC Batch: 387213 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30353639001, 30353639002, 30353639003, 30353639004, 30353639005, 30353639006, 30353639007, 30353639008, 30353639009, 30353639010, 30353639011

METHOD BLANK: 1875703 Matrix: Water
Associated Lab Samples: 30353639001, 30353639002, 30353639003, 30353639004, 30353639005, 30353639006, 30353639007, 30353639008, 30353639009, 30353639010, 30353639011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0357 ± 0.252 (0.535) C:NA T:98%	pCi/L	03/25/20 11:23	

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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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 20-03022,Xcel Energy-Sherco BA
Pace Project No.: 30353639

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.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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www.pacelabs.com

CHAIN-OF-CUS

The Chain-of-Custody is a L

WO# : 30353639

30353639

Page: 1 of 1

2279331

Section A
Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B
Required Project Information:

Report To: David Anderson
Copy To:
Purchase Order No.:
Project Name: 20-03022, Xcel Energy -
Project Number: Sherco BAP2, Baseline #1

Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

REGULATORY AGENCY

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

Site Location STATE:

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Rinse	WT				3/2/20	0925		2			2						✓	✓		
2	P-17						1110		2			2						✓	✓		
3	P-152A						1210		2			2						✓	✓		
4	P-178A						1315		2			2						✓	✓		
5	P-177						1445		2			2						✓	✓		
6	P-158						1515		2			2						✓	✓		
7	P-176	WT				3/3/20	0955		2			2						✓	✓		
8	P-175						1100		2			2						✓	✓		
9	Duplicate						1100		2			2						✓	✓		
10	P-174						1220		2			2						✓	✓		
11	P-173						1340		2			2						✓	✓		
12	DTA 3/3/20																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① client needs to analyze for: Radium 226+228pCi/L combined.	David Anderson / Pace	3/4/20	0925		3/4/20	0910	—	N	N	Y

① RA-226 EPA 903.1
RA-228 EPA 904.0

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson
SIGNATURE of SAMPLER: David Anderson
DATE Signed (MM/DD/YY): 3/3/20

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Pace MN Project # 30353639

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

Label JSM
LIMS Login JSM

Tracking #: 1686 7300 8080

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

Thermometer Used _____ 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

Comments:	Yes	No	N/A	pH paper Lot# 10100391 / Date and Initials of person examining contents: JSM 3/6/2020
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed JSM Date/time of preservation Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: JSM Date: 3/6/2020

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Baseline Monitoring Event #2
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #2 Project No.: 20-03096

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)	35.65	Feet
Static water level measurement at time of sampling (Final Depth)	35.65	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/25/20 Water Column: 23.11 Feet

Time Purged: 0755-0931 One Casing Volume: 3.8 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 11.52 Gallons

Field Sampling Data

Date Sampled: 3/25/20

Time Sampled: 0940

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 5.2 (mg/l)

Spec. Cond.: 500 (µmhos/cm) Turbidity: 0.8 (NTU)

Temp.: 9.0 (°C) Eh: 63 (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: 37°+ cloudy, wind W 10

Sample Description: clear + odorless

Observations: DTA 3/25/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0827	7.2	510	9.0	6.0	NA	78	3.84
0859	7.3	500	9.0	5.6	NA	69	7.68
0931	7.3	500	9.0	5.2	0.8	63	11.52
			DTA 3/25/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2018

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

Lead Technician Signature: David Anderson Date: 3/25/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #2 Project No.: 20-03096

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)	35.77	Feet
Static water level measurement at time of sampling (Final Depth)	35.77	Feet
Static Water Level Elevation Before Purging	NA	Feet
Purge Method	dedicated bladder pump	
Pump ID	PC-6	
Date Purged	3/24/20	
Water Column	6.41	Feet
Time Purged	0933 - 1000	
One Casing Volume	1.0	Gallons
Pump Rate	0.12 (GPM) / LPM	
Volume Purged	3.24	Gallons

Field Sampling Data

Date Sampled: 3/24/20
Time Sampled: 1010
Sampling Equip.: above pump
Meter ID: MPS-5
Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 6.6 (mg/l)
Spec. Cond.: 360 (µmhos/cm) Turbidity: 1.1 (NTU)
Temp.: 9.5 (°C) Eh: 101 (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: 38° + cloudy, wind SW 10
Sample Description: clear + odorless
Observations: collected Rinse Blank at this well.
DTA 3/24/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0942	7.3	370	9.5	6.6	NA	103	1.08
0951	7.3	360	9.5	6.6	NA	102	2.16
1000	7.3	360	9.5	6.6	1.1	101	3.24
			DTA 3/24/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/24/2019

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

Lead Technician Signature: David Anderson Date: 3/24/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-158 Labeled: 812967

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] 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)	38.24	Feet
Static water level measurement at time of sampling (Final Depth)	38.24	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/25/20 Water Column: 10.92 Feet

Time Purged: 0955 - 1040 One Casing Volume: 1.8 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 5.4 Gallons

Field Sampling Data

Date Sampled: 3/25/20

Time Sampled: 1050

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 6.6 (mg/l)

Spec. Cond.: 930 (µmhos/cm) Turbidity: 0.7 (NTU)

Temp.: 9.5 (°C) Eh: 88 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 38° + cloudy, wind NW 10

Sample Description: clear + odorless

Observations: collected Duplicate at this well.

DTA 3/25/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1010	7.2	940	9.5	6.7	NA	80	1.8
1025	7.2	930	9.5	6.6	NA	85	3.6
1040	7.2	930	9.5	6.6	0.7	88	5.4

DTA 3/25/20

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 01/25/2018

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

Lead Technician Signature: David Anderson Date: 3/25/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP 2, Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-173 Labeled: 844707

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	80.30	Feet
Static water level measurement before purging (Start Depth)	70.19	Feet
Static water level measurement at time of sampling (Final Depth)	70.19	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/24/20 Water Column: 10.11 Feet

Time Purged: 1255-1337 One Casing Volume: 1.6 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 5.04 Gallons

Field Sampling Data

Date Sampled: 3/24/20

Time Sampled: 1345

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 4.2 (mg/l)

Spec. Cond.: 510 (µmhos/cm) Turbidity: 2.8 (NTU)

Temp.: 9.0 (°C) Eh: 72 (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: 43° + cloudy, wind 5 10

Sample Description: clear + odorless

Observations: ~~DJA 3/24/20~~

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1309	7.4	510	9.0	4.2	NA	68	1.68
1323	7.4	510	9.0	4.2	NA	71	3.36
1337	7.4	510	9.0	4.2	2.8	72	5.04

~~DJA 3/24/20~~

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2018

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

Lead Technician Signature: David Anderson Date: 3/24/20

Pace Analytical Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-174 Labeled: 844706

Inside Diameter: 2 (Inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	82.27	Feet
Static water level measurement before purging (Start Depth)	72.82	Feet
Static water level measurement at time of sampling (Final Depth)	72.82	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/24/20 Water Column: 9.45 Feet

Time Purged: 1145-1224 One Casing Volume: 1.5 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 3/24/20

Time Sampled: 1230

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 5.0 (mg/l)

Spec. Cond.: 690 (umhos/cm) Turbidity: 2.4 (NTU)

Temp.: 9.5 (°C) Eh: 88 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 40°+ cloudy, wind SW 10

Sample Description: clear + odorless

Observations:

DTA 3/24/20

Stabilization Test

Time	pH (unit(s))	Specific Conductance (umhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1158	7.2	700	9.5	4.8	NA	86	1.56
1211	7.2	690	9.5	4.9	NA	88	3.12
1224	7.2	690	9.5	5.0	2.4	88	4.68

DTA 3/24/20

Samples chilled immediately after collection: [X] Yes [ ] Other

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

Lead Technician Signature: David Anderson Date: 3/24/20

Pace Analytical

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-175 Labeled: 844705

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	84.11	Feet
Static water level measurement before purging (Start Depth)	75.33	Feet
Static water level measurement at time of sampling (Final Depth)	75.33	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/25/20 Water Column: 8.78 Feet

Time Purged: 1200 - 1236 One Casing Volume: 1.4 Gallons

Pump Rate: 0.12 (GPM)/ LPM Volume Purged: 4.32 Gallons

Field Sampling Data

Date Sampled: 3/25/20

Time Sampled: 1240

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DTA

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 5.3 (mg/l)

Spec. Cond.: 410 (µmhos/cm) Turbidity: 27.2 (NTU)

Temp.: 8.5 (°C) Eh: 51 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 38° + light rain, wind NW 10

Sample Description: clear + odorless

Observations: DTA 3/25/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1212	7.4	410	8.5	5.4	NA	69	1.44
1224	7.4	410	8.5	5.3	NA	57	2.88
1236	7.4	410	8.5	5.3	27.2	51	4.32

DTA 3/25/20

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 01/07/2019

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

Lead Technician Signature: David Anderson Date: 3/25/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Resampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-176 Labeled: 844783

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation: NA Feet

Total Well Depth: 84.18 Feet

Static water level measurement before purging (Start Depth): 74.85 Feet

Static water level measurement at time of sampling (Final Depth): 74.85 Feet

Static Water Level Elevation Before Purging: NA Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/25/20 Water Column: 9.33 Feet

Time Purged: 1105 - 1144 One Casing Volume: 1.5 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 3/25/20

Time Sampled: 1150

Sampling Equip.: above pump

Meter ID: MP5-3

Analyzed by: DSA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 5.6 (mg/l)

Spec. Cond.: 700 (µmhos/cm) Turbidity: 0.7 (NTU)

Temp.: 9.0 (°C) Eh: 78 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 38°+/light rain, wind NW10

Sample Description: clear + odorless

Observations: DSA 3/25/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1118	7.3	700	9.0	5.7	NA	94	1.56
1131	7.3	700	9.0	5.6	NA	83	3.12
1144	7.3	700	9.0	5.6		78	4.68

DSA 3/25/20

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised 11/05/2018

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

Lead Technician Signature: David Anderson Date: 3/25/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-177 Labeled: 844704

Inside Diameter: 2 (Inches) Key #: 206 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	N/A	Feet
Total Well Depth	46.53	Feet
Static water level measurement before purging (Start Depth)	37.82	Feet
Static water level measurement at time of sampling (Final Depth)	37.82	Feet
Static Water Level Elevation Before Purging	NA	Feet
Purge Method	dedicated bladder pump	
Pump ID	PC-6	
Date Purged	3/24/20	
Water Column	8.71	Feet
Time Purged	1035-1111	
One Casing Volume	1.4	Gallons
Pump Rate	0.12 (GPM) / LPM	
Volume Purged	4.32	Gallons

Field Sampling Data

Date Sampled: 3/24/20
Time Sampled: 1120
Sampling Equip.: above pump
Meter ID: MPS-5
Analyzed by: DJA

Field Parameter Measurements of Sample

pH	7.4 (units)	D.O	6.4 (mg/l)
Spec. Cond.	420 (µmhos/cm)	Turbidity	2.4 (NTU)
Temp.	9.0 (°C)	Eh	84 (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: 38° + cloudy, wind SW 10

Sample Description: clear + odorless

Observations:

~~DJA 3/24/20~~

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1047	7.4	430	9.0	6.2	NA	80	1.44
1059	7.4	430	9.0	6.3	NA	83	2.88
1111	7.4	420	9.0	6.4	2.4	84	4.32

~~DJA 3/24/20~~

Samples chilled immediately after collection: ☒ Yes ☐ Other

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

Lead Technician Signature: David Anderson Date: 3/24/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #2 Project No.: 20-03096

Monitoring Point ID: P-178A Labeled: 844708

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

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	47.41	Feet
Static water level measurement before purging (Start Depth)	37.88	Feet
Static water level measurement at time of sampling (Final Depth)	37.88	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: dedicated bladder pump Pump ID: PC-6

Date Purged: 3/24/20 Water Column: 9.53 Feet

Time Purged: 1405-1447 One Casing Volume: 1.6 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 5.04 Gallons

Field Sampling Data

Date Sampled: 3/24/20

Time Sampled: 1455

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 5.7 (mg/l)

Spec. Cond.: 500 (µmhos/cm) Turbidity: 2.1 (NTU)

Temp.: 9.5 (°C) Eh: 67 (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 5-10

Sample Description: clear + odorless

Observations: ~~DJA 3/24/20~~

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1419	7.5	500	9.5	5.6	NA	66	1.68
1433	7.4	500	9.5	5.7	NA	67	3.36
1447	7.4	500	9.5	5.7	2.1	67	5.04
			~~DJA~~	3/24/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2018

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

Lead Technician Signature: David Anderson Date: 3/24/20

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

07 April 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 03/25/2020 13:55. If you have any questions concerning this report, please feel free to contact me.

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

Sincerely,

Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Rinse		MFC0240-01	Water	03/24/2020 9:10	03/25/2020 13:55
P-152A		MFC0240-02	Water	03/24/2020 10:10	03/25/2020 13:55
P-177		MFC0240-03	Water	03/24/2020 11:20	03/25/2020 13:55
P-174		MFC0240-04	Water	03/24/2020 12:30	03/25/2020 13:55
P-173		MFC0240-05	Water	03/24/2020 13:45	03/25/2020 13:55
P-178A		MFC0240-06	Water	03/24/2020 14:55	03/25/2020 13:55
P-17		MFC0240-07	Water	03/25/2020 9:40	03/25/2020 13:55
P-158		MFC0240-08	Water	03/25/2020 10:50	03/25/2020 13:55
Duplicate		MFC0240-09	Water	03/25/2020 10:50	03/25/2020 13:55
P-176		MFC0240-10	Water	03/25/2020 11:50	03/25/2020 13:55
P-175		MFC0240-11	Water	03/25/2020 12:40	03/25/2020 13:55

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Minneapolis, MN 55043
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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Rinse

MFC0240-01 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:22	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:22	EPA 300.0	CRL
Wet Chemistry										
pH	6.86		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 7:49	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:34	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:56	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:54	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:54	EPA 200.7	HRD

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Minneapolis, MN 55043
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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Rinse

MFC0240-01 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:45	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-152A

MFC0240-02 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:43	EPA 300.0	CRL
Sulfate	7.16	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 12:43	EPA 300.0	CRL
Wet Chemistry										
pH	7.78		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 7:56	SM 4500-H+ B	CRL
Total Dissolved Solids	210	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Barium	37.3	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Chromium	0.608	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:38	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:35	EPA 200.7	HRD
Calcium	56.6	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:34	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:34	EPA 200.7	HRD

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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-152A

MFC0240-02 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:47	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-177

MFC0240-03 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.73	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:03	EPA 300.0	CRL
Sulfate	26.2	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:03	EPA 300.0	CRL
Wet Chemistry										
pH	7.77		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:00	SM 4500-H+ B	CRL
Total Dissolved Solids	244	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Barium	54.7	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Chromium	1.15	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Molybdenum	3.93	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Selenium	1.00	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0876	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:40	EPA 200.7	HRD
Calcium	68.2	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:39	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 15:39	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-177

MFC0240-03 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:49	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-174

MFC0240-04 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.25	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:23	EPA 300.0	CRL
Sulfate	35.9	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:23	EPA 300.0	CRL
Wet Chemistry										
pH	7.38		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:03	SM 4500-H+ B	CRL
Total Dissolved Solids	396	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Barium	83.7	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Chromium	0.994	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Molybdenum	5.33	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Selenium	2.05	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:53	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.182	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:01	EPA 200.7	HRD
Calcium	111	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:00	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:00	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-174

MFC0240-04 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:54	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-173

MFC0240-05 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.30	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:44	EPA 300.0	CRL
Sulfate	31.2	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 13:44	EPA 300.0	CRL
Wet Chemistry										
pH	7.77		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:07	SM 4500-H+ B	CRL
Total Dissolved Solids	278	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Barium	54.5	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Chromium	0.502	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Molybdenum	23.6	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Selenium	1.51	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 10:57	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.172	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:06	EPA 200.7	HRD
Calcium	64.9	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:05	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:05	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-173

MFC0240-05 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:56	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-178A

MFC0240-06 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.13	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:04	EPA 300.0	CRL
Sulfate	66.5	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:04	EPA 300.0	CRL
Wet Chemistry										
pH	7.84		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:11	SM 4500-H+ B	CRL
Total Dissolved Solids	296	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.812	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Barium	45.9	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Chromium	0.976	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Molybdenum	0.783	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Selenium	2.24	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:01	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.345	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:11	EPA 200.7	HRD
Calcium	49.8	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:10	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:10	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-178A

MFC0240-06 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:58	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-17

MFC0240-07 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	20.7	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:25	EPA 300.0	CRL
Sulfate	23.5	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:25	EPA 300.0	CRL
Wet Chemistry										
pH	7.84		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:14	SM 4500-H+ B	CRL
Total Dissolved Solids	262	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.547	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Barium	40.4	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Chromium	0.959	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:05	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:16	EPA 200.7	HRD
Calcium	75.0	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:15	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:15	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-17

MFC0240-07 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 13:59	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-158

MFC0240-08 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.32	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:45	EPA 300.0	CRL
Sulfate	285	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 14:45	EPA 300.0	CRL
Wet Chemistry										
pH	7.60		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:18	SM 4500-H+ B	CRL
Total Dissolved Solids	694	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.593	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Barium	104	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Chromium	0.916	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Selenium	2.47	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:09	EPA 200.8	CRL
Total Metals by ICP										
Boron	1.46	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:21	EPA 200.7	HRD
Calcium	157	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:20	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:20	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-158

MFC0240-08 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 14:01	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Duplicate

MFC0240-09 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.31	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 16:48	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 16:48	EPA 300.0	CRL
Sulfate	286	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 16:48	EPA 300.0	CRL
Wet Chemistry										
pH	7.61		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:21	SM 4500-H+ B	CRL
Total Dissolved Solids	680	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.595	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Barium	104	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Chromium	1.02	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Selenium	2.48	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:13	EPA 200.8	CRL
Total Metals by ICP										
Boron	1.43	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:26	EPA 200.7	HRD
Calcium	151	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:25	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:25	EPA 200.7	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Duplicate

MFC0240-09 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 14:03	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

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MFC0240-10 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	7.21	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:08	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:08	EPA 300.0	CRL
Sulfate	117	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:08	EPA 300.0	CRL
Wet Chemistry										
pH	7.55		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:25	SM 4500-H+ B	CRL
Total Dissolved Solids	460	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Barium	115	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Chromium	1.16	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Selenium	6.37	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:17	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.759	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:32	EPA 200.7	HRD
Calcium	113	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:30	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:30	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-176

MFC0240-10 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 14:05	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

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MFC0240-11 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:28	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:28	EPA 300.0	CRL
Sulfate	8.22	1.00	mg/L		1	BFC0463	3/26/20 7:50	3/26/20 17:28	EPA 300.0	CRL
Wet Chemistry										
pH	7.77		pH Units	M_TTT	1	BFC0462	3/26/20 7:42	3/26/20 8:32	SM 4500-H+ B	CRL
Total Dissolved Solids	224	20.0	mg/L		1	BFC0468	3/27/20 8:48	3/27/20 8:48	SM 2540C	HSD
Total Suspended Solids	29.2	4.00	mg/L		1	BFC0467	3/27/20 7:10	3/27/20 7:10	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.699	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Barium	61.1	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Cobalt	0.568	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Chromium	2.36	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Selenium	0.873	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFC0466	3/26/20 8:49	3/31/20 11:21	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.119	0.0500	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:37	EPA 200.7	HRD
Calcium	71.1	1.25	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:35	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFC0465	3/26/20 8:48	4/3/20 16:35	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

P-175

MFC0240-11 (Water) - Chain of Custody Number: 2279334

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFD0044	4/2/20 8:51	4/2/20 14:06	EPA 245.1/7470A	HRD

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WI-999071150
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0463 - Wet Prep										
Blank (BFC0463-BLK1)				Prepared & Analyzed: 03/26/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFC0463-BLK2)				Prepared & Analyzed: 03/26/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFC0463-BS1)				Prepared & Analyzed: 03/26/2020						
Chloride	25.093	1.00	mg/L	25.000		100	90-110			
Fluoride	2.5680	0.750	mg/L	2.5000		103	90-110			
Sulfate	50.627	1.00	mg/L	50.150		101	90-110			
LCS (BFC0463-BS2)				Prepared & Analyzed: 03/26/2020						
Chloride	24.065	1.00	mg/L	25.000		96.3	90-110			
Fluoride	2.5370	0.750	mg/L	2.5000		101	90-110			
Sulfate	48.374	1.00	mg/L	50.150		96.5	90-110			
LCS (BFC0463-BS3)				Prepared & Analyzed: 03/26/2020						
Chloride	23.851	1.00	mg/L	25.000		95.4	90-110			
Fluoride	2.4530	0.750	mg/L	2.5000		98.1	90-110			
Sulfate	47.997	1.00	mg/L	50.150		95.7	90-110			
Duplicate (BFC0463-DUP1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/26/2020						
Chloride	0.71700	1.00	mg/L		0.72300			0.833	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.0650	1.00	mg/L		7.1610			1.35	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0463 - Wet Prep										
Duplicate (BFC0463-DUP2)		**Source: MFC0240-03**		Prepared & Analyzed: 03/26/2020						
Chloride	1.7890	1.00	mg/L		1.7320			3.24	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	26.615	1.00	mg/L		26.179			1.65	20	
Matrix Spike (BFC0463-MS1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/26/2020						
Chloride	30.855	1.25	mg/L	31.250	0.72300	96.4	90-110			
Fluoride	3.0038	0.938	mg/L	3.1250	<0.938	96.1	90-110			
Sulfate	68.520	1.25	mg/L	62.688	7.1610	97.9	90-110			
Matrix Spike (BFC0463-MS2)		**Source: MFC0240-03**		Prepared & Analyzed: 03/26/2020						
Chloride	32.231	1.25	mg/L	31.250	1.7320	97.6	90-110			
Fluoride	3.2513	0.938	mg/L	3.1250	<0.938	104	90-110			
Sulfate	88.328	1.25	mg/L	62.688	26.179	99.1	90-110			
Matrix Spike Dup (BFC0463-MSD1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/26/2020						
Chloride	31.174	1.25	mg/L	31.250	0.72300	97.4	90-110	1.03	20	
Fluoride	3.2700	0.938	mg/L	3.1250	<0.938	105	90-110	8.49	20	
Sulfate	69.089	1.25	mg/L	62.688	7.1610	98.8	90-110	0.827	20	
Matrix Spike Dup (BFC0463-MSD2)		**Source: MFC0240-03**		Prepared & Analyzed: 03/26/2020						
Chloride	32.274	1.25	mg/L	31.250	1.7320	97.7	90-110	0.132	20	
Fluoride	3.3275	0.938	mg/L	3.1250	<0.938	106	90-110	2.32	20	
Sulfate	88.251	1.25	mg/L	62.688	26.179	99.0	90-110	0.0864	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0462 - Wet Prep										
LCS (BFC0462-BS1)				Prepared & Analyzed: 03/26/2020						
pH	7.0300		pH Units	7.0000		100	90-110			
LCS (BFC0462-BS2)				Prepared & Analyzed: 03/26/2020						
pH	7.0600		pH Units	7.0000		101	90-110			
Duplicate (BFC0462-DUP1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/26/2020						
pH	7.7400		pH Units		7.7800			0.515	20	
Duplicate (BFC0462-DUP2)		**Source: MFC0240-11**		Prepared & Analyzed: 03/26/2020						
pH	7.7600		pH Units		7.7700			0.129	20	
Batch BFC0467 - Wet Prep										
Blank (BFC0467-BLK1)				Prepared & Analyzed: 03/27/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFC0467-BS1)				Prepared & Analyzed: 03/27/2020						
Total Suspended Solids	97.000	4.00	mg/L	101.00		96.0	70-130			
Duplicate (BFC0467-DUP1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/27/2020						
Total Suspended Solids	<4.00	4.00	mg/L		0.40000				20	
Duplicate (BFC0467-DUP2)		**Source: MFC0240-03**		Prepared & Analyzed: 03/27/2020						
Total Suspended Solids	1.2000	4.00	mg/L		0.80000			40.0	20	M_D-RL
Batch BFC0468 - Wet Prep										
Blank (BFC0468-BLK1)				Prepared & Analyzed: 03/27/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0468 - Wet Prep										
LCS (BFC0468-BS1)				Prepared & Analyzed: 03/27/2020						
Total Dissolved Solids	38.000	20.0	mg/L	50.400		75.4	70-130			
Duplicate (BFC0468-DUP1)		**Source: MFC0240-02**		Prepared & Analyzed: 03/27/2020						
Total Dissolved Solids	194.00	20.0	mg/L		210.00			7.92	20	
Duplicate (BFC0468-DUP2)		**Source: MFC0240-03**		Prepared & Analyzed: 03/27/2020						
Total Dissolved Solids	238.00	20.0	mg/L		244.00			2.49	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0466 - EPA 200.2, EPA 3005										
Blank (BFC0466-BLK1)				Prepared: 03/26/2020 Analyzed: 03/31/2020						
Arsenic	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Chromium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
LCS (BFC0466-BS1)				Prepared: 03/26/2020 Analyzed: 03/31/2020						
Lead	101.59	0.500	ug/L	100.00		102	85-115			
Beryllium	99.402	0.500	ug/L	100.00		99.4	85-115			
Arsenic	101.13	0.500	ug/L	100.00		101	85-115			
Cobalt	98.571	0.500	ug/L	100.00		98.6	85-115			
Barium	104.49	0.500	ug/L	100.00		104	85-115			
Antimony	106.35	0.500	ug/L	100.00		106	85-115			
Molybdenum	101.35	0.500	ug/L	100.00		101	85-115			
Selenium	98.772	0.500	ug/L	100.00		98.8	85-115			
Thallium	100.23	0.500	ug/L	100.00		100	85-115			
Chromium	100.85	0.500	ug/L	100.00		101	85-115			
Cadmium	97.593	0.100	ug/L	100.00		97.6	85-115			
Duplicate (BFC0466-DUP1)		**Source: MFC0240-04**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Beryllium	0.031474	0.500	ug/L		0.017358			57.8	20	M_D-RL
Barium	88.626	0.500	ug/L		83.717			5.70	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Cobalt	0.16616	0.500	ug/L		0.19129			14.1	20	
Molybdenum	5.2549	0.500	ug/L		5.3340			1.49	20	
Arsenic	0.33630	0.500	ug/L		0.37063			9.71	20	
Lead	0.050588	0.500	ug/L		0.046257			8.94	20	
Antimony	0.087657	0.500	ug/L		0.071604			20.2	20	M_D-RL
Selenium	2.0629	0.500	ug/L		2.0457			0.837	20	
Thallium	0.012796	0.500	ug/L		<0.500				20	
Chromium	0.91429	0.500	ug/L		0.99384			8.34	20	

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0466 - EPA 200.2, EPA 3005										
Duplicate (BFC0466-DUP2)		**Source: MFC0240-05**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.13883	0.500	ug/L		0.10484			27.9	20	M_D-RL
Lead	0.029627	0.500	ug/L		0.024971			17.1	20	
Molybdenum	24.792	0.500	ug/L		23.561			5.09	20	
Chromium	0.44341	0.500	ug/L		0.50174			12.3	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Barium	57.471	0.500	ug/L		54.462			5.38	20	
Arsenic	0.36332	0.500	ug/L		0.35208			3.14	20	
Selenium	1.4861	0.500	ug/L		1.5142			1.87	20	
Cobalt	0.19321	0.500	ug/L		0.19044			1.44	20	
Matrix Spike (BFC0466-MS1)		**Source: MFC0240-04**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Selenium	102.06	0.500	ug/L	100.00	2.0457	100	75-125			
Thallium	97.981	0.500	ug/L	100.00	<0.500	98.0	75-125			
Barium	185.53	0.500	ug/L	100.00	83.717	102	75-125			
Cobalt	97.068	0.500	ug/L	100.00	0.19129	96.9	75-125			
Lead	94.195	0.500	ug/L	100.00	0.046257	94.1	75-125			
Chromium	102.45	0.500	ug/L	100.00	0.99384	101	75-125			
Arsenic	103.29	0.500	ug/L	100.00	0.37063	103	75-125			
Beryllium	98.743	0.500	ug/L	100.00	0.017358	98.7	75-125			
Cadmium	98.160	0.100	ug/L	100.00	<0.100	98.2	75-125			
Molybdenum	112.18	0.500	ug/L	100.00	5.3340	107	75-125			
Antimony	105.08	0.500	ug/L	100.00	0.071604	105	75-125			
Matrix Spike (BFC0466-MS2)		**Source: MFC0240-05**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Lead	93.392	0.500	ug/L	100.00	0.024971	93.4	75-125			
Thallium	95.442	0.500	ug/L	100.00	<0.500	95.4	75-125			
Arsenic	100.02	0.500	ug/L	100.00	0.35208	99.7	75-125			
Cobalt	97.118	0.500	ug/L	100.00	0.19044	96.9	75-125			
Selenium	97.140	0.500	ug/L	100.00	1.5142	95.6	75-125			
Antimony	103.78	0.500	ug/L	100.00	0.10484	104	75-125			
Molybdenum	121.20	0.500	ug/L	100.00	23.561	97.6	75-125			
Barium	162.14	0.500	ug/L	100.00	54.462	108	75-125			
Beryllium	93.839	0.500	ug/L	100.00	<0.500	93.8	75-125			
Cadmium	94.337	0.100	ug/L	100.00	<0.100	94.3	75-125			
Chromium	102.00	0.500	ug/L	100.00	0.50174	102	75-125			

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0466 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFC0466-MSD1)		**Source: MFC0240-04**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Chromium	101.52	0.500	ug/L	100.00	0.99384	101	75-125	0.905	20	
Thallium	96.508	0.500	ug/L	100.00	<0.500	96.5	75-125	1.51	20	
Selenium	104.46	0.500	ug/L	100.00	2.0457	102	75-125	2.33	20	
Antimony	105.09	0.500	ug/L	100.00	0.071604	105	75-125	0.00704	20	
Lead	94.841	0.500	ug/L	100.00	0.046257	94.8	75-125	0.684	20	
Molybdenum	109.78	0.500	ug/L	100.00	5.3340	104	75-125	2.16	20	
Cobalt	96.513	0.500	ug/L	100.00	0.19129	96.3	75-125	0.573	20	
Barium	189.11	0.500	ug/L	100.00	83.717	105	75-125	1.91	20	
Arsenic	104.65	0.500	ug/L	100.00	0.37063	104	75-125	1.31	20	
Beryllium	96.361	0.500	ug/L	100.00	0.017358	96.3	75-125	2.44	20	
Cadmium	98.891	0.100	ug/L	100.00	<0.100	98.9	75-125	0.743	20	
Matrix Spike Dup (BFC0466-MSD2)		**Source: MFC0240-05**		Prepared: 03/26/2020 Analyzed: 03/31/2020						
Thallium	97.349	0.500	ug/L	100.00	<0.500	97.3	75-125	1.98	20	
Selenium	104.51	0.500	ug/L	100.00	1.5142	103	75-125	7.31	20	
Arsenic	105.15	0.500	ug/L	100.00	0.35208	105	75-125	5.00	20	
Antimony	106.06	0.500	ug/L	100.00	0.10484	106	75-125	2.17	20	
Chromium	102.44	0.500	ug/L	100.00	0.50174	102	75-125	0.431	20	
Lead	95.883	0.500	ug/L	100.00	0.024971	95.9	75-125	2.63	20	
Molybdenum	128.91	0.500	ug/L	100.00	23.561	105	75-125	6.16	20	
Barium	161.77	0.500	ug/L	100.00	54.462	107	75-125	0.224	20	
Cobalt	98.953	0.500	ug/L	100.00	0.19044	98.8	75-125	1.87	20	
Beryllium	98.624	0.500	ug/L	100.00	<0.500	98.6	75-125	4.97	20	
Cadmium	96.692	0.100	ug/L	100.00	<0.100	96.7	75-125	2.46	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0465 - EPA 200.2, EPA 3005										
Blank (BFC0465-BLK1)				Prepared: 03/26/2020 Analyzed: 04/03/2020						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							
LCS (BFC0465-BS1)				Prepared: 03/26/2020 Analyzed: 04/03/2020						
Lithium	1.0411	0.0150	mg/L	1.0000		104	85-115			
Boron	1.0160	0.0500	mg/L	1.0000		102	85-115			
Calcium	108.47	1.25	mg/L	100.00		108	85-115			
Duplicate (BFC0465-DUP1)		**Source: MFC0240-02**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Boron	0.046752	0.0500	mg/L		0.048952			4.60	20	
Calcium	54.412	1.25	mg/L		56.645			4.02	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Duplicate (BFC0465-DUP2)		**Source: MFC0240-03**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Calcium	65.940	1.25	mg/L		68.169			3.32	20	
Boron	0.085580	0.0500	mg/L		0.087645			2.38	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Matrix Spike (BFC0465-MS1)		**Source: MFC0240-02**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Lithium	1.0467	0.0150	mg/L	1.0000	<0.0150	105	70-130			
Boron	1.0897	0.0500	mg/L	1.0000	0.048952	104	70-130			
Calcium	168.29	1.25	mg/L	100.00	56.645	112	70-130			
Matrix Spike (BFC0465-MS2)		**Source: MFC0240-03**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Lithium	1.0556	0.0150	mg/L	1.0000	<0.0150	106	70-130			
Boron	1.1354	0.0500	mg/L	1.0000	0.087645	105	70-130			
Calcium	179.15	1.25	mg/L	100.00	68.169	111	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFC0465 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFC0465-MSD1)		**Source: MFC0240-02**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Boron	1.1176	0.0500	mg/L	1.0000	0.048952	107	70-130	2.53	20	
Lithium	1.0763	0.0150	mg/L	1.0000	<0.0150	108	70-130	2.79	20	
Calcium	172.62	1.25	mg/L	100.00	56.645	116	70-130	2.54	20	
Matrix Spike Dup (BFC0465-MSD2)		**Source: MFC0240-03**		Prepared: 03/26/2020 Analyzed: 04/03/2020						
Calcium	169.21	1.25	mg/L	100.00	68.169	101	70-130	5.71	20	
Boron	1.1050	0.0500	mg/L	1.0000	0.087645	102	70-130	2.72	20	
Lithium	0.99525	0.0150	mg/L	1.0000	<0.0150	99.5	70-130	5.88	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0044 - EPA 245.1, EPA 7470A										
Blank (BFD0044-BLK1)				Prepared & Analyzed: 04/02/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFD0044-BS1)				Prepared & Analyzed: 04/02/2020						
Mercury	2.6874	0.200	ug/L	3.0030		89.5	85-115			
Duplicate (BFD0044-DUP1)		**Source: MFC0240-06**		Prepared & Analyzed: 04/02/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFD0044-DUP2)		**Source: MFC0240-07**		Prepared & Analyzed: 04/02/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFD0044-MS1)		**Source: MFC0240-06**		Prepared & Analyzed: 04/02/2020						
Mercury	2.5293	0.200	ug/L	3.0030	<0.200	84.2	70-130			
Matrix Spike (BFD0044-MS2)		**Source: MFC0240-07**		Prepared & Analyzed: 04/02/2020						
Mercury	2.5987	0.200	ug/L	3.0030	<0.200	86.5	70-130			
Matrix Spike Dup (BFD0044-MSD1)		**Source: MFC0240-06**		Prepared & Analyzed: 04/02/2020						
Mercury	2.6686	0.200	ug/L	3.0030	<0.200	88.9	70-130	5.36	20	
Matrix Spike Dup (BFD0044-MSD2)		**Source: MFC0240-07**		Prepared & Analyzed: 04/02/2020						
Mercury	2.5571	0.200	ug/L	3.0030	<0.200	85.2	70-130	1.61	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/07/2020 09:05

Qualifiers and Definitions

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

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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.

Page: 1 of 1

2279334

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Xcel Energy	Report To: David Katzner	Attention: Steve Davis
Address: Environmental Services MP-7	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Sherco BAP2, Baseline #2	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: GW-CCR	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Rinse	WT				3/24/20	0910		2	1		1						✓		
2	P-152A						1010		2	1		1						✓		
3	P-177						1120		2	1		1						✓		
4	P-174						1230		2	1		1						✓		
5	P-173						1345		3	2		1						✓		
6	P-178A						1455		3	2		1						✓		
7	P-17	WT				3/25/20	0940		3	2		1						✓		
8	P-158						1050		3	2		1						✓		
9	Duplicate						1050		3	2		1						✓		
10	P-176						1150		3	2		1						✓		
11	P-175						1240		3	2		1						✓		
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
① All metals bottles are unfiltered.	David Anderson Pace	3/25/20	1355	HD / Xcel	3/25/20	1355	3.4°C	Y	Y	Y

PHStip: MD00402
Temp MA00841: ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson DATE Signed (MM/DD/YY): 3/25/20

*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.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

April 20, 2020

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

RE: Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 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

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

Sincerely,

Carin A. Ferris

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

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

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

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30356908001	**Rinse**	Water	03/24/20 09:10	03/31/20 09:00
30356908002	**P-152A**	Water	03/24/20 10:10	03/31/20 09:00
30356908003	**P-177**	Water	03/24/20 11:20	03/31/20 09:00
30356908004	**P-174**	Water	03/24/20 12:30	03/31/20 09:00
30356908005	**P-173**	Water	03/24/20 13:45	03/31/20 09:00
30356908006	**P-178A**	Water	03/24/20 14:55	03/31/20 09:00
30356908007	**P-17**	Water	03/25/20 09:40	03/31/20 09:00
30356908008	**P-158**	Water	03/25/20 10:50	03/31/20 09:00
30356908009	**Duplicate**	Water	03/25/20 10:50	03/31/20 09:00
30356908010	**P-176**	Water	03/25/20 11:50	03/31/20 09:00
30356908011	**P-175**	Water	03/25/20 12:40	03/31/20 09:00

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(724)850-5600

SAMPLE ANALYTE COUNT

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30356908001	**Rinse**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908003	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908004	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908005	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908006	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908007	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908008	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908009	**Duplicate**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908010	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30356908011	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: April 20, 2020

General Information:
11 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: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: April 20, 2020

General Information:
11 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: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: April 20, 2020

General Information:
11 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: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Sample: Rinse **Lab ID: 30356908001** Collected: 03/24/20 09:10 Received: 03/31/20 09:00 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	**0.285 ± 0.336 (0.529) C:NA T:98%**	pCi/L	04/17/20 14:07	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.535 ± 0.393 (0.773) C:72% T:86%**	pCi/L	04/16/20 12:50	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.820 ± 0.729 (1.30)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-152A **Lab ID: 30356908002** Collected: 03/24/20 10:10 Received: 03/31/20 09:00 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	**-0.0502 ± 0.261 (0.603) C:NA T:103%**	pCi/L	04/17/20 14:07	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.288 ± 0.363 (0.771) C:69% T:86%**	pCi/L	04/16/20 12:50	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.288 ± 0.624 (1.37)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-177 **Lab ID: 30356908003** Collected: 03/24/20 11:20 Received: 03/31/20 09:00 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	**0.231 ± 0.393 (0.693) C:NA T:92%**	pCi/L	04/17/20 14:07	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.416 ± 0.338 (0.673) C:74% T:87%**	pCi/L	04/16/20 12:50	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.647 ± 0.731 (1.37)**	pCi/L	04/20/20 14:22	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Sample: P-174 **Lab ID: 30356908004** Collected: 03/24/20 12:30 Received: 03/31/20 09:00 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	**0.189 ± 0.410 (0.756) C:NA T:85%**	pCi/L	04/17/20 14:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.658 ± 0.430 (0.825) C:69% T:84%**	pCi/L	04/16/20 12:50	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.847 ± 0.840 (1.58)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-173 **Lab ID: 30356908005** Collected: 03/24/20 13:45 Received: 03/31/20 09:00 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	**0.116 ± 0.393 (0.759) C:NA T:94%**	pCi/L	04/17/20 14:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.595 ± 0.375 (0.712) C:71% T:94%**	pCi/L	04/16/20 12:50	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.711 ± 0.768 (1.47)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-178A **Lab ID: 30356908006** Collected: 03/24/20 14:55 Received: 03/31/20 09:00 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	**0.290 ± 0.497 (0.871) C:NA T:98%**	pCi/L	04/17/20 14:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.552 ± 0.378 (0.730) C:74% T:84%**	pCi/L	04/16/20 12:50	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.842 ± 0.875 (1.60)**	pCi/L	04/20/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Sample: P-17 **Lab ID: 30356908007** Collected: 03/25/20 09:40 Received: 03/31/20 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.285 (0.579) C:NA T:89%**	pCi/L	04/17/20 14:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.451 ± 0.351 (0.698) C:78% T:87%**	pCi/L	04/16/20 12:50	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.451 ± 0.636 (1.28)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-158 **Lab ID: 30356908008** Collected: 03/25/20 10:50 Received: 03/31/20 09:00 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	**-0.164 ± 0.356 (0.821) C:NA T:97%**	pCi/L	04/17/20 14:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.02 ± 0.459 (0.768) C:73% T:84%**	pCi/L	04/16/20 12:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.02 ± 0.815 (1.59)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: Duplicate **Lab ID: 30356908009** Collected: 03/25/20 10:50 Received: 03/31/20 09:00 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	**0.106 ± 0.293 (0.568) C:NA T:95%**	pCi/L	04/17/20 14:22	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.23 ± 0.459 (0.682) C:76% T:82%**	pCi/L	04/16/20 12:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.34 ± 0.752 (1.25)**	pCi/L	04/20/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

Sample: P-176 **Lab ID: 30356908010** Collected: 03/25/20 11:50 Received: 03/31/20 09:00 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	**0.0586 ± 0.345 (0.704) C:NA T:90%**	pCi/L	04/17/20 14:22	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0303 ± 0.339 (0.782) C:72% T:81%**	pCi/L	04/16/20 12:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.0889 ± 0.684 (1.49)**	pCi/L	04/20/20 14:22	7440-14-4	

Sample: P-175 **Lab ID: 30356908011** Collected: 03/25/20 12:40 Received: 03/31/20 09:00 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	**0.250 ± 0.490 (0.880) C:NA T:86%**	pCi/L	04/17/20 14:22	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.396 ± 0.387 (0.797) C:69% T:83%**	pCi/L	04/16/20 12:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.646 ± 0.877 (1.68)**	pCi/L	04/20/20 14:22	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

QC Batch: 390598 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: 30356908001, 30356908002, 30356908003, 30356908004, 30356908005, 30356908006, 30356908007, 30356908008, 30356908009, 30356908010, 30356908011

METHOD BLANK: 1891476 Matrix: Water
Associated Lab Samples: 30356908001, 30356908002, 30356908003, 30356908004, 30356908005, 30356908006, 30356908007, 30356908008, 30356908009, 30356908010, 30356908011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.171 ± 0.234 (0.500) C:78% T:91%	pCi/L	04/16/20 12:48	

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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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

QC Batch: 390596 | 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: 30356908001, 30356908002, 30356908003, 30356908004, 30356908005, 30356908006, 30356908007, 30356908008, 30356908009, 30356908010, 30356908011

METHOD BLANK: 1891468 Matrix: Water
Associated Lab Samples: 30356908001, 30356908002, 30356908003, 30356908004, 30356908005, 30356908006, 30356908007, 30356908008, 30356908009, 30356908010, 30356908011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.130 ± 0.281 (0.648) C:NA T:98%	pCi/L	04/17/20 13:45	

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QUALIFIERS

Project: 20-03096, Xcel Energy-Sherco
Pace Project No.: 30356908

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.

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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.

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Page: 1 of 1

2279328

Section A Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: David Anderson
Copy To:
Purchase Order No.:
Project Name: 20-03096 Xcel Energy - Sherco BAP2 Baseline #2
Project Number:

Section C Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

REGULATORY AGENCY

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

Site Location STATE:

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

WO# : 30356908

30356908

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: RA-226 EPA 903.1	RA-228 EPA 904.0	Resi	Pace Project No./ Lab I.D.
1	Rinse	WT				3/24/20	0910		2			2						Y	Y		CC1
2	P-152A						1010		2			2						Y	Y		CC2
3	P-177						1120		2			2						Y	Y		CC3
4	P-174						1230		2			2						Y	Y		CC4
5	P-173						1345		2			2						Y	Y		CC5
6	P-178A						1455		2			2						Y	Y		CC6
7	P-17	WT				3/25/20	0940		2			2						Y	Y		CC7
8	P-158						1050		2			2						Y	Y		CC8
9	Duplicate						1050		2			2						Y	Y		CC9
10	P-176						1150		2			2						Y	Y		CC10
11	P-175						1240		2			2						Y	Y		CC11
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
1) client needs to analyze for: Radium 226+228pCi/L combined	David Anderson/Pace	3/26/20	0910		3-31-20	9:00	MNT N Y Y
2) RA-226 EPA 903.1 RA-228 EPA 904.0							

ORIGINAL

Page 15 of 16

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson
SIGNATURE of SAMPLER: David Anderson
DATE Signed (MM/DD/YY): 3/25/20

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel Energy

Project #: # 30356908

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

Label: DLC
LIMS Login: DLC

Tracking #: 1646 7301 3674

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

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

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

Temp should be above freezing to 6°C

pH paper Lot#: 10192191 Date and Initials of person examining contents: DLC 3-31-20

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: DLC Date/time of preservation:
				Lot # of added preservative:
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: DLC Date: 3-31-20

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Baseline Monitoring Event #3
Field Datasheets and Laboratory Reports

Pace Analytical Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Purging Information

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

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

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	N/A	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 (umhos/cm) Turbidity: 0.7 (NTU)

Temp.: 9.0 (°C) Eh: 149 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] 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 (umhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
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: [X] Yes [ ] Other

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

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

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Purging 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 [X] Locked [ ] Not Locked

Casing Material: [X] 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: 1030

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

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

Spec. Cond.: 360 (umhos/cm) Turbidity: 0.9 (NTU)

Temp.: 9.5 (°C) Eh: 160 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

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

Sample Description: clear + odorless

Observations: collected Rinse Blank at this well.

DJA 4/14/20

Stabilization Test

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (gallons/liters)
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

DJA 4/14/20

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised 07/25/2019

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

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

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Sampling and Purging Information

Client: Xcel Energy Project: Sherco BAP2, 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: DJA

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 10.2 (mg/l)

Spec. Cond.: 700 (µmhos/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:

DJA 4/15/20

Stabilization Test

Time	pH (Units)	Specific Conductance (µmhos/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

DJA 4/15/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2018

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

Lead Technician Signature: David Anderson Date: 4/15/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Pre-sampling Information

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

Monitoring Point ID P-173 Labeled 844707

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	80.30	Feet
Static water level measurement before purging (Start Depth)	69.95	Feet
Static water level measurement at time of sampling (Final Depth)	69.95	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 4/16/20 Water Column 10.35 Feet

Time Purged 0935 - 1017 One Casing Volume 1.68 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 5.04 Gallons

Field Sampling Data

Date Sampled 4/16/20

Time Sampled 1030

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DJA

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 9.1 (mg/l)

Spec. Cond. 470 (umhos/cm) Turbidity 1.4 (NTU)

Temp. 9.0 (°C) Eh 180 (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: 32° + sunny, wind NW 10

Sample Description: clear + odorless

Observations: DJA 4/16/20

Stabilization Test

Time	pH (units)	Specific Conductance (umhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0949	7.4	470	8.5	9.5	NA	190	1.68
1003	7.4	470	9.0	9.2	NA	184	3.36
1017	7.4	470	9.0	9.1	NA	180	5.04

DJA 4/16/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 04/25/2018

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

Lead Technician Signature: Dave Anderson Date: 4/16/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Sampling and Field Sampling Information

Client Xcel Energy Project Sherco BAP2, Baseline #3 Project No. 20-03223

Monitoring Point ID P-174 Labeled 844706

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	N.A	Feet
Total Well Depth	82.27	Feet
Static water level measurement before purging (Start Depth)	72.57	Feet
Static water level measurement at time of sampling (Final Depth)	72.57	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method dedicated bladder pump Pump ID PC-6

Date Purged 4/16/20 Water Column 9.70 Feet

Time Purged 0830-0912 One Casing Volume 1.6 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 5.04 Gallons

Field Sampling Data

Date Sampled 4/16/20

Time Sampled 0920

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DJA

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 9.0 (mg/l)

Spec. Cond. 680 (µmhos/cm) Turbidity 3.7 (NTU)

Temp. 8.5 (°C) Eh 177 (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: 30°+ sunny, wind NW 10

Sample Description: clear + odorless

Observations:

DJA 4/16/20

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (Cumulative gal)
0844	7.3	680	8.5	9.3	NA	188	1.68
0858	7.3	680	8.5	9.1	NA	182	3.36
0912	7.3	680	8.5	9.0	NA	177	5.04

DJA 4/16/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 11/15/2011

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

Lead Technician Signature: Dave Anderson Date: 4/16/20

Pace Analytical
Field Services Division

Well Sampling Field Data Log Sheet

Well Construction and Sampling Information

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

Monitoring Point ID P-175 Labeled 844705

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 84.11 Feet

Static water level measurement before purging (Start Depth) 75.03 Feet

Static water level measurement at time of sampling (Final Depth) 75.03 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 9.08 Feet

Time Purged 1235-1314 One Casing Volume 1.5 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 4/15/20

Time Sampled 1325

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DJA

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 8.8 (mg/l)

Spec. Cond. 400 (µmhos/cm) Turbidity 20.1 (NTU)

Temp. 8.5 (°C) Eh 156 (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: 29°+sunny, wind NW 15

Sample Description: clear + odorless

Observations: DJA 4/15/20

Stabilization Test

Time	pH (Units)	Specific Conductance (mmhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (gallons/bail)
1248	7.4	400	8.5	9.1	NA	165	1.56
1301	7.4	400	8.5	9.0	NA	161	3.12
1314	7.4	400	8.5	8.8	NA	156	4.68

DJA 4/15/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 10/25/2019

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

Lead Technician Signature: David Anderson Date: 4/15/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Construction and Sampling Information

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

Monitoring Point ID P-176 Labeled 844703

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 84.18 Feet

Static water level measurement before purging (Start Depth) 74.57 Feet

Static water level measurement at time of sampling (Final Depth) 74.57 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 9.61 Feet

Time Purged 1130-1209 One Casing Volume 1.56 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 4/15/20

Time Sampled 1220

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DTA

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 8.7 (mg/l)

Spec. Cond. 670 (umhos/cm) Turbidity 0.7 (NTU)

Temp. 9.0 (°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: 27° + sunny, wind NW 10-15,

Sample Description: clear + odorless

Observations: DTA 4/15/20

Stabilization Test

Time	pH (units)	Specific Conductance (umhos/cm)	Temp. (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (Gallons)
1143	7.3	670	9.0	9.5	NA	168	1.56
1156	7.3	670	9.0	8.9	NA	163	3.12
1209	7.3	670	9.0	8.7	NA	160	4.68

DTA 4/15/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Last Revised: 04/22/2019

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

Lead Technician Signature: Dave Anderson Date: 4/15/20

Pace Analytical Field Services Division

Well Sampling Field Data Log Sheet

Well Sampling Information

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

Monitoring Point ID P-177 Labeled 844704

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	46.53	Feet
Static water level measurement before purging (Start Depth)	37.69	Feet
Static water level measurement at time of sampling (Final Depth)	37.69	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 8.84 Feet

Time Purged 1110 - 1146 One Casing Volume 1.4 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 4.32 Gallons

Field Sampling Data

Date Sampled 4/14/20

Time Sampled 1150

Sampling Equip. above pump

Meter ID MPS-5

Analyzed by DJA

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 9.7 (mg/l)

Spec. Cond. 430 (µmhos/cm) Turbidity 2.1 (NTU)

Temp. 9.0 (°C) Eh 163 (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: 29° + light snow, wind NW 10

Sample Description: clear + odorless

Observations:

DJA 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)
1122	7.5	440	8.5	9.9	NA	168	1.44
1134	7.5	430	9.0	9.8	NA	164	2.88
1146	7.4	430	9.0	9.7	NA	163	4.32

DJA 4/14/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 11/25/2019

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Purging Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #3 Project No.: 20-03223

Monitoring Point ID: P-178A Labeled: 844708

Inside Diameter: 2 (Inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	47.41	Feet
Static water level measurement before purging (Start Depth)	37.64	Feet
Static water level measurement at time of sampling (Final Depth)	37.64	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: 9.77 Feet

Time Purged: 0840-0928 One Casing Volume: 1.6 Gallons

Pump Rate: 0.10 (GPM / LPM) Volume Purged: 4.8 Gallons

Field Sampling Data

Date Sampled: 4/15/20

Time Sampled: 0940

Sampling Equip.: above pump

Meter ID: MPS-5

Analyzed by: DJA

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 10.5 (mg/l)

Spec. Cond.: 460 (umhos/cm) Turbidity: 1.2 (NTU)

Temp.: 9.0 (°C) Eh: 160 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

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

Sample Description: clear + odorless

Observations: collected Duplicate at this well.

DJA 4/15/20

Stabilization Test

Time	pH Units	Specific Conductance (umhos/cm)	Temp (°C)	D.O (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (Gallons/gal)
0856	7.4	460	9.0	10.9	NA	168	1.6
0912	7.4	460	9.0	10.7	NA	163	3.2
0928	7.4	460	9.0	10.5	NA	160	4.8
				DJA	4/15/20		

Samples chilled immediately after collection: [X] 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, Manager (612) 630-4506

05 May 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 04/16/2020 12:00. If you have any questions concerning this report, please feel free to contact me.

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

Sincerely,

Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Rinse		MFD0224-01	Water	04/14/2020 9:40	04/16/2020 12:00
P-152A		MFD0224-02	Water	04/14/2020 10:50	04/16/2020 12:00
P-177		MFD0224-03	Water	04/14/2020 11:50	04/16/2020 12:00
P-17		MFD0224-04	Water	04/14/2020 13:35	04/16/2020 12:00
P-178A		MFD0224-05	Water	04/15/2020 9:40	04/16/2020 12:00
Duplicate		MFD0224-06	Water	04/15/2020 9:40	04/16/2020 12:00
P-158		MFD0224-07	Water	04/15/2020 10:55	04/16/2020 12:00
P-176		MFD0224-08	Water	04/15/2020 12:20	04/16/2020 12:00
P-175		MFD0224-09	Water	04/15/2020 13:25	04/16/2020 12:00
P-174		MFD0224-10	Water	04/16/2020 9:20	04/16/2020 12:00
P-173		MFD0224-11	Water	04/16/2020 10:30	04/16/2020 12:00

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Rinse

MFD0224-01 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 15:50	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 15:50	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 15:50	EPA 300.0	CRL
Wet Chemistry										
pH	6.96		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 12:41	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	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	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 9:57	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 13:11	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:09	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:09	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Rinse

MFD0224-01 (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 13:45	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-152A

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

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

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-177

MFD0224-03 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.17	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:31	EPA 300.0	CRL
Sulfate	31.8	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 16:31	EPA 300.0	CRL
Wet Chemistry										
pH	7.76		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 12:51	SM 4500-H+ B	CRL
Total Dissolved Solids	260	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	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Barium	52.4	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Chromium	0.672	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Molybdenum	4.09	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Selenium	0.978	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:13	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0925	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:55	EPA 200.7	HRD
Calcium	59.5	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:54	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 12:54	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-177

MFD0224-03 (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 13:52	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-17

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

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

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-17

MFD0224-04 (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 13:54	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-178A

MFD0224-05 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.25	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:11	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:11	EPA 300.0	CRL
Sulfate	60.0	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:11	EPA 300.0	CRL
Wet Chemistry										
pH	7.84		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 12:59	SM 4500-H+ B	CRL
Total Dissolved Solids	284	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	0.727	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Barium	42.8	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Chromium	1.09	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Molybdenum	0.914	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Selenium	1.95	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:21	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.333	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:21	EPA 200.7	HRD
Calcium	47.0	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:20	EPA 200.7	HRD
Lithium	0.0158	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:20	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-178A

MFD0224-05 (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 13:55	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Duplicate

MFD0224-06 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.32	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:32	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:32	EPA 300.0	CRL
Sulfate	60.0	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 17:32	EPA 300.0	CRL
Wet Chemistry										
pH	7.85		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:02	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	0.731	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Barium	43.7	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Chromium	1.07	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Molybdenum	0.922	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Selenium	1.95	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:25	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.339	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:26	EPA 200.7	HRD
Calcium	46.9	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:25	EPA 200.7	HRD
Lithium	0.0161	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:25	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Duplicate

MFD0224-06 (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 13:57	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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

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

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-07 (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 13:59	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-08 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	7.51	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:13	EPA 300.0	CRL
Sulfate	118	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:13	EPA 300.0	CRL
Wet Chemistry										
pH	7.54		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:09	SM 4500-H+ B	CRL
Total Dissolved Solids	460	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	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Barium	110	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Cobalt	0.502	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Chromium	1.25	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Selenium	6.20	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:33	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.727	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:36	EPA 200.7	HRD
Calcium	102	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:35	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:35	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-08 (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 14:01	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-09 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:33	EPA 300.0	CRL
Sulfate	8.80	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:33	EPA 300.0	CRL
Wet Chemistry										
pH	7.74		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:13	SM 4500-H+ B	CRL
Total Dissolved Solids	248	20.0	mg/L		1	BFD0355	4/17/20 8:39	4/17/20 8:39	SM 2540C	HSD
Total Suspended Solids	14.0	4.00	mg/L		1	BFD0354	4/17/20 7:13	4/17/20 7:13	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.523	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Barium	55.2	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Chromium	1.75	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Selenium	0.922	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:37	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.132	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:41	EPA 200.7	HRD
Calcium	64.4	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:40	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:40	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-175

MFD0224-09 (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 14:02	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-10 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.23	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:53	EPA 300.0	CRL
Sulfate	35.6	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 18:53	EPA 300.0	CRL
Wet Chemistry										
pH	7.41		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:16	SM 4500-H+ B	CRL
Total Dissolved Solids	408	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	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Barium	79.4	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Chromium	0.926	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Molybdenum	4.33	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Selenium	2.18	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:41	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.212	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:46	EPA 200.7	HRD
Calcium	103	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:45	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:45	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-10 (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 14:04	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

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MFD0224-11 (Water) - Chain of Custody Number: 2277983

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.67	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 20:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 20:56	EPA 300.0	CRL
Sulfate	29.3	1.00	mg/L		1	BFD0343	4/16/20 12:31	4/16/20 20:56	EPA 300.0	CRL
Wet Chemistry										
pH	7.78		pH Units	M_TTT	1	BFD0346	4/16/20 12:19	4/16/20 13:24	SM 4500-H+ B	CRL
Total Dissolved Solids	290	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	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Barium	53.6	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Chromium	0.624	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Molybdenum	16.2	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Selenium	1.42	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFD0387	4/20/20 7:01	4/27/20 10:44	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.183	0.0500	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:51	EPA 200.7	HRD
Calcium	61.9	1.25	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:50	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFD0386	4/20/20 6:59	4/26/20 13:50	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

P-173

MFD0224-11 (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 14:06	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0387 - EPA 200.2, EPA 3005										
Blank (BFD0387-BLK1)				Prepared: 04/20/2020 Analyzed: 04/27/2020						
Barium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Lead	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
LCS (BFD0387-BS1)				Prepared: 04/20/2020 Analyzed: 04/27/2020						
Arsenic	98.671	0.500	ug/L	100.00		98.7	85-115			
Barium	100.60	0.500	ug/L	100.00		101	85-115			
Cadmium	99.333	0.100	ug/L	100.00		99.3	85-115			
Chromium	104.26	0.500	ug/L	100.00		104	85-115			
Antimony	100.86	0.500	ug/L	100.00		101	85-115			
Thallium	100.52	0.500	ug/L	100.00		101	85-115			
Cobalt	102.73	0.500	ug/L	100.00		103	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			
Beryllium	101.25	0.500	ug/L	100.00		101	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						
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Selenium	0.47859	0.500	ug/L		0.44275			7.78	20	
Chromium	1.0214	0.500	ug/L		0.92820			9.56	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	0.021097	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.22619	0.500	ug/L		0.20713			8.80	20	
Barium	38.924	0.500	ug/L		38.279			1.67	20	
Arsenic	0.50620	0.500	ug/L		0.52466			3.58	20	

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0387 - EPA 200.2, EPA 3005										
Duplicate (BFD0387-DUP2)		**Source: MFD0224-05**		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Thallium	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.93949	0.500	ug/L		0.91402			2.75	20	
Chromium	1.0915	0.500	ug/L		1.0854			0.564	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.74111	0.500	ug/L		0.72674			1.96	20	
Selenium	1.9291	0.500	ug/L		1.9452			0.829	20	
Barium	44.275	0.500	ug/L		42.834			3.31	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.089530	0.500	ug/L		0.12065			29.6	20	M_D-RL
Matrix Spike (BFD0387-MS1)		**Source: MFD0224-04**		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Cadmium	99.675	0.100	ug/L	100.00	<0.100	99.7	75-125			
Molybdenum	103.27	0.500	ug/L	100.00	0.20713	103	75-125			
Lead	95.605	0.500	ug/L	100.00	<0.500	95.6	75-125			
Beryllium	102.26	0.500	ug/L	100.00	<0.500	102	75-125			
Barium	140.61	0.500	ug/L	100.00	38.279	102	75-125			
Cobalt	106.11	0.500	ug/L	100.00	<0.500	106	75-125			
Selenium	98.776	0.500	ug/L	100.00	0.44275	98.3	75-125			
Chromium	108.00	0.500	ug/L	100.00	0.92820	107	75-125			
Thallium	98.604	0.500	ug/L	100.00	<0.500	98.6	75-125			
Arsenic	102.40	0.500	ug/L	100.00	0.52466	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						
Molybdenum	104.32	0.500	ug/L	100.00	0.91402	103	75-125			
Cadmium	98.718	0.100	ug/L	100.00	<0.100	98.7	75-125			
Thallium	98.417	0.500	ug/L	100.00	<0.500	98.4	75-125			
Cobalt	101.97	0.500	ug/L	100.00	0.12065	102	75-125			
Antimony	100.82	0.500	ug/L	100.00	<0.500	101	75-125			
Lead	95.029	0.500	ug/L	100.00	<0.500	95.0	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			
Arsenic	101.90	0.500	ug/L	100.00	0.72674	101	75-125			
Beryllium	103.79	0.500	ug/L	100.00	<0.500	104	75-125			
Barium	137.81	0.500	ug/L	100.00	42.834	95.0	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0387 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFD0387-MSD1)		**Source: MFD0224-04**		Prepared: 04/20/2020 Analyzed: 04/27/2020						
Lead	93.605	0.500	ug/L	100.00	<0.500	93.6	75-125	2.11	20	
Chromium	103.94	0.500	ug/L	100.00	0.92820	103	75-125	3.83	20	
Antimony	101.14	0.500	ug/L	100.00	<0.500	101	75-125	0.0789	20	
Thallium	96.389	0.500	ug/L	100.00	<0.500	96.4	75-125	2.27	20	
Cobalt	102.60	0.500	ug/L	100.00	<0.500	103	75-125	3.36	20	
Arsenic	98.968	0.500	ug/L	100.00	0.52466	98.4	75-125	3.41	20	
Cadmium	95.663	0.100	ug/L	100.00	<0.100	95.7	75-125	4.11	20	
Selenium	93.577	0.500	ug/L	100.00	0.44275	93.1	75-125	5.41	20	
Beryllium	103.27	0.500	ug/L	100.00	<0.500	103	75-125	0.982	20	
Molybdenum	105.05	0.500	ug/L	100.00	0.20713	105	75-125	1.70	20	
Barium	140.78	0.500	ug/L	100.00	38.279	103	75-125	0.123	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	
Chromium	106.28	0.500	ug/L	100.00	1.0854	105	75-125	1.32	20	
Cobalt	103.95	0.500	ug/L	100.00	0.12065	104	75-125	1.92	20	
Antimony	100.50	0.500	ug/L	100.00	<0.500	100	75-125	0.323	20	
Beryllium	92.926	0.500	ug/L	100.00	<0.500	92.9	75-125	11.0	20	
Barium	148.08	0.500	ug/L	100.00	42.834	105	75-125	7.18	20	
Lead	92.846	0.500	ug/L	100.00	<0.500	92.8	75-125	2.32	20	
Selenium	97.618	0.500	ug/L	100.00	1.9452	95.7	75-125	5.20	20	
Cadmium	99.996	0.100	ug/L	100.00	<0.100	100	75-125	1.29	20	
Molybdenum	106.96	0.500	ug/L	100.00	0.91402	106	75-125	2.50	20	
Arsenic	99.750	0.500	ug/L	100.00	0.72674	99.0	75-125	2.14	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0386 - EPA 200.2, EPA 3005										
Blank (BFD0386-BLK1)				Prepared: 04/20/2020 Analyzed: 04/26/2020						
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
LCS (BFD0386-BS1)				Prepared: 04/20/2020 Analyzed: 04/26/2020						
Boron	1.0635	0.0500	mg/L	1.0000		106	85-115			
Calcium	106.71	1.25	mg/L	100.00		107	85-115			
Lithium	1.0340	0.0150	mg/L	1.0000		103	85-115			
Duplicate (BFD0386-DUP1)		**Source: MFD0224-02**		Prepared: 04/20/2020 Analyzed: 04/26/2020						
Boron	0.059446	0.0500	mg/L		0.061583			3.53	20	
Calcium	55.541	1.25	mg/L		54.169			2.50	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	
Calcium	64.124	1.25	mg/L		59.492			7.49	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Matrix Spike (BFD0386-MS1)		**Source: MFD0224-02**		Prepared: 04/20/2020 Analyzed: 04/26/2020						
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			
Boron	1.1010	0.0500	mg/L	1.0000	0.061583	104	70-130			
Matrix Spike (BFD0386-MS2)		**Source: MFD0224-03**		Prepared: 04/20/2020 Analyzed: 04/26/2020						
Lithium	1.0223	0.0150	mg/L	1.0000	<0.0150	102	70-130			
Calcium	170.77	1.25	mg/L	100.00	59.492	111	70-130			
Boron	1.1311	0.0500	mg/L	1.0000	0.092471	104	70-130			

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFD0386 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFD0386-MSD1)		**Source: MFD0224-02**		Prepared: 04/20/2020 Analyzed: 04/26/2020						
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	
Calcium	159.34	1.25	mg/L	100.00	54.169	105	70-130	1.61	20	
Matrix Spike Dup (BFD0386-MSD2)		**Source: MFD0224-03**		Prepared: 04/20/2020 Analyzed: 04/26/2020						
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	
Lithium	1.0140	0.0150	mg/L	1.0000	<0.0150	101	70-130	0.816	20	

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/05/2020 06:24

Qualifiers and Definitions

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

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

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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.

Page: 1 of 1

2277983

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Xcel Energy	Report To: David Katzner	Attention: Steve Davis
Address: Environmental Services MP-7	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Sherco BAP2, Baseline #3	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: 6W-CCR	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Rinse	WT				4/14/20	0940		2	1		1						✓		
2	P-152A						1050		2	1		1						✓		
3	P-177						1150		2	1		1						✓		
4	P-17	↓				↓	1335		2	1		1						✓		
5	P-178A	WT				4/15/20	0940		2	1		1						✓		
6	Duplicate						0940		2	1		1						✓		
7	P-158						1055		2	1		1						✓		
8	P-176						1220		2	1		1						✓		
9	P-175	↓				↓	1325		2	1		1						✓		
10	P-174	WT				4/16/20	0920		2	1		1						✓		
11	P-173	↓				↓	1030		2	1		1						✓		
12																				

DJA 4/16/20

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
① All metals bottles are unfiltered	David Anderson/Pace	4/16/20	1200	/Xcel	4/16/20	12:00	
				Temp = 2.9°C M400841			
				pH strips: MD00402			

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE 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)

*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.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

May 15, 2020

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

RE: Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on April 20, 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

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

Sincerely,

Carin A. Ferris

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

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CERTIFICATIONS

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

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

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SAMPLE SUMMARY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30359545001	**Rinse**	Water	04/14/20 09:40	04/20/20 09:05
30359545002	**P-152A**	Water	04/14/20 10:50	04/20/20 09:05
30359545003	**P-177**	Water	04/14/20 11:50	04/20/20 09:05
30359545004	**P-17**	Water	04/14/20 13:35	04/20/20 09:05
30359545005	**P-178A**	Water	04/15/20 09:40	04/20/20 09:05
30359545006	**Dulicate**	Water	04/15/20 09:40	04/20/20 09:05
30359545007	**P-158**	Water	04/15/20 10:55	04/20/20 09:05
30359545008	**P-176**	Water	04/15/20 12:20	04/20/20 09:05
30359545009	**P-175**	Water	04/15/20 13:25	04/20/20 09:05
30359545010	**P-174**	Water	04/16/20 09:20	04/20/20 09:05
30359545011	**P-173**	Water	04/16/20 10:30	04/20/20 09:05

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30359545001	**Rinse**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545003	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545004	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545005	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545006	**Dulicate**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545007	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545008	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545009	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545010	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30359545011	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: May 15, 2020

General Information:
11 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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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: May 15, 2020

General Information:
11 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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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: May 15, 2020

General Information:
11 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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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Sample: Rinse **Lab ID: 30359545001** Collected: 04/14/20 09:40 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	**0.0618 ± 0.436 (0.871) C:NA T:91%**	pCi/L	05/11/20 11:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.711 ± 0.425 (0.789) C:69% T:88%**	pCi/L	05/07/20 16:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.773 ± 0.861 (1.66)**	pCi/L	05/12/20 08:52	7440-14-4	

Sample: P-152A **Lab ID: 30359545002** 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
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.309 (0.498) C:NA T:85%**	pCi/L	05/11/20 11:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**-0.00368 ± 0.413 (0.958) C:70% T:81%**	pCi/L	05/07/20 16:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.000 ± 0.722 (1.46)**	pCi/L	05/12/20 08:52	7440-14-4	

Sample: P-177 **Lab ID: 30359545003** Collected: 04/14/20 11:50 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
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.176 ± 0.416 (0.932) C:NA T:90%**	pCi/L	05/11/20 11:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.228 ± 0.365 (0.791) C:73% T:90%**	pCi/L	05/07/20 16:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.228 ± 0.781 (1.72)**	pCi/L	05/12/20 08:52	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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1638 Roseytown Road - Suites 2,3,4
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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Sample: P-17 **Lab ID: 30359545004** 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:76% T:93%**	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	05/12/20 08:52	7440-14-4	

Sample: P-178A **Lab ID: 30359545005** Collected: 04/15/20 09:40 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	**0.179 ± 0.351 (0.642) C:NA T:89%**	pCi/L	05/11/20 11:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.353 ± 0.420 (0.886) C:77% T:75%**	pCi/L	05/07/20 16:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.532 ± 0.771 (1.53)**	pCi/L	05/12/20 08:52	7440-14-4	

Sample: Dulicate **Lab ID: 30359545006** Collected: 04/15/20 09:40 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	**0.203 ± 0.514 (0.953) C:NA T:83%**	pCi/L	05/11/20 11:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.401 ± 0.421 (0.877) C:76% T:80%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.604 ± 0.935 (1.83)**	pCi/L	05/12/20 08:52	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Sample: P-158 **Lab ID: 30359545007** 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
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**-0.316 ± 0.330 (0.891) C:NA T:84%**	pCi/L	05/11/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.353 ± 0.395 (0.828) C:77% T:83%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.353 ± 0.725 (1.72)**	pCi/L	05/12/20 08:52	7440-14-4	

Sample: P-176 **Lab ID: 30359545008** Collected: 04/15/20 12:20 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	**0.298 ± 0.585 (1.07) C:NA T:81%**	pCi/L	05/15/20 11:07	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0550 ± 0.308 (0.706) C:76% T:88%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.353 ± 0.893 (1.78)**	pCi/L	05/15/20 14:23	7440-14-4	

Sample: P-175 **Lab ID: 30359545009** Collected: 04/15/20 13:25 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	**0.0642 ± 0.293 (0.596) C:NA T:90%**	pCi/L	05/11/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.115 ± 0.374 (0.844) C:70% T:80%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.179 ± 0.667 (1.44)**	pCi/L	05/12/20 08:52	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

Sample: P-174 **Lab ID: 30359545010** Collected: 04/16/20 09:20 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	**0.191 ± 0.331 (0.591) C:NA T:94%**	pCi/L	05/11/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0545 ± 0.414 (0.947) C:72% T:82%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.246 ± 0.745 (1.54)**	pCi/L	05/12/20 08:52	7440-14-4	

Sample: P-173 **Lab ID: 30359545011** Collected: 04/16/20 10:30 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	**-0.134 ± 0.371 (0.877) C:NA T:84%**	pCi/L	05/11/20 11:35	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0515 ± 0.330 (0.757) C:74% T:90%**	pCi/L	05/07/20 16:38	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.0515 ± 0.701 (1.63)**	pCi/L	05/12/20 08:52	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

QC Batch: 393070 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: 30359545001, 30359545002, 30359545003, 30359545004, 30359545005, 30359545006, 30359545007, 30359545008, 30359545009, 30359545010, 30359545011

METHOD BLANK: 1903891 Matrix: Water
Associated Lab Samples: 30359545001, 30359545002, 30359545003, 30359545004, 30359545005, 30359545006, 30359545007, 30359545008, 30359545009, 30359545010, 30359545011

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: 20-03223, Xcel Energy
Pace Project No.: 30359545

QC Batch: 393069 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: 30359545001, 30359545002, 30359545003, 30359545004, 30359545005, 30359545006, 30359545007, 30359545008, 30359545009, 30359545010, 30359545011

METHOD BLANK: 1903890 Matrix: Water
Associated Lab Samples: 30359545001, 30359545002, 30359545003, 30359545004, 30359545005, 30359545006, 30359545007, 30359545008, 30359545009, 30359545010, 30359545011

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	

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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Greensburg, PA 15601
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QUALIFIERS

Project: 20-03223, Xcel Energy
Pace Project No.: 30359545

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.

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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.

Pace Analytical®
www.pacelabs.com

Page: 1 of 1

2277982

Section A Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: David Anderson
Copy To:
Purchase Order No.:
Project Name: 20-03223 Xcel Energy
Project Number: Sherco BAP 3, ~~Baseline #2~~ Baseline #3

Section C Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference:
Pace Project Manager: Cain Ferris
Pace Profile #:

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

Site Location STATE:

WO# : 30359545

30359545

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: RA-226 EPA903.1	RA-228 EPA904.0	Residual Cl	Pace Project No./ Lab I.D.
1	Rinse	WT				4/14/20	0940		2		2							✓	✓		001
2	P-152A						1050		2		2							✓	✓		002
3	P-177						1150		2		2							✓	✓		003
4	P-17	↓				↓	1335		2		2							✓	✓		004
5	P-178A	WT				4/15/20	0940		2		2							✓	✓		005
6	Duplicate						0940		2		2							✓	✓		006
7	P-158						1055		2		2							✓	✓		007
8	P-176						1220		2		2							✓	✓		008
9	P-175	↓				↓	1325		2		2							✓	✓		009
10	P-174	WT				4/16/20	0920		2		2							✓	✓		010
11	P-173	↓				↓	1030		2		2							✓	✓		011
12	DUP 4/16/20																				

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

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 Anderson/Pace	4/16/20	1240		04/20/20	0905	—	N	N	Y

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson DATE Signed (MM/DD/YY): 4/16/20

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel Energy Project # # 30359545

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

Label ☑ LIMS Login ☑

Tracking #: 1686 7302 0161

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

Comments:	Yes	No	N/A	pH paper Lot# 100421281 / Date and Initials of person examining contents: 04/24/20 DB
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pHL2
All containers meet method preservation requirements.	✓			Initial when completed DB / Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: DB Date: 04/24/20

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Baseline Monitoring Event #4
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2, Baseline #4 | Project No.: 20-03294

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
Well depth	45.21	Feet
Static water level measurement before purging	35.27	Feet
Static water level measurement at time of sampling	35.27	Feet
Static Water Level Elevation Before Purging	NA	Feet

} collected Readings all on 5/6/20

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 5/7/20 | Water Column: 9.94 Feet

Time Purged: 0900 - 0933 | One Casing Volume: 1.62 Gallons

Pump Rate: 0.15 (GPM) / LPM | Volume Purged: 4.95 Gallons

Field Sampling Data

Date Sampled: 5/7/20

Time Sampled: 0945

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.6 (units) | D.O: 8.3 (mg/l)

Spec. Cond.: 510 (µmhos/cm) | Turbidity: 2.2 (NTU)

Temp.: 9.5 (°C) | Eh: 165 (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: 47°F, Sunny, N wind @ 10MPH

Sample Description: clear no oder

Observations: *Took SWL reading on 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0911	7.5	520	9.5	8.1	NA	181	1.65
0922	7.5	510	9.5	8.2	NA	173	3.30
0933	7.6	510	9.5	8.3	NA	165	4.95
			RGJ 5/7/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson | Date: 5/7/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2, Baseline #4 | Project No.: 20-03294

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
Well depth	39.25	Feet
Static water level measurement before purging	35.22	Feet
Static water level measurement at time of sampling	35.22	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 5/6/20 | Water Column: 4.03 Feet

Time Purged: 1400-1418 | One Casing Volume: 0.66 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 2.16 Gallons

Field Sampling Data

Date Sampled: 5/6/20

Time Sampled: 1430

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RDS

Field Parameter Measurements of Sample

pH: 7.3 (units) | D.O: 10.1 (mg/l)

Spec. Cond.: 370 (µmhos/cm) | Turbidity: 3.3 (NTU)

Temp.: 10.5 (°C) | Eh: 162 (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: 64°F, Mostly Sunny, NW@15MPH

Sample Description: clear no odor

Observations: *Duplicate Collected @ this well - 5/6/20 @ 1430 RDS

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1406	7.2	370	10.5	10.2	NA	167	0.72
1412	7.2	370	10.5	10.2	NA	164	1.44
1418	7.3	370	10.5	10.1	NA	162	2.16
				RDS 5/6/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson | Date: 5/6/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #4 Project No.: 20-03294

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
Well depth	46.05	Feet } collected all readings on 5/6/20
Static water level measurement before purging	37.86	Feet }
Static water level measurement at time of sampling	37.86	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: BPL-01-20

Date Purged: 5/7/20 Water Column: 8.19 Feet

Time Purged: 1040 - 1116 One Casing Volume: 1.33 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.32 Gallons

Field Sampling Data

Date Sampled: 5/7/20

Time Sampled: 1130

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 10.5 (mg/l)

Spec. Cond.: 730 (µmhos/cm) Turbidity: 1.8 (NTU)

Temp.: 10.0 (°C) Eh: 155 (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°F, Mostly Sunny, N winds @ 10MPH

Sample Description: clear no odor

Observations: *Took SWL Reading on 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1052	7.3	(RGJ 5/7/20) ~~760~~ 740*	10.0	10.5	NA	160	1.44
1104	7.4	730	10.0	10.5	NA	157	2.88
1116	7.4	730	10.0	10.5	NA	155	4.32
				RGJ 5/7/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/7/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2, Baseline #4 | Project No.: 20-03294

Monitoring Point ID: P-173 | Labeled: 844707

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	75.32	Feet
Static water level measurement before purging (Start Depth)	69.69	Feet
Static water level measurement at time of sampling (Final Depth)	69.69	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPL-01-20

Date Purged: 5/6/20 | Water Column: 5.63 Feet

Time Purged: 855 - 0919 | One Casing Volume: 0.92 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 2.88 Gallons

Field Sampling Data

Date Sampled: 5/6/20

Time Sampled: 0930

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RDJ

Field Parameter Measurements of Sample

pH: 7.1 (units) | D.O: 7.6 (mg/l)

Spec. Cond.: 500 (µmhos/cm) | Turbidity: 40 (NTU)

Temp.: 10.0 (°C) | Eh: 180 (mV)

Other: Appearance = Clear/light Brown tint

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

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

Weather Conditions During Sampling: 53°F, Partly Cloudy, NW wind @ 12MPH

Sample Description: clear no odor

Observations: Well casing was struck by Construction Equip, base concrete is cracked + casing leaning slightly - no damage to Pump, good Sample collection/Purge. (1)

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0903	7.0	510	10.0	7.8	NA	204	0.96
0911	7.0	500	10.0	7.7	NA	192	1.92
0919	7.1	500	10.0	7.6	NA	180	2.88
			RDJ 5/6/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2018

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

Lead Technician Signature: Riley Jacobson Date: 5/6/20

(1) Collected Rinse @ this well - 5/6/20 @ 0845 RDJ

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2, Baseline #4 | Project No.: 20-03294

Monitoring Point ID: P-174 | Labeled: 844706

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
Well depth	77.49	Feet
Static water level measurement before purging	72.30	Feet
Static water level measurement at time of sampling	72.30	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPL-01-20

Date Purged: 5/6/20 | Water Column: 5.19 Feet

Time Purged: 1005 - 1029 | One Casing Volume: 0.85 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 2.88 Gallons

Field Sampling Data

Date Sampled: 5/6/20

Time Sampled: 1045

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.0 (units) | D.O: 7.7 (mg/l)

Spec. Cond.: 710 (µmhos/cm) | Turbidity: 5.8 (NTU)

Temp.: 10.5 (°C) | Eh: 175 (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: 57°F, Partly Cloudy, NW wind @ 12MPH

Sample Description: clear, no odor

Observations: None

RGJ 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1013	6.9	720	10.5	7.8	NA	183	0.96
1021	7.0	710	10.5	7.8	NA	179	1.92
1029	7.0	710	10.5	7.7	NA	175	2.88

RGJ 5/6/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson | Date: 5/6/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline # 4 Project No.: 20-032944

Monitoring Point ID: P-175 Labeled: 844705

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
Well depth	77.80	Feet
Static water level measurement before purging	75.77	Feet
Static water level measurement at time of sampling	75.77	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: BCP-01-20

Date Purged: 5/16/20 Water Column: 2.03 Feet

Time Purged: 1110 – 1119 One Casing Volume: 0.33 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 1.08 Gallons

Field Sampling Data

Date Sampled: 5/16/20

Time Sampled: 1130

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH 7.2 (units) D.O 8.3 (mg/l)

Spec. Cond. 430 (µmhos/cm) Turbidity 4.7 (NTU)

Temp. 11.0 (°C) Eh 171 (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: 60°F, Partly Cloudy, NW@15MPH

Sample Description: clear no odor

Observations: None

RGJ 5/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1113	7.2	430	11.0	8.3	NA	176	0.36
1116	7.2	430	11.0	8.3	NA	173	0.72
1119	7.2	430	11.0	8.3	NA	171	1.08

RGJ 5/16/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline #4 Project No.: 20-03294

Monitoring Point ID: P-176 Labeled: 844703

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
Well depth	78.43	Feet
Static water level measurement before purging	74.31	Feet
Static water level measurement at time of sampling	74.31	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: BPL-01-20

Date Purged: 5/6/20 Water Column: 4.12 Feet

Time Purged: 1210 - 1228 One Casing Volume: 0.67 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 2.16 Gallons

Field Sampling Data

Date Sampled: 5/6/20 (1) RGJ 5/6/20

Time Sampled: ~~1240~~ (1240)

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.0 (units) D.O: 8.5 (mg/l)

Spec. Cond.: 700 (µmhos/cm) Turbidity: 3.1 (NTU)

Temp.: 11.5 (°C) Eh: 181 (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: 62°F, Partly Cloudy, NW @ 15 MPH

Sample Description: clear no odor

Observations: None — RGJ 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1216	7.1	710	11.5	8.9	NA	173	0.72
1222	7.0	710	11.5	8.7	NA	177	1.44
1228	7.0	700	11.5	8.5	NA	181	2.16
				RGJ 5/6/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/6/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2, Baseline #4 | Project No.: 20-03294

Monitoring Point ID: P-177 | Labeled: 844704

Inside Diameter: 2 (inches) | Key #: 2106 | [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Total Well Depth	41.56	Feet
Static water level measurement before purging (Start Depth)	37.43	Feet
Static water level measurement at time of sampling (Final Depth)	37.43	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPL-01-20

Date Purged: 5/7/20 | Water Column: 4.13 Feet

Time Purged: 0955-1013 | One Casing Volume: 0.67 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 2.16 Gallons

Field Sampling Data

Date Sampled: 5/7/20

Time Sampled: 1025

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RBJ

Field Parameter Measurements of Sample

pH: 7.4 (units) | D.O: 9.3 (mg/l)

Spec. Cond.: 450 (µmhos/cm) | Turbidity: 2.3 (NTU)

Temp.: 10.0 (°C) | Eh: 167 (mV)

Other: Appearance = Clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 49°F, Sunny, NW at 10 MPH

Sample Description: clear no odor

Observations: * Took SWL reading on 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1001	7.3	460	10.0	8.0	NA	180	0.72
1007	7.4	450	10.0	9.0	NA	173	1.44
1013	7.4	450	10.0	9.3	NA	167	2.16
				RBJ 5/7/20			

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 01/25/2018

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

Lead Technician Signature: Riley Jacobson Date: 5/7/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2, Baseline # 4 Project No.: 20-03294

Monitoring Point ID: P-178A Labeled: 844708

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	42.62	Feet
Static water level measurement before purging	37.43	Feet
Static water level measurement at time of sampling	37.43	Feet
Static Water Level Elevation Before Purging	NA	Feet

Collected all readings on 5/6/20

Purge Method: Dedicated Bladder Pump Pump ID: BPL-01-20

Date Purged: 5/7/20 Water Column: 5.19 Feet

Time Purged: 0800 - 0824 One Casing Volume: 0.85 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 2.88 Gallons

Field Sampling Data

Date Sampled: ~~5/6/20~~ 5/7/20 (Corrected)

Time Sampled: 0840

Sampling Equip.: Above Pump

Meter ID: MPS-6

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 9.6 (mg/l)

Spec. Cond.: 460 (µmhos/cm) Turbidity: 2.9 (NTU)

Temp.: 9.5 (°C) Eh: 203 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 43°F, Sunny, NW @ 10MPH winds

Sample Description: clear no oder

Observations: * Took SWL Reading on 5/6/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0808	7.2	460	9.5	9.5	NA	217	0.96
0816	7.3	460	9.5	9.5	NA	210	1.92
0824	7.3	460	9.5	9.6	NA	203	2.88
			RGJ 5/7/20				

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/7/20

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

15 May 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 05/08/2020 07:57. 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,

Christopher R Lewis For Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFE0058-01	Water	05/07/2020 9:45	05/08/2020 7:57
P-152A		MFE0058-02	Water	05/06/2020 14:30	05/08/2020 7:57
P-158		MFE0058-03	Water	05/07/2020 11:30	05/08/2020 7:57
P-173		MFE0058-04	Water	05/06/2020 9:30	05/08/2020 7:57
P-174		MFE0058-05	Water	05/06/2020 10:45	05/08/2020 7:57
P-175		MFE0058-06	Water	05/06/2020 11:30	05/08/2020 7:57
P-176		MFE0058-07	Water	05/06/2020 12:40	05/08/2020 7:57
P-177		MFE0058-08	Water	05/07/2020 10:25	05/08/2020 7:57
P-178A		MFE0058-09	Water	05/07/2020 8:40	05/08/2020 7:57
Duplicate		MFE0058-10	Water	05/06/2020 14:30	05/08/2020 7:57
Rinse		MFE0058-11	Water	05/06/2020 8:45	05/08/2020 7:57

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-17

MFE0058-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	21.2	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:09	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:09	EPA 300.0	Xcel
Sulfate	23.0	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:09	EPA 300.0	Xcel
Wet Chemistry										
pH	7.89		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:24	SM 4500-H+ B	CRL
Total Dissolved Solids	276	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.626	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Barium	38.9	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Chromium	0.976	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Selenium	0.689	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:22	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:37	EPA 200.7	ICP
Calcium	71.0	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:36	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:36	EPA 200.7	ICP

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-17

MFE0058-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:31	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-152A

MFE0058-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:29	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:29	EPA 300.0	Xcel
Sulfate	6.68	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:29	EPA 300.0	Xcel
Wet Chemistry										
pH	7.87		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:28	SM 4500-H+ B	CRL
Total Dissolved Solids	214	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.523	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Barium	38.3	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Chromium	0.631	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:26	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:43	EPA 200.7	ICP
Calcium	57.4	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:41	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:41	EPA 200.7	ICP

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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-152A

MFE0058-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:33	EPA 245.1/7470A	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-158

MFE0058-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.59	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:50	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:50	EPA 300.0	Xcel
Sulfate	158	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 14:50	EPA 300.0	Xcel
Wet Chemistry										
pH	7.73		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:31	SM 4500-H+ B	CRL
Total Dissolved Solids	462	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.661	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Barium	70.5	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Chromium	0.948	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Selenium	2.36	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:38	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.903	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:57	EPA 200.7	ICP
Calcium	108	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:56	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 11:56	EPA 200.7	ICP

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-158

MFE0058-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:38	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-173

MFE0058-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.93	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:10	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:10	EPA 300.0	Xcel
Sulfate	27.9	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:10	EPA 300.0	Xcel
Wet Chemistry										
pH	7.82		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:35	SM 4500-H+ B	CRL
Total Dissolved Solids	280	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	39.2	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.852	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Barium	76.9	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Cobalt	1.14	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Chromium	9.73	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Molybdenum	11.8	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Lead	0.639	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Selenium	1.45	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:42	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.185	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:03	EPA 200.7	ICP
Calcium	72.6	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:01	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:01	EPA 200.7	ICP

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:40	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.18	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:31	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:31	EPA 300.0	Xcel
Sulfate	30.8	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:31	EPA 300.0	Xcel
Wet Chemistry										
pH	7.55		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:38	SM 4500-H+ B	CRL
Total Dissolved Solids	402	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Barium	81.4	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Chromium	1.12	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Molybdenum	3.94	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Selenium	2.45	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:46	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.226	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:08	EPA 200.7	ICP
Calcium	106	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:06	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:06	EPA 200.7	ICP

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:42	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:51	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:51	EPA 300.0	Xcel
Sulfate	8.43	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 15:51	EPA 300.0	Xcel
Wet Chemistry										
pH	7.81		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:42	SM 4500-H+ B	CRL
Total Dissolved Solids	224	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	23.2	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.649	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Barium	59.8	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Cobalt	0.641	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Chromium	2.32	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Selenium	0.897	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.129	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:13	EPA 200.7	ICP
Calcium	70.7	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:11	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:11	EPA 200.7	ICP

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:43	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	7.22	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:11	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:11	EPA 300.0	Xcel
Sulfate	111	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:11	EPA 300.0	Xcel
Wet Chemistry										
pH	7.66		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:46	SM 4500-H+ B	CRL
Total Dissolved Solids	450	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.511	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Barium	113	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Cobalt	0.504	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Chromium	1.17	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Selenium	6.16	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:53	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.717	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:18	EPA 200.7	ICP
Calcium	106	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:16	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:16	EPA 200.7	ICP

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

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MFE0058-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:45	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-177

MFE0058-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.28	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:32	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:32	EPA 300.0	Xcel
Sulfate	33.3	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:32	EPA 300.0	Xcel
Wet Chemistry										
pH	7.86		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:49	SM 4500-H+ B	CRL
Total Dissolved Solids	262	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.506	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Barium	53.2	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Chromium	0.819	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Molybdenum	3.49	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Antimony	0.600	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Selenium	1.33	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 9:59	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0910	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:23	EPA 200.7	ICP
Calcium	68.4	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:22	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:22	EPA 200.7	ICP

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-177

MFE0058-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:47	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-178A

MFE0058-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.64	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:52	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:52	EPA 300.0	Xcel
Sulfate	47.6	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 16:52	EPA 300.0	Xcel
Wet Chemistry										
pH	7.94		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 10:53	SM 4500-H+ B	CRL
Total Dissolved Solids	254	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.957	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Barium	41.0	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Chromium	1.07	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Molybdenum	0.954	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Selenium	1.99	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:03	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.262	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:28	EPA 200.7	ICP
Calcium	44.9	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:27	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:27	EPA 200.7	ICP

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

P-178A

MFE0058-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:49	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Duplicate

MFE0058-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 17:13	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 17:13	EPA 300.0	Xcel
Sulfate	6.68	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 17:13	EPA 300.0	Xcel
Wet Chemistry										
pH	7.97		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 11:00	SM 4500-H+ B	CRL
Total Dissolved Solids	208	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.604	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Barium	40.4	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Chromium	0.618	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Selenium	0.525	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:07	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:33	EPA 200.7	ICP
Calcium	59.5	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:32	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:32	EPA 200.7	ICP

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Duplicate

MFE0058-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:50	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Rinse

MFE0058-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 19:15	EPA 300.0	Xcel
Fluoride	< 0.750	0.750	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 19:15	EPA 300.0	Xcel
Sulfate	< 1.00	1.00	mg/L		1	BFE0155	5/11/20 9:19	5/11/20 19:15	EPA 300.0	Xcel
Wet Chemistry										
pH	6.23		pH Units	M_TTT	1	BFE0154	5/11/20 9:17	5/11/20 11:03	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFE0147	5/11/20 9:48	5/11/20 9:48	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0146	5/11/20 8:02	5/11/20 8:02	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Selenium	0.552	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFE0151	5/11/20 8:37	5/13/20 10:11	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:39	EPA 200.7	ICP
Calcium	< 1.25	1.25	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:38	EPA 200.7	ICP
Lithium	< 0.0150	0.0150	mg/L		1	BFE0150	5/11/20 8:35	5/12/20 12:38	EPA 200.7	ICP

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Rinse

MFE0058-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFE0249	5/14/20 9:24	5/14/20 14:52	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0155 - Wet Prep										
Blank (BFE0155-BLK1)				Prepared & Analyzed: 05/11/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFE0155-BLK2)				Prepared & Analyzed: 05/11/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFE0155-BS1)				Prepared & Analyzed: 05/11/2020						
Chloride	24.948	1.00	mg/L	24.938		100	90-110			
Fluoride	2.4810	0.750	mg/L	2.4938		99.5	90-110			
Sulfate	48.046	1.00	mg/L	49.876		96.3	90-110			
LCS (BFE0155-BS2)				Prepared & Analyzed: 05/11/2020						
Chloride	24.527	1.00	mg/L	24.938		98.4	90-110			
Fluoride	2.4220	0.750	mg/L	2.4938		97.1	90-110			
Sulfate	47.057	1.00	mg/L	49.876		94.3	90-110			
LCS (BFE0155-BS3)				Prepared & Analyzed: 05/11/2020						
Chloride	24.326	1.00	mg/L	24.938		97.5	90-110			
Fluoride	2.4320	0.750	mg/L	2.4938		97.5	90-110			
Sulfate	46.626	1.00	mg/L	49.876		93.5	90-110			
Duplicate (BFE0155-DUP1)		**Source: MFE0058-09**		Prepared & Analyzed: 05/11/2020						
Chloride	3.6210	1.00	mg/L		3.6420			0.578	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	47.793	1.00	mg/L		47.570			0.468	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0155 - Wet Prep										
Duplicate (BFE0155-DUP2)		**Source: MFE0058-10**		Prepared & Analyzed: 05/11/2020						
Chloride	0.71800	1.00	mg/L		0.72000			0.278	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	6.7110	1.00	mg/L		6.6820			0.433	20	
Matrix Spike (BFE0155-MS1)		**Source: MFE0058-09**		Prepared & Analyzed: 05/11/2020						
Chloride	33.966	1.25	mg/L	31.173	3.6420	97.3	90-110			
Fluoride	3.0425	0.938	mg/L	3.1173	<0.938	97.6	90-110			
Sulfate	106.04	1.25	mg/L	62.345	47.570	93.8	90-110			
Matrix Spike (BFE0155-MS2)		**Source: MFE0058-10**		Prepared & Analyzed: 05/11/2020						
Chloride	31.398	1.25	mg/L	31.173	0.72000	98.4	90-110			
Fluoride	3.1150	0.938	mg/L	3.1173	<0.938	99.9	90-110			
Sulfate	65.994	1.25	mg/L	62.345	6.6820	95.1	90-110			
Matrix Spike Dup (BFE0155-MSD1)		**Source: MFE0058-09**		Prepared & Analyzed: 05/11/2020						
Chloride	34.419	1.25	mg/L	31.173	3.6420	98.7	90-110	1.32	20	
Fluoride	3.0800	0.938	mg/L	3.1173	<0.938	98.8	90-110	1.22	20	
Sulfate	106.40	1.25	mg/L	62.345	47.570	94.4	90-110	0.340	20	
Matrix Spike Dup (BFE0155-MSD2)		**Source: MFE0058-10**		Prepared & Analyzed: 05/11/2020						
Chloride	31.770	1.25	mg/L	31.173	0.72000	99.6	90-110	1.18	20	
Fluoride	3.1250	0.938	mg/L	3.1173	<0.938	100	90-110	0.321	20	
Sulfate	66.843	1.25	mg/L	62.345	6.6820	96.5	90-110	1.28	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0146 - Wet Prep										
Blank (BFE0146-BLK1)				Prepared & Analyzed: 05/11/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFE0146-BS1)				Prepared & Analyzed: 05/11/2020						
Total Suspended Solids	80.000	4.00	mg/L	100.40		79.7	70-130			
Duplicate (BFE0146-DUP1)		**Source: MFE0058-01**		Prepared & Analyzed: 05/11/2020						
Total Suspended Solids	0.40000	4.00	mg/L		<4.00				20	
Duplicate (BFE0146-DUP2)		**Source: MFE0058-02**		Prepared & Analyzed: 05/11/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Batch BFE0147 - Wet Prep										
Blank (BFE0147-BLK1)				Prepared & Analyzed: 05/11/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFE0147-BS1)				Prepared & Analyzed: 05/11/2020						
Total Dissolved Solids	42.000	20.0	mg/L	51.200		82.0	70-130			
Duplicate (BFE0147-DUP1)		**Source: MFE0058-01**		Prepared & Analyzed: 05/11/2020						
Total Dissolved Solids	274.00	20.0	mg/L		276.00			0.727	20	
Duplicate (BFE0147-DUP2)		**Source: MFE0058-02**		Prepared & Analyzed: 05/11/2020						
Total Dissolved Solids	204.00	20.0	mg/L		214.00			4.78	20	
Batch BFE0154 - Wet Prep										
LCS (BFE0154-BS1)				Prepared & Analyzed: 05/11/2020						
pH	3.9700		pH Units	4.0000		99.3	90-110			

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0154 - Wet Prep										
LCS (BFE0154-BS2)				Prepared & Analyzed: 05/11/2020						
pH	4.0100		pH Units	4.0000		100	90-110			
Duplicate (BFE0154-DUP1)		**Source: MFE0058-01**		Prepared & Analyzed: 05/11/2020						
pH	7.8200		pH Units		7.8900			0.891	20	
Duplicate (BFE0154-DUP2)		**Source: MFE0058-10**		Prepared & Analyzed: 05/11/2020						
pH	7.9700		pH Units		7.9700			0.00	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0151 - EPA 200.2, EPA 3005										
Blank (BFE0151-BLK1)				Prepared: 05/11/2020 Analyzed: 05/13/2020						
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Selenium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
LCS (BFE0151-BS1)				Prepared: 05/11/2020 Analyzed: 05/13/2020						
Molybdenum	97.958	0.500	ug/L	100.00		98.0	85-115			
Barium	98.032	0.500	ug/L	100.00		98.0	85-115			
Selenium	100.45	0.500	ug/L	100.00		100	85-115			
Beryllium	96.498	0.500	ug/L	100.00		96.5	85-115			
Cadmium	101.82	0.100	ug/L	100.00		102	85-115			
Arsenic	101.37	0.500	ug/L	100.00		101	85-115			
Lead	100.24	0.500	ug/L	100.00		100	85-115			
Cobalt	101.62	0.500	ug/L	100.00		102	85-115			
Thallium	100.73	0.500	ug/L	100.00		101	85-115			
Chromium	103.68	0.500	ug/L	100.00		104	85-115			
Antimony	100.26	0.500	ug/L	100.00		100	85-115			
Duplicate (BFE0151-DUP1)		**Source: MFE0058-03**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Thallium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.63953	0.500	ug/L		0.66060			3.24	20	
Barium	72.248	0.500	ug/L		70.549			2.38	20	
Beryllium	0.023892	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.18057	0.500	ug/L		0.16339			9.99	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.89392	0.500	ug/L		0.94758			5.83	20	
Selenium	2.3014	0.500	ug/L		2.3608			2.55	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0151 - EPA 200.2, EPA 3005										
Duplicate (BFE0151-DUP2)		**Source: MFE0058-04**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Arsenic	0.77674	0.500	ug/L		0.85186			9.23	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Barium	76.369	0.500	ug/L		76.857			0.637	20	
Beryllium	0.067702	0.500	ug/L		0.062269			8.36	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Cobalt	1.1154	0.500	ug/L		1.1402			2.19	20	
Chromium	9.1760	0.500	ug/L		9.7285			5.85	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Selenium	1.3805	0.500	ug/L		1.4473			4.73	20	
Molybdenum	11.585	0.500	ug/L		11.797			1.81	20	
Lead	0.63169	0.500	ug/L		0.63866			1.10	20	
Matrix Spike (BFE0151-MS1)		**Source: MFE0058-03**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Barium	171.56	0.500	ug/L	100.00	70.549	101	75-125			
Cadmium	101.64	0.100	ug/L	100.00	<0.100	102	75-125			
Thallium	97.965	0.500	ug/L	100.00	<0.500	98.0	75-125			
Arsenic	106.85	0.500	ug/L	100.00	0.66060	106	75-125			
Lead	95.295	0.500	ug/L	100.00	<0.500	95.3	75-125			
Beryllium	104.79	0.500	ug/L	100.00	<0.500	105	75-125			
Antimony	102.03	0.500	ug/L	100.00	<0.500	102	75-125			
Cobalt	102.78	0.500	ug/L	100.00	<0.500	103	75-125			
Chromium	107.00	0.500	ug/L	100.00	0.94758	106	75-125			
Selenium	106.00	0.500	ug/L	100.00	2.3608	104	75-125			
Molybdenum	103.93	0.500	ug/L	100.00	0.16339	104	75-125			
Matrix Spike (BFE0151-MS2)		**Source: MFE0058-04**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Arsenic	105.43	0.500	ug/L	100.00	0.85186	105	75-125			
Molybdenum	110.97	0.500	ug/L	100.00	11.797	99.2	75-125			
Selenium	103.64	0.500	ug/L	100.00	1.4473	102	75-125			
Lead	96.187	0.500	ug/L	100.00	0.63866	95.5	75-125			
Cobalt	103.03	0.500	ug/L	100.00	1.1402	102	75-125			
Antimony	101.85	0.500	ug/L	100.00	<0.500	102	75-125			
Beryllium	101.98	0.500	ug/L	100.00	0.062269	102	75-125			
Chromium	113.34	0.500	ug/L	100.00	9.7285	104	75-125			
Barium	179.87	0.500	ug/L	100.00	76.857	103	75-125			
Cadmium	101.45	0.100	ug/L	100.00	<0.100	101	75-125			
Thallium	97.025	0.500	ug/L	100.00	<0.500	97.0	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0151 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFE0151-MSD1)		**Source: MFE0058-03**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Cobalt	102.71	0.500	ug/L	100.00	<0.500	103	75-125	0.0704	20	
Beryllium	108.07	0.500	ug/L	100.00	<0.500	108	75-125	3.08	20	
Molybdenum	102.43	0.500	ug/L	100.00	0.16339	102	75-125	1.46	20	
Lead	96.557	0.500	ug/L	100.00	<0.500	96.6	75-125	1.32	20	
Antimony	101.50	0.500	ug/L	100.00	<0.500	101	75-125	0.517	20	
Arsenic	105.94	0.500	ug/L	100.00	0.66060	105	75-125	0.855	20	
Selenium	105.16	0.500	ug/L	100.00	2.3608	103	75-125	0.799	20	
Thallium	100.23	0.500	ug/L	100.00	<0.500	100	75-125	2.28	20	
Chromium	106.31	0.500	ug/L	100.00	0.94758	105	75-125	0.644	20	
Barium	171.82	0.500	ug/L	100.00	70.549	101	75-125	0.151	20	
Cadmium	101.19	0.100	ug/L	100.00	<0.100	101	75-125	0.449	20	
Matrix Spike Dup (BFE0151-MSD2)		**Source: MFE0058-04**		Prepared: 05/11/2020 Analyzed: 05/13/2020						
Lead	96.195	0.500	ug/L	100.00	0.63866	95.6	75-125	0.00840	20	
Molybdenum	111.32	0.500	ug/L	100.00	11.797	99.5	75-125	0.316	20	
Cobalt	97.753	0.500	ug/L	100.00	1.1402	96.6	75-125	5.26	20	
Selenium	103.13	0.500	ug/L	100.00	1.4473	102	75-125	0.498	20	
Thallium	97.660	0.500	ug/L	100.00	<0.500	97.7	75-125	0.652	20	
Antimony	101.23	0.500	ug/L	100.00	<0.500	101	75-125	0.614	20	
Cadmium	97.795	0.100	ug/L	100.00	<0.100	97.8	75-125	3.67	20	
Beryllium	99.432	0.500	ug/L	100.00	0.062269	99.4	75-125	2.53	20	
Chromium	108.39	0.500	ug/L	100.00	9.7285	98.7	75-125	4.47	20	
Barium	176.81	0.500	ug/L	100.00	76.857	100	75-125	1.71	20	
Arsenic	103.46	0.500	ug/L	100.00	0.85186	103	75-125	1.89	20	

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0150 - EPA 200.2, EPA 3005										
Blank (BFE0150-BLK1)				Prepared: 05/11/2020 Analyzed: 05/12/2020						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							
LCS (BFE0150-BS1)				Prepared: 05/11/2020 Analyzed: 05/12/2020						
Boron	1.0387	0.0500	mg/L	1.0000		104	85-115			
Calcium	107.04	1.25	mg/L	100.00		107	85-115			
Lithium	1.0244	0.0150	mg/L	1.0000		102	85-115			
Duplicate (BFE0150-DUP1)		**Source: MFE0058-01**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Boron	0.021398	0.0500	mg/L		0.021733			1.56	20	
Calcium	74.029	1.25	mg/L		70.982			4.20	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Duplicate (BFE0150-DUP2)		**Source: MFE0058-02**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Boron	0.046038	0.0500	mg/L		0.045526			1.12	20	
Calcium	59.940	1.25	mg/L		57.361			4.40	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Matrix Spike (BFE0150-MS1)		**Source: MFE0058-01**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Lithium	1.0550	0.0150	mg/L	1.0000	<0.0150	106	70-130			
Calcium	186.95	1.25	mg/L	100.00	70.982	116	70-130			
Boron	1.0744	0.0500	mg/L	1.0000	0.021733	105	70-130			
Matrix Spike (BFE0150-MS2)		**Source: MFE0058-02**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Lithium	0.99958	0.0150	mg/L	1.0000	<0.0150	100	70-130			
Calcium	163.77	1.25	mg/L	100.00	57.361	106	70-130			
Boron	1.0543	0.0500	mg/L	1.0000	0.045526	101	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0150 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFE0150-MSD1)		**Source: MFE0058-01**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Lithium	0.98850	0.0150	mg/L	1.0000	<0.0150	98.8	70-130	6.51	20	
Boron	1.0300	0.0500	mg/L	1.0000	0.021733	101	70-130	4.21	20	
Calcium	175.69	1.25	mg/L	100.00	70.982	105	70-130	6.21	20	
Matrix Spike Dup (BFE0150-MSD2)		**Source: MFE0058-02**		Prepared: 05/11/2020 Analyzed: 05/12/2020						
Boron	1.0634	0.0500	mg/L	1.0000	0.045526	102	70-130	0.860	20	
Calcium	162.74	1.25	mg/L	100.00	57.361	105	70-130	0.629	20	
Lithium	1.0003	0.0150	mg/L	1.0000	<0.0150	100	70-130	0.0728	20	

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250 Marquette Plaza		**Reported:**
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Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0249 - EPA 245.1, EPA 7470A										
Blank (BFE0249-BLK1)				Prepared & Analyzed: 05/14/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFE0249-BS1)				Prepared & Analyzed: 05/14/2020						
Mercury	2.9211	0.200	ug/L	3.0030		97.3	85-115			
Duplicate (BFE0249-DUP1)		**Source: MFE0058-05**		Prepared & Analyzed: 05/14/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFE0249-DUP2)		**Source: MFE0058-06**		Prepared & Analyzed: 05/14/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFE0249-MS1)		**Source: MFE0058-05**		Prepared & Analyzed: 05/14/2020						
Mercury	2.8810	0.200	ug/L	3.0030	<0.200	95.9	70-130			
Matrix Spike (BFE0249-MS2)		**Source: MFE0058-06**		Prepared & Analyzed: 05/14/2020						
Mercury	3.0202	0.200	ug/L	3.0030	<0.200	101	70-130			
Matrix Spike Dup (BFE0249-MSD1)		**Source: MFE0058-05**		Prepared & Analyzed: 05/14/2020						
Mercury	2.9874	0.200	ug/L	3.0030	<0.200	99.5	70-130	3.63	20	
Matrix Spike Dup (BFE0249-MSD2)		**Source: MFE0058-06**		Prepared & Analyzed: 05/14/2020						
Mercury	2.8168	0.200	ug/L	3.0030	<0.200	93.8	70-130	6.97	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2020 08:39

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Riley Jacobson
Purchase Order No.:	
Project Number	
Project Name:	Xcel Energy Sherco BAP-2

Section C Invoice Information:

Attention:	Steve Davis
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Chris Pelosi
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: ☑ MN ☐ IL ☐ IN ☐ MI ☐ NC ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			5/7/20	0945		2	1		1							X		
2	P-152A	WT	G			5/6/20	1430		2	1		1							X		
3	P-158	WT	G			5/7/20	1130		2	1		1							X		
4	P-173	WT	G			5/6/20	0930		2	1		1							X		
5	P-174	WT	G			5/6/20	1045		2	1		1							X		
6	P-175	WT	G			5/6/20	1130		2	1		1							X		
7	P-176	WT	G			5/6/20	1240		2	1		1							X		
8	P-177	WT	G			5/7/20	1025		2	1		1							X		
9	P-178A	WT	G			5/7/20	0840		2	1		1							X		
10	DUPLICATE (P-152A)	WT	G			5/6/20	1430		2	1		1							X		
11	RINSE	WT	G			5/6/20	0845		2	1		1							X		
12																					

RLA 5/7/20

Additional Comments:

Unfiltered HNO3 Bottles

pH Strip: MD00402
Temp MD00841

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5/8/20	0757	/Xcel	5/8/20	0757

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N
2	Y/N	Y/N	Y/N
1.3	Y/N	Y/N	Y/N
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 5/7/20

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 05, 2020

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

RE: Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on May 09, 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

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

Sincerely,

Carin A. Ferris

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

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CERTIFICATIONS

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

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

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SAMPLE SUMMARY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30362452001	**P-17**	Water	05/07/20 09:45	05/09/20 09:25
30362452002	**P-152A**	Water	05/06/20 14:30	05/09/20 09:25
30362452003	**P-158**	Water	05/07/20 11:30	05/09/20 09:25
30362452004	**P-173**	Water	05/06/20 09:30	05/09/20 09:25
30362452005	**P-174**	Water	05/06/20 10:45	05/09/20 09:25
30362452006	**P-175**	Water	05/06/20 11:30	05/09/20 09:25
30362452007	**P-176**	Water	05/06/20 12:40	05/09/20 09:25
30362452008	**P-177**	Water	05/07/20 10:25	05/09/20 09:25
30362452009	**P-178A**	Water	05/07/20 08:40	05/09/20 09:25
30362452010	**Duplicate (P-152A)**	Water	05/06/20 14:30	05/09/20 09:25
30362452011	**RINSE**	Water	05/06/20 08:45	05/09/20 09:25

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SAMPLE ANALYTE COUNT

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30362452001	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452003	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452004	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452005	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452006	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452008	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452009	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452010	**Duplicate (P-152A)**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30362452011	**RINSE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: June 05, 2020

General Information:
11 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: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: June 05, 2020

General Information:
11 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: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: June 05, 2020

General Information:
11 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: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Sample: P-17 **Lab ID: 30362452001** Collected: 05/07/20 09:45 Received: 05/09/20 09:25 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	**-0.160 ± 0.250 (0.575) C:NA T:87%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.951 ± 0.480 (0.843) C:70% T:84%**	pCi/L	05/29/20 12:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.951 ± 0.730 (1.42)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-152A **Lab ID: 30362452002** Collected: 05/06/20 14:30 Received: 05/09/20 09:25 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	**-0.0533 ± 0.272 (0.573) C:NA T:82%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.17 ± 0.608 (1.09) C:66% T:75%**	pCi/L	05/29/20 12:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.17 ± 0.880 (1.66)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-158 **Lab ID: 30362452003** Collected: 05/07/20 11:30 Received: 05/09/20 09:25 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	**0.0938 ± 0.240 (0.127) C:NA T:90%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.305 ± 0.408 (0.871) C:68% T:88%**	pCi/L	05/29/20 12:45	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.399 ± 0.648 (0.998)**	pCi/L	06/05/20 13:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Sample: P-173 **Lab ID: 30362452004** Collected: 05/06/20 09:30 Received: 05/09/20 09:25 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	**0.120 ± 0.245 (0.403) C:NA T:92%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.435 ± 0.431 (0.891) C:68% T:86%**	pCi/L	05/29/20 12:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.555 ± 0.676 (1.29)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-174 **Lab ID: 30362452005** Collected: 05/06/20 10:45 Received: 05/09/20 09:25 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	**0.124 ± 0.360 (0.621) C:NA T:87%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.576 ± 0.428 (0.825) C:67% T:90%**	pCi/L	05/29/20 14:07	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.700 ± 0.788 (1.45)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-175 **Lab ID: 30362452006** Collected: 05/06/20 11:30 Received: 05/09/20 09:25 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	**0.356 ± 0.681 (1.08) C:NA T:84%**	pCi/L	05/31/20 15:16	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.779 ± 0.525 (0.996) C:72% T:74%**	pCi/L	05/29/20 14:08	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.14 ± 1.21 (2.08)**	pCi/L	06/05/20 13:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Sample: P-176 **Lab ID: 30362452007** Collected: 05/06/20 12:40 Received: 05/09/20 09:25 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	**0.284 ± 0.310 (0.435) C:NA T:93%**	pCi/L	05/31/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.37 ± 0.603 (1.02) C:67% T:84%**	pCi/L	05/29/20 12:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.65 ± 0.913 (1.46)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-177 **Lab ID: 30362452008** Collected: 05/07/20 10:25 Received: 05/09/20 09:25 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	**-0.0261 ± 0.335 (0.656) C:NA T:94%**	pCi/L	05/31/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**2.11 ± 0.768 (1.23) C:68% T:84%**	pCi/L	05/29/20 12:24	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**2.11 ± 1.10 (1.89)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: P-178A **Lab ID: 30362452009** Collected: 05/07/20 08:40 Received: 05/09/20 09:25 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	**0.236 ± 0.329 (0.509) C:NA T:87%**	pCi/L	05/31/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.04 ± 0.531 (0.952) C:69% T:83%**	pCi/L	05/29/20 12:24	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.28 ± 0.860 (1.46)**	pCi/L	06/05/20 13:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

Sample: Duplicate (P-152A) **Lab ID: 30362452010** Collected: 05/06/20 14:30 Received: 05/09/20 09:25 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	**-0.169 ± 0.264 (0.608) C:NA T:86%**	pCi/L	05/31/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.599 ± 0.540 (1.11) C:73% T:76%**	pCi/L	05/29/20 12:24	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.599 ± 0.804 (1.72)**	pCi/L	06/05/20 13:04	7440-14-4	

Sample: RINSE **Lab ID: 30362452011** Collected: 05/06/20 08:45 Received: 05/09/20 09:25 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	**0.164 ± 0.248 (0.394) C:NA T:92%**	pCi/L	05/31/20 15:34	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.209 ± 0.643 (1.43) C:66% T:69%**	pCi/L	05/29/20 12:24	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.373 ± 0.891 (1.82)**	pCi/L	06/05/20 13:04	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

QC Batch: 395961 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: 30362452001, 30362452002, 30362452003, 30362452004, 30362452005, 30362452006, 30362452007, 30362452008, 30362452009, 30362452010, 30362452011

METHOD BLANK: 1917998 Matrix: Water
Associated Lab Samples: 30362452001, 30362452002, 30362452003, 30362452004, 30362452005, 30362452006, 30362452007, 30362452008, 30362452009, 30362452010, 30362452011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.257 ± 0.335 (0.722) C:NA T:83%	pCi/L	05/31/20 14:56	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

QC Batch: 395962 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: 30362452001, 30362452002, 30362452003, 30362452004, 30362452005, 30362452006, 30362452007, 30362452008, 30362452009, 30362452010, 30362452011

METHOD BLANK: 1918001 Matrix: Water
Associated Lab Samples: 30362452001, 30362452002, 30362452003, 30362452004, 30362452005, 30362452006, 30362452007, 30362452008, 30362452009, 30362452010, 30362452011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.206 ± 0.347 (0.756) C:74% T:82%	pCi/L	05/29/20 12:45	

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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without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: Xcel Energy Sherco BAP-2
Pace Project No.: 30362452

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.

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www.pacelabs.com

CHAIN-OF-CUSTO

The Chain-of-Custody is a LEGAL

WO# : 30362452

30362452

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

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ NY ☐ OH ☐ SC ☐ WI ☐ OTHER

Filtered (Y/N)

Requested Analysis: RA-226 EPA 903.1; RA-228 EPA 904.0; Residual Chlorine (Y/N)

Section D Required Client Information

SAMPLE ID

One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. Lab I.D.
1	P-17	WT	G			5/7/20	0945		2			2						X	X		CC1
2	P-152A	WT	G			5/6/20	1430		2			2						X	X		CC2
3	P-158	WT	G			5/7/20	1130		2			2						X	X		CC3
4	P-173	WT	G			5/6/20	0930		2			2						X	X		CC4
5	P-174	WT	G			5/6/20	1045		2			2						X	X		CC5
6	P-175	WT	G			5/6/20	1130		2			2						X	X		CC6
7	P-176	WT	G			5/6/20	1240		2			2						X	X		CC7
8	P-177	WT	G			5/7/20	1025		2			2						X	X		CC8
9	P-178A	WT	G			5/7/20	0840		2			2						X	X		CC9
10	DUPLICATE (P-152A)	WT	G			5/6/20	1430		2			2						X	X		C10
11	RINSE	WT	G			5/6/20	0845		2			2						X	X		C11
12								RC 5/7/20													C12

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pace	5/7/20	1330		5-11-20	9:25

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
N/A	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 5/7/20

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel Energy

Project # 30362452

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

Label DLC

LIMS Login DLC

Tracking #: 1686 7302 3929

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

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

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

Temp should be above freezing to 6°C

pH paper Lot# 10194191 Date and Initials of person examining contents: DLC 5-11-20

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: DLC Date/time of preservation: Lot # of added preservative:
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: DLC Date: 5-11-20

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Baseline Monitoring Event #5
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Well Description and Presampling Information

Client Xcel Energy Project BAP2 Baseline #5 Project No. 20-033605

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
Well depth	58.76	Feet
Static water level measurement before purging	35.27	Feet * took SWL reading 5/26/20
Static water level measurement at time of sampling	35.27	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-70

Date Purged 5/27/20 Water Column 23.49 Feet

Time Purged 0905 - 1023 One Casing Volume 3.83 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 11.7 Gallons

Field Sampling Data

Date Sampled 5/27/20

Time Sampled 1030

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.7 (units) D.O 9.4 (mg/l)

Spec. Cond. 510 (µmhos/cm) Turbidity 2.2 (NTU)

Temp. 10.0 (°C) Eh 125 (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: 64F, Sunny, NW @ 2MPH

Sample Description: clear no odor

Observations: *David K. requests all SWL readings be taken same day ✓

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0931	7.5	520	10.5	9.7	NA	160	3.90
0957	7.7	510	10.0	9.5	NA	142	7.80
1023	7.7	510	10.0	9.4	NA	125	11.70
				RDJ 5/27/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/27/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Well Description and Presampling Information

Client Xcel Energy Project BAP2 Baseline #5 Project No. 20-033605

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
Well depth	42.18	Feet
Static water level measurement before purging	35.36	Feet
Static water level measurement at time of sampling	35.36	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-70

Date Purged 5/26/20 Water Column 6.82 Feet

Time Purged 1445 - 1515 One Casing Volume 1.11 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 5/26/20

Time Sampled 1525

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 9.6 (mg/l)

Spec. Cond. 370 (µmhos/cm) Turbidity 0.8 (NTU)

Temp. 10.5 (°C) Eh 145 (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: 72°F, Mostly Cloudy, SW@5MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1455	7.3	370	10.5	9.9	NA	153	1.2
1505	7.3	370	10.5	9.7	NA	149	2.4
1515	7.3	370	10.5	9.6	NA	145	3.6
				RDJ			
				SHERCO			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/26/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

SHERCO

Client Xcel Energy Project BAP2 Baseline #5 Project No. 20-033605

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

Well depth 49.16 Feet

Static water level measurement before purging 37.90 Feet *Took SWL reading 5/26/20

Static water level measurement at time of sampling 37.90 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 5/27/20 Water Column 11.26 Feet

Time Purged 1145 - 1224 One Casing Volume 1.84 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 5.85 Gallons

Field Sampling Data

Date Sampled 5/27/20

Time Sampled 1235

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 10.8 (mg/l)

Spec. Cond. 630 (µmhos/cm) Turbidity 0.8 (NTU)

Temp. 11.0 (°C) Eh 119 (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: 76°F, Sunny, NW @ 2MPH

Sample Description: clear no odor

Observations: *David K. requests all SWL readings be taken same day ✓

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1158	7.2	630	11.0	10.5	NA	140	1.95
1211	7.3	630	(Replaces 5/27/20 11.0)	10.8	NA	129	3.90
1224	7.3	630	11.0 11.0	10.8	NA	119	5.85
			RDJ 5/27/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/27/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Client Xcel Energy **Project** BAP2 Baseline #5 **Project No.** 20-033665

Well Description and Presampling Information

Monitoring Point ID P-173 Labeled 844707

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

Well depth ① ~~75.35~~ 80.30 Feet

Static water level measurement before purging 69.88 Feet

Static water level measurement at time of sampling 69.88 Feet

Static Water Level Elevation Before Purging NA Feet

① David Katzner requested use of previous well depths from Dave Anderson's sampling. This goes for all BAP2 wells - RDJ 5/26/20

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 5/26/20 Water Column 10.42 Feet

Time Purged 0949 - 1034 One Casing Volume 1.70 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 5.40 Gallons

Field Sampling Data

Date Sampled 5/26/20

Time Sampled 1045

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 7.7 (mg/l)

Spec. Cond. 500 (µmhos/cm) Turbidity 2.9 (NTU)

Temp. 10.5 (°C) Eh 146 (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: 68°F, Mostly Cloudy, SE@12MPH

Sample Description: clear no odor

Observations: ~~None~~ Collected Rinse Sample during Purge - Collected 5/26/20 @ 1010H RDJ

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1004	7.3	510	10.5	7.4	7.7	159	1.80
1019	7.4	500	10.5	7.6	3.8	152	3.60
1034	7.4	500	10.5	7.7	2.9	146	5.40

RDJ 5/26/20

Samples chilled immediately after collection ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/26/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Client Xcel Energy **Project** BAP2 Baseline #5 **Project No.** 20-033605

Well Description and Presampling Information

Monitoring Point ID P-174 Labeled 844706

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

Well depth 82.27 Feet

Static water level measurement before purging 72.49 Feet

Static water level measurement at time of sampling 72.49 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-70

Date Purged 5/26/20 Water Column 9.78 Feet

Time Purged 1058 - 1140 One Casing Volume 1.59 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 5.04 Gallons

Field Sampling Data

Date Sampled 5/26/20

Time Sampled 1150

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.1 (units) D.O 7.8 (mg/l) (RDJ SHERCO)

Spec. Cond. 710 (µmhos/cm) Turbidity ~~0.03~~ (NTU) 0.03 (RDJ SHERCO)

Temp. 11.0 (°C) Eh 116.2 (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: 67 °F, Overcast / light Mist, 5 @ 6 MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1102	7.1	720	11.0	7.8	NA	116	1.68
1126	7.1	710	11.0	7.8	NA	116	3.36
1140	7.1	710	11.0	7.8	NA	116.2	5.04
				RDJ 5/26/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/26/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

SHERCO

Client Xcel Energy Project BAP2 Baseline #5 Project No. 20-033685

Monitoring Point ID P-175 Labeled 844705

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

Well depth ~~84.11~~ (84.0) Feet (1) RDS 5/26/20

Static water level measurement before purging 74.89 Feet

Static water level measurement at time of sampling 74.89 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-70

Date Purged 5/26/20 Water Column 9.22 Feet

Time Purged 1205 - 1244 One Casing Volume 1.50 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 5/26/20

Time Sampled 1255

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDS

Field Parameter Measurements of Sample

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

Spec. Cond. 460 (µmhos/cm) Turbidity 2.9 (NTU)

Temp. 11.0 (°C) Eh 152 (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: 69°F, Mostly Cloudy, SW @ 9MPH

Sample Description: clear no odor

Observations: Duplicate Collected - 5/26/20 @ 1255 RDS

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1218	7.4	450	11.0	8.3	NA	154	1.56
1231	7.5	460	11.0	8.2	NA	153	3.12
1244	7.5	460	11.0	8.2	NA	152	4.68
				RDS 5/26/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 5/26/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Client Xcel Energy **Project** BAP2 Baseline #5 **Project No.** 20-033605

Well Description and Presampling Information

Monitoring Point ID P-176 Labeled 844703

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
Well depth	84.18	Feet
Static water level measurement before purging	74.39	Feet
Static water level measurement at time of sampling	74.39	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 5/26/20 Water Column 9.79 Feet

Time Purged 1312 - 1354 One Casing Volume 1.60 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 5.04 Gallons

Field Sampling Data

Date Sampled 5/26/20

Time Sampled 1405

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 8.7 (mg/l)

Spec. Cond. 750 (µmhos/cm) Turbidity 0.4 (NTU)

Temp. 11.5 (°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: 72°F, Mostly Cloudy, SW@7MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1326	7.2	740	11.5	9.0	NA	158	1.68
1340	7.3	750	11.5	8.8	NA	154	3.36
1354	7.3	750	11.5	8.7	NA	149	5.04
				RDJ 5/26/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/26/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Well Description and Presampling Information

Client Xcel Energy Project BAP2 Baseline #5 Project No. 20-033685

Monitoring Point ID P-177 Labeled 844704

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

Well depth 46.53 Feet

Static water level measurement before purging 37.39 Feet * Took SWL reading 5/26/20

Static water level measurement at time of sampling 37.39 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 5/27/20 Water Column 9.14 Feet

Time Purged 1045 - 1124 One Casing Volume 1.49 Gallons

Pump Rate 0.12 (GPM) LPM Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 5/27/20

Time Sampled 1135

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RGJ

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 10.0 (mg/l)

Spec. Cond. 430 (µmhos/cm) Turbidity 0.2 (NTU)

Temp. 10.5 (°C) Eh 139 (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: 70F, Sunny, NW@5MPH

Sample Description: clear no odor

Observations: *David K. requests all SWL readings be taken same day ✓

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1058	7.2	430	10.5	10.1	NA	152	1.56
1111	7.3	430	10.5	10.1	NA	145	3.12
1124	7.3	430	10.5	10.0	NA	139	4.68
				RGJ 5/27/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/27/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

SHERCO

Client Xcel Energy **Project** BAP2 Baseline #5 **Project No.** 20-033625

Well Description and Presampling Information

Monitoring Point ID R-178A Labeled 8447088

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

Well depth 47.41 Feet

Static water level measurement before purging 37.52 Feet * took SWL reading 5/26/20

Static water level measurement at time of sampling 37.52 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 5/27/20 Water Column 9.89 Feet

Time Purged 0800 - 0842 One Casing Volume 1.61 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 5.04 Gallons

Field Sampling Data

Date Sampled 5/27/20

Time Sampled 0850

Sampling Equip. Pump

Meter ID: MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.5 (units) D.O 9.5 (mg/l)

Spec. Cond. 450 (µmhos/cm) Turbidity 8.6 (NTU)

Temp. 10.5 (°C) Eh 148 (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: 60°F, Partly Cl., NW @ 4MPH

Sample Description: clear no odor

Observations: *David requests all SWL readings be taken same day ✓

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0814	7.24	450	10.5	10.5	NA	184	1.68
0828	7.5	450	10.5	9.9	NA	162	3.36
0842	7.5	450	10.5	9.5	NA	148	5.04
				RDJ			
				5/27/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobsen Date: 5/27/20

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

09 June 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 05/28/2020 06:55. If you have any questions concerning this report, please feel free to contact me.

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

Sincerely,

Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFE0253-01	Water	05/27/2020 10:30	05/28/2020 6:55
P-152A		MFE0253-02	Water	05/26/2020 15:25	05/28/2020 6:55
P-158		MFE0253-03	Water	05/27/2020 12:35	05/28/2020 6:55
P-173		MFE0253-04	Water	05/26/2020 10:45	05/28/2020 6:55
P-174		MFE0253-05	Water	05/26/2020 11:50	05/28/2020 6:55
P-175		MFE0253-06	Water	05/26/2020 12:55	05/28/2020 6:55
P-176		MFE0253-07	Water	05/26/2020 14:05	05/28/2020 6:55
P-177		MFE0253-08	Water	05/27/2020 11:35	05/28/2020 6:55
P-178A		MFE0253-09	Water	05/27/2020 8:50	05/28/2020 6:55
Duplicate		MFE0253-10	Water	05/26/2020 12:55	05/28/2020 6:55
Rinse		MFE0253-11	Water	05/26/2020 10:10	05/28/2020 6:55

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-17

MFE0253-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	20.4	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 15:49	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 15:49	EPA 300.0	CRL
Sulfate	22.7	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 15:49	EPA 300.0	CRL
Wet Chemistry										
pH	8.10		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:00	SM 4500-H+ B	CRL
Total Dissolved Solids	284	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.522	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Barium	37.9	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Chromium	0.976	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Selenium	0.557	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:33	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:23	EPA 200.7	HRD
Calcium	71.6	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:21	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:21	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-17

MFE0253-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:31	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-152A

MFE0253-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:10	EPA 300.0	CRL
Sulfate	6.69	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:10	EPA 300.0	CRL
Wet Chemistry										
pH	8.03		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:04	SM 4500-H+ B	CRL
Total Dissolved Solids	212	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Barium	38.2	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Chromium	0.567	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:37	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:28	EPA 200.7	HRD
Calcium	52.7	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:26	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:27	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-152A

MFE0253-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:33	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-158

MFE0253-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	4.88	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:30	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:30	EPA 300.0	CRL
Sulfate	102	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:30	EPA 300.0	CRL
Wet Chemistry										
pH	7.74		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:07	SM 4500-H+ B	CRL
Total Dissolved Solids	398	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Barium	61.3	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Chromium	0.915	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Selenium	1.91	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:49	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.529	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:59	EPA 200.7	HRD
Calcium	88.9	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:57	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:58	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-158

MFE0253-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:35	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-173

MFE0253-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	6.26	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:51	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:51	EPA 300.0	CRL
Sulfate	26.0	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 16:51	EPA 300.0	CRL
Wet Chemistry										
pH	7.81		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:11	SM 4500-H+ B	CRL
Total Dissolved Solids	284	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Barium	51.3	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Chromium	0.714	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Molybdenum	9.67	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Selenium	1.24	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:53	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.154	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:04	EPA 200.7	HRD
Calcium	68.6	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:02	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:02	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

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MFE0253-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:37	EPA 245.1/7470A	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-174

MFE0253-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.04	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:11	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:11	EPA 300.0	CRL
Sulfate	27.8	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:11	EPA 300.0	CRL
Wet Chemistry										
pH	7.51		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:15	SM 4500-H+ B	CRL
Total Dissolved Solids	396	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Barium	76.8	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Chromium	0.852	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Molybdenum	3.17	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Selenium	2.26	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 9:57	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.193	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:09	EPA 200.7	HRD
Calcium	102	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:08	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-174

MFE0253-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:38	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

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MFE0253-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:31	EPA 300.0	CRL
Sulfate	10.8	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:31	EPA 300.0	CRL
Wet Chemistry										
pH	7.77		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:18	SM 4500-H+ B	CRL
Total Dissolved Solids	254	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Barium	54.6	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Chromium	0.969	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Selenium	0.982	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:01	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.135	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:15	EPA 200.7	HRD
Calcium	72.1	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:13	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:13	EPA 200.7	HRD

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Minneapolis Testing Laboratory
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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-175

MFE0253-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:43	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

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MFE0253-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	7.32	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:52	EPA 300.0	CRL
Sulfate	115	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 17:52	EPA 300.0	CRL
Wet Chemistry										
pH	7.97		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:22	SM 4500-H+ B	CRL
Total Dissolved Solids	462	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Barium	113	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Chromium	1.09	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Selenium	6.15	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:04	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.700	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:19	EPA 200.7	HRD
Calcium	104	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:18	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:18	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

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MFE0253-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:45	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

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MFE0253-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.92	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 19:54	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 19:54	EPA 300.0	CRL
Sulfate	29.1	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 19:54	EPA 300.0	CRL
Wet Chemistry										
pH	7.86		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:25	SM 4500-H+ B	CRL
Total Dissolved Solids	262	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Barium	49.4	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Chromium	0.553	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Molybdenum	2.23	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Selenium	1.14	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:08	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0836	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:25	EPA 200.7	HRD
Calcium	64.3	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:23	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:23	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-177

MFE0253-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:47	EPA 245.1/7470A	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-178A

MFE0253-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.51	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:15	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:15	EPA 300.0	CRL
Sulfate	45.9	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:15	EPA 300.0	CRL
Wet Chemistry										
pH	8.17		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:29	SM 4500-H+ B	CRL
Total Dissolved Solids	236	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.843	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Barium	38.6	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Chromium	0.964	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Molybdenum	0.719	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Selenium	1.65	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:12	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.218	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:30	EPA 200.7	HRD
Calcium	41.4	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:28	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:28	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

P-178A

MFE0253-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:49	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Duplicate

MFE0253-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:35	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:35	EPA 300.0	CRL
Sulfate	10.7	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:35	EPA 300.0	CRL
Wet Chemistry										
pH	8.00		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:37	SM 4500-H+ B	CRL
Total Dissolved Solids	264	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Barium	56.6	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Chromium	0.894	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Selenium	1.01	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:16	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.136	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:45	EPA 200.7	HRD
Calcium	72.4	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:43	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 14:43	EPA 200.7	HRD

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Duplicate

MFE0253-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:50	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Rinse

MFE0253-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:56	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFF0004	6/1/20 9:42	6/2/20 20:56	EPA 300.0	CRL
Wet Chemistry										
pH	6.15		pH Units	M_TTT	1	BFF0003	6/1/20 9:39	6/1/20 10:40	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFE0483	5/29/20 8:24	5/29/20 8:24	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFE0482	5/29/20 6:57	5/29/20 6:57	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0002	6/1/20 7:04	6/2/20 10:20	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:44	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:42	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0001	6/1/20 6:57	6/6/20 13:42	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Rinse

MFE0253-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0048	6/3/20 8:51	6/3/20 13:52	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0004 - Wet Prep										
Blank (BFF0004-BLK1)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFF0004-BLK2)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFF0004-BS1)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	25.093	1.00	mg/L	24.938		101	90-110			
Fluoride	2.5790	0.750	mg/L	2.4938		103	90-110			
Sulfate	48.572	1.00	mg/L	49.876		97.4	90-110			
LCS (BFF0004-BS2)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	23.855	1.00	mg/L	24.938		95.7	90-110			
Fluoride	2.2760	0.750	mg/L	2.4938		91.3	90-110			
Sulfate	45.950	1.00	mg/L	49.876		92.1	90-110			
LCS (BFF0004-BS3)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	24.049	1.00	mg/L	24.938		96.4	90-110			
Fluoride	2.3090	0.750	mg/L	2.4938		92.6	90-110			
Sulfate	46.300	1.00	mg/L	49.876		92.8	90-110			
Duplicate (BFF0004-DUP1)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	0.59500	1.00	mg/L		0.60700			2.00	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	6.6440	1.00	mg/L		6.6910			0.705	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0004 - Wet Prep										
Duplicate (BFF0004-DUP2)		**Source: MFE0253-06**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	0.81000	1.00	mg/L		0.83700			3.28	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	10.757	1.00	mg/L		10.800			0.399	20	
Matrix Spike (BFF0004-MS1)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	31.025	1.25	mg/L	31.173	0.60700	97.6	90-110			
Fluoride	3.0275	0.938	mg/L	3.1173	<0.938	97.1	90-110			
Sulfate	65.881	1.25	mg/L	62.345	6.6910	94.9	90-110			
Matrix Spike (BFF0004-MS2)		**Source: MFE0253-06**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	31.611	1.25	mg/L	31.173	0.83700	98.7	90-110			
Fluoride	3.0538	0.938	mg/L	3.1173	<0.938	98.0	90-110			
Sulfate	70.671	1.25	mg/L	62.345	10.800	96.0	90-110			
Matrix Spike Dup (BFF0004-MSD1)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	31.415	1.25	mg/L	31.173	0.60700	98.8	90-110	1.25	20	
Fluoride	2.9888	0.938	mg/L	3.1173	<0.938	95.9	90-110	1.29	20	
Sulfate	66.428	1.25	mg/L	62.345	6.6910	95.8	90-110	0.826	20	
Matrix Spike Dup (BFF0004-MSD2)		**Source: MFE0253-06**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Chloride	31.909	1.25	mg/L	31.173	0.83700	99.7	90-110	0.937	20	
Fluoride	3.0138	0.938	mg/L	3.1173	<0.938	96.7	90-110	1.32	20	
Sulfate	71.025	1.25	mg/L	62.345	10.800	96.6	90-110	0.499	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFE0482 - Wet Prep										
Blank (BFE0482-BLK1)				Prepared & Analyzed: 05/29/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFE0482-BS1)				Prepared & Analyzed: 05/29/2020						
Total Suspended Solids	83.000	4.00	mg/L	100.20		82.8	70-130			
Duplicate (BFE0482-DUP1)		**Source: MFE0253-01**		Prepared & Analyzed: 05/29/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFE0482-DUP2)		**Source: MFE0253-02**		Prepared & Analyzed: 05/29/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Batch BFE0483 - Wet Prep										
Blank (BFE0483-BLK1)				Prepared & Analyzed: 05/29/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFE0483-BS1)				Prepared & Analyzed: 05/29/2020						
Total Dissolved Solids	50.000	20.0	mg/L	50.400		99.2	70-130			
Duplicate (BFE0483-DUP1)		**Source: MFE0253-01**		Prepared & Analyzed: 05/29/2020						
Total Dissolved Solids	288.00	20.0	mg/L		284.00			1.40	20	
Duplicate (BFE0483-DUP2)		**Source: MFE0253-02**		Prepared & Analyzed: 05/29/2020						
Total Dissolved Solids	210.00	20.0	mg/L		212.00			0.948	20	
Batch BFF0003 - Wet Prep										
LCS (BFF0003-BS1)				Prepared & Analyzed: 06/01/2020						
pH	3.9600		pH Units	4.0000		99.0	90-110			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0003 - Wet Prep										
LCS (BFF0003-BS2)				Prepared & Analyzed: 06/01/2020						
pH	3.9900		pH Units	4.0000		99.8	90-110			
Duplicate (BFF0003-DUP1)		**Source: MFE0253-01**		Prepared & Analyzed: 06/01/2020						
pH	7.8200		pH Units		8.1000			3.52	20	
Duplicate (BFF0003-DUP2)		**Source: MFE0253-10**		Prepared & Analyzed: 06/01/2020						
pH	7.8400		pH Units		8.0000			2.02	20	

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0002 - EPA 200.2, EPA 3005										
Blank (BFF0002-BLK1)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Molybdenum	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Thallium	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
LCS (BFF0002-BS1)				Prepared: 06/01/2020 Analyzed: 06/02/2020						
Antimony	98.769	0.500	ug/L	100.00		98.8	85-115			
Lead	95.991	0.500	ug/L	100.00		96.0	85-115			
Molybdenum	102.21	0.500	ug/L	100.00		102	85-115			
Beryllium	91.681	0.500	ug/L	100.00		91.7	85-115			
Arsenic	96.784	0.500	ug/L	100.00		96.8	85-115			
Barium	99.216	0.500	ug/L	100.00		99.2	85-115			
Cadmium	98.385	0.100	ug/L	100.00		98.4	85-115			
Thallium	98.351	0.500	ug/L	100.00		98.4	85-115			
Cobalt	97.452	0.500	ug/L	100.00		97.5	85-115			
Chromium	98.733	0.500	ug/L	100.00		98.7	85-115			
Selenium	97.921	0.500	ug/L	100.00		97.9	85-115			
Duplicate (BFF0002-DUP1)		**Source: MFE0253-03**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	0.027244	0.500	ug/L		<0.500				20	
Chromium	0.94141	0.500	ug/L		0.91483			2.86	20	
Barium	61.638	0.500	ug/L		61.286			0.573	20	
Thallium	0.036547	0.500	ug/L		<0.500				20	
Selenium	1.8164	0.500	ug/L		1.9068			4.86	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.13449	0.500	ug/L		0.12224			9.54	20	
Arsenic	0.48962	0.500	ug/L		0.47395			3.25	20	
Cobalt	<0.500	0.500	ug/L		<0.500				20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0002 - EPA 200.2, EPA 3005										
Duplicate (BFF0002-DUP2)		**Source: MFE0253-04**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Thallium	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.19347	0.500	ug/L		0.18143			6.42	20	
Selenium	1.1454	0.500	ug/L		1.2351			7.54	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	9.2995	0.500	ug/L		9.6747			3.95	20	
Chromium	0.73187	0.500	ug/L		0.71367			2.52	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Barium	51.329	0.500	ug/L		51.291			0.0753	20	
Arsenic	0.29386	0.500	ug/L		0.40097			30.8	20	M_D-RL
Matrix Spike (BFF0002-MS1)		**Source: MFE0253-03**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Lead	92.180	0.500	ug/L	100.00	<0.500	92.2	75-125			
Beryllium	94.426	0.500	ug/L	100.00	<0.500	94.4	75-125			
Barium	167.34	0.500	ug/L	100.00	61.286	106	75-125			
Chromium	102.02	0.500	ug/L	100.00	0.91483	101	75-125			
Cobalt	97.164	0.500	ug/L	100.00	<0.500	97.2	75-125			
Cadmium	94.877	0.100	ug/L	100.00	<0.100	94.9	75-125			
Thallium	95.992	0.500	ug/L	100.00	<0.500	96.0	75-125			
Antimony	101.74	0.500	ug/L	100.00	<0.500	102	75-125			
Molybdenum	99.589	0.500	ug/L	100.00	0.12224	99.5	75-125			
Arsenic	102.58	0.500	ug/L	100.00	0.47395	102	75-125			
Selenium	97.700	0.500	ug/L	100.00	1.9068	95.8	75-125			
Matrix Spike (BFF0002-MS2)		**Source: MFE0253-04**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Thallium	95.751	0.500	ug/L	100.00	<0.500	95.8	75-125			
Antimony	101.48	0.500	ug/L	100.00	<0.500	101	75-125			
Cobalt	95.082	0.500	ug/L	100.00	0.18143	94.9	75-125			
Beryllium	94.142	0.500	ug/L	100.00	<0.500	94.1	75-125			
Barium	156.67	0.500	ug/L	100.00	51.291	105	75-125			
Lead	92.331	0.500	ug/L	100.00	<0.500	92.3	75-125			
Molybdenum	110.35	0.500	ug/L	100.00	9.6747	101	75-125			
Selenium	93.061	0.500	ug/L	100.00	1.2351	91.8	75-125			
Cadmium	92.746	0.100	ug/L	100.00	<0.100	92.7	75-125			
Chromium	97.684	0.500	ug/L	100.00	0.71367	97.0	75-125			
Arsenic	99.379	0.500	ug/L	100.00	0.40097	99.0	75-125			

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0002 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFF0002-MSD1)		**Source: MFE0253-03**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Cobalt	104.06	0.500	ug/L	100.00	<0.500	104	75-125	6.85	20	
Cadmium	92.395	0.100	ug/L	100.00	<0.100	92.4	75-125	2.65	20	
Thallium	93.802	0.500	ug/L	100.00	<0.500	93.8	75-125	2.31	20	
Selenium	93.639	0.500	ug/L	100.00	1.9068	91.7	75-125	4.24	20	
Beryllium	89.048	0.500	ug/L	100.00	<0.500	89.0	75-125	5.86	20	
Arsenic	96.384	0.500	ug/L	100.00	0.47395	95.9	75-125	6.23	20	
Antimony	97.058	0.500	ug/L	100.00	<0.500	97.1	75-125	4.71	20	
Lead	90.059	0.500	ug/L	100.00	<0.500	90.1	75-125	2.33	20	
Molybdenum	98.467	0.500	ug/L	100.00	0.12224	98.3	75-125	1.13	20	
Chromium	106.17	0.500	ug/L	100.00	0.91483	105	75-125	3.99	20	
Barium	164.11	0.500	ug/L	100.00	61.286	103	75-125	1.95	20	
Matrix Spike Dup (BFF0002-MSD2)		**Source: MFE0253-04**		Prepared: 06/01/2020 Analyzed: 06/02/2020						
Cobalt	92.000	0.500	ug/L	100.00	0.18143	91.8	75-125	3.29	20	
Chromium	96.936	0.500	ug/L	100.00	0.71367	96.2	75-125	0.769	20	
Beryllium	88.341	0.500	ug/L	100.00	<0.500	88.3	75-125	6.36	20	
Lead	91.289	0.500	ug/L	100.00	<0.500	91.3	75-125	1.14	20	
Selenium	95.546	0.500	ug/L	100.00	1.2351	94.3	75-125	2.63	20	
Molybdenum	103.49	0.500	ug/L	100.00	9.6747	93.8	75-125	6.42	20	
Cadmium	92.473	0.100	ug/L	100.00	<0.100	92.5	75-125	0.294	20	
Barium	153.43	0.500	ug/L	100.00	51.291	102	75-125	2.09	20	
Antimony	98.743	0.500	ug/L	100.00	<0.500	98.7	75-125	2.74	20	
Arsenic	98.701	0.500	ug/L	100.00	0.40097	98.3	75-125	0.685	20	
Thallium	93.255	0.500	ug/L	100.00	<0.500	93.3	75-125	2.64	20	

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0001 - EPA 200.2, EPA 3005										
Blank (BFF0001-BLK1)				Prepared: 06/01/2020 Analyzed: 06/06/2020						
Calcium	<1.25	1.25	mg/L							
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							
LCS (BFF0001-BS1)				Prepared: 06/01/2020 Analyzed: 06/06/2020						
Lithium	1.0021	0.0150	mg/L	1.0000		100	85-115			
Boron	0.99930	0.0500	mg/L	1.0000		99.9	85-115			
Calcium	103.77	1.25	mg/L	100.00		104	85-115			
Duplicate (BFF0001-DUP1)		**Source: MFE0253-01**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Calcium	70.769	1.25	mg/L		71.572			1.13	20	
Boron	<0.0500	0.0500	mg/L		<0.0500				20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Duplicate (BFF0001-DUP2)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Calcium	55.398	1.25	mg/L		52.696			5.00	20	
Boron	0.040125	0.0500	mg/L		0.036714			8.88	20	
Matrix Spike (BFF0001-MS1)		**Source: MFE0253-01**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Boron	1.0121	0.0500	mg/L	1.0000	<0.0500	101	70-130			
Calcium	167.80	1.25	mg/L	100.00	71.572	96.2	70-130			
Lithium	0.97676	0.0150	mg/L	1.0000	<0.0150	97.7	70-130			
Matrix Spike (BFF0001-MS2)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Boron	1.0916	0.0500	mg/L	1.0000	0.036714	105	70-130			
Lithium	1.0434	0.0150	mg/L	1.0000	<0.0150	104	70-130			
Calcium	165.49	1.25	mg/L	100.00	52.696	113	70-130			

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0001 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFF0001-MSD1)		**Source: MFE0253-01**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Boron	1.0561	0.0500	mg/L	1.0000	<0.0500	106	70-130	4.25	20	
Lithium	1.0408	0.0150	mg/L	1.0000	<0.0150	104	70-130	6.35	20	
Calcium	179.63	1.25	mg/L	100.00	71.572	108	70-130	6.81	20	
Matrix Spike Dup (BFF0001-MSD2)		**Source: MFE0253-02**		Prepared: 06/01/2020 Analyzed: 06/06/2020						
Boron	1.0322	0.0500	mg/L	1.0000	0.036714	99.5	70-130	5.59	20	
Lithium	1.0210	0.0150	mg/L	1.0000	<0.0150	102	70-130	2.17	20	
Calcium	162.71	1.25	mg/L	100.00	52.696	110	70-130	1.69	20	

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0048 - EPA 245.1, EPA 7470A										
Blank (BFF0048-BLK1)				Prepared & Analyzed: 06/03/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFF0048-BS1)				Prepared & Analyzed: 06/03/2020						
Mercury	2.9702	0.200	ug/L	3.0030		98.9	85-115			
Duplicate (BFF0048-DUP1)		**Source: MFE0253-05**		Prepared & Analyzed: 06/03/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFF0048-DUP2)		**Source: MFE0253-06**		Prepared & Analyzed: 06/03/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFF0048-MS1)		**Source: MFE0253-05**		Prepared & Analyzed: 06/03/2020						
Mercury	2.8434	0.200	ug/L	3.0030	<0.200	94.7	70-130			
Matrix Spike (BFF0048-MS2)		**Source: MFE0253-06**		Prepared & Analyzed: 06/03/2020						
Mercury	2.7086	0.200	ug/L	3.0030	<0.200	90.2	70-130			
Matrix Spike Dup (BFF0048-MSD1)		**Source: MFE0253-05**		Prepared & Analyzed: 06/03/2020						
Mercury	2.6748	0.200	ug/L	3.0030	<0.200	89.1	70-130	6.11	20	
Matrix Spike Dup (BFF0048-MSD2)		**Source: MFE0253-06**		Prepared & Analyzed: 06/03/2020						
Mercury	2.6596	0.200	ug/L	3.0030	<0.200	88.6	70-130	1.83	20	

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/09/2020 07:50

Qualifiers and Definitions

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

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www.pacelabs.com

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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	~~Dave Anderson~~ Riley Jacobsen
Purchase Order No.:	
Project Number	26-033605
Project Name:	Xcel Energy Sherco BAP-2 (5)

Section C Invoice Information:

Attention:	Steve Davis
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Chris Pelosi/ Dave Anderson
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis: GW-CCR	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			5/27/20	1030		2	1		1						X		
2	P-152A	WT	G			5/26/20	1525		2	1		1						X		
3	P-158	WT	G			5/27/20	1235		2	1		1						X		
4	P-173	WT	G	MT		5/26/20	1045		2	1		1						X		
5	P-174	WT	G	RJ		5/26/20	1150		2	1		1						X		
6	P-175	WT	G	5/27/20		5/26/20	1255		2	1		1						X		
7	P-176	WT	G			5/26/20	1405		2	1		1						X		
8	P-177	WT	G			5/27/20	1135		2	1		1						X		
9	P-178A	WT	G			5/27/20	0850		2	1		1						X		
10	DUPLICATE (P-175)	WT	G			5/26/20	1255		2	1		1						X		
11	RINSE	WT	G			5/26/20	1010		2	1		1						X		
12						RJS 5/27/20														

Additional Comments:

Unfiltered HNO3 Bottles

pH Strips: MD00402

Temp Monitor 1

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pace	5/28/20	0655	Xcel	5/28/20	0655

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
N	Y/N	Y/N	Y/N
N	(Y/N)	(Y/N)	(Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobsen

SIGNATURE of SAMPLER: Riley Jacobsen

DATE Signed (MM / DD / YY): 5/27/20

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 19, 2020

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

RE: Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on June 01, 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

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

Sincerely,

Carin A. Ferris

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

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

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

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Greensburg, PA 15601
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SAMPLE SUMMARY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30365721001	**P-17**	Water	05/27/20 10:30	06/01/20 09:45
30365721002	**P-152A**	Water	05/26/20 15:25	06/01/20 09:45
30365721003	**P-158**	Water	05/27/20 12:35	06/01/20 09:45
30365721004	**P-173**	Water	05/26/20 10:45	06/01/20 09:45
30365721005	**P-174**	Water	05/26/20 11:50	06/01/20 09:45
30365721006	**P-175**	Water	05/26/20 12:55	06/01/20 09:45
30365721007	**P-176**	Water	05/26/20 14:05	06/01/20 09:45
30365721008	**P-177**	Water	05/27/20 11:35	06/01/20 09:45
30365721009	**P-178A**	Water	05/27/20 08:50	06/01/20 09:45
30365721010	**DUPLICATE (P-175)**	Water	05/26/20 12:55	06/01/20 09:45
30365721011	**RINSE**	Water	05/26/20 10:10	06/01/20 09:45

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SAMPLE ANALYTE COUNT

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30365721001	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721003	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721004	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721005	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721006	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721008	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721009	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721010	**DUPLICATE (P-175)**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30365721011	**RINSE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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(724)850-5600

PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: June 19, 2020

General Information:
11 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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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: June 19, 2020

General Information:
11 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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(724)850-5600

PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: June 19, 2020

General Information:
11 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: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Sample: P-17 **Lab ID: 30365721001** Collected: 05/27/20 10:30 Received: 06/01/20 09:45 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 (0.557) C:NA T:98%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.113 ± 0.314 (0.707) C:69% T:89%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.173 ± 0.588 (1.26)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-152A **Lab ID: 30365721002** Collected: 05/26/20 15:25 Received: 06/01/20 09:45 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	**0.353 ± 0.417 (0.656) C:NA T:86%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0104 ± 0.356 (0.828) C:71% T:82%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.363 ± 0.773 (1.48)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-158 **Lab ID: 30365721003** Collected: 05/27/20 12:35 Received: 06/01/20 09:45 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	**-0.0601 ± 0.353 (0.788) C:NA T:96%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.146 ± 0.312 (0.693) C:68% T:89%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.146 ± 0.665 (1.48)**	pCi/L	06/19/20 07:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Sample: P-173 **Lab ID: 30365721004** Collected: 05/26/20 10:45 Received: 06/01/20 09:45 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	**-0.217 ± 0.375 (0.947) C:NA T:93%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.237 ± 0.330 (0.705) C:67% T:86%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.237 ± 0.705 (1.65)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-174 **Lab ID: 30365721005** Collected: 05/26/20 11:50 Received: 06/01/20 09:45 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	**-0.120 ± 0.288 (0.719) C:NA T:101%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.560 ± 0.372 (0.705) C:72% T:91%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.560 ± 0.660 (1.42)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-175 **Lab ID: 30365721006** Collected: 05/26/20 12:55 Received: 06/01/20 09:45 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	**0.138 ± 0.541 (1.04) C:NA T:90%**	pCi/L	06/18/20 16:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.333 ± 0.342 (0.706) C:75% T:89%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.471 ± 0.883 (1.75)**	pCi/L	06/19/20 07:46	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Sample: P-176 **Lab ID: 30365721007** Collected: 05/26/20 14:05 Received: 06/01/20 09:45 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	**0.0661 ± 0.302 (0.614) C:NA T:96%**	pCi/L	06/18/20 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.561 ± 0.389 (0.744) C:69% T:90%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.627 ± 0.691 (1.36)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-177 **Lab ID: 30365721008** Collected: 05/27/20 11:35 Received: 06/01/20 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.403 (0.852) C:NA T:92%**	pCi/L	06/18/20 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.245 ± 0.309 (0.655) C:74% T:92%**	pCi/L	06/17/20 13:14	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.245 ± 0.712 (1.51)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: P-178A **Lab ID: 30365721009** Collected: 05/27/20 08:50 Received: 06/01/20 09:45 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	**0.333 ± 0.307 (0.181) C:NA T:90%**	pCi/L	06/18/20 16:48	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.443 ± 0.331 (0.638) C:71% T:87%**	pCi/L	06/17/20 13:13	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.776 ± 0.638 (0.819)**	pCi/L	06/19/20 07:46	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

Sample: DUPLICATE (P-175) **Lab ID: 30365721010** Collected: 05/26/20 12:55 Received: 06/01/20 09:45 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	**0.273 ± 0.464 (0.819) C:NA T:89%**	pCi/L	06/18/20 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.359 ± 0.407 (0.858) C:75% T:83%**	pCi/L	06/17/20 12:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.632 ± 0.871 (1.68)**	pCi/L	06/19/20 07:46	7440-14-4	

Sample: RINSE **Lab ID: 30365721011** Collected: 05/26/20 10:10 Received: 06/01/20 09:45 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	**0.0597 ± 0.273 (0.554) C:NA T:99%**	pCi/L	06/18/20 16:48	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**-0.0399 ± 0.405 (0.937) C:74% T:82%**	pCi/L	06/17/20 12:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.0597 ± 0.678 (1.49)**	pCi/L	06/19/20 07:46	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

QC Batch: 399012
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30365721001, 30365721002, 30365721003, 30365721004, 30365721005, 30365721006, 30365721007, 30365721008, 30365721009, 30365721010, 30365721011

METHOD BLANK: 1932226
Matrix: Water
Associated Lab Samples: 30365721001, 30365721002, 30365721003, 30365721004, 30365721005, 30365721006, 30365721007, 30365721008, 30365721009, 30365721010, 30365721011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.288 ± 0.423 (0.721) C:NA T:95%	pCi/L	06/18/20 16:05	

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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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

QC Batch: 399013
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30365721001, 30365721002, 30365721003, 30365721004, 30365721005, 30365721006, 30365721007, 30365721008, 30365721009, 30365721010, 30365721011

METHOD BLANK: 1932227 Matrix: Water
Associated Lab Samples: 30365721001, 30365721002, 30365721003, 30365721004, 30365721005, 30365721006, 30365721007, 30365721008, 30365721009, 30365721010, 30365721011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.360 ± 0.365 (0.753) C:74% T:82%	pCi/L	06/17/20 13:13	

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QUALIFIERS

Project: Xcel Sherco BAP-2 #5
Pace Project No.: 30365721

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.

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WO# : 30365721

30365721

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Page: 1 of 1

Section A
Required Client Information:

Company:	Xcel Energy
Address:	c/o Pace MN Field
	RADIUM
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B
Required Project Information:

Report To:	Chris Pelosi
Copy To:	~~Dave Anderson~~ Riley Jacobson
Purchase Order No.:	
Project Number	20-03365
Project Name:	Xcel Energy Sherco BAP-2 (5)

Section C
Invoice Information:

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

REGULATORY AGENCY
☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES
SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			5/27/20	1030		2			2						X	X		001
2	P-152A	WT	G			5/26/20	1525		2			2						X	X		002
3	P-158	WT	G			5/27/20	1235		2			2						X	X		003
4	P-173	WT	G			5/26/20	1045		2			2						X	X		004
5	P-174	WT	G			5/26/20	1150		2			2						X	X		005
6	P-175	WT	G			5/26/20	1255		2			2						X	X		006
7	P-176	WT	G			5/26/20	1405		2			2						X	X		007
8	P-177	WT	G			5/27/20	1135		2			2						X	X		008
9	P-178A	WT	G			5/27/20	0850		2			2						X	X		009
10	DUPLICATE (P-175)	WT	G			5/26/20	1255		2			2						X	X		010
11	RINSE	WT	G			5/26/20	1010		2			2						X	X		011
12						RDS 5/27/20															

NA
RDS 5/27/20

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pace	5/27/20	1500		6/1/2020	945
			nmk 6/2/2020		

SAMPLE CONDITIONS			
NA	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 5/27/20

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel Energy Project # 30365721

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

Label NMR

LIMS Login BLM

Tracking #: 168673028390

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

Thermometer Used _____ Type of Ice: Wet Blue (None)

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

Temp should be above freezing to 6°C

pH paper Lot# 1002192 Date and Initials of person examining contents: NMR 6/2/2010

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: NMR Date/time of preservation:
				Lot # of added preservative:
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: NMR Date: 6/2/2010

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Baseline Monitoring Event #6
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco BAP2 Baseline Gw Project No. 20-03443

Monitoring Point ID P-17 Labeled P-17

Inside Diameter 2 (inches) Key # 21066 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	58.76	Feet
Static water level measurement before purging	35.65	Feet *Taken 6/16/20
Static water level measurement at time of sampling	35.65	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 6/17/20 Water Column 23.11 Feet

Time Purged 0912 - 1030 One Casing Volume 3.76 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 11.7 Gallons

Field Sampling Data

Date Sampled 6/17/20

Time Sampled 1040

Sampling Equip. Pump

Meter ID MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.6 (units) D.O 8.0 (mg/l)

Spec. Cond. 530 (µmhos/cm) Turbidity 0.8 (NTU)

Temp. 10.5 (°C) Eh 112 (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: 82°F, Sunny, SE 18MPH

Sample Description: clear no odor

Observations: SOL taken 6/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0938	7.5	540	10.0	8.2	NA	124	3.90
1004	7.6	530	10.5	8.0	NA	118	7.80
1030	7.6	530	10.5	8.0	NA	112	11.70
			RDJ 6/17/20				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/17/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Project: Sherco BAP2 Baseline 16 Project No.: 20-03443

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
Well depth	42.18	Feet
Static water level measurement before purging	35.67	Feet
Static water level measurement at time of sampling	35.67	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: BPC-01-20

Date Purged: 6/16/20 Water Column: 6.51 Feet

Time Purged: 1410 - 1437 One Casing Volume: 1.06 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 3.24 Gallons

Field Sampling Data

Date Sampled: 6/16/20

Time Sampled: 1450

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RGJ

Field Parameter Measurements of Sample

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

Spec. Cond.: 380 (µmhos/cm) Turbidity: 0.16 (NTU)

Temp.: 12.0 (°C) Eh: 100 (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: 91°F, Sunny, SE @ 18 MPH

Sample Description: clear no odor

Observations: * Duplicate Collected @ this well - 6/16/20 @ 1450 - RGJ

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1419	7.3	370	12.0	9.9	NA	107	1.08
1428	7.3	380	12.0	9.8	NA	104	2.16
1437	7.3	380	12.0	9.8	NA	100	3.24
				RGJ 6/16/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco BAP2 Baseline 16 | Project No.: 20-03443

Monitoring Point ID: P-158 | Labeled: 812967

Inside Diameter: 2 (inches) | Key #: 21016 | ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	49.16	Feet
Static water level measurement before purging	38.21	Feet *Taken 6/16/20
Static water level measurement at time of sampling	38.21	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 6/17/20 | Water Column: 10.95 Feet

Time Purged: 1145 - 1230 | One Casing Volume: 1.78 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 5.40 Gallons

Field Sampling Data

Date Sampled: 6/17/20

Time Sampled: 1240

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RBJ

Field Parameter Measurements of Sample

pH: 7.3 (units) | D.O: 10.0 (mg/l)

Spec. Cond.: 6040 (µmhos/cm) | Turbidity: 0.4 (NTU)

Temp.: 12.0 (°C) | Eh: 121 (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: 85°F, Sunny, SW @ 18 MPH

Sample Description: clear no odor

Observations: *SGL taken 6/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1200	7.2	6040	12.0	10.2	NA	142	1.80
1215	7.3	6040	12.0	10.0	NA	130	3.60
1230	7.3	6040	12.0	10.0	NA	121	5.40
				Rec 6/16/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco BAP2 Baseline 16 | Project No.: 20-03443

Monitoring Point ID: P-173 | Labeled: 844707

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
Well depth	80.30	Feet
Static water level measurement before purging	70.24	Feet
Static water level measurement at time of sampling	70.24	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 6/16/20 | Water Column: 10.06 Feet

Time Purged: 0845-0927 | One Casing Volume: 1.64 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 5.04 Gallons

Field Sampling Data

Date Sampled: 6/16/20

Time Sampled: 0940

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RBJ

Field Parameter Measurements of Sample

pH: 7.2 (units) | D.O: 4.4 (mg/l)

Spec. Cond.: 480 (µmhos/cm) | Turbidity: 5.1 (NTU)

Temp.: 11.5 (°C) | Eh: 189 (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: 78°F, Sunny, SE 10MPH

Sample Description: clear no odor

Observations: @ Field Blank/Rinse @ 0950-6/16/20-RBJ

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0859	6-8	480	11.0	4.5	NA	222	1.68
0913	7.2	480	11.5	4.5	NA	207	3.36
0927	7.2	480	11.5	4.4	NA	189	5.04

20> 6/16/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco BAP2 Baseline 16 | Project No.: 20-03443

Monitoring Point ID: P-174 | Labeled: 844706

Inside Diameter: 2 (inches) | Key #: 21016 | ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	82.27	Feet
Static water level measurement before purging	72.82	Feet
Static water level measurement at time of sampling	72.82	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 6/16/20 | Water Column: 9.45 Feet

Time Purged: 1000 - 1039 | One Casing Volume: 1.54 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 6/16/20

Time Sampled: 1050

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.0 (units) | D.O: 7.0 (mg/l)

Spec. Cond.: 750 (µmhos/cm) | Turbidity: 1.9 (NTU)

Temp.: 12.5 (°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: 81°F, Sunny, SE@15MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1013	7.0	760	12.5	7.1	NA	165	1.56
1026	7.0	750	12.5	7.0	NA	157	3.12
1039	7.0	750	12.5	7.0	NA	149	4.68
				RGJ 6/16/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco BAP2 Baseline Q Project No. 20-03443

Monitoring Point ID P-175 Labeled 844705

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
Well depth	84.11	Feet
Static water level measurement before purging	75.20	Feet
Static water level measurement at time of sampling	75.20	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 6/16/20 Water Column 8.91 Feet

Time Purged 1105-1144 One Casing Volume 1.45 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 6/16/20

Time Sampled 1155

Sampling Equip. Pump

Meter ID MPS-6

Analyzed by RGJ

Field Parameter Measurements of Sample

pH 7.1 (units) D.O 8.9 (mg/l)

Spec. Cond. 440 (µmhos/cm) Turbidity 18 (NTU)

Temp. 13.0 (°C) Eh 170 (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: 85°F, Sunny, SE 17MPH

Sample Description: clear, no odor

Observations: * Turb came back a little higher than normal, took 2 times to Confirm. - RGJ 6/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1118	7.0	440	13.0	8.8	NA	193	1.56
1131	7.1	440	13.0	8.9	NA	181	3.12
1144	7.1	440	13.0	8.9	NA	170	4.68
				RGJ 6/16/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco BAP2 Baseline 16 | Project No.: 20-03443

Monitoring Point ID: P-176 | Labeled: 844703

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
Well depth	84.18	Feet
Static water level measurement before purging	74.65	Feet
Static water level measurement at time of sampling	74.65	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: BPC-01-20

Date Purged: 6/16/20 | Water Column: 9.53 Feet

Time Purged: 1210 - 1249 | One Casing Volume: 1.55 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 6/16/20

Time Sampled: 1300

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RDJ

Field Parameter Measurements of Sample

pH: 7.0 (units) | D.O: 8.2 (mg/l)

Spec. Cond.: 790 (µmhos/cm) | Turbidity: 2.16 (NTU)

Temp.: 14.5 (°C) | Eh: 116 (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: 85°F, Sunny, S@19MPH

Sample Description: clear no oder

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1223	6.9	800	14.0	8.2	NA	135	1.56
1236	7.0	790	14.5	8.2	NA	122	3.12
1249	7.0	790	14.5	8.2	NA	116	4.68
				RDJ 6/16/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco BAP2 Baseline 6 Project No. 20-03443

Monitoring Point ID P-177 Labeled 844704

Inside Diameter 2 (inches) Key # 21066 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation NA Feet

Well depth (RPD 6/16) ~~84.4~~ 46.53 Feet

Static water level measurement before purging 37.75 Feet * Taken 6/16/20

Static water level measurement at time of sampling 37.75 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-01-20

Date Purged 6/17/20 Water Column 8.78 Feet

Time Purged 1050 - 1126 One Casing Volume 1.43 Gallons

Pump Rate 0.12 GPM / LPM Volume Purged 4.32 Gallons

Field Sampling Data

Date Sampled 6/17/20

Time Sampled (RPD's 6/16) ~~1050~~ 1135

Sampling Equip. Pump

Meter ID MPS-6

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 10.3 (mg/l)

Spec. Cond. 420 (µmhos/cm) Turbidity 0.5 (NTU)

Temp. 11.5 (°C) Eh 127 (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: 83°F, Sunny, SE @ 18 MPH

Sample Description: clear no odor

Observations: SWL taken 6/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1102	7.3	420	11.5	10.2	NA	141	1.44
1114	7.4	420	11.5	10.2	NA	134	2.88
1126	7.4	420	11.5	10.3	NA	127	4.33
				RDJ 6/17/2020			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/16/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Project: Sherco BAP2 Baseline 16 Project No.: 20-03443

Monitoring Point ID: P-178A Labeled: 844708

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
Well depth	47.41	Feet
Static water level measurement before purging	37.89	Feet * Taken 6/16/20
Static water level measurement at time of sampling	37.89	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: BPC-01-20

Date Purged: 6/17/20 Water Column: 9.52 Feet

Time Purged: 0810-0849 One Casing Volume: 1.55 Gallons

Pump Rate: 0.12 GPM / LPM Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 6/17/20

Time Sampled: ~~0808~~ 0900

Sampling Equip.: Pump

Meter ID: MPS-16

Analyzed by: RDJ

Field Parameter Measurements of Sample

pH 7.3 (units) D.O 8.9 (mg/l)

Spec. Cond. 470 (µmhos/cm) Turbidity 0.6 (NTU)

Temp. 10.5 (°C) Eh 131 (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: 75°F, Sunny, SE 12 MPH

Sample Description: clear no odor

Observations: Depth to water taken 6/16/20

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0823	7.3	470	10.5	8.8	NA	138	1.56
0836	7.3	470	10.5	8.8	NA	134	3.12
0849	7.3	470	10.5	8.9	NA	131	4.68

RDJ 6/17/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 08/30/2017

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

Lead Technician Signature: Riley Jacobson Date: 6/17/20

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

09 July 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 06/17/2020 13:45. 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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFF0196-01	Water	06/17/2020 10:40	06/17/2020 13:45
P-152A		MFF0196-02	Water	06/16/2020 14:50	06/17/2020 13:45
P-158		MFF0196-03	Water	06/17/2020 12:40	06/17/2020 13:45
P-173		MFF0196-04	Water	06/16/2020 9:40	06/17/2020 13:45
P-174		MFF0196-05	Water	06/16/2020 10:50	06/17/2020 13:45
P-175		MFF0196-06	Water	06/16/2020 11:55	06/17/2020 13:45
P-176		MFF0196-07	Water	06/16/2020 13:00	06/17/2020 13:45
P-177		MFF0196-08	Water	06/17/2020 11:35	06/17/2020 13:45
P-178A		MFF0196-09	Water	06/17/2020 9:00	06/17/2020 13:45
Duplicate		MFF0196-10	Water	06/16/2020 14:50	06/17/2020 13:45
Rinse		MFF0196-11	Water	06/16/2020 9:50	06/17/2020 13:45

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-17

MFF0196-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	21.7	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:18	EPA 300.0	CRL
Sulfate	23.4	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:18	EPA 300.0	CRL
Wet Chemistry										
pH	7.86		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:00	SM 4500-H+ B	CRL
Total Dissolved Solids	272	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.534	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Barium	37.8	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Chromium	0.887	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Selenium	0.791	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:28	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:37	EPA 200.7	HRD
Calcium	70.8	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:35	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:35	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-17

MFF0196-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 15:58	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-152A

MFF0196-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:38	EPA 300.0	CRL
Sulfate	6.70	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:38	EPA 300.0	CRL
Wet Chemistry										
pH	7.85		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:04	SM 4500-H+ B	CRL
Total Dissolved Solids	184	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.565	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Barium	36.0	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Chromium	0.673	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Selenium	0.548	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:32	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:42	EPA 200.7	HRD
Calcium	53.9	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:40	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:40	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-152A

MFF0196-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 15:59	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-158

MFF0196-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.30	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:58	EPA 300.0	CRL
Sulfate	102	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 17:58	EPA 300.0	CRL
Wet Chemistry										
pH	7.72		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:07	SM 4500-H+ B	CRL
Total Dissolved Solids	382	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.605	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Barium	60.1	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Chromium	0.957	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Selenium	2.16	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:35	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.532	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:47	EPA 200.7	HRD
Calcium	93.5	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:45	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:45	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-158

MFF0196-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:01	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

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MFF0196-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	6.59	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:19	EPA 300.0	CRL
Sulfate	25.0	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:19	EPA 300.0	CRL
Wet Chemistry										
pH	7.83		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:11	SM 4500-H+ B	CRL
Total Dissolved Solids	256	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Barium	48.5	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Chromium	0.932	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Molybdenum	5.28	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Selenium	1.43	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:39	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.130	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:52	EPA 200.7	HRD
Calcium	68.8	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:50	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:50	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-173

MFF0196-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:03	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-174

MFF0196-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.17	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:39	EPA 300.0	CRL
Sulfate	35.6	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 18:39	EPA 300.0	CRL
Wet Chemistry										
pH	7.51		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:15	SM 4500-H+ B	CRL
Total Dissolved Solids	410	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Barium	75.9	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Chromium	0.998	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Molybdenum	2.03	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Selenium	2.56	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:43	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.199	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:57	EPA 200.7	HRD
Calcium	108	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:56	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 14:56	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

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MFF0196-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:05	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

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MFF0196-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:00	EPA 300.0	CRL
Sulfate	7.61	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:00	EPA 300.0	CRL
Wet Chemistry										
pH	7.81		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:18	SM 4500-H+ B	CRL
Total Dissolved Solids	228	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	23.6	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.634	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Barium	59.6	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Cobalt	0.617	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Chromium	2.26	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Selenium	1.06	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:47	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.119	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:02	EPA 200.7	HRD
Calcium	67.9	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:01	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:01	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-175

MFF0196-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:06	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-176

MFF0196-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	8.40	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:20	EPA 300.0	CRL
Sulfate	134	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 19:20	EPA 300.0	CRL
Wet Chemistry										
pH	7.61		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:22	SM 4500-H+ B	CRL
Total Dissolved Solids	468	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.548	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Barium	113	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Chromium	1.16	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Selenium	7.23	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:51	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.738	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:07	EPA 200.7	HRD
Calcium	111	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:06	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:06	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-176

MFF0196-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:08	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-177

MFF0196-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.60	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:22	EPA 300.0	CRL
Sulfate	20.1	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:22	EPA 300.0	CRL
Wet Chemistry										
pH	7.88		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:25	SM 4500-H+ B	CRL
Total Dissolved Solids	218	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.543	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Barium	44.0	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Chromium	0.676	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Molybdenum	1.88	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Selenium	1.38	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:55	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0749	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:13	EPA 200.7	HRD
Calcium	58.3	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:11	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:11	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-177

MFF0196-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:10	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-178A

MFF0196-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.32	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:43	EPA 300.0	CRL
Sulfate	50.1	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 21:43	EPA 300.0	CRL
Wet Chemistry										
pH	7.92		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:29	SM 4500-H+ B	CRL
Total Dissolved Solids	258	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.882	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Barium	39.4	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Chromium	1.03	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Molybdenum	0.636	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Selenium	2.07	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 9:59	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.216	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:18	EPA 200.7	HRD
Calcium	41.9	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:16	EPA 200.7	HRD
Lithium	0.0167	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:16	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

P-178A

MFF0196-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:11	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Duplicate

MFF0196-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:03	EPA 300.0	CRL
Sulfate	7.56	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:03	EPA 300.0	CRL
Wet Chemistry										
pH	7.88		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:33	SM 4500-H+ B	CRL
Total Dissolved Solids	196	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.605	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Barium	35.9	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Chromium	0.668	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Selenium	0.603	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:20	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:33	EPA 200.7	HRD
Calcium	53.7	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:31	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:31	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Duplicate

MFF0196-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:16	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Rinse

MFF0196-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:24	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFF0401	6/18/20 7:06	6/22/20 22:24	EPA 300.0	CRL
Wet Chemistry										
pH	6.21		pH Units	M_TTT	1	BFF0402	6/18/20 7:10	6/18/20 9:36	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFF0464	6/22/20 8:50	6/22/20 8:50	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFF0463	6/22/20 7:18	6/22/20 7:18	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Selenium	0.600	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFF0468	6/22/20 9:09	7/8/20 10:23	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:38	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:37	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFF0467	6/22/20 9:07	6/23/20 15:37	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Rinse

MFF0196-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFF0604	6/30/20 9:29	6/30/20 16:18	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0401 - Wet Prep										
Blank (BFF0401-BLK1)				Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFF0401-BLK2)				Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFF0401-BS1)				Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	24.845	1.00	mg/L	24.938		99.6	90-110			
Fluoride	2.8740	0.750	mg/L	2.4938		115	90-110			M_LCS-H
Sulfate	48.066	1.00	mg/L	49.876		96.4	90-110			
LCS (BFF0401-BS2)				Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	24.054	1.00	mg/L	24.938		96.5	90-110			
Fluoride	2.5650	0.750	mg/L	2.4938		103	90-110			
Sulfate	46.076	1.00	mg/L	49.876		92.4	90-110			
LCS (BFF0401-BS3)				Prepared: 06/18/2020 Analyzed: 06/23/2020						
Chloride	23.834	1.00	mg/L	24.938		95.6	90-110			
Fluoride	2.5040	0.750	mg/L	2.4938		100	90-110			
Sulfate	45.705	1.00	mg/L	49.876		91.6	90-110			
Duplicate (BFF0401-DUP1)		**Source: MFF0196-02**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	0.66700	1.00	mg/L		0.67200			0.747	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	6.7940	1.00	mg/L		6.6960			1.45	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0401 - Wet Prep										
Duplicate (BFF0401-DUP2)		**Source: MFF0196-06**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	0.86000	1.00	mg/L		0.87800			2.07	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.5660	1.00	mg/L		7.6070			0.540	20	
Matrix Spike (BFF0401-MS1)		**Source: MFF0196-02**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	31.501	1.25	mg/L	31.173	0.67200	98.9	90-110			
Fluoride	3.0963	0.938	mg/L	3.1173	<0.938	99.3	90-110			
Sulfate	66.704	1.25	mg/L	62.345	6.6960	96.3	90-110			
Matrix Spike (BFF0401-MS2)		**Source: MFF0196-06**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	31.755	1.25	mg/L	31.173	0.87800	99.1	90-110			
Fluoride	3.0125	0.938	mg/L	3.1173	<0.938	96.6	90-110			
Sulfate	67.603	1.25	mg/L	62.345	7.6070	96.2	90-110			
Matrix Spike Dup (BFF0401-MSD1)		**Source: MFF0196-02**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	31.768	1.25	mg/L	31.173	0.67200	99.8	90-110	0.842	20	
Fluoride	3.3813	0.938	mg/L	3.1173	<0.938	108	90-110	8.80	20	
Sulfate	66.994	1.25	mg/L	62.345	6.6960	96.7	90-110	0.434	20	
Matrix Spike Dup (BFF0401-MSD2)		**Source: MFF0196-06**		Prepared: 06/18/2020 Analyzed: 06/22/2020						
Chloride	31.218	1.25	mg/L	31.173	0.87800	97.3	90-110	1.71	20	
Fluoride	3.3525	0.938	mg/L	3.1173	<0.938	108	90-110	10.7	20	
Sulfate	66.078	1.25	mg/L	62.345	7.6070	93.8	90-110	2.28	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0402 - Wet Prep										
LCS (BFF0402-BS1)				Prepared & Analyzed: 06/18/2020						
pH	3.9700		pH Units	4.0000		99.3	90-110			
LCS (BFF0402-BS2)				Prepared & Analyzed: 06/18/2020						
pH	3.9800		pH Units	4.0000		99.5	90-110			
Duplicate (BFF0402-DUP1)		**Source: MFF0187-01**		Prepared & Analyzed: 06/18/2020						
pH	8.2700		pH Units		8.3500			0.963	20	
Duplicate (BFF0402-DUP2)		**Source: MFF0187-02**		Prepared & Analyzed: 06/18/2020						
pH	8.3400		pH Units		8.3400			0.00	20	
Batch BFF0463 - Wet Prep										
Blank (BFF0463-BLK1)				Prepared & Analyzed: 06/22/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFF0463-BS1)				Prepared & Analyzed: 06/22/2020						
Total Suspended Solids	84.000	4.00	mg/L	100.20		83.8	70-130			
Duplicate (BFF0463-DUP1)		**Source: MFF0196-01**		Prepared & Analyzed: 06/22/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFF0463-DUP2)		**Source: MFF0196-02**		Prepared & Analyzed: 06/22/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Batch BFF0464 - Wet Prep										
Blank (BFF0464-BLK1)				Prepared & Analyzed: 06/22/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0464 - Wet Prep										
LCS (BFF0464-BS1)				Prepared & Analyzed: 06/22/2020						
Total Dissolved Solids	44.000	20.0	mg/L	50.400		87.3	70-130			
Duplicate (BFF0464-DUP1)		**Source: MFF0196-01**		Prepared & Analyzed: 06/22/2020						
Total Dissolved Solids	270.00	20.0	mg/L		272.00			0.738	20	
Duplicate (BFF0464-DUP2)		**Source: MFF0196-02**		Prepared & Analyzed: 06/22/2020						
Total Dissolved Solids	192.00	20.0	mg/L		184.00			4.26	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0468 - EPA 200.2, EPA 3005										
Blank (BFF0468-BLK1)				Prepared: 06/22/2020 Analyzed: 07/08/2020						
Cobalt	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Beryllium	<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							
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
LCS (BFF0468-BS1)				Prepared: 06/22/2020 Analyzed: 07/08/2020						
Molybdenum	101.98	0.500	ug/L	100.00		102	85-115			
Cobalt	99.034	0.500	ug/L	100.00		99.0	85-115			
Selenium	100.16	0.500	ug/L	100.00		100	85-115			
Barium	100.59	0.500	ug/L	100.00		101	85-115			
Beryllium	98.511	0.500	ug/L	100.00		98.5	85-115			
Lead	100.83	0.500	ug/L	100.00		101	85-115			
Thallium	101.89	0.500	ug/L	100.00		102	85-115			
Antimony	101.08	0.500	ug/L	100.00		101	85-115			
Arsenic	99.580	0.500	ug/L	100.00		99.6	85-115			
Chromium	101.14	0.500	ug/L	100.00		101	85-115			
Cadmium	102.41	0.100	ug/L	100.00		102	85-115			
Duplicate (BFF0468-DUP1)		**Source: MFF0196-01**		Prepared: 06/22/2020 Analyzed: 07/08/2020						
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Arsenic	0.52716	0.500	ug/L		0.53448			1.38	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.82607	0.500	ug/L		0.88699			7.11	20	
Selenium	0.51813	0.500	ug/L		0.79130			41.7	20	M_D
Thallium	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.20763	0.500	ug/L		0.19186			7.90	20	
Barium	38.457	0.500	ug/L		37.819			1.67	20	

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0468 - EPA 200.2, EPA 3005										
Duplicate (BFF0468-DUP2)		**Source: MFF0196-02**		Prepared: 06/22/2020 Analyzed: 07/08/2020						
Arsenic	0.51664	0.500	ug/L		0.56507			8.95	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Lead	0.24390	0.500	ug/L		<0.500				20	
Barium	36.121	0.500	ug/L		36.010			0.307	20	
Selenium	0.32448	0.500	ug/L		0.54784			51.2	20	M_D-RL
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Molybdenum	0.14053	0.500	ug/L		0.14898			5.84	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.62731	0.500	ug/L		0.67325			7.06	20	
Cobalt	0.19142	0.500	ug/L		0.20749			8.06	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Matrix Spike (BFF0468-MS1)		**Source: MFF0196-01**		Prepared: 06/22/2020 Analyzed: 07/08/2020						
Antimony	101.87	0.500	ug/L	100.00	<0.500	102	75-125			
Chromium	102.70	0.500	ug/L	100.00	0.88699	102	75-125			
Lead	95.151	0.500	ug/L	100.00	<0.500	95.2	75-125			
Beryllium	99.449	0.500	ug/L	100.00	<0.500	99.4	75-125			
Molybdenum	103.28	0.500	ug/L	100.00	0.19186	103	75-125			
Cobalt	97.821	0.500	ug/L	100.00	<0.500	97.8	75-125			
Thallium	97.441	0.500	ug/L	100.00	<0.500	97.4	75-125			
Barium	141.84	0.500	ug/L	100.00	37.819	104	75-125			
Selenium	96.832	0.500	ug/L	100.00	0.79130	96.0	75-125			
Cadmium	97.248	0.100	ug/L	100.00	<0.100	97.2	75-125			
Arsenic	104.10	0.500	ug/L	100.00	0.53448	104	75-125			
Matrix Spike (BFF0468-MS2)		**Source: MFF0196-02**		Prepared: 06/22/2020 Analyzed: 07/08/2020						
Molybdenum	103.66	0.500	ug/L	100.00	0.14898	104	75-125			
Cobalt	101.70	0.500	ug/L	100.00	0.20749	101	75-125			
Thallium	96.835	0.500	ug/L	100.00	<0.500	96.8	75-125			
Cadmium	95.857	0.100	ug/L	100.00	<0.100	95.9	75-125			
Chromium	102.64	0.500	ug/L	100.00	0.67325	102	75-125			
Arsenic	96.555	0.500	ug/L	100.00	0.56507	96.0	75-125			
Selenium	93.137	0.500	ug/L	100.00	0.54784	92.6	75-125			
Lead	95.326	0.500	ug/L	100.00	<0.500	95.3	75-125			
Barium	144.67	0.500	ug/L	100.00	36.010	109	75-125			
Antimony	101.47	0.500	ug/L	100.00	<0.500	101	75-125			
Beryllium	97.557	0.500	ug/L	100.00	<0.500	97.6	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0468 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFF0468-MSD1)	**Source: MFF0196-01**			Prepared: 06/22/2020 Analyzed: 07/08/2020						
Molybdenum	101.38	0.500	ug/L	100.00	0.19186	101	75-125	1.85	20	
Chromium	105.52	0.500	ug/L	100.00	0.88699	105	75-125	2.70	20	
Antimony	100.91	0.500	ug/L	100.00	<0.500	101	75-125	0.952	20	
Lead	95.431	0.500	ug/L	100.00	<0.500	95.4	75-125	0.294	20	
Thallium	97.576	0.500	ug/L	100.00	<0.500	97.6	75-125	0.139	20	
Selenium	100.07	0.500	ug/L	100.00	0.79130	99.3	75-125	3.28	20	
Arsenic	102.54	0.500	ug/L	100.00	0.53448	102	75-125	1.51	20	
Cadmium	97.072	0.100	ug/L	100.00	<0.100	97.1	75-125	0.181	20	
Cobalt	99.806	0.500	ug/L	100.00	<0.500	99.8	75-125	2.01	20	
Barium	144.26	0.500	ug/L	100.00	37.819	106	75-125	1.69	20	
Beryllium	100.95	0.500	ug/L	100.00	<0.500	101	75-125	1.49	20	
Matrix Spike Dup (BFF0468-MSD2)	**Source: MFF0196-02**			Prepared: 06/22/2020 Analyzed: 07/08/2020						
Cobalt	98.270	0.500	ug/L	100.00	0.20749	98.1	75-125	3.43	20	
Thallium	98.079	0.500	ug/L	100.00	<0.500	98.1	75-125	1.28	20	
Cadmium	98.730	0.100	ug/L	100.00	<0.100	98.7	75-125	2.95	20	
Selenium	101.20	0.500	ug/L	100.00	0.54784	101	75-125	8.30	20	
Beryllium	101.79	0.500	ug/L	100.00	<0.500	102	75-125	4.25	20	
Arsenic	102.15	0.500	ug/L	100.00	0.56507	102	75-125	5.63	20	
Antimony	103.21	0.500	ug/L	100.00	<0.500	103	75-125	1.70	20	
Lead	97.701	0.500	ug/L	100.00	<0.500	97.7	75-125	2.46	20	
Molybdenum	102.77	0.500	ug/L	100.00	0.14898	103	75-125	0.860	20	
Chromium	102.75	0.500	ug/L	100.00	0.67325	102	75-125	0.113	20	
Barium	141.48	0.500	ug/L	100.00	36.010	105	75-125	2.23	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0467 - EPA 200.2, EPA 3005										
Blank (BFF0467-BLK1)				Prepared: 06/22/2020 Analyzed: 06/23/2020						
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
LCS (BFF0467-BS1)				Prepared: 06/22/2020 Analyzed: 06/23/2020						
Boron	1.0165	0.0500	mg/L	1.0000		102	85-115			
Lithium	1.0511	0.0150	mg/L	1.0000		105	85-115			
Calcium	107.82	1.25	mg/L	100.00		108	85-115			
Duplicate (BFF0467-DUP1)		**Source: MFF0187-01**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Calcium	109.98	1.25	mg/L		105.76			3.91	20	
Lithium	0.047994	0.0150	mg/L		0.047218			1.63	20	
Boron	0.081330	0.0500	mg/L		0.080059			1.57	20	
Duplicate (BFF0467-DUP2)		**Source: MFF0187-02**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Boron	0.043896	0.0500	mg/L		0.044157			0.593	20	
Lithium	0.018447	0.0150	mg/L		0.018676			1.24	20	
Calcium	45.301	1.25	mg/L		45.967			1.46	20	
Matrix Spike (BFF0467-MS1)		**Source: MFF0187-01**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Calcium	209.35	1.25	mg/L	100.00	105.76	104	70-130			
Boron	1.0612	0.0500	mg/L	1.0000	0.080059	98.1	70-130			
Lithium	1.0499	0.0150	mg/L	1.0000	0.047218	100	70-130			
Matrix Spike (BFF0467-MS2)		**Source: MFF0187-02**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Calcium	154.07	1.25	mg/L	100.00	45.967	108	70-130			
Boron	1.0702	0.0500	mg/L	1.0000	0.044157	103	70-130			
Lithium	1.0874	0.0150	mg/L	1.0000	0.018676	107	70-130			

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0467 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFF0467-MSD1)		**Source: MFF0187-01**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Boron	1.0705	0.0500	mg/L	1.0000	0.080059	99.0	70-130	0.872	20	
Calcium	212.23	1.25	mg/L	100.00	105.76	106	70-130	1.37	20	
Lithium	1.0587	0.0150	mg/L	1.0000	0.047218	101	70-130	0.831	20	
Matrix Spike Dup (BFF0467-MSD2)		**Source: MFF0187-02**		Prepared: 06/22/2020 Analyzed: 06/23/2020						
Boron	1.0841	0.0500	mg/L	1.0000	0.044157	104	70-130	1.29	20	
Lithium	1.1048	0.0150	mg/L	1.0000	0.018676	109	70-130	1.59	20	
Calcium	156.61	1.25	mg/L	100.00	45.967	111	70-130	1.64	20	

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFF0604 - EPA 245.1, EPA 7470A										
Blank (BFF0604-BLK1)				Prepared & Analyzed: 06/30/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFF0604-BS1)				Prepared & Analyzed: 06/30/2020						
Mercury	2.7210	0.200	ug/L	3.0030		90.6	85-115			
Duplicate (BFF0604-DUP1)		**Source: MFF0196-03**		Prepared & Analyzed: 06/30/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFF0604-DUP2)		**Source: MFF0196-04**		Prepared & Analyzed: 06/30/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFF0604-MS1)		**Source: MFF0196-03**		Prepared & Analyzed: 06/30/2020						
Mercury	2.7462	0.200	ug/L	3.0030	<0.200	91.4	70-130			
Matrix Spike (BFF0604-MS2)		**Source: MFF0196-04**		Prepared & Analyzed: 06/30/2020						
Mercury	2.7770	0.200	ug/L	3.0030	<0.200	92.5	70-130			
Matrix Spike Dup (BFF0604-MSD1)		**Source: MFF0196-03**		Prepared & Analyzed: 06/30/2020						
Mercury	2.5332	0.200	ug/L	3.0030	<0.200	84.4	70-130	8.07	20	
Matrix Spike Dup (BFF0604-MSD2)		**Source: MFF0196-04**		Prepared & Analyzed: 06/30/2020						
Mercury	2.6596	0.200	ug/L	3.0030	<0.200	88.6	70-130	4.32	20	

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/09/2020 11:42

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_LCS-H	The recovery of this analyte in the LCS was above the control limits. The sample result may be biased high.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to<RL.
M_D	The RPD for the sample duplicate was outside of QC acceptance limits possibly due to non-homogeneous matrix.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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

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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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Chris Pelosi	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number	20-03443	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco BAP-2 (6)	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			6/17/20	1040		2	1		1							X		
2	P-152A	WT	G			6/16/20	1450		2	1		1							X		
3	P-158	WT	G			6/17/20	1240		2	1		1							X		
4	P-173	WT	G			6/16/20	0940		2	1		1							X		
5	P-174	WT	G			6/16/20	1050		2	1		1							X		
6	P-175	WT	G			6/16/20	1155		2	1		1							X		
7	P-176	WT	G			6/16/20	1300		2	1		1							X		
8	P-177	WT	G			6/17/20	1135		2	1		1							X		
9	P-178A	WT	G			6/17/20	0900		2	1		1							X		
10	DUPLICATE (P-152A)	WT	G			6/16/20	1450		2	1		1							X		
11	RINSE	WT	G			6/16/20	0950		2	1		1							X		
12								RLF 6/17/20													

Additional Comments:

Unfiltered HNO3 Bottles

pH strips: MD44102

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson / Pace	6/17/20	1345	[illegible] / Xcel	6/17/20	1345

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
1.9	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 6/17/20

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

July 09, 2020

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

RE: Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on June 19, 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

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

Sincerely,

Carin A. Ferris

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

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CERTIFICATIONS

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

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

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SAMPLE SUMMARY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30368872001	**P-17**	Water	06/17/20 10:40	06/19/20 09:30
30368872002	**P-152A**	Water	06/16/20 14:50	06/19/20 09:30
30368872003	**P-158**	Water	06/17/20 12:40	06/19/20 09:30
30368872004	**P-173**	Water	06/16/20 09:40	06/19/20 09:30
30368872005	**P-174**	Water	06/16/20 10:50	06/19/20 09:30
30368872006	**P-175**	Water	06/16/20 11:55	06/19/20 09:30
30368872007	**P-176**	Water	06/16/20 13:00	06/19/20 09:30
30368872008	**P-177**	Water	06/17/20 11:35	06/19/20 09:30
30368872009	**P-178A**	Water	06/17/20 09:00	06/19/20 09:30
30368872010	**DUPLICATE**	Water	06/16/20 14:50	06/19/20 09:30
30368872011	**RINSE**	Water	06/16/20 09:50	06/19/20 09:30

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SAMPLE ANALYTE COUNT

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30368872001	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872003	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872004	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872005	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872006	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872008	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872009	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872010	**DUPLICATE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30368872011	**RINSE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: July 09, 2020

General Information:
11 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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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: July 09, 2020

General Information:
11 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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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: July 09, 2020

General Information:
11 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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Greensburg, PA 15601
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Sample: P-17 **Lab ID: 30368872001** Collected: 06/17/20 10:40 Received: 06/19/20 09:30 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	**0.179 ± 0.273 (0.440) C:NA T:88%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.811 ± 0.555 (1.10) C:65% T:91%**	pCi/L	07/08/20 11:20	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.990 ± 0.828 (1.54)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-152A **Lab ID: 30368872002** Collected: 06/16/20 14:50 Received: 06/19/20 09:30 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	**0.115 ± 0.263 (0.424) C:NA T:88%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.910 ± 0.559 (1.07) C:68% T:79%**	pCi/L	07/08/20 11:20	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.03 ± 0.822 (1.49)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-158 **Lab ID: 30368872003** Collected: 06/17/20 12:40 Received: 06/19/20 09:30 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	**0.118 ± 0.284 (0.548) C:NA T:87%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.318 ± 0.632 (1.39) C:63% T:72%**	pCi/L	07/08/20 11:20	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.436 ± 0.916 (1.94)**	pCi/L	07/09/20 09:08	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Sample: P-173 **Lab ID: 30368872004** Collected: 06/16/20 09:40 Received: 06/19/20 09:30 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	**0.385 ± 0.392 (0.593) C:NA T:94%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.361 ± 0.557 (1.21) C:64% T:88%**	pCi/L	07/08/20 11:20	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.746 ± 0.949 (1.80)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-174 **Lab ID: 30368872005** Collected: 06/16/20 10:50 Received: 06/19/20 09:30 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	**0.0587 ± 0.446 (0.882) C:NA T:79%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.600 ± 0.519 (1.04) C:53% T:83%**	pCi/L	07/08/20 16:02	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.659 ± 0.965 (1.92)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-175 **Lab ID: 30368872006** Collected: 06/16/20 11:55 Received: 06/19/20 09:30 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	**0.178 ± 0.309 (0.552) C:NA T:87%**	pCi/L	07/07/20 15:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.05 ± 0.568 (1.02) C:55% T:84%**	pCi/L	07/08/20 16:02	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.23 ± 0.877 (1.57)**	pCi/L	07/09/20 09:08	7440-14-4	

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Sample: P-176 **Lab ID: 30368872007** Collected: 06/16/20 13:00 Received: 06/19/20 09:30 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	**0.127 ± 0.352 (0.684) C:NA T:83%**	pCi/L	07/07/20 16:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.80 ± 0.859 (1.47) C:46% T:71%**	pCi/L	07/08/20 16:02	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.93 ± 1.21 (2.15)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-177 **Lab ID: 30368872008** Collected: 06/17/20 11:35 Received: 06/19/20 09:30 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	**0.102 ± 0.399 (0.764) C:NA T:92%**	pCi/L	07/07/20 16:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.408 ± 0.382 (0.770) C:57% T:82%**	pCi/L	07/08/20 15:58	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.510 ± 0.781 (1.53)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: P-178A **Lab ID: 30368872009** Collected: 06/17/20 09:00 Received: 06/19/20 09:30 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	**0.167 ± 0.288 (0.515) C:NA T:93%**	pCi/L	07/07/20 16:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.526 ± 0.440 (0.873) C:53% T:84%**	pCi/L	07/08/20 15:58	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.693 ± 0.728 (1.39)**	pCi/L	07/09/20 09:08	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

Sample: DUPLICATE **Lab ID: 30368872010** Collected: 06/16/20 14:50 Received: 06/19/20 09:30 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	**-0.0608 ± 0.277 (0.654) C:NA T:84%**	pCi/L	07/07/20 16:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.713 ± 0.460 (0.866) C:56% T:89%**	pCi/L	07/08/20 15:58	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.713 ± 0.737 (1.52)**	pCi/L	07/09/20 09:08	7440-14-4	

Sample: RINSE **Lab ID: 30368872011** Collected: 06/16/20 09:50 Received: 06/19/20 09:30 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	**0.366 ± 0.380 (0.566) C:NA T:91%**	pCi/L	07/07/20 16:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.568 ± 0.449 (0.883) C:58% T:79%**	pCi/L	07/08/20 15:58	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.934 ± 0.829 (1.45)**	pCi/L	07/09/20 09:08	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

QC Batch: 401941
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30368872001, 30368872002, 30368872003, 30368872004, 30368872005, 30368872006, 30368872007, 30368872008, 30368872009, 30368872010, 30368872011

METHOD BLANK: 1946008
Matrix: Water
Associated Lab Samples: 30368872001, 30368872002, 30368872003, 30368872004, 30368872005, 30368872006, 30368872007, 30368872008, 30368872009, 30368872010, 30368872011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0873 ± 0.342 (0.655) C:NA T:93%	pCi/L	07/07/20 15:47	

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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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

QC Batch: 401942
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30368872001, 30368872002, 30368872003, 30368872004, 30368872005, 30368872006, 30368872007, 30368872008, 30368872009, 30368872010, 30368872011

METHOD BLANK: 1946009 Matrix: Water
Associated Lab Samples: 30368872001, 30368872002, 30368872003, 30368872004, 30368872005, 30368872006, 30368872007, 30368872008, 30368872009, 30368872010, 30368872011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.880 ± 0.408 (0.674) C:65% T:93%	pCi/L	07/08/20 12:06	

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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Greensburg, PA 15601
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QUALIFIERS

Project: Xcel Sherco BAP-2 (6)
Pace Project No.: 30368872

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.

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www.pacelabs.com

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:	c/o Pace MN Field
	RADIUM
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Riley Jacobson
Purchase Order No.:	
Project Number	20-03443
Project Name:	Xcel Energy Sherco BAP-2 (16)

Section C Invoice Information:

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

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			6/17/20	1040		2			2						X	X		001
2	P-152A	WT	G			6/16/20	1450		2			2						X	X		002
3	P-158	WT	G			6/17/20	1240		2			2						X	X		003
4	P-173	WT	G			6/16/20	0940		2			2						X	X		004
5	P-174	WT	G			6/16/20	1050		2			2						X	X		005
6	P-175	WT	G			6/16/20	1155		2			2						X	X		006
7	P-176	WT	G			6/16/20	1300		2			2						X	X		007
8	P-177	WT	G			6/17/20	1135		2			2						X	X		008
9	P-178A	WT	G			6/17/20	0900		2			2						X	X		009
10	DUPLICATE	WT	G			6/16/20	1450		2			2						X	X		010
11	RINSE	WT	G			6/16/20	0950		2			2						X	X		011
12																					

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] Pace	6/17/20	1500	[signature] / Pace	6/19/20	9:30

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
N/A	Y/N	Y/N	N/A
	Y/N	Y/N	N/A
	Y/N	Y/N	N/A
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 6/17/20

WO# : 30368872

30368872

Pittsburgh Lab Sample Condition Upon Receipt

30368872

Pace Analytical

Client Name: Xcel Energy Project #

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

Label NMR
LIMS Login NMR

Tracking #: 1686 7303 2831

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

Thermometer Used Type of Ice: Wet Blue (None)

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

Temp should be above freezing to 6°C

pH paper Lot# 10D292 Date and initials of person examining contents: HB 6-19-20

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: HB Date/time of preservation: Lot # of added preservative:
Headspace in VOA Vials (>6mm):			✓	17.
~~Trip Blank Present:~~			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: HB Date: 6-19-20

Client Notification/ Resolution:

~~Person Contacted:~~ ~~Date/Time:~~ ~~Contacted By:~~

Comments/ Resolution:

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

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

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

Baseline Monitoring Event #7
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

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
Well depth	58.76	Feet
Static water level measurement before purging	36.08	Feet (SWL taken 7/8/20)
Static water level measurement at time of sampling	36.08	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/9/20 Water Column: 22.68 Feet

Time Purged: 1050 - 1147 One Casing Volume: 3.70 Gallons

Pump Rate: 0.20 (GPM) / LPM Volume Purged: 11.4 Gallons

Field Sampling Data

Date Sampled: 7/9/20

Time Sampled: 1155

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: ROS

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 6.5 (mg/l)

Spec. Cond.: 510 (µmhos/cm) Turbidity: 0.7 (NTU)

Temp.: 11.0 (°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: 73°F, Cloudy, NE 5MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1109	7.6	520	11.0	6.8	NA	151	3.8
1128	7.5	520	11.0	6.6	NA	150	7.6
1147	7.5	510	11.0	6.5	NA	149	11.4
				ROS 7/9/20			

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 Jacobson Date: 7/9/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

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
Well depth	42.12	Feet
Static water level measurement before purging	36.20	Feet
Static water level measurement at time of sampling	36.20	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/8/20 Water Column: 5.92 Feet

Time Purged: 1508-1532 One Casing Volume: 0.96 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 2.88 Gallons

Field Sampling Data

Date Sampled: 7/8/20

Time Sampled: 1540

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RGS

Field Parameter Measurements of Sample

pH: 7.4 (units) D.O: 8.9 (mg/l)

Spec. Cond.: 350 (µmhos/cm) Turbidity: 0.9 (NTU)

Temp.: 12.0 (°C) Eh: 151 (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: 87°F, Sunny, SE 15 MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1516	7.4	350	12.0	9.1	NA	152	0.96
1524	7.4	350	12.0	9.0	NA	151	1.92
1532	7.4	350	12.0	8.9	NA	151	2.88
				RGS 7/8/20			

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 Jacobson Date: 7/8/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

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
Well depth	49.16	Feet
Static water level measurement before purging	38.58	Feet (X) SWL taken 7/8/20
Static water level measurement at time of sampling	38.58	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/9/20 Water Column: 10.58 Feet

Time Purged: 0800 - 0836 One Casing Volume: 1.72 Gallons

Pump Rate: 0.15 (GPM) / LPM Volume Purged: 5.4 Gallons

Field Sampling Data

Date Sampled: 7/9/20

Time Sampled: 0845

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RCS

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 9.6 (mg/l)

Spec. Cond.: 560 (µmhos/cm) Turbidity: 1.6 (NTU)

Temp.: 11.0 (°C) Eh: 139 (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: 70°F, Cloudy, Ø wind

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0812	7.1	560	11.0	10.1	NA	134	1.80
0824	7.2	560	11.0	9.8	NA	137	3.6
0836	7.2	560	11.0	9.6	NA	139	5.4
				RCS 7/9/20			

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 Jacobson Date: 7/9/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

Monitoring Point ID: P-173 Labeled: 844707

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
Well depth	80.30	Feet
Static water level measurement before purging	70.71	Feet
Static water level measurement at time of sampling	70.71	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/8/20 Water Column: 9.59 Feet

Time Purged: 1005 - 1044 One Casing Volume: 1.56 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 7/8/20

Time Sampled: 1055

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RGS

Field Parameter Measurements of Sample

pH: 7.3 (units) D.O: 8.5 (mg/l)

Spec. Cond.: 480 (µmhos/cm) Turbidity: 1.6 (NTU)

Temp.: 12.0 (°C) Eh: 124 (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: 67F, Cloudy, E@7MPH

Sample Description: clear no odor

Observations: @ collected Rinse @ 1000H 7/8/20 - RGS

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1018	7.2	480	12.0	8.4	NA	127	1.56
1031	7.3	480	12.0	8.5	NA	125	3.12
1044	7.3	480	12.0	8.5	NA	124	4.68
						RGS 7/8/20	

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobsen Date: 7/8/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

Monitoring Point ID: P-174 Labeled: 844706

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
Well depth	82.27	Feet
Static water level measurement before purging	73.32	Feet
Static water level measurement at time of sampling	73.32	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/8/20 Water Column: 8.95 Feet

Time Purged: 1105 - 1144 One Casing Volume: 1.46 Gallons

Pump Rate: 0.12 (GPM / LPM) Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 7/8/20

Time Sampled: 1155

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RJS

Field Parameter Measurements of Sample

pH: 7.1 (units) D.O: 8.6 (mg/l)

Spec. Cond.: 6600 (µmhos/cm) Turbidity: 1.2 (NTU)

Temp.: 13.0 (°C) Eh: 145 (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: 71°F, cloudy, E@12MPH

Sample Description: clear no odor

Observations: *Duplicated - 1155 7/8/20 RJS

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1114	7.1	6600	13.0	8.5	NA	144	1.56
1131	7.1	6600	13.0	8.6	NA	145	3.12
1144	7.1	6600	13.0	8.6	NA	145	4.68
				RJS 7/8/20			

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 Jacobson Date: 7/8/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco BAP2 Baseline #7 Project No. 20-03512

Monitoring Point ID P-175 Labeled 844705

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
Well depth	84.11	Feet
Static water level measurement before purging	75.60	Feet
Static water level measurement at time of sampling	75.60	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-01-20

Date Purged 7/8/20 Water Column 8.51 Feet

Time Purged 1218 - 1254 One Casing Volume 1.39 Gallons

Pump Rate 0.12 (GPM / LPM) Volume Purged 4.32 Gallons

Field Sampling Data

Date Sampled 7/8/20

Time Sampled 1300

Sampling Equip. Pump

Meter ID MPS-7

Analyzed by RGS

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 8.6 (mg/l)

Spec. Cond. 440 (µmhos/cm) Turbidity 13.3 (NTU)

Temp. 13.0 (°C) Eh 141 (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: 77°F, Mostly Sunny, SE @ 18MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1230	7.3	440	13.0	8.9	NA	151	1.44
1242	7.4	440	13.0	8.7	NA	145	2.88
1254	7.4	440	13.0	8.6	NA	141	4.32
				8.6 7/8/20			

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 Jacobson Date: 7/8/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco BAP2 Baseline #7 Project No.: 20-03512

Monitoring Point ID: P-176 Labeled: 844703

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	84.18	Feet
Static water level measurement before purging	75.08	Feet
Static water level measurement at time of sampling	75.08	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/8/20 Water Column: 9.10 Feet

Time Purged: 1312-1351 One Casing Volume: 1.48 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 4.68 Gallons

Field Sampling Data

Date Sampled: 7/8/20

Time Sampled: 1400

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RGS

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 8.9 (mg/l) RGS 7/8/20

Spec. Cond.: 840 (µmhos/cm) Turbidity: ~~1.3~~ (1) 1.3 NTU (NTU)

Temp.: 13.0 (°C) Eh: 148 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [ ] No [X] NA

Weather Conditions During Sampling: 82°F, Mostly Sunny, SE @ 16 MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specific Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1325	7.2	830	13.0	9.2	NA	153	1.56
1338	7.2	840	13.0	9.0	NA	150	3.12
1351	7.2	840	13.0	8.9	NA	148	4.68
				RGS 7/8/20			

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 7/8/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: Sherco BAP2 Baseline #7 | Project No.: 20-03512

Monitoring Point ID: P-177 | Labeled: 844704

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
Well depth	46.53	Feet
Static water level measurement before purging	38.15	Feet (SWL taken 7/8/20)
Static water level measurement at time of sampling	38.15	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump | Pump ID: BPC-01-20

Date Purged: 7/9/20 | Water Column: 8.38 Feet

Time Purged: 0855-0931 | One Casing Volume: 1.37 Gallons

Pump Rate: 0.12 (GPM) / LPM | Volume Purged: 4.32 Gallons

Field Sampling Data

Date Sampled: 7/9/20

Time Sampled: 0940

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RCS

Field Parameter Measurements of Sample

pH: 7.4 (units) | D.O: 7.3 (mg/l)

Spec. Cond.: 400 (µmhos/cm) | Turbidity: 0.4 (NTU)

Temp.: 11.5 (°C) | Eh: 128 (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: 71°F, Cloudy, SE @ 3MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0907	7.4	400	11.5	7.8	NA	107	1.44
0919	7.4	400	11.5	7.5	NA	113	2.88
0931	7.4	400	11.5	7.3	NA	128	4.32
				RCS 7/9/20			

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 Jacobson Date: 7/9/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco BAP2 Baseline #7 Project No. 20-03512

Monitoring Point ID P-178A Labeled 844708

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
Well depth	47.41	Feet
Static water level measurement before purging	38.42	Feet (SWL taken 7/8/20)
Static water level measurement at time of sampling	38.42	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-01-20

Date Purged 7/9/20 Water Column 8.99 Feet

Time Purged 0952-1031 One Casing Volume 1.47 Gallons

Pump Rate 0.12 (GPM) / LPM Volume Purged 4.68 Gallons

Field Sampling Data

Date Sampled 7/9/20

Time Sampled 1040

Sampling Equip. Pump

Meter ID MPS-7

Analyzed by RDJ

Field Parameter Measurements of Sample

pH 7.5 (units) D.O 7.0 (mg/l)

Spec. Cond. 490 (µmhos/cm) Turbidity 0.5 (NTU)

Temp. 11.0 (°C) Eh 147 (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: 71°F, Cloudy, SE@4MPH

Sample Description: clear water

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1005	7.5	490	11.5	7.0	NA	144	1.56
1018	7.5	490	11.0	7.0	NA	146	3.12
1031	7.5	490	11.0	7.0	NA	147	4.68
			RDJ 7/9/20				

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 Jacobson Date: 7/9/20

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

24 July 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 07/09/2020 13:12. If you have any questions concerning this report, please feel free to contact me.

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

Sincerely,

Steve Davis

Project Manager

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFG0153-01	Water	07/09/2020 11:55	07/09/2020 13:12
P-152A		MFG0153-02	Water	07/08/2020 15:40	07/09/2020 13:12
P-158		MFG0153-03	Water	07/09/2020 8:45	07/09/2020 13:12
P-173		MFG0153-04	Water	07/08/2020 10:55	07/09/2020 13:12
P-174		MFG0153-05	Water	07/08/2020 11:55	07/09/2020 13:12
P-175		MFG0153-06	Water	07/08/2020 13:00	07/09/2020 13:12
P-176		MFG0153-07	Water	07/08/2020 14:00	07/09/2020 13:12
P-177		MFG0153-08	Water	07/09/2020 9:40	07/09/2020 13:12
P-178A		MFG0153-09	Water	07/09/2020 10:40	07/09/2020 13:12
Duplicate		MFG0153-10	Water	07/08/2020 11:55	07/09/2020 13:12
Rinse		MFG0153-11	Water	07/08/2020 10:00	07/09/2020 13:12

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-17

MFG0153-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	20.5	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:34	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:34	EPA 300.0	CRL
Sulfate	23.1	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:34	EPA 300.0	CRL
Wet Chemistry										
pH	7.82		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 6:58	SM 4500-H+ B	CRL
Total Dissolved Solids	274	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.530	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Barium	39.2	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Chromium	0.906	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:19	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:22	EPA 200.7	HRD
Calcium	73.0	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:21	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:21	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-17

MFG0153-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:02	EPA 245.1/7470A	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-152A

MFG0153-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:55	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:55	EPA 300.0	CRL
Sulfate	7.16	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 12:55	EPA 300.0	CRL
Wet Chemistry										
pH	7.82		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:02	SM 4500-H+ B	CRL
Total Dissolved Solids	188	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Barium	34.8	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Chromium	0.660	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:23	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0510	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:28	EPA 200.7	HRD
Calcium	53.9	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:26	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:26	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-152A

MFG0153-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:08	EPA 245.1/7470A	HRD

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

Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-158

MFG0153-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.36	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 14:57	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 14:57	EPA 300.0	CRL
Sulfate	74.6	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 14:57	EPA 300.0	CRL
Wet Chemistry										
pH	7.67		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:05	SM 4500-H+ B	CRL
Total Dissolved Solids	354	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.567	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Barium	55.8	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Chromium	0.961	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Selenium	1.98	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:35	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.393	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:44	EPA 200.7	HRD
Calcium	83.7	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:42	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:42	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:10	EPA 245.1/7470A	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	6.15	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:17	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:17	EPA 300.0	CRL
Sulfate	25.3	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:17	EPA 300.0	CRL
Wet Chemistry										
pH	7.72		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:09	SM 4500-H+ B	CRL
Total Dissolved Solids	274	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Barium	48.7	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Chromium	0.721	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Molybdenum	4.55	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Selenium	1.09	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:39	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.142	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:48	EPA 200.7	HRD
Calcium	70.6	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:47	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:47	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-173

MFG0153-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:11	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.04	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:38	EPA 300.0	CRL
Sulfate	22.9	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:38	EPA 300.0	CRL
Wet Chemistry										
pH	7.46		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:13	SM 4500-H+ B	CRL
Total Dissolved Solids	376	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Barium	71.0	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Chromium	1.04	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Molybdenum	1.72	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Selenium	2.19	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:43	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.190	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:54	EPA 200.7	HRD
Calcium	101	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:52	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:52	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:13	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.41	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:58	EPA 300.0	CRL
Sulfate	13.1	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 15:58	EPA 300.0	CRL
Wet Chemistry										
pH	7.73		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:16	SM 4500-H+ B	CRL
Total Dissolved Solids	256	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	11.2	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Barium	57.7	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Chromium	1.77	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Selenium	0.815	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:47	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.133	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:59	EPA 200.7	HRD
Calcium	72.8	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:57	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 12:57	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-175

MFG0153-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:15	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	9.12	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:19	EPA 300.0	CRL
Sulfate	152	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:19	EPA 300.0	CRL
Wet Chemistry										
pH	7.50		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:20	SM 4500-H+ B	CRL
Total Dissolved Solids	550	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Barium	123	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Cobalt	0.563	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Chromium	1.29	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Selenium	7.74	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:51	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.849	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:04	EPA 200.7	HRD
Calcium	122	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:02	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:02	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-176

MFG0153-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:17	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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MFG0153-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.36	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:39	EPA 300.0	CRL
Sulfate	18.5	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:39	EPA 300.0	CRL
Wet Chemistry										
pH	7.79		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:23	SM 4500-H+ B	CRL
Total Dissolved Solids	226	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Barium	43.7	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Chromium	0.601	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Molybdenum	2.22	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Selenium	1.12	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:55	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0735	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:09	EPA 200.7	HRD
Calcium	58.0	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:08	EPA 200.7	HRD

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1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-177

MFG0153-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:18	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-178A

MFG0153-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.29	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:59	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:59	EPA 300.0	CRL
Sulfate	61.2	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 16:59	EPA 300.0	CRL
Wet Chemistry										
pH	7.87		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:27	SM 4500-H+ B	CRL
Total Dissolved Solids	292	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.884	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Barium	42.6	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Chromium	0.975	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Molybdenum	0.816	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Selenium	2.64	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 8:59	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.329	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:14	EPA 200.7	HRD
Calcium	44.9	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:13	EPA 200.7	HRD
Lithium	0.0171	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:13	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

P-178A

MFG0153-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:20	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Duplicate

MFG0153-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.05	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:20	EPA 300.0	CRL
Sulfate	23.3	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:20	EPA 300.0	CRL
Wet Chemistry										
pH	7.46		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:34	SM 4500-H+ B	CRL
Total Dissolved Solids	398	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Barium	70.9	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Chromium	1.07	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Molybdenum	1.66	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Selenium	2.25	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:03	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.184	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:19	EPA 200.7	HRD
Calcium	99.5	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:18	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:18	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Duplicate

MFG0153-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:22	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Rinse

MFG0153-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:40	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:40	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFG0185	7/10/20 6:35	7/10/20 17:40	EPA 300.0	CRL
Wet Chemistry										
pH	6.07		pH Units	M_TTT	1	BFG0184	7/10/20 6:33	7/10/20 7:37	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFG0183	7/10/20 8:49	7/10/20 8:49	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFG0182	7/10/20 7:04	7/10/20 7:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFG0203	7/13/20 8:03	7/15/20 9:06	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:25	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:24	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFG0202	7/13/20 7:58	7/15/20 13:24	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Rinse

MFG0153-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFG0410	7/21/20 9:20	7/21/20 14:23	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0185 - Wet Prep										
Blank (BFG0185-BLK1)				Prepared & Analyzed: 07/10/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFG0185-BLK2)				Prepared & Analyzed: 07/10/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFG0185-BS1)				Prepared & Analyzed: 07/10/2020						
Chloride	24.920	1.00	mg/L	24.938		99.9	90-110			
Fluoride	2.4140	0.750	mg/L	2.4938		96.8	90-110			
Sulfate	47.995	1.00	mg/L	49.876		96.2	90-110			
LCS (BFG0185-BS2)				Prepared & Analyzed: 07/10/2020						
Chloride	24.373	1.00	mg/L	24.938		97.7	90-110			
Fluoride	2.5060	0.750	mg/L	2.4938		100	90-110			
Sulfate	46.511	1.00	mg/L	49.876		93.3	90-110			
LCS (BFG0185-BS3)				Prepared & Analyzed: 07/10/2020						
Chloride	24.217	1.00	mg/L	24.938		97.1	90-110			
Fluoride	2.3720	0.750	mg/L	2.4938		95.1	90-110			
Sulfate	46.198	1.00	mg/L	49.876		92.6	90-110			
Duplicate (BFG0185-DUP1)		**Source: MFG0045-01**		Prepared & Analyzed: 07/10/2020						
Chloride	10.508	1.00	mg/L		10.611			0.975	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	9.3140	1.00	mg/L		9.3630			0.525	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0185 - Wet Prep										
Duplicate (BFG0185-DUP2)		**Source: MFG0153-02**		Prepared & Analyzed: 07/10/2020						
Chloride	0.66900	1.00	mg/L		0.66900			0.00	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.1610	1.00	mg/L		7.1560			0.0698	20	
Matrix Spike (BFG0185-MS1)		**Source: MFG0045-01**		Prepared & Analyzed: 07/10/2020						
Chloride	41.264	1.25	mg/L	31.173	10.611	98.3	90-110			
Fluoride	2.3875	0.938	mg/L	3.1173	<0.938	76.6	90-110			M_MS
Sulfate	68.403	1.25	mg/L	62.345	9.3630	94.7	90-110			
Matrix Spike (BFG0185-MS2)		**Source: MFG0153-02**		Prepared & Analyzed: 07/10/2020						
Chloride	31.045	1.25	mg/L	31.173	0.66900	97.4	90-110			
Fluoride	3.0738	0.938	mg/L	3.1173	<0.938	98.6	90-110			
Sulfate	65.809	1.25	mg/L	62.345	7.1560	94.1	90-110			
Matrix Spike Dup (BFG0185-MSD1)		**Source: MFG0045-01**		Prepared & Analyzed: 07/10/2020						
Chloride	41.740	1.25	mg/L	31.173	10.611	99.9	90-110	1.15	20	
Fluoride	3.2600	0.938	mg/L	3.1173	<0.938	105	90-110	30.9	20	M_MS
Sulfate	69.373	1.25	mg/L	62.345	9.3630	96.3	90-110	1.41	20	
Matrix Spike Dup (BFG0185-MSD2)		**Source: MFG0153-02**		Prepared & Analyzed: 07/10/2020						
Chloride	31.093	1.25	mg/L	31.173	0.66900	97.6	90-110	0.153	20	
Fluoride	3.1700	0.938	mg/L	3.1173	<0.938	102	90-110	3.08	20	
Sulfate	66.080	1.25	mg/L	62.345	7.1560	94.5	90-110	0.411	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0182 - Wet Prep										
Blank (BFG0182-BLK1)				Prepared & Analyzed: 07/10/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFG0182-BS1)				Prepared & Analyzed: 07/10/2020						
Total Suspended Solids	95.000	4.00	mg/L	100.40		94.6	70-130			
Duplicate (BFG0182-DUP1)		**Source: MFG0153-01**		Prepared & Analyzed: 07/10/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFG0182-DUP2)		**Source: MFG0153-02**		Prepared & Analyzed: 07/10/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Batch BFG0183 - Wet Prep										
Blank (BFG0183-BLK1)				Prepared & Analyzed: 07/10/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							
LCS (BFG0183-BS1)				Prepared & Analyzed: 07/10/2020						
Total Dissolved Solids	38.000	20.0	mg/L	50.800		74.8	70-130			
Duplicate (BFG0183-DUP1)		**Source: MFG0153-01**		Prepared & Analyzed: 07/10/2020						
Total Dissolved Solids	286.00	20.0	mg/L		274.00			4.29	20	
Duplicate (BFG0183-DUP2)		**Source: MFG0153-02**		Prepared & Analyzed: 07/10/2020						
Total Dissolved Solids	160.00	20.0	mg/L		188.00			16.1	20	
Batch BFG0184 - Wet Prep										
LCS (BFG0184-BS1)				Prepared & Analyzed: 07/10/2020						
pH	3.9600		pH Units	4.0000		99.0	90-110			

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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0184 - Wet Prep										
LCS (BFG0184-BS2)				Prepared & Analyzed: 07/10/2020						
pH	3.9800		pH Units	4.0000		99.5	90-110			
Duplicate (BFG0184-DUP1)		**Source: MFG0153-01**		Prepared & Analyzed: 07/10/2020						
pH	7.7900		pH Units		7.8200			0.384	20	
Duplicate (BFG0184-DUP2)		**Source: MFG0153-10**		Prepared & Analyzed: 07/10/2020						
pH	7.4600		pH Units		7.4600			0.00	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0203 - EPA 200.2, EPA 3005										
Blank (BFG0203-BLK1)				Prepared: 07/13/2020 Analyzed: 07/15/2020						
Lead	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Barium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
LCS (BFG0203-BS1)				Prepared: 07/13/2020 Analyzed: 07/15/2020						
Thallium	99.769	0.500	ug/L	100.00		99.8	85-115			
Cadmium	100.65	0.100	ug/L	100.00		101	85-115			
Molybdenum	102.02	0.500	ug/L	100.00		102	85-115			
Beryllium	102.36	0.500	ug/L	100.00		102	85-115			
Selenium	99.030	0.500	ug/L	100.00		99.0	85-115			
Cobalt	103.56	0.500	ug/L	100.00		104	85-115			
Lead	101.68	0.500	ug/L	100.00		102	85-115			
Antimony	98.708	0.500	ug/L	100.00		98.7	85-115			
Arsenic	103.61	0.500	ug/L	100.00		104	85-115			
Barium	101.13	0.500	ug/L	100.00		101	85-115			
Chromium	103.36	0.500	ug/L	100.00		103	85-115			
Duplicate (BFG0203-DUP1)		**Source: MFG0153-03**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Antimony	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		0.071473				20	
Chromium	1.0520	0.500	ug/L		0.96054			9.09	20	
Thallium	0.041500	0.500	ug/L		<0.500				20	
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	0.020141	0.500	ug/L		<0.500				20	
Barium	57.002	0.500	ug/L		55.815			2.10	20	
Arsenic	0.51972	0.500	ug/L		0.56700			8.70	20	
Molybdenum	0.18466	0.500	ug/L		0.14092			26.9	20	M_D-RL
Selenium	1.8712	0.500	ug/L		1.9828			5.79	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0203 - EPA 200.2, EPA 3005										
Duplicate (BFG0203-DUP2)		**Source: MFG0153-04**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Barium	50.187	0.500	ug/L		48.696			3.02	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.70824	0.500	ug/L		0.72072			1.75	20	
Cobalt	0.12760	0.500	ug/L		0.14123			10.1	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.27337	0.500	ug/L		0.33552			20.4	20	M_D-RL
Molybdenum	4.8186	0.500	ug/L		4.5542			5.64	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Selenium	1.0987	0.500	ug/L		1.0922			0.590	20	
Matrix Spike (BFG0203-MS1)		**Source: MFG0153-03**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Cobalt	102.73	0.500	ug/L	100.00	<0.500	103	75-125			
Cadmium	99.716	0.100	ug/L	100.00	<0.100	99.7	75-125			
Barium	153.43	0.500	ug/L	100.00	55.815	97.6	75-125			
Lead	91.080	0.500	ug/L	100.00	0.071473	91.0	75-125			
Thallium	93.437	0.500	ug/L	100.00	<0.500	93.4	75-125			
Selenium	102.82	0.500	ug/L	100.00	1.9828	101	75-125			
Beryllium	102.04	0.500	ug/L	100.00	<0.500	102	75-125			
Arsenic	105.09	0.500	ug/L	100.00	0.56700	105	75-125			
Molybdenum	101.76	0.500	ug/L	100.00	0.14092	102	75-125			
Antimony	95.761	0.500	ug/L	100.00	<0.500	95.8	75-125			
Chromium	104.51	0.500	ug/L	100.00	0.96054	104	75-125			
Matrix Spike (BFG0203-MS2)		**Source: MFG0153-04**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Molybdenum	112.04	0.500	ug/L	100.00	4.5542	107	75-125			
Beryllium	102.54	0.500	ug/L	100.00	<0.500	103	75-125			
Barium	154.34	0.500	ug/L	100.00	48.696	106	75-125			
Chromium	116.89	0.500	ug/L	100.00	0.72072	116	75-125			
Cadmium	115.62	0.100	ug/L	100.00	<0.100	116	75-125			
Arsenic	106.67	0.500	ug/L	100.00	0.33552	106	75-125			
Cobalt	114.41	0.500	ug/L	100.00	0.14123	114	75-125			
Lead	94.067	0.500	ug/L	100.00	<0.500	94.1	75-125			
Antimony	101.30	0.500	ug/L	100.00	<0.500	101	75-125			
Selenium	103.93	0.500	ug/L	100.00	1.0922	103	75-125			
Thallium	97.247	0.500	ug/L	100.00	<0.500	97.2	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0203 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFG0203-MSD1)		**Source: MFG0153-03**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Lead	94.176	0.500	ug/L	100.00	0.071473	94.1	75-125	3.34	20	
Antimony	100.30	0.500	ug/L	100.00	<0.500	100	75-125	4.63	20	
Chromium	104.15	0.500	ug/L	100.00	0.96054	103	75-125	0.348	20	
Selenium	103.87	0.500	ug/L	100.00	1.9828	102	75-125	1.02	20	
Cobalt	102.32	0.500	ug/L	100.00	<0.500	102	75-125	0.405	20	
Arsenic	106.92	0.500	ug/L	100.00	0.56700	106	75-125	1.72	20	
Thallium	96.409	0.500	ug/L	100.00	<0.500	96.4	75-125	3.13	20	
Cadmium	99.484	0.100	ug/L	100.00	<0.100	99.5	75-125	0.233	20	
Molybdenum	104.33	0.500	ug/L	100.00	0.14092	104	75-125	2.50	20	
Barium	156.69	0.500	ug/L	100.00	55.815	101	75-125	2.10	20	
Beryllium	98.015	0.500	ug/L	100.00	<0.500	98.0	75-125	4.03	20	
Matrix Spike Dup (BFG0203-MSD2)		**Source: MFG0153-04**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Cadmium	100.05	0.100	ug/L	100.00	<0.100	100	75-125	14.4	20	
Arsenic	106.23	0.500	ug/L	100.00	0.33552	106	75-125	0.416	20	
Chromium	103.73	0.500	ug/L	100.00	0.72072	103	75-125	11.9	20	
Barium	153.26	0.500	ug/L	100.00	48.696	105	75-125	0.703	20	
Cobalt	102.59	0.500	ug/L	100.00	0.14123	102	75-125	10.9	20	
Beryllium	100.90	0.500	ug/L	100.00	<0.500	101	75-125	1.60	20	
Molybdenum	110.33	0.500	ug/L	100.00	4.5542	106	75-125	1.54	20	
Lead	95.992	0.500	ug/L	100.00	<0.500	96.0	75-125	2.03	20	
Antimony	100.62	0.500	ug/L	100.00	<0.500	101	75-125	0.675	20	
Selenium	102.94	0.500	ug/L	100.00	1.0922	102	75-125	0.956	20	
Thallium	98.621	0.500	ug/L	100.00	<0.500	98.6	75-125	1.40	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0202 - EPA 200.2, EPA 3005										
Blank (BFG0202-BLK1)				Prepared: 07/13/2020 Analyzed: 07/15/2020						
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.25	1.25	mg/L							
Boron	<0.0500	0.0500	mg/L							
LCS (BFG0202-BS1)				Prepared: 07/13/2020 Analyzed: 07/15/2020						
Boron	1.0083	0.0500	mg/L	1.0000		101	85-115			
Lithium	1.0507	0.0150	mg/L	1.0000		105	85-115			
Calcium	108.74	1.25	mg/L	100.00		109	85-115			
Duplicate (BFG0202-DUP1)		**Source: MFG0153-01**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Calcium	73.033	1.25	mg/L		72.960			0.0990	20	
Boron	0.028876	0.0500	mg/L		0.029487			2.09	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Duplicate (BFG0202-DUP2)		**Source: MFG0153-02**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Boron	0.051768	0.0500	mg/L		0.051011			1.47	20	
Calcium	53.662	1.25	mg/L		53.880			0.405	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Matrix Spike (BFG0202-MS1)		**Source: MFG0153-01**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Calcium	181.37	1.25	mg/L	100.00	72.960	108	70-130			
Lithium	1.0335	0.0150	mg/L	1.0000	<0.0150	103	70-130			
Boron	1.0428	0.0500	mg/L	1.0000	0.029487	101	70-130			
Matrix Spike (BFG0202-MS2)		**Source: MFG0153-02**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Lithium	1.0093	0.0150	mg/L	1.0000	<0.0150	101	70-130			
Calcium	158.27	1.25	mg/L	100.00	53.880	104	70-130			
Boron	1.0361	0.0500	mg/L	1.0000	0.051011	98.5	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0202 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFG0202-MSD1)		**Source: MFG0153-01**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Boron	1.0601	0.0500	mg/L	1.0000	0.029487	103	70-130	1.64	20	
Calcium	185.19	1.25	mg/L	100.00	72.960	112	70-130	2.08	20	
Lithium	1.0539	0.0150	mg/L	1.0000	<0.0150	105	70-130	1.95	20	
Matrix Spike Dup (BFG0202-MSD2)		**Source: MFG0153-02**		Prepared: 07/13/2020 Analyzed: 07/15/2020						
Lithium	1.0487	0.0150	mg/L	1.0000	<0.0150	105	70-130	3.83	20	
Calcium	164.65	1.25	mg/L	100.00	53.880	111	70-130	3.96	20	
Boron	1.0801	0.0500	mg/L	1.0000	0.051011	103	70-130	4.16	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0410 - EPA 245.1, EPA 7470A										
Blank (BFG0410-BLK1)				Prepared & Analyzed: 07/21/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFG0410-BS1)				Prepared & Analyzed: 07/21/2020						
Mercury	2.7687	0.200	ug/L	3.0030		92.2	85-115			
Duplicate (BFG0410-DUP1)		**Source: MFG0153-05**		Prepared & Analyzed: 07/21/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFG0410-DUP2)		**Source: MFG0153-06**		Prepared & Analyzed: 07/21/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFG0410-MS1)		**Source: MFG0153-05**		Prepared & Analyzed: 07/21/2020						
Mercury	2.7464	0.200	ug/L	3.0030	<0.200	91.5	70-130			
Matrix Spike (BFG0410-MS2)		**Source: MFG0153-06**		Prepared & Analyzed: 07/21/2020						
Mercury	2.8358	0.200	ug/L	3.0030	<0.200	94.4	70-130			
Matrix Spike Dup (BFG0410-MSD1)		**Source: MFG0153-05**		Prepared & Analyzed: 07/21/2020						
Mercury	2.7707	0.200	ug/L	3.0030	<0.200	92.3	70-130	0.881	20	
Matrix Spike Dup (BFG0410-MSD2)		**Source: MFG0153-06**		Prepared & Analyzed: 07/21/2020						
Mercury	2.7874	0.200	ug/L	3.0030	<0.200	92.8	70-130	1.72	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	07/24/2020 07:09

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_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

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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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	~~Dave Anderson~~
Purchase Order No.:	
Project Number	20-03512
Project Name:	Xcel Sherco BAP-2 Event 7

Section C Invoice Information:

Attention:	Steve Davis
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Chris Pelosi
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER / DW; WATER / WT; WASTE WATER / WW; PRODUCT / P; SOIL/SOLID / SL; OIL / OL; WP; AIR / AR; OT; TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N) Requested Analysis: GW-CCR	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			7/9/20	1155		2	1		1						X		
2	P-152A	WT	G			7/8/20	1540		2	1		1						X		
3	P-158	WT	G			7/9/20	0845		2	1		1						X		
4	P-173	WT	G			7/8/20	1055		2	1		1						X		
5	P-174	WT	G			7/8/20	1155		2	1		1						X		
6	P-175	WT	G			7/8/20	1300		2	1		1						X		
7	P-176	WT	G			7/8/20	1400		2	1		1						X		
8	P-177	WT	G			7/9/20	0940		2	1		1						X		
9	P-178A	WT	G			7/9/20	1040		2	1		1						X		
10	DUPLICATE (P-174)	WT	G			7/8/20	1155		2	1		1						X		
11	RINSE	WT	G			7/8/20	1000		2	1		1						X		
12																				

RSI 7/9/20

Additional Comments:

Unfiltered HNO3 Bottles

pH Strips: MD00102

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobsen Pace	7/9/20	1312	Xcel	7/9/20	1312

SAMPLE CONDITIONS

M4084 2.3 J	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobsen

SIGNATURE of SAMPLER: Riley Jacobsen

DATE Signed (MM / DD / YY): 7/9/20

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 12, 2020

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

RE: Project: 20-03512-Revised Report
Pace Project No.: 30372154

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 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 July 27, 2020 report. This project was revised on July 12, 2020 to add the Total Radium Sum Calculation. (Greensburg, PA)

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

Sincerely,

Carin A. Ferris

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

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 20-03512-Revised Report
Pace Project No.: 30372154

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

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SAMPLE SUMMARY

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30372154001	**P-17**	Water	07/09/20 11:55	07/13/20 09:40
30372154002	**P-152A**	Water	07/08/20 15:40	07/13/20 09:40
30372154003	**P-158**	Water	07/09/20 08:45	07/13/20 09:40
30372154004	**P-173**	Water	07/08/20 10:55	07/13/20 09:40
30372154005	**P-174**	Water	07/08/20 11:55	07/13/20 09:40
30372154006	**P-175**	Water	07/08/20 13:00	07/13/20 09:40
30372154007	**P-176**	Water	07/08/20 14:00	07/13/20 09:40
30372154008	**P-177**	Water	07/09/20 09:40	07/13/20 09:40
30372154009	**P-178A**	Water	07/09/20 10:40	07/13/20 09:40
30372154010	**DUPLICATE**	Water	07/08/20 11:55	07/13/20 09:40
30372154011	**RINSE**	Water	07/08/20 10:00	07/13/20 09:40

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SAMPLE ANALYTE COUNT

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30372154001	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154003	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154004	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154005	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154006	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154008	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154009	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154010	**DUPLICATE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30372154011	**RINSE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: August 12, 2020

General Information:
11 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: 20-03512-Revised Report
Pace Project No.: 30372154

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: August 12, 2020

General Information:
11 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: 20-03512-Revised Report
Pace Project No.: 30372154

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: August 12, 2020

General Information:
11 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: 20-03512-Revised Report
Pace Project No.: 30372154

Sample: P-17 **Lab ID: 30372154001** Collected: 07/09/20 11:55 Received: 07/13/20 09:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.000 ± 0.414 (0.843) C:NA T:85%**	pCi/L	07/24/20 16:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.467 ± 0.400 (0.807) C:81% T:80%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.467 ± 0.814 (1.65)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-152A **Lab ID: 30372154002** Collected: 07/08/20 15:40 Received: 07/13/20 09:40 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	**0.163 ± 0.372 (0.600) C:NA T:88%**	pCi/L	07/24/20 16:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0186 ± 0.382 (0.882) C:80% T:77%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.182 ± 0.754 (1.48)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-158 **Lab ID: 30372154003** Collected: 07/09/20 08:45 Received: 07/13/20 09:40 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	**-0.0749 ± 0.342 (0.551) C:NA T:94%**	pCi/L	07/24/20 16:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.184 ± 0.399 (0.882) C:80% T:82%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.184 ± 0.741 (1.43)**	pCi/L	08/11/20 13:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Sample: P-173 **Lab ID: 30372154004** Collected: 07/08/20 10:55 Received: 07/13/20 09:40 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	**0.205 ± 0.493 (0.952) C:NA T:87%**	pCi/L	07/24/20 16:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.476 ± 0.396 (0.795) C:80% T:82%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.681 ± 0.889 (1.75)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-174 **Lab ID: 30372154005** Collected: 07/08/20 11:55 Received: 07/13/20 09:40 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	**0.410 ± 0.624 (1.07) C:NA T:89%**	pCi/L	07/24/20 16:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.437 ± 0.443 (0.925) C:84% T:88%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.847 ± 1.07 (2.00)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-175 **Lab ID: 30372154006** Collected: 07/08/20 13:00 Received: 07/13/20 09:40 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	**0.254 ± 0.441 (0.787) C:NA T:98%**	pCi/L	07/24/20 17:09	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.00989 ± 0.342 (0.794) C:81% T:90%**	pCi/L	07/24/20 14:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.264 ± 0.783 (1.58)**	pCi/L	08/11/20 13:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Sample: P-176 **Lab ID: 30372154007** Collected: 07/08/20 14:00 Received: 07/13/20 09:40 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	**0.319 ± 0.366 (0.216) C:NA T:94%**	pCi/L	07/24/20 17:09	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.0110 ± 0.373 (0.864) C:78% T:81%**	pCi/L	07/24/20 14:27	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.330 ± 0.739 (1.08)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-177 **Lab ID: 30372154008** Collected: 07/09/20 09:40 Received: 07/13/20 09:40 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	**0.372 ± 0.388 (0.548) C:NA T:94%**	pCi/L	07/24/20 17:09	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.614 ± 0.386 (0.727) C:78% T:91%**	pCi/L	07/24/20 14:27	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.986 ± 0.774 (1.28)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: P-178A **Lab ID: 30372154009** Collected: 07/09/20 10:40 Received: 07/13/20 09:40 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	**0.264 ± 0.403 (0.648) C:NA T:86%**	pCi/L	07/24/20 17:09	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.492 ± 0.446 (0.909) C:77% T:77%**	pCi/L	07/24/20 14:28	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.756 ± 0.849 (1.56)**	pCi/L	08/11/20 13:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 20-03512-Revised Report
Pace Project No.: 30372154

Sample: DUPLICATE **Lab ID: 30372154010** Collected: 07/08/20 11:55 Received: 07/13/20 09:40 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	**0.304 ± 0.349 (0.206) C:NA T:94%**	pCi/L	07/24/20 17:09	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0789 ± 0.323 (0.736) C:77% T:87%**	pCi/L	07/24/20 14:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.383 ± 0.672 (0.942)**	pCi/L	08/11/20 13:13	7440-14-4	

Sample: RINSE **Lab ID: 30372154011** Collected: 07/08/20 10:00 Received: 07/13/20 09:40 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	**0.0925 ± 0.422 (0.859) C:NA T:87%**	pCi/L	07/24/20 17:33	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.448 ± 0.445 (0.922) C:82% T:76%**	pCi/L	07/24/20 14:28	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.541 ± 0.867 (1.78)**	pCi/L	08/11/20 13:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 20-03512-Revised Report
Pace Project No.: 30372154

QC Batch: 405285 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: 30372154001, 30372154002, 30372154003, 30372154004, 30372154005, 30372154006, 30372154007, 30372154008, 30372154009, 30372154010, 30372154011

METHOD BLANK: 1961145 Matrix: Water
Associated Lab Samples: 30372154001, 30372154002, 30372154003, 30372154004, 30372154005, 30372154006, 30372154007, 30372154008, 30372154009, 30372154010, 30372154011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.371 ± 0.342 (0.693) C:82% T:83%	pCi/L	07/24/20 14:28	

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: 20-03512-Revised Report
Pace Project No.: 30372154

QC Batch: 405268 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: 30372154001, 30372154002, 30372154003, 30372154004, 30372154005, 30372154006, 30372154007, 30372154008, 30372154009, 30372154010, 30372154011

METHOD BLANK: 1961104 Matrix: Water
Associated Lab Samples: 30372154001, 30372154002, 30372154003, 30372154004, 30372154005, 30372154006, 30372154007, 30372154008, 30372154009, 30372154010, 30372154011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.144 ± 0.328 (0.773) C:NA T:81%	pCi/L	07/24/20 16:56	

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QUALIFIERS

Project: 20-03512-Revised Report
Pace Project No.: 30372154

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.

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WO# : 30372154

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytica

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant

30372154

Section A Required Client Information:

Company:	Xcel Energy
Address:	c/o Pace MN Field
	RADIUM
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	~~Dave Anderson~~ Riley Jacobson
Purchase Order No.:	
Project Number	20-03512
Project Name:	Xcel Sherco BAP-2 Event 7

Section C Invoice Information:

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

REGULATORY AGENCY: ☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER_MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			7/9/20	1155		2			2							X	X		001
2	P-152A	WT	G			7/8/20	1540		2			2							X	X		002
3	P-158	WT	G			7/9/20	0845		2			2							X	X		003
4	P-173	WT	G			7/8/20	1055		2			2							X	X		004
5	P-174	WT	G			7/8/20	1155		2			2							X	X		005
6	P-175	WT	G			7/8/20	1300		2			2							X	X		006
7	P-176	WT	G			7/9/20	1400		2			2							X	X		007
8	P-177	WT	G			7/9/20	0940		2			2							X	X		008
9	P-178A	WT	G			7/9/20	1040		2			2							X	X		009
10	DUPLICATE	WT	G			7/8/20	1155		2			2							X	X		010
11	RINSE	WT	G			7/8/20	1000		2			2							X	X		011
12				RLS 7/9/20																		

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	7/9/20	1350	[illegible] UPS	7/13/20	940

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
NA	Y/N	N/A	Y/N
	Y/N	N/A	Y/N
	Y/N	N/A	Y/N
	Y/N	N/A	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 7/9/20

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Pace MN Duluth Services

Project #

30372154

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

Label # 10

LIMS Login 10

Tracking #: 1686 7303 5587

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

pH paper Lot# 10D5191 Date and Initials of person examining contents: MG 7/13/2020

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed MG Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):		✓		17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: MG Date: 7/13/2020

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution: A Cedar 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.

Baseline Monitoring Event #8
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project SHERCO BAP2 Baseline #8 Project No. 20-03577

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
Well depth	58.76	Feet
Static water level measurement before purging	36.53	Feet * Read on 7/29/20
Static water level measurement at time of sampling	36.53	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-01-20

Date Purged 7/30/20 Water Column 22.23 Feet

Time Purged 0825 - 0940 One Casing Volume 3.62 Gallons

Pump Rate 0.15 (GPM / LPM) Volume Purged 11.25 Gallons

Field Sampling Data

Date Sampled 7/30/20

Time Sampled 0945

Sampling Equip. Pump

Meter ID MPS-7

Analyzed by RGS

Field Parameter Measurements of Sample

pH 7.6 (units) D.O 6.6 (mg/l)

Spec. Cond. 530 (µmhos/cm) Turbidity 0.9 (NTU)

Temp. 10.5 (°C) Eh 150 (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: 66°F, sunny, NW, 4MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0850	7.5	540	10.5	6.6	NA	162	3.75
0915	7.6	530	10.5	6.6	NA	156	7.50
0940	7.6	530	10.5	6.6	NA	150	11.25
			RGS				
			7/30/20				

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 Jacobson Date: 7/30/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-035577

Monitoring Point ID: P-152A Labeled: 806318

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	42.18	Feet
Static water level measurement before purging	36.64	Feet
Static water level measurement at time of sampling	36.64	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/29/20 Water Column: 5.54 Feet

Time Purged: 1245 - 1309 One Casing Volume: 0.90 Gallons

Pump Rate: 0.12 (GPM) / LPM Volume Purged: 2.88 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 1315

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RBJ

Field Parameter Measurements of Sample

pH: 7.6 (units) D.O: 8.0 (mg/l)

Spec. Cond.: 3600 (µmhos/cm) Turbidity: 1.2 (NTU)

Temp.: 11.0 (°C) Eh: 1603 (mV)

Other: Appearance = Clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 80°F, Sunny, NE 5MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1253	7.6	370	11.5	8.1	NA	1604	0.96
1301	7.6	360	11.0	8.1	NA	1603	1.92
1309	7.6	3600	11.0	8.0	NA	1603	2.88

RBJ 7/29/20

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 7/29/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project SHERCO BAP2 Baseline #8 Project No. 20-03577

Monitoring Point ID P-158 Labeled 8129e7

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
Well depth	49.16	Feet
Static water level measurement before purging	39.08	Feet * Read on 7/29/20
Static water level measurement at time of sampling	39.00	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-01-20

Date Purged ~~7/2~~ RDS 7/30/20 Water Column 10.16 Feet

Time Purged ~~1350~~ RDS 7/29/20 1040-1107 One Casing Volume 1.66 Gallons

Pump Rate 0.2 (GPM) / LPM Volume Purged 5.4 Gallons

Field Sampling Data

Date Sampled 7/30/20

Time Sampled 1115

Sampling Equip. Pump

Meter ID MPS-7

Analyzed by RDS

Field Parameter Measurements of Sample

pH 7.4 (units) D.O 7.8 (mg/l)

Spec. Cond. 610 (µmhos/cm) Turbidity 1.6 (NTU)

Temp. 11.0 (°C) Eh 165 (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: 75°F, Sunny, NW 5 MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1049	7.4	620	11.0	7.7	NM	171	1.8
1058	7.4	620	11.0	7.8	NA	168	3.6
1107	7.4	610	11.0	7.8	NA	165	5.4
				RDS			
				7/30/20			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobsen Date: 7/30/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy | Project: SHERCO BAP2 Baseline #8 | Project No.: 20-03577

Monitoring Point ID: P-173 | Labeled: 844707

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
Well depth	80.30	Feet
Static water level measurement before purging	71.15	Feet
Static water level measurement at time of sampling	71.15	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump | Pump ID: BPC-01-20

Date Purged: 7/29/20 | Water Column: 8.98 Feet

Time Purged: 0840 - 0910 | One Casing Volume: 1.46 Gallons

Pump Rate: 0.15 (GPM) / LPM | Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 0915

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RDS

Field Parameter Measurements of Sample

pH	7.2 (units)	D.O	7.6 (mg/l)
Spec. Cond.	480 (µmhos/cm)	Turbidity	1.9 (NTU)
Temp.	11.5 (°C)	Eh	141 (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: 70F, Sunny, Ø wind

Sample Description: clear no oder

Observations: * Field RINSE Collected @ 0835H 7/29/20 - RDS

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0850	7.2	490	11.5	7.3	NA	150	1.5
0800	7.2	480	11.5	7.5	NA	145	3.0
0910	7.2	480	11.5	7.6	NA	141	4.5
				RDS 7/29/20			

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 Jacobson Date: 7/29/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-03577

Monitoring Point ID: P-174 Labeled: 844706

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
Well depth	82.27	Feet
Static water level measurement before purging	73.72	Feet
Static water level measurement at time of sampling	73.72	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/29/20 Water Column: 8.55 Feet

Time Purged: 0930-1000 One Casing Volume: 1.39 Gallons

Pump Rate: 0.15 (GPM) / LPM Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 1005

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RBJ

Field Parameter Measurements of Sample

pH: 7.1 (units) D.O: 7.3 (mg/l)

Spec. Cond.: 700 (µmhos/cm) Turbidity: 0.16 (NTU)

Temp.: 12.0 (°C) Eh: 158 (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: 74F, Sunny, N@3MPH

Sample Description: clear no oder

Observations: *Duplicate Collected @ this well

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0940	7.2	710	12.0	7.5	NA	158	1.5
0950	7.1	700	12.0	7.4	NA	158	3.0
1000	7.1	700	12.0	7.3	NA	158	4.5
			RBJ				
			7/29/20				

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 Jacobson Date: 7/29/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-03577

Monitoring Point ID: P-175 Labeled: 844705

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	84.11	Feet
Static water level measurement before purging	76.09	Feet
Static water level measurement at time of sampling	76.09	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/29/20 Water Column: 8.02 Feet

Time Purged: 1035 - 1108 One Casing Volume: 1.31 Gallons

Pump Rate: 0.12 (GPM / LPM) Volume Purged: 3.96 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 1115

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RGJ

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 6.5 (mg/l)

Spec. Cond.: 450 (µmhos/cm) Turbidity: 2.0 (NTU)

Temp.: 14.0 (°C) Eh: 158 (mV)

Other: Appearance = Clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 76°F, Sunny, NW@6MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1046	7.5	450	14.0	6.5	NA	157	1.32
1057	7.5	450	14.0	6.5	NA	158	2.64
1108	7.5	450	14.0	6.5	NA	158	3.96
				RGJ			
				7/29/20			

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 7/29/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-03577

Monitoring Point ID: P-17d Labeled: 844703

Inside Diameter: 2 (inches) Key #: 210d [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	84.18	Feet
Static water level measurement before purging	75.59	Feet
Static water level measurement at time of sampling	75.59	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/29/20 Water Column: 8.59 Feet

Time Purged: 1135-1205 One Casing Volume: 1.40 Gallons

Pump Rate: 0.15 (GPM / LPM) Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 1210

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RDJ

Field Parameter Measurements of Sample

pH: 7.2 (units) D.O: 6.6 (mg/l)

Spec. Cond.: 850 (µmhos/cm) Turbidity: 0.9 (NTU)

Temp.: 12.5 (°C) Eh: 165 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 76°F, Sunny, NW 6 MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1145	7.3	860	13.0	6.7	NA	164	1.5
1155	7.2	850	12.5	6.6	NA	165	3.0
1205	7.2	850	12.5	6.6	NA	165	4.5
			RDJ 7/29/20				

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 7/29/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-035577

Monitoring Point ID: P-177 Labeled: 844704

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
Well depth	46.53	Feet
Static water level measurement before purging	38.57	Feet * Read on 7/29/20
Static water level measurement at time of sampling	38.57	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/30/20 Water Column: 7.96 Feet

Time Purged: 0955-1022 One Casing Volume: 1.30 Gallons

Pump Rate: 0.15 (GPM) / LPM Volume Purged: 4.05 Gallons

Field Sampling Data

Date Sampled: 7/30/20

Time Sampled: 1030

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RDS

Field Parameter Measurements of Sample

pH: 7.5 (units) D.O: 7.4 (mg/l)

Spec. Cond.: 390 (µmhos/cm) Turbidity: 1.2 (NTU)

Temp.: 11.0 (°C) Eh: 159 (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: 72°F, Sunny, NE 7MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1004	7.5	399 400	11.5	7.5	NA	158	1.35
1013	7.5	390	11.0	7.4	NA	158	2.70
1022	7.5	390	11.0	7.4	NA	159	4.05
			RDS 7/30/20				

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 Jacobson Date: 7/30/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: SHERCO BAP2 Baseline #8 Project No.: 20-035577

Monitoring Point ID: P-178A Labeled: 844708

Inside Diameter: 2 (inches) Key #: 2106 [X] Locked [ ] Not Locked

Casing Material: [X] PVC [ ] Steel [ ] Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	47.41	Feet
Static water level measurement before purging	38.82	Feet
Static water level measurement at time of sampling	38.82	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-01-20

Date Purged: 7/29/20 Water Column: 8.55 Feet

Time Purged: 1350-1420 One Casing Volume: 1.39 Gallons

Pump Rate: 0.15 (GPM) / LPM Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 7/29/20

Time Sampled: 1425

Sampling Equip.: Pump

Meter ID: MPS-7

Analyzed by: RDS

Field Parameter Measurements of Sample

pH: 7.7 (units) D.O: ~~6.7~~ (mg/l)

Spec. Cond.: 470 (µmhos/cm) Turbidity: 1.4 (NTU)

Temp.: 11.5 (°C) Eh: 150 (mV)

Other: Appearance = clear

Field Measurements Temp. Corrected: [X] Yes [ ] No [ ] NA

Sample for Soluble Metals Filtered in Field: [ ] Yes [X] No [ ] NA

Weather Conditions During Sampling: 80°F, Sunny, NE 5MPH

Sample Description: clear no odor

Observations: none

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1400	7.6	470	11.5	6.9	NA	156	1.5
1410	7.7	470	11.5	6.8	NA	153	3.0
1420	7.7	470	11.5	6.7	NA	150	4.5
			RDS 7/29/20				

Samples chilled immediately after collection: [X] Yes [ ] Other

Form Revised: 09/27/2017

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

Lead Technician Signature: Riley Jacobson Date: 7/29/20

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

11 August 2020

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco BAP2 CCR Monitoring

Enclosed are the results of analyses for samples received by the laboratory on 07/30/2020 12:50. 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,

Christopher R Lewis For Steve Davis

Project Manager

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-17		MFG0451-01	Water	07/30/2020 9:45	07/30/2020 12:50
P-152A		MFG0451-02	Water	07/29/2020 13:15	07/30/2020 12:50
P-158		MFG0451-03	Water	07/30/2020 11:15	07/30/2020 12:50
P-173		MFG0451-04	Water	07/29/2020 9:15	07/30/2020 12:50
P-174		MFG0451-05	Water	07/29/2020 10:05	07/30/2020 12:50
P-175		MFG0451-06	Water	07/29/2020 11:15	07/30/2020 12:50
P-176		MFG0451-07	Water	07/29/2020 12:10	07/30/2020 12:50
P-177		MFG0451-08	Water	07/30/2020 10:30	07/30/2020 12:50
P-178A		MFG0451-09	Water	07/29/2020 14:25	07/30/2020 12:50
Duplicate		MFG0451-10	Water	07/29/2020 10:05	07/30/2020 12:50
Rinse		MFG0451-11	Water	07/29/2020 8:35	07/30/2020 12:50

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-17

MFG0451-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	19.6	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:01	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:01	EPA 300.0	CRL
Sulfate	22.8	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:01	EPA 300.0	CRL
Wet Chemistry										
pH	7.78		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 8:47	SM 4500-H+ B	CRL
Total Dissolved Solids	286	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.534	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Barium	38.1	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Chromium	0.849	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Selenium	0.618	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:14	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:29	EPA 200.7	HRD
Calcium	70.1	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:27	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:27	EPA 200.7	HRD

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-17

MFG0451-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 15:56	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-152A

MFG0451-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:22	EPA 300.0	CRL
Sulfate	7.08	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:22	EPA 300.0	CRL
Wet Chemistry										
pH	7.79		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 8:51	SM 4500-H+ B	CRL
Total Dissolved Solids	192	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Barium	34.2	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Chromium	0.717	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:18	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0551	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:34	EPA 200.7	HRD
Calcium	52.0	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:32	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:32	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-152A

MFG0451-02 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 15:57	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-158

MFG0451-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	4.79	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:42	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:42	EPA 300.0	CRL
Sulfate	93.3	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 16:42	EPA 300.0	CRL
Wet Chemistry										
pH	7.65		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 8:54	SM 4500-H+ B	CRL
Total Dissolved Solids	360	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.533	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Barium	58.4	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Chromium	1.30	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Selenium	2.37	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:30	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.430	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:49	EPA 200.7	HRD
Calcium	86.9	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:48	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:48	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-158

MFG0451-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 15:59	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-173

MFG0451-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	6.03	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:03	EPA 300.0	CRL
Sulfate	24.1	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:03	EPA 300.0	CRL
Wet Chemistry										
pH	7.70		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 8:58	SM 4500-H+ B	CRL
Total Dissolved Solids	268	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Barium	46.3	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Chromium	0.851	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Molybdenum	3.01	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Selenium	1.14	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:34	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.139	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:54	EPA 200.7	HRD
Calcium	66.0	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:53	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:53	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-173

MFG0451-04 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 16:01	EPA 245.1/7470A	HRD

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-174

MFG0451-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.06	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:23	EPA 300.0	CRL
Sulfate	28.6	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:23	EPA 300.0	CRL
Wet Chemistry										
pH	7.41		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:01	SM 4500-H+ B	CRL
Total Dissolved Solids	390	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Barium	73.0	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Chromium	1.07	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Molybdenum	1.55	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Selenium	2.19	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:38	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.201	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:59	EPA 200.7	HRD
Calcium	100	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:58	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 13:58	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-174

MFG0451-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 16:02	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-175

MFG0451-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.51	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:43	EPA 300.0	CRL
Sulfate	12.2	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 17:43	EPA 300.0	CRL
Wet Chemistry										
pH	7.69		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:05	SM 4500-H+ B	CRL
Total Dissolved Solids	240	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	7.60	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Barium	56.3	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Chromium	1.27	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Selenium	1.05	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:42	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.143	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:05	EPA 200.7	HRD
Calcium	69.1	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:03	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:03	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-175

MFG0451-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 16:04	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-176

MFG0451-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	8.77	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:04	EPA 300.0	CRL
Sulfate	151	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:04	EPA 300.0	CRL
Wet Chemistry										
pH	7.48		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:09	SM 4500-H+ B	CRL
Total Dissolved Solids	530	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.515	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Barium	127	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Cobalt	0.518	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Chromium	1.45	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Selenium	8.70	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:46	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.980	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:09	EPA 200.7	HRD
Calcium	121	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:08	EPA 200.7	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-176

MFG0451-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0155	8/10/20 9:36	8/10/20 16:09	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

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MFG0451-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.00	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:24	EPA 300.0	CRL
Sulfate	13.6	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:24	EPA 300.0	CRL
Wet Chemistry										
pH	7.78		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:12	SM 4500-H+ B	CRL
Total Dissolved Solids	204	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Barium	40.9	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Chromium	0.747	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Molybdenum	1.85	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Selenium	1.27	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:49	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0693	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:15	EPA 200.7	HRD
Calcium	55.0	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:13	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:13	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-177

MFG0451-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0156	8/10/20 9:38	8/10/20 16:19	EPA 245.1/7470A	HRD

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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-178A

MFG0451-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.95	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:45	EPA 300.0	CRL
Sulfate	36.8	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 18:45	EPA 300.0	CRL
Wet Chemistry										
pH	7.87		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:16	SM 4500-H+ B	CRL
Total Dissolved Solids	256	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.888	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Barium	38.5	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Chromium	0.928	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Molybdenum	0.871	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Selenium	1.58	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:53	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.296	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:20	EPA 200.7	HRD
Calcium	38.2	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:18	EPA 200.7	HRD
Lithium	0.0175	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:18	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

P-178A

MFG0451-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0156	8/10/20 9:38	8/10/20 16:21	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Duplicate

MFG0451-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.04	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 19:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 19:05	EPA 300.0	CRL
Sulfate	28.2	1.00	mg/L		1	BFH0003	8/3/20 7:17	8/3/20 19:05	EPA 300.0	CRL
Wet Chemistry										
pH	7.44		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:23	SM 4500-H+ B	CRL
Total Dissolved Solids	380	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Barium	73.2	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Chromium	1.14	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Molybdenum	1.61	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Selenium	2.21	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 9:57	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.227	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:25	EPA 200.7	HRD
Calcium	100	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:23	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:24	EPA 200.7	HRD

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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Duplicate

MFG0451-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0156	8/10/20 9:38	8/10/20 16:23	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Rinse

MFG0451-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFH0023	8/3/20 10:56	8/4/20 10:35	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFH0023	8/3/20 10:56	8/4/20 10:35	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFH0023	8/3/20 10:56	8/4/20 10:35	EPA 300.0	CRL
Wet Chemistry										
pH	6.03		pH Units	M_TTT	1	BFG0667	7/31/20 8:31	7/31/20 9:26	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BFH0002	8/3/20 9:04	8/3/20 9:04	SM 2540C	HSD
Total Suspended Solids	< 4.00	4.00	mg/L		1	BFH0001	8/3/20 7:28	8/3/20 7:28	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BFH0013	8/3/20 8:45	8/4/20 10:01	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:31	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:29	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BFH0012	8/3/20 8:44	8/6/20 14:29	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Rinse

MFG0451-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BFH0156	8/10/20 9:38	8/10/20 16:25	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0003 - Wet Prep										
Blank (BFH0003-BLK1)				Prepared & Analyzed: 08/03/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BFH0003-BLK2)				Prepared & Analyzed: 08/03/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BFH0003-BS1)				Prepared & Analyzed: 08/03/2020						
Chloride	24.992	1.00	mg/L	24.938		100	90-110			
Fluoride	2.8140	0.750	mg/L	2.4938		113	90-110			M_LCS-H
Sulfate	48.415	1.00	mg/L	49.876		97.1	90-110			
LCS (BFH0003-BS2)				Prepared & Analyzed: 08/03/2020						
Chloride	24.334	1.00	mg/L	24.938		97.6	90-110			
Fluoride	2.6640	0.750	mg/L	2.4938		107	90-110			
Sulfate	46.822	1.00	mg/L	49.876		93.9	90-110			
LCS (BFH0003-BS3)				Prepared & Analyzed: 08/03/2020						
Chloride	24.150	1.00	mg/L	24.938		96.8	90-110			
Fluoride	2.5910	0.750	mg/L	2.4938		104	90-110			
Sulfate	46.439	1.00	mg/L	49.876		93.1	90-110			
Duplicate (BFH0003-DUP1)		**Source: MFG0451-01**		Prepared & Analyzed: 08/03/2020						
Chloride	19.425	1.00	mg/L		19.576			0.774	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	22.667	1.00	mg/L		22.816			0.655	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0003 - Wet Prep										
Duplicate (BFH0003-DUP2)		**Source: MFG0451-02**		Prepared & Analyzed: 08/03/2020						
Chloride	0.62400	1.00	mg/L		0.65100			4.24	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	7.0020	1.00	mg/L		7.0800			1.11	20	
Matrix Spike (BFH0003-MS1)		**Source: MFG0451-01**		Prepared & Analyzed: 08/03/2020						
Chloride	49.404	1.25	mg/L	31.173	19.576	95.7	90-110			
Fluoride	2.4300	0.938	mg/L	3.1173	<0.938	78.0	90-110			M_MS
Sulfate	80.119	1.25	mg/L	62.345	22.816	91.9	90-110			
Matrix Spike (BFH0003-MS2)		**Source: MFG0451-02**		Prepared & Analyzed: 08/03/2020						
Chloride	31.279	1.25	mg/L	31.173	0.65100	98.3	90-110			
Fluoride	3.1013	0.938	mg/L	3.1173	<0.938	99.5	90-110			
Sulfate	66.196	1.25	mg/L	62.345	7.0800	94.8	90-110			
Matrix Spike Dup (BFH0003-MSD1)		**Source: MFG0451-01**		Prepared & Analyzed: 08/03/2020						
Chloride	50.281	1.25	mg/L	31.173	19.576	98.5	90-110	1.76	20	
Fluoride	3.4300	0.938	mg/L	3.1173	<0.938	110	90-110	34.1	20	M_MS
Sulfate	81.825	1.25	mg/L	62.345	22.816	94.6	90-110	2.11	20	
Matrix Spike Dup (BFH0003-MSD2)		**Source: MFG0451-02**		Prepared & Analyzed: 08/03/2020						
Chloride	31.299	1.25	mg/L	31.173	0.65100	98.3	90-110	0.0639	20	
Fluoride	3.3800	0.938	mg/L	3.1173	<0.938	108	90-110	8.60	20	
Sulfate	66.481	1.25	mg/L	62.345	7.0800	95.3	90-110	0.430	20	
Batch BFH0023 - Wet Prep										
Blank (BFH0023-BLK1)				Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0023 - Wet Prep										
LCS (BFH0023-BS1)				Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	24.605	1.00	mg/L	24.938		98.7	90-110			
Fluoride	2.4380	0.750	mg/L	2.4938		97.8	90-110			
Sulfate	47.541	1.00	mg/L	49.876		95.3	90-110			
LCS (BFH0023-BS2)				Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	23.663	1.00	mg/L	24.938		94.9	90-110			
Fluoride	2.4750	0.750	mg/L	2.4938		99.2	90-110			
Sulfate	45.562	1.00	mg/L	49.876		91.4	90-110			
Duplicate (BFH0023-DUP1)		**Source: MFH0001-05**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	2.8800	1.00	mg/L		2.8630			0.592	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	4.6870	1.00	mg/L		4.6870			0.00	20	
Matrix Spike (BFH0023-MS1)		**Source: MFH0001-05**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	32.559	1.25	mg/L	31.173	2.8630	95.3	90-110			
Fluoride	3.0625	0.938	mg/L	3.1173	<0.938	98.2	90-110			
Sulfate	62.061	1.25	mg/L	62.345	4.6870	92.0	90-110			
Matrix Spike Dup (BFH0023-MSD1)		**Source: MFH0001-05**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chloride	32.531	1.25	mg/L	31.173	2.8630	95.2	90-110	0.0845	20	
Fluoride	3.0988	0.938	mg/L	3.1173	<0.938	99.4	90-110	1.18	20	
Sulfate	61.853	1.25	mg/L	62.345	4.6870	91.7	90-110	0.337	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFG0667 - Wet Prep										
LCS (BFG0667-BS1)				Prepared & Analyzed: 07/31/2020						
pH	3.9600		pH Units	4.0000		99.0	90-110			
LCS (BFG0667-BS2)				Prepared & Analyzed: 07/31/2020						
pH	4.0000		pH Units	4.0000		100	90-110			
Duplicate (BFG0667-DUP1)		**Source: MFG0451-01**		Prepared & Analyzed: 07/31/2020						
pH	7.7200		pH Units		7.7800			0.774	20	
Duplicate (BFG0667-DUP2)		**Source: MFG0451-10**		Prepared & Analyzed: 07/31/2020						
pH	7.4500		pH Units		7.4400			0.134	20	
Batch BFH0001 - Wet Prep										
Blank (BFH0001-BLK1)				Prepared & Analyzed: 08/03/2020						
Total Suspended Solids	<4.00	4.00	mg/L							
LCS (BFH0001-BS1)				Prepared & Analyzed: 08/03/2020						
Total Suspended Solids	90.000	4.00	mg/L	100.40		89.6	70-130			
Duplicate (BFH0001-DUP1)		**Source: MFG0451-01**		Prepared & Analyzed: 08/03/2020						
Total Suspended Solids	<4.00	4.00	mg/L		<4.00				20	
Duplicate (BFH0001-DUP2)		**Source: MFG0451-02**		Prepared & Analyzed: 08/03/2020						
Total Suspended Solids	0.80000	4.00	mg/L		0.80000			0.00	20	
Batch BFH0002 - Wet Prep										
Blank (BFH0002-BLK1)				Prepared & Analyzed: 08/03/2020						
Total Dissolved Solids	<20.0	20.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0002 - Wet Prep										
LCS (BFH0002-BS1)				Prepared & Analyzed: 08/03/2020						
Total Dissolved Solids	38.000	20.0	mg/L	50.200		75.7	70-130			
Duplicate (BFH0002-DUP1)		**Source: MFG0451-01**		Prepared & Analyzed: 08/03/2020						
Total Dissolved Solids	286.00	20.0	mg/L		286.00			0.00	20	
Duplicate (BFH0002-DUP2)		**Source: MFG0451-02**		Prepared & Analyzed: 08/03/2020						
Total Dissolved Solids	202.00	20.0	mg/L		192.00			5.08	20	

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250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0013 - EPA 200.2, EPA 3005										
Blank (BFH0013-BLK1)				Prepared: 08/03/2020 Analyzed: 08/04/2020						
Barium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Selenium	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
LCS (BFH0013-BS1)				Prepared: 08/03/2020 Analyzed: 08/04/2020						
Molybdenum	97.395	0.500	ug/L	100.00		97.4	85-115			
Chromium	98.647	0.500	ug/L	100.00		98.6	85-115			
Barium	98.693	0.500	ug/L	100.00		98.7	85-115			
Antimony	99.713	0.500	ug/L	100.00		99.7	85-115			
Selenium	102.19	0.500	ug/L	100.00		102	85-115			
Cobalt	102.61	0.500	ug/L	100.00		103	85-115			
Thallium	97.303	0.500	ug/L	100.00		97.3	85-115			
Lead	95.997	0.500	ug/L	100.00		96.0	85-115			
Beryllium	102.18	0.500	ug/L	100.00		102	85-115			
Arsenic	99.205	0.500	ug/L	100.00		99.2	85-115			
Cadmium	98.546	0.100	ug/L	100.00		98.5	85-115			
Duplicate (BFH0013-DUP1)		**Source: MFG0451-03**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Antimony	<0.500	0.500	ug/L		<0.500				20	
Selenium	2.2980	0.500	ug/L		2.3741			3.26	20	
Thallium	0.039976	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.21488	0.500	ug/L		0.49191			78.4	20	M_D-RL
Chromium	0.95546	0.500	ug/L		1.2958			30.2	20	M_D
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.49841	0.500	ug/L		0.53342			6.79	20	
Barium	58.562	0.500	ug/L		58.422			0.240	20	
Beryllium	0.022569	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0013 - EPA 200.2, EPA 3005										
Duplicate (BFH0013-DUP2)		**Source: MFG0451-04**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Cobalt	0.12373	0.500	ug/L		0.12081			2.39	20	
Molybdenum	3.1151	0.500	ug/L		3.0139			3.30	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.81518	0.500	ug/L		0.85090			4.29	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.39623	0.500	ug/L		0.35045			12.3	20	
Barium	48.078	0.500	ug/L		46.334			3.69	20	
Selenium	1.1509	0.500	ug/L		1.1401			0.938	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		0.043861				20	
Matrix Spike (BFH0013-MS1)		**Source: MFG0451-03**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Selenium	108.15	0.500	ug/L	100.00	2.3741	106	75-125			
Antimony	101.47	0.500	ug/L	100.00	<0.500	101	75-125			
Cobalt	104.35	0.500	ug/L	100.00	<0.500	104	75-125			
Lead	93.066	0.500	ug/L	100.00	<0.500	93.1	75-125			
Chromium	104.45	0.500	ug/L	100.00	1.2958	103	75-125			
Molybdenum	99.535	0.500	ug/L	100.00	0.49191	99.0	75-125			
Barium	159.85	0.500	ug/L	100.00	58.422	101	75-125			
Beryllium	102.66	0.500	ug/L	100.00	<0.500	103	75-125			
Thallium	97.047	0.500	ug/L	100.00	<0.500	97.0	75-125			
Cadmium	100.77	0.100	ug/L	100.00	<0.100	101	75-125			
Arsenic	106.72	0.500	ug/L	100.00	0.53342	106	75-125			
Matrix Spike (BFH0013-MS2)		**Source: MFG0451-04**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Chromium	101.95	0.500	ug/L	100.00	0.85090	101	75-125			
Antimony	101.02	0.500	ug/L	100.00	<0.500	101	75-125			
Beryllium	101.31	0.500	ug/L	100.00	<0.500	101	75-125			
Molybdenum	101.78	0.500	ug/L	100.00	3.0139	98.8	75-125			
Arsenic	103.80	0.500	ug/L	100.00	0.35045	103	75-125			
Selenium	105.68	0.500	ug/L	100.00	1.1401	105	75-125			
Cadmium	99.070	0.100	ug/L	100.00	<0.100	99.1	75-125			
Thallium	95.456	0.500	ug/L	100.00	<0.500	95.5	75-125			
Cobalt	103.61	0.500	ug/L	100.00	0.12081	103	75-125			
Barium	147.19	0.500	ug/L	100.00	46.334	101	75-125			
Lead	92.266	0.500	ug/L	100.00	0.043861	92.2	75-125			

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0013 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFH0013-MSD1)		**Source: MFG0451-03**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Arsenic	107.54	0.500	ug/L	100.00	0.53342	107	75-125	0.769	20	
Chromium	107.66	0.500	ug/L	100.00	1.2958	106	75-125	3.03	20	
Barium	161.41	0.500	ug/L	100.00	58.422	103	75-125	0.971	20	
Lead	92.984	0.500	ug/L	100.00	<0.500	93.0	75-125	0.0877	20	
Cobalt	106.22	0.500	ug/L	100.00	<0.500	106	75-125	1.77	20	
Molybdenum	100.07	0.500	ug/L	100.00	0.49191	99.6	75-125	0.536	20	
Cadmium	103.38	0.100	ug/L	100.00	<0.100	103	75-125	2.55	20	
Selenium	108.71	0.500	ug/L	100.00	2.3741	106	75-125	0.514	20	
Thallium	97.159	0.500	ug/L	100.00	<0.500	97.2	75-125	0.116	20	
Beryllium	101.06	0.500	ug/L	100.00	<0.500	101	75-125	1.57	20	
Antimony	102.36	0.500	ug/L	100.00	<0.500	102	75-125	0.875	20	
Matrix Spike Dup (BFH0013-MSD2)		**Source: MFG0451-04**		Prepared: 08/03/2020 Analyzed: 08/04/2020						
Molybdenum	105.21	0.500	ug/L	100.00	3.0139	102	75-125	3.31	20	
Chromium	103.34	0.500	ug/L	100.00	0.85090	102	75-125	1.35	20	
Lead	95.353	0.500	ug/L	100.00	0.043861	95.3	75-125	3.29	20	
Barium	147.84	0.500	ug/L	100.00	46.334	102	75-125	0.441	20	
Cobalt	102.89	0.500	ug/L	100.00	0.12081	103	75-125	0.703	20	
Antimony	102.58	0.500	ug/L	100.00	<0.500	103	75-125	1.53	20	
Selenium	107.54	0.500	ug/L	100.00	1.1401	106	75-125	1.74	20	
Thallium	97.557	0.500	ug/L	100.00	<0.500	97.6	75-125	2.18	20	
Beryllium	103.06	0.500	ug/L	100.00	<0.500	103	75-125	1.70	20	
Arsenic	106.07	0.500	ug/L	100.00	0.35045	106	75-125	2.16	20	
Cadmium	102.81	0.100	ug/L	100.00	<0.100	103	75-125	3.71	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0012 - EPA 200.2, EPA 3005										
Blank (BFH0012-BLK1)				Prepared: 08/03/2020 Analyzed: 08/06/2020						
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.25	1.25	mg/L							
Boron	<0.0500	0.0500	mg/L							
LCS (BFH0012-BS1)				Prepared: 08/03/2020 Analyzed: 08/06/2020						
Boron	1.0257	0.0500	mg/L	1.0000		103	85-115			
Calcium	102.82	1.25	mg/L	100.00		103	85-115			
Lithium	1.0071	0.0150	mg/L	1.0000		101	85-115			
Duplicate (BFH0012-DUP1)		**Source: MFG0451-01**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Calcium	70.168	1.25	mg/L		70.104			0.0913	20	
Boron	0.032866	0.0500	mg/L		0.035079			6.51	20	
Duplicate (BFH0012-DUP2)		**Source: MFG0451-02**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Boron	0.054306	0.0500	mg/L		0.055074			1.40	20	
Calcium	52.213	1.25	mg/L		52.039			0.333	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Matrix Spike (BFH0012-MS1)		**Source: MFG0451-01**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Calcium	176.06	1.25	mg/L	100.00	70.104	106	70-130			
Lithium	1.0095	0.0150	mg/L	1.0000	<0.0150	101	70-130			
Boron	1.0646	0.0500	mg/L	1.0000	0.035079	103	70-130			
Matrix Spike (BFH0012-MS2)		**Source: MFG0451-02**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Calcium	157.88	1.25	mg/L	100.00	52.039	106	70-130			
Boron	1.0886	0.0500	mg/L	1.0000	0.055074	103	70-130			
Lithium	1.0158	0.0150	mg/L	1.0000	<0.0150	102	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0012 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BFH0012-MSD1)		**Source: MFG0451-01**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Lithium	1.0105	0.0150	mg/L	1.0000	<0.0150	101	70-130	0.106	20	
Calcium	175.92	1.25	mg/L	100.00	70.104	106	70-130	0.0796	20	
Boron	1.0788	0.0500	mg/L	1.0000	0.035079	104	70-130	1.32	20	
Matrix Spike Dup (BFH0012-MSD2)		**Source: MFG0451-02**		Prepared: 08/03/2020 Analyzed: 08/06/2020						
Lithium	1.0193	0.0150	mg/L	1.0000	<0.0150	102	70-130	0.349	20	
Calcium	158.51	1.25	mg/L	100.00	52.039	106	70-130	0.393	20	
Boron	1.1066	0.0500	mg/L	1.0000	0.055074	105	70-130	1.64	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0155 - EPA 245.1, EPA 7470A										
Blank (BFH0155-BLK1)				Prepared & Analyzed: 08/10/2020						
Mercury	<0.200	0.200	ug/L							
LCS (BFH0155-BS1)				Prepared & Analyzed: 08/10/2020						
Mercury	2.9586	0.200	ug/L	3.0030		98.5	85-115			
Duplicate (BFH0155-DUP1)		**Source: MFG0273-08**		Prepared & Analyzed: 08/10/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BFH0155-DUP2)		**Source: MFG0273-09**		Prepared & Analyzed: 08/10/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFH0155-MS1)		**Source: MFG0273-08**		Prepared & Analyzed: 08/10/2020						
Mercury	2.9895	0.200	ug/L	3.0030	<0.200	99.6	70-130			
Matrix Spike (BFH0155-MS2)		**Source: MFG0273-09**		Prepared & Analyzed: 08/10/2020						
Mercury	2.6810	0.200	ug/L	3.0030	<0.200	89.3	70-130			
Matrix Spike Dup (BFH0155-MSD1)		**Source: MFG0273-08**		Prepared & Analyzed: 08/10/2020						
Mercury	2.7012	0.200	ug/L	3.0030	<0.200	90.0	70-130	10.1	20	
Matrix Spike Dup (BFH0155-MSD2)		**Source: MFG0273-09**		Prepared & Analyzed: 08/10/2020						
Mercury	2.9866	0.200	ug/L	3.0030	<0.200	99.5	70-130	10.8	20	
Batch BFH0156 - EPA 245.1, EPA 7470A										
Blank (BFH0156-BLK1)				Prepared & Analyzed: 08/10/2020						
Mercury	<0.200	0.200	ug/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFH0156 - EPA 245.1, EPA 7470A										
LCS (BFH0156-BS1)				Prepared & Analyzed: 08/10/2020						
Mercury	2.7596	0.200	ug/L	3.0030		91.9	85-115			
Duplicate (BFH0156-DUP1)		**Source: MFG0451-08**		Prepared & Analyzed: 08/10/2020						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BFH0156-MS1)		**Source: MFG0451-08**		Prepared & Analyzed: 08/10/2020						
Mercury	2.8176	0.200	ug/L	3.0030	<0.200	93.8	70-130			
Matrix Spike Dup (BFH0156-MSD1)		**Source: MFG0451-08**		Prepared & Analyzed: 08/10/2020						
Mercury	2.6297	0.200	ug/L	3.0030	<0.200	87.6	70-130	6.90	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP2 CCR Monitoring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	08/11/2020 10:34

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_LCS-H	The recovery of this analyte in the LCS was above the control limits. The sample result may be biased high.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to<RL.
M_D	The RPD for the sample duplicate was outside of QC acceptance limits possibly due to non-homogeneous matrix.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Dave Anderson
Purchase Order No.:	
Project Number	
Project Name:	Xcel Sherco BAP-2 Event 8

Section C Invoice Information:

Attention:	Steve Davis
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Chris Pelosi
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			7/30/20	0945		2	1		1							X		
2	P-152A	WT	G			7/29/20	1315		2	1		1							X		
3	P-158	WT	G			7/30/20	1115		2	1		1							X		
4	P-173	WT	G			7/29/20	0915		2	1		1							X		
5	P-174	WT	G			7/29/20	1005		2	1		1							X		
6	P-175	WT	G			7/29/20	1115		2	1		1							X		
7	P-176	WT	G			7/29/20	1210		2	1		1							X		
8	P-177	WT	G			7/30/20	1030		2	1		1							X		
9	P-178A	WT	G			7/29/20	1425		2	1		1							X		
10	DUPLICATE (P-174)	WT	G			7/29/20	1005		2	1		1							X		
11	RINSE	WT	G			7/29/20	0835		2	1		1							X		
12																					

ROD 7/30/20

Additional Comments:

Unfiltered HNO3 Bottles

pH Strip : M040102

Temp M400841 : 1.3°C

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	7/30/20	1250	HSD / Xcel	7/30/20	1250

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 7/30/20

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 21, 2020

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

RE: Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on August 03, 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

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

Sincerely,

Carin A. Ferris

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

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

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

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30375447001	**P-17**	Water	07/30/20 09:45	08/03/20 09:10
30375447002	**P-152A**	Water	07/29/20 13:15	08/03/20 09:10
30375447003	**P-158**	Water	07/30/20 11:15	08/03/20 09:10
30375447004	**P-173**	Water	07/29/20 09:15	08/03/20 09:10
30375447005	**P-174**	Water	07/29/20 10:05	08/03/20 09:10
30375447006	**P-175**	Water	07/29/20 11:15	08/03/20 09:10
30375447007	**P-176**	Water	07/29/20 12:10	08/03/20 09:10
30375447008	**P-177**	Water	07/30/20 10:30	08/03/20 09:10
30375447009	**P-178A**	Water	07/29/20 14:25	08/03/20 09:10
30375447010	**DUPLICATE (P-174)**	Water	07/29/20 10:05	08/03/20 09:10
30375447011	**RINSE**	Water	07/29/20 08:35	08/03/20 09:10

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(724)850-5600

SAMPLE ANALYTE COUNT

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30375447001	**P-17**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447002	**P-152A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447003	**P-158**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447004	**P-173**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447005	**P-174**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447006	**P-175**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447007	**P-176**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447008	**P-177**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447009	**P-178A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447010	**DUPLICATE (P-174)**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30375447011	**RINSE**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: August 21, 2020

General Information:
11 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: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: August 21, 2020

General Information:
11 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: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: August 21, 2020

General Information:
11 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: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Sample: P-17 **Lab ID: 30375447001** Collected: 07/30/20 09:45 Received: 08/03/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	**0.000 ± 0.244 (0.548) C:NA T:97%**	pCi/L	08/20/20 11:33	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.865 ± 0.436 (0.761) C:70% T:86%**	pCi/L	08/14/20 12:00	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.865 ± 0.680 (1.31)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-152A **Lab ID: 30375447002** Collected: 07/29/20 13:15 Received: 08/03/20 09:10 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	**-0.236 ± 0.492 (1.07) C:NA T:86%**	pCi/L	08/20/20 11:33	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.345 ± 0.401 (0.844) C:68% T:87%**	pCi/L	08/14/20 12:00	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.345 ± 0.893 (1.91)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-158 **Lab ID: 30375447003** Collected: 07/30/20 11:15 Received: 08/03/20 09:10 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	**0.0558 ± 0.255 (0.518) C:NA T:91%**	pCi/L	08/20/20 11:33	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**-0.0841 ± 0.402 (0.952) C:69% T:82%**	pCi/L	08/14/20 12:00	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.0558 ± 0.657 (1.47)**	pCi/L	08/21/20 10:36	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Sample: P-173 **Lab ID: 30375447004** Collected: 07/29/20 09:15 Received: 08/03/20 09:10 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	**0.396 ± 0.339 (0.459) C:NA T:94%**	pCi/L	08/20/20 11:33	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.285 ± 0.384 (0.821) C:69% T:89%**	pCi/L	08/14/20 12:00	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.681 ± 0.723 (1.28)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-174 **Lab ID: 30375447005** Collected: 07/29/20 10:05 Received: 08/03/20 09:10 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	**0.290 ± 0.356 (0.580) C:NA T:98%**	pCi/L	08/20/20 11:33	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.243 ± 0.387 (0.839) C:73% T:86%**	pCi/L	08/14/20 12:00	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.533 ± 0.743 (1.42)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-175 **Lab ID: 30375447006** Collected: 07/29/20 11:15 Received: 08/03/20 09:10 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	**0.113 ± 0.313 (0.607) C:NA T:90%**	pCi/L	08/20/20 11:46	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.128 ± 0.363 (0.813) C:73% T:84%**	pCi/L	08/14/20 12:01	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.241 ± 0.676 (1.42)**	pCi/L	08/21/20 10:36	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Sample: P-176 **Lab ID: 30375447007** Collected: 07/29/20 12:10 Received: 08/03/20 09:10 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	**0.164 ± 0.322 (0.589) C:NA T:94%**	pCi/L	08/20/20 11:46	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.0666 ± 0.414 (0.942) C:72% T:80%**	pCi/L	08/14/20 12:01	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.231 ± 0.736 (1.53)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-177 **Lab ID: 30375447008** Collected: 07/30/20 10:30 Received: 08/03/20 09:10 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	**0.278 ± 0.394 (0.668) C:NA T:93%**	pCi/L	08/20/20 11:46	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.847 ± 0.455 (0.829) C:72% T:90%**	pCi/L	08/14/20 12:01	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**1.13 ± 0.849 (1.50)**	pCi/L	08/21/20 10:36	7440-14-4	

Sample: P-178A **Lab ID: 30375447009** Collected: 07/29/20 14:25 Received: 08/03/20 09:10 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	**0.0559 ± 0.290 (0.601) C:NA T:91%**	pCi/L	08/20/20 11:46	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	**0.444 ± 0.413 (0.845) C:73% T:81%**	pCi/L	08/14/20 12:01	15262-20-1	
		Pace Analytical Services - Greensburg				
Total Radium	Total Radium Calculation	**0.500 ± 0.703 (1.45)**	pCi/L	08/21/20 10:36	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

Sample: DUPLICATE (P-174) **Lab ID: 30375447010** Collected: 07/29/20 10:05 Received: 08/03/20 09:10 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	**0.117 ± 0.324 (0.629) C:NA T:81%**	pCi/L	08/20/20 11:46	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.522 ± 0.437 (0.885) C:71% T:87%**	pCi/L	08/14/20 12:01	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.639 ± 0.761 (1.51)**	pCi/L	08/21/20 11:25	7440-14-4	

Sample: RINSE **Lab ID: 30375447011** Collected: 07/29/20 08:35 Received: 08/03/20 09:10 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	**0.210 ± 0.327 (0.566) C:NA T:91%**	pCi/L	08/20/20 11:46	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.624 ± 0.392 (0.731) C:73% T:81%**	pCi/L	08/14/20 12:01	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.834 ± 0.719 (1.30)**	pCi/L	08/21/20 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

QC Batch: 408064
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30375447001, 30375447002, 30375447003, 30375447004, 30375447005, 30375447006, 30375447007, 30375447008, 30375447009, 30375447010, 30375447011

METHOD BLANK: 1974432
Matrix: Water
Associated Lab Samples: 30375447001, 30375447002, 30375447003, 30375447004, 30375447005, 30375447006, 30375447007, 30375447008, 30375447009, 30375447010, 30375447011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0875 ± 0.343 (0.657) C:NA T:91%	pCi/L	08/20/20 11:33	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

QC Batch: 408065
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30375447001, 30375447002, 30375447003, 30375447004, 30375447005, 30375447006, 30375447007, 30375447008, 30375447009, 30375447010, 30375447011

METHOD BLANK: 1974434 Matrix: Water
Associated Lab Samples: 30375447001, 30375447002, 30375447003, 30375447004, 30375447005, 30375447006, 30375447007, 30375447008, 30375447009, 30375447010, 30375447011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.127 ± 0.357 (0.801) C:71% T:80%	pCi/L	08/14/20 12:00	

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: Xcel Sherco BAP-2 Event 8
Pace Project No.: 30375447

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.

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CHAIN-OF-CU

The Chain-of-Custody is a

WO# : 30375447

30375447

Page: 1 of 1

Section A Required Client Information:

Company:	Xcel Energy
Address:	c/o Pace MN Field
	RADIUM
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Dave Anderson
Purchase Order No.:	
Project Number	
Project Name:	Xcel Sherco BAP-2 Event 8

Section C Invoice Information:

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

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES
SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-17	WT	G			7/30/20	0945		2			2							X	X		01
2	P-152A	WT	G			7/29/20	1315		2			2							X	X		02
3	P-158	WT	G			7/30/20	1115		2			2							X	X		03
4	P-173	WT	G			7/29/20	0915		2			2							X	X		04
5	P-174	WT	G			7/29/20	1005		2			2							X	X		05
6	P-175	WT	G			7/29/20	1115		2			2							X	X		06
7	P-176	WT	G			7/29/20	1210		2			2							X	X		07
8	P-177	WT	G			7/30/20	1030		2			2							X	X		08
9	P-178A	WT	G			7/29/20	1425		2			2							X	X		09
10	DUPLICATE (P-174)	WT	G			7/29/20	1005		2			2							X	X		10
11	RINSE	WT	G			7/29/20	0835		2			2							X	X		11
12																						

RLS 7/30/20

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	7/30/20	1420		7/30/20	910

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
NA	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM / DD / YY): 7/30/20

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

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: XCEL ENERGY

Project # # 30375447

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

Label

Tracking #: 168673041012

LIMS Login

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 NA °C Correction Factor: 0 NA °C Final Temp: NA °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# 10153911 Date and Initials of person examining contents: VP 8-3-2020
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. PHG2
All containers meet method preservation requirements.	✓			Initial when completed DP Date/time of preservation Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed DP Date: 8-3-2020 910

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Appendix B

November 2020 Detection Monitoring Event
Field Datasheets and Laboratory Reports

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

Monitoring Point ID P-17 Labeled P17

Inside Diameter 2 (inches) Key # 21016 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	58.76	Feet (Top of pump 45.24')
Static water level measurement before purging	37.58	Feet (11/9/2020 11:12 by DK)
Static water level measurement at time of sampling	37.58	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 21.18 Feet

Time Purged 935 – 1029 One Casing Volume 3.45 Gallons

Pump Rate 0.2 (GPM) / LPM Volume Purged 10.8 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 1030

Sampling Equip. Pump

Meter ID MPS-8 TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH	7.5 (units)	D.O	7.4 (mg/l)
Spec. Cond.	470 (µmhos/cm)	Turbidity	4.1 (NTU)
Temp.	8.0 (°C)	Eh	261 (mV)
Other	NA		

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

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

Weather Conditions During Sampling: 32°F partly sunny wind NW@ 6mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc 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
			NA Air 11/10/2020				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

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
Well depth	42.18	Feet } D.K 11/9/20
Static water level measurement before purging	37.93	Feet } D.K 11/9/20
Static water level measurement at time of sampling	37.93	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 11/12/20 Water Column 4.25 Feet

Time Purged 1450-1505 One Casing Volume 0.69 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 2.25 Gallons

Field Sampling Data

Date Sampled 11/12/20

Time Sampled 1510

Sampling Equip. Pump

Meter ID MPS-7

Analyzed by RJJ

Field Parameter Measurements of Sample

pH 7.6 (units) D.O 9.5 (mg/l)

Spec. Cond. 340 (µmhos/cm) Turbidity 1.6 (NTU)

Temp. 9.2 (°C) Eh 194 (mV)

Other NA

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

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

Weather Conditions During Sampling: 26°F, cloudy, NW @ 13MPH

Sample Description: clear no odor

Observations: BAP, BAP2 and P3 DUPLICATES + RINSE all collected @ this well (6 samples) RINSE collected @ 1515

Stabilization Test

Time	pH (units)	Specifc 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

RJJ 11/12/20

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 Jacobson Date: 11/12/20

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

Monitoring Point ID P-158 Labeled 812967

Inside Diameter 2 (inches) Key # 21066 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	49.16	Feet (48.72 to top of pump 11:20 by DK)
Static water level measurement before purging	40.15	Feet (Water row)
Static water level measurement at time of sampling	40.15	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 9.01 Feet

Time Purged 815 - 839 One Casing Volume 1.47 Gallons

Pump Rate 0.2 (GPM) / LPM Volume Purged 4.8 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 840

Sampling Equip. Pump

Meter ID MPS-8 / TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH	7.2 (units)	D.O	9.1 (mg/l)
Spec. Cond.	780 (µmhos/cm)	Turbidity	2.0 (NTU)
Temp.	7.6 (°C)	Eh	243 (mV)
Other	NA		

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

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

Weather Conditions During Sampling: 27°F partly sunny and NW@6 mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc 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

MEM 11/10/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

Monitoring Point ID P-173 Labeled 844707

Inside Diameter 2 (inches) Key # 21016 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation NA Feet

Well depth 80.30 Feet (Top of pump 75.39')

Static water level measurement before purging 72.11 Feet (11/9/2020 by DK 11:36)

Static water level measurement at time of sampling 72.11 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 8.19 Feet

Time Purged 1145 - 1215 One Casing Volume 1.33 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 1220

Sampling Equip. Pump

Meter ID MPS-8 / TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH 8.2 (units) D.O 8.7 (mg/l)

Spec. Cond. 430 (µmhos/cm) Turbidity 1.6 (NTU)

Temp. 7.4 (°C) Eh 248 (mV)

Other NA

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

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

Weather Conditions During Sampling: 32°F overcast and NW @ 6 mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1155	8.2	430	7.4	8.7	NA	249	1.5
1205	8.2	430	7.4	8.7	NA	248	3.0
1215	8.2	430	7.4	8.7	NA	248	4.5

NA CJP 11/10/2020

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

Monitoring Point ID P-174 Labeled 844706

Inside Diameter 2 (inches) Key # 21066 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation NA Feet

Well depth 82.27 Feet (Top of pump @ 77.62')

Static water level measurement before purging 74.68 Feet (11/9/2020 1139 by DK)

Static water level measurement at time of sampling 74.68 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 7.59 Feet

Time Purged 1245 – 1315 One Casing Volume 1.24 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 1320

Sampling Equip. Pump

Meter ID MPS-8

Analyzed by CJP

Field Parameter Measurements of Sample

pH 7.8 (units) D.O 9.2 (mg/l)

Spec. Cond. 560 (µmhos/cm) Turbidity 3.0 (NTU)

Temp. 7.0 (°C) Eh 265 (mV)

Other NA

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

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

Weather Conditions During Sampling: 32°F overcast wind NW @ 6 mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1255	7.8	560	7.0	9.3	NA	267	1.5
1305	7.8	560	7.0	9.3	NA	265	3.0
1315	7.8	560	7.0	9.2	NA	265	4.5

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco Ponds, Fall 2020 Project No.: 20-03972

Monitoring Point ID: P-175 Labeled: 844705

Inside Diameter: 2 (inches) Key #: 21066 ☒ Locked ☐ Not Locked

Casing Material: ☒ PVC ☐ Steel ☐ Stainless Steel

Depth Measurement and Elevations (from top of well casing)

Top of Casing Elevation	NA	Feet
Well depth	84.11	Feet (Top of pump @ 77.80')
Static water level measurement before purging	77.05	Feet (11/9/20 1145 by DK)
Static water level measurement at time of sampling	77.05	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-2

Date Purged: 11/10/2020 Water Column: 7.06 Feet

Time Purged: 1330 - 1400 One Casing Volume: 1.15 Gallons

Pump Rate: 0.15 (GPM) LPM Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 11/10/2020

Time Sampled: 1405

Sampling Equip.: Pump

Meter ID: MPS-8 / TM-6

Analyzed by: CJP

Field Parameter Measurements of Sample

pH: 7.6 (units) D.O: 10.5 (mg/l)

Spec. Cond.: 370 (µmhos/cm) Turbidity: 4.0 (NTU)

Temp.: 6.0 (°C) Eh: 271 (mV)

Other: NA

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

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

Weather Conditions During Sampling: 32°F overcast and NW @ 6mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1340	7.6	370	6.0	10.6	NA	274	1.5
1350	7.6	370	6.0	10.5	NA	273	3.0
1400	7.6	370	6.0	10.5	NA	271	4.5
			(NA) CJP 11/10/2020				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Sherco Ponds, Fall 2020 Project No.: 20-0397Z

Monitoring Point ID: P-17e Labeled: 844703

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
Well depth	84.18	Feet (Top of pump @ 78.50')
Static water level measurement before purging	76.58	Feet (11/9/2020 11:48 by DK)
Static water level measurement at time of sampling	76.58	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Bladder Pump Pump ID: BPC-2

Date Purged: 11/10/2020 Water Column: 7.60 Feet

Time Purged: 1415 - 1445 One Casing Volume: 1.24 Gallons

Pump Rate: 0.15 (GPM) / LPM Volume Purged: 4.5 Gallons

Field Sampling Data

Date Sampled: 11/10/2020

Time Sampled: 1450

Sampling Equip.: Pump

Meter ID: MPS-8 / TM-6

Analyzed by: CJP

Field Parameter Measurements of Sample

pH	7.3 (units)	D.O	9.5 (mg/l)
Spec. Cond.	660 (µmhos/cm)	Turbidity	2.9 (NTU)
Temp.	7.4 (°C)	Eh	287 (mV)
Other	NA		

Field Measurements Temp. Corrected:	☒ Yes	☐ No	☐ NA
Sample for Soluble Metals Filtered in Field:	☐ Yes	☐ No	☒ NA

Weather Conditions During Sampling: 32°F overcast wind NW@ 6mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1425	7.3	660	7.4	9.5	NA	290	1.5
1435	7.3	660	7.4	9.5	NA	289	3.0
1445	7.3	660	7.4	9.5	NA	287	4.5

Calib. 11/10/20

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-03972

Monitoring Point ID P-177 Labeled 844704

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

Well depth 46.53 Feet (Top of pump 41.60')

Static water level measurement before purging 39.62 Feet

Static water level measurement at time of sampling 39.62 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 6.91 Feet

Time Purged 850-920 One Casing Volume 1.13 Gallons

Pump Rate 0.15 (GPM) LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 925

Sampling Equip. Pump

Meter ID MPS-8/TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH 7.2 (units) D.O 9.2 (mg/l)

Spec. Cond. 460 (µmhos/cm) Turbidity 2.7 (NTU)

Temp. 8.0 (°C) Eh 253 (mV)

Other NA

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

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

Weather Conditions During Sampling: 31°F partly sunny wind NW@ Comph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
900	7.2	460	8.0	9.2	NA	253	1.5
910	7.2	460	8.0	9.2	NA	253	3.0
920	7.2	460	8.0	9.2	NA	253	4.5
			(open 11/10/2020)				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 09/27/2017

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

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

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Energy Project Sherco Ponds, Fall 2020 Project No. 20-0397Z

Monitoring Point ID P-178A Labeled 844708

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
Well depth	47.41	Feet (Top of pump 42.75')
Static water level measurement before purging	39.81	Feet
Static water level measurement at time of sampling	39.81	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-2

Date Purged 11/10/2020 Water Column 7.60 Feet

Time Purged 1035 - 1105 One Casing Volume 1.24 Gallons

Pump Rate 0.15 (GPM) LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 11/10/2020

Time Sampled 1110

Sampling Equip. Pump

Meter ID MPS-8/TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH	7.4 (units)	D.O	9.2 (mg/l)
Spec. Cond.	440 (µmhos/cm)	Turbidity	3.1 (NTU)
Temp.	8.6 (°C)	Eh	265 (mV)
Other	NA		

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

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

Weather Conditions During Sampling: 32°F overcast wind NW @ 6mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
~~1035~~ 1045	7.4	440	8.6	9.2	NA	264	1.5
1055	7.4	440	8.6	9.2	NA	265	3.0
1105	7.4	440	8.6	9.2	NA	265	4.5

Samples chilled immediately after collection: ☒ Yes ☐ Other

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

cc:

RE: Sherco BAP CCR

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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-158		MFK0078-32	Water	11/10/2020 8:40	11/11/2020 9:10
P-173		MFK0078-33	Water	11/10/2020 12:20	11/11/2020 9:10
P-174		MFK0078-34	Water	11/10/2020 13:20	11/11/2020 9:10
P-175		MFK0078-35	Water	11/10/2020 14:05	11/11/2020 9:10
P-176		MFK0078-36	Water	11/10/2020 14:50	11/11/2020 9:10
P-177		MFK0078-37	Water	11/10/2020 9:25	11/11/2020 9:10
P-178A		MFK0078-38	Water	11/10/2020 11:10	11/11/2020 9:10
P-152a		MFK0098-09	Water	11/12/2020 15:10	11/13/2020 9:10
Duplicate CCR-BAP2		MFK0098-20	Water	11/12/2020 15:10	11/13/2020 9:10
Rinse CCR-BAP2		MFK0098-21	Water	11/12/2020 15:15	11/13/2020 9:10

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

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

P-17

MFK0078-04 (Water) - Chain of Custody Number: Pace

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

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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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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
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 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

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-33 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.89	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:06	EPA 300.0	CRL
Sulfate	23.2	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:06	EPA 300.0	CRL
Wet Chemistry										
pH	7.83		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:33	SM 4500-H+ B	CRL
Total Dissolved Solids	276	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 ICP										
Boron	0.132	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:23	EPA 200.7	HRD
Calcium	71.1	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:21	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-34 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.04	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:26	EPA 300.0	CRL
Sulfate	32.0	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:26	EPA 300.0	CRL
Wet Chemistry										
pH	7.62		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:37	SM 4500-H+ B	CRL
Total Dissolved Solids	412	25.0	mg/L		1	BFK0308	11/15/20 8:51	11/15/20 8:51	SM 2540C	HSD
Total Suspended Solids	17.8	5.00	mg/L		1	BFK0307	11/15/20 6:42	11/15/20 6:42	SM 2540D	HSD
Total Metals by ICP										
Boron	0.181	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:28	EPA 200.7	HRD
Calcium	104	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:26	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-35 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	2.33	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:47	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:47	EPA 300.0	CRL
Sulfate	19.5	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 17:47	EPA 300.0	CRL
Wet Chemistry										
pH	7.91		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:40	SM 4500-H+ B	CRL
Total Dissolved Solids	294	25.0	mg/L		1	BFK0308	11/15/20 8:51	11/15/20 8:51	SM 2540C	HSD
Total Suspended Solids	199	25.0	mg/L		1	BFK0307	11/15/20 6:42	11/15/20 6:42	SM 2540D	HSD
Total Metals by ICP										
Boron	0.113	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:33	EPA 200.7	HRD
Calcium	84.7	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:31	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-36 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	5.59	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:07	EPA 300.0	CRL
Sulfate	112	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:07	EPA 300.0	CRL
Wet Chemistry										
pH	7.71		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:44	SM 4500-H+ B	CRL
Total Dissolved Solids	346	25.0	mg/L		1	BFK0308	11/15/20 8:51	11/15/20 8:51	SM 2540C	HSD
Total Suspended Solids	13.6	5.00	mg/L		1	BFK0307	11/15/20 6:42	11/15/20 6:42	SM 2540D	HSD
Total Metals by ICP										
Boron	0.938	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:38	EPA 200.7	HRD
Calcium	114	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:36	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-37 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	1.49	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:28	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:28	EPA 300.0	CRL
Sulfate	35.4	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:28	EPA 300.0	CRL
Wet Chemistry										
pH	7.78		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:47	SM 4500-H+ B	CRL
Total Dissolved Solids	288	25.0	mg/L		1	BFK0308	11/15/20 8:51	11/15/20 8:51	SM 2540C	HSD
Total Suspended Solids	23.0	5.00	mg/L		1	BFK0307	11/15/20 6:42	11/15/20 6:42	SM 2540D	HSD
Total Metals by ICP										
Boron	0.0840	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:43	EPA 200.7	HRD
Calcium	80.8	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:42	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

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MFK0078-38 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	3.40	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:48	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:48	EPA 300.0	CRL
Sulfate	47.1	1.00	mg/L		1	BFK0232	11/12/20 8:06	11/12/20 18:48	EPA 300.0	CRL
Wet Chemistry										
pH	8.00		pH Units	M_TTT	1	BFK0200	11/11/20 10:36	11/11/20 15:54	SM 4500-H+ B	CRL
Total Dissolved Solids	286	25.0	mg/L		1	BFK0308	11/15/20 8:51	11/15/20 8:51	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BFK0307	11/15/20 6:42	11/15/20 6:42	SM 2540D	HSD
Total Metals by ICP										
Boron	0.178	0.0500	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:59	EPA 200.7	HRD
Calcium	44.6	1.25	mg/L		1	BFK0229	11/12/20 7:47	11/16/20 19:57	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

P-152a

MFK0098-09 (Water) - Chain of Custody Number: Pace

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

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Duplicate CCR-BAP2

MFK0098-20 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:07	EPA 300.0	CRL
Sulfate	7.61	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:07	EPA 300.0	CRL
Wet Chemistry										
pH	8.36		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:33	SM 4500-H+ B	CRL
Total Dissolved Solids	218	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 ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 16:05	EPA 200.7	HRD
Calcium	56.1	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 16:03	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Rinse CCR-BAP2

MFK0098-21 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	< 1.00	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:28	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:28	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BFK0267	11/13/20 10:00	11/14/20 0:28	EPA 300.0	CRL
Wet Chemistry										
pH	6.48		pH Units	M_TTT	1	BFK0266	11/13/20 9:59	11/16/20 10:36	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 ICP										
Boron	< 0.0500	0.0500	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 16:11	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BFK0303	11/14/20 8:32	11/19/20 16:09	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0212 - Wet Prep										
Blank (BFK0212-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 (BFK0212-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 (BFK0212-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 (BFK0212-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 (BFK0212-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 (BFK0212-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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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							

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0267 - Wet Prep										
Matrix Spike Dup (BFK0267-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 (BFK0267-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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0317 - Wet Prep										
LCS (BFK0317-BS1)				Prepared & Analyzed: 11/17/2020						
Total Dissolved Solids	48.000	25.0	mg/L	50.030		95.9	70-130			
Duplicate (BFK0317-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 (BFK0341-BLK1)				Prepared & Analyzed: 11/18/2020						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BFK0341-BS1)				Prepared & Analyzed: 11/18/2020						
Total Suspended Solids	86.000	5.00	mg/L	100.01		86.0	70-130			
Duplicate (BFK0341-DUP1)		**Source: MFK0121-01**		Prepared & Analyzed: 11/18/2020						
Total Suspended Solids	9.5000	12.5	mg/L		11.200			16.4	20	
Duplicate (BFK0341-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 (BFK0342-BLK1)				Prepared & Analyzed: 11/18/2020						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BFK0342-BS1)				Prepared & Analyzed: 11/18/2020						
Total Dissolved Solids	62.000	25.0	mg/L	50.030		124	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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							
LCS (BFK0229-BS1)				Prepared: 11/12/2020 Analyzed: 11/16/2020						
Calcium	102.97	1.25	mg/L	100.00		103	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	
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	
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			
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						
Boron	1.0777	0.0500	mg/L	1.0000	0.039596	104	70-130			
Calcium	191.30	1.25	mg/L	100.00	78.243	113	70-130			
Matrix Spike Dup (BFK0229-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	
Calcium	192.21	1.25	mg/L	100.00	78.158	114	70-130	5.66	20	
Matrix Spike Dup (BFK0229-MSD2)		**Source: MFK0076-03**		Prepared: 11/12/2020 Analyzed: 11/16/2020						
Boron	1.1203	0.0500	mg/L	1.0000	0.039596	108	70-130	3.87	20	
Calcium	192.87	1.25	mg/L	100.00	78.243	115	70-130	0.816	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0303 - EPA 200.2, EPA 3005										
Blank (BFK0303-BLK1)				Prepared: 11/14/2020 Analyzed: 11/19/2020						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
LCS (BFK0303-BS1)				Prepared: 11/14/2020 Analyzed: 11/19/2020						
Calcium	104.54	1.25	mg/L	100.00		105	85-115			
Boron	1.0120	0.0500	mg/L	1.0000		101	85-115			
Duplicate (BFK0303-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	
Duplicate (BFK0303-DUP2)		**Source: MFK0098-02**		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Boron	0.81338	0.0500	mg/L		0.83171			2.23	20	
Calcium	90.605	1.25	mg/L		89.646			1.06	20	
Matrix Spike (BFK0303-MS1)		**Source: MFK0098-01**		Prepared: 11/14/2020 Analyzed: 11/19/2020						
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						
Boron	1.8582	0.0500	mg/L	1.0000	0.83171	103	70-130			
Calcium	200.13	1.25	mg/L	100.00	89.646	110	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	
Matrix Spike Dup (BFK0303-MSD2)		**Source: MFK0098-02**		Prepared: 11/14/2020 Analyzed: 11/19/2020						
Boron	1.8816	0.0500	mg/L	1.0000	0.83171	105	70-130	1.25	20	
Calcium	195.76	1.25	mg/L	100.00	89.646	106	70-130	2.21	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Total Metals by ICP - Quality Control

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

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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco BAP CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/14/2020 11:19

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_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.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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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:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number	20-03972	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Fall	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: ☑ NC ☐ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR-BAP	GW-AD	GW-CCR-BAP2	GW-CCR-P-3	(REPORT) CCR-BAP	(REPORT) CCR-BAP2	(REPORT) CCR-P3	(REPORT) NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-03A	WT	G	—	—	11/10/20	1135		3	1	1	1								X						X	
2	P-03B	WT	G	—	—	11/10/20	1110		3	1	1	1								X						X	
3	P-05A	WT	G	—	—	11/10/20	1030		3	1	1	1								X						X	
4	P-17	WT	G	—	—	11/10/20	1030		2	1		1								X		X		X	X		
5	P-23	WT	G	—	—	11/9/20	1020		4	1	1	2								X	X			X		X	
6	P-42	WT	G	—	—	11/9/20	1355		3	1	1	1									X					X	
7	P-43	WT	G	—	—	11/9/20	1550		3	1	1	1									X					X	
8	P-50	WT	G	—	—	11/10/20	950		3	1	1	1									X					X	
9	P-50B	WT	G	—	—	11/10/20	920		3	1	1	1									X					X	
10	P-50D	WT	G	—	—	11/10/20	840		3	1	1	1									X					X	
11	P-56	WT	G	—	—	11/9/20	1435		3	1	1	1									X					X	
12	P-60	WT	G	—	—	11/9/20	1405		3	1	1	1									X					X	

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] Pace	11/11/20	910	[signature] /Xcel	11/11/20	0910

SAMPLE CONDITIONS

3.1	C	Y/N	C
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

* 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. csr 11/11/2020

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson + Chris Pelosi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 11/11/20

pH Strips: MD00402 Temp MM00841

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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.

2

Page: 1 of 6

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Chris Pelosi	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number	20-03972	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Fall	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR-BAP	GW-D	GW-CCR-BAP2	GW-CCR-P3	(REPORT) CCR-BAP	(REPORT) CCR-BAP2	(REPORT) CCR-P3	(REPORT) NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-01A-1	WT	G	---	---	11/11/20	1455		4	1	1	2							X	X			X			X		
2	P-22	WT	G	---	---	11/11/20	1040		4	1	1	2							X	X			X			X		
3	P-129	WT	G	---	---	11/11/20	1140		3	1	1	1								X						X		
4	P-130	WT	G	---	---	11/12/20	1350		4	1	1	2								X		X			X	X		
5	P-131	WT	G	---	---	11/12/20	1140		4	1	1	2								X		X			X	X		
6	P-132	WT	G	---	---	11/12/20	0855		4	1	1	2								X		X			X	X		
7	P-150	WT	G	---	---	11/12/20	1215		2	1		1										X			X			
8	P-151	WT	G	---	---	11/12/20	1435		2	1		1										X			X			
9	P-152A	WT	G	---	---	11/12/20	1510		2	1		1								X		X	X	X	X			
10	P-153	WT	G	---	---	11/12/20	1050		2	1		1											X		X			
11	P-154A	WT	G	---	---	11/12/20	1005		2	1		1											X		X			
12	P-155	WT	G	---	---	11/11/20	0940		2	1		1								X				X				

Additional Comments:

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson / Pace	11/13/20	0910	[signature] / Xcel	11/13/20	0910

SAMPLE CONDITIONS

3.7	⊙ Y/N	Y/N	⊙ Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 11/12/20

pH Strip #: MD00102 Temp M400841

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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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Chris Pelosi	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number	20-03972	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Fall	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION ☑ NC ☐ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR-BAP*	GW-D*	GW-CCR-BAP2*	GW-CCR-P-3*	(REPORT) CCR-BAP	(REPORT) CCR-BAP2	(REPORT) CCR-P3	(REPORT) NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-62	WT	G	-	-	11/9/20	1335		3	1	1	1							X							X		
2	P-66	WT	G	-	-	11/9/20	845		3	1	1	1							X							X		
3	P-88	WT	G	-	-	11/10/20	805		3	1	1	1							X							X		
4	P-89-1	WT	G	-	-	11/9/20	1115		3	1	1	1							X							X		
5	P-90	WT	G	-	-	11/9/20	1455		3	1	1	1							X							X		
6	P-90A	WT	G	-	-	11/9/20	1520		3	1	1	1							X							X		
7	P-92A	WT	G	-	-	11/9/20	1030		3	1	1	1							X							X		
8	P-92B	WT	G	-	-	11/9/20	1000		3	1	1	1							X							X		
9	P-92D	WT	G	-	-	11/9/20	930		3	1	1	1							X							X		
10	P-93A	WT	G	-	-	11/9/20	1245		3	1	1	1							X							X		
11	P-93B	WT	G	-	-	11/9/20	1205		3	1	1	1							X							X		
12	P-93D	WT	G	-	-	11/9/20	1135		3	1	1	1							X							X		

Additional Comments:

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pace	11/11/20	910	Xcel	11/11/20	0910

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
4	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson + Chris Pelosi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/11/20

* 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. CLP 11/11/2020

pH Strips: 003402 Temp 403841

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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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Xcel Energy	Report To:	Chris Pelosi	Attention:	Steve Davis
Address:	Environmental Services	Copy To:	Riley Jacobson	Company Name:	
	MP-7			Address:	
Email To:	Chris Pelosi	Purchase Order No.:		Pace Quote Reference:	
Phone: (612) 597-7254	Fax:	Project Number	20-03972	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Ponds Fall	Pace Profile #:	

REGULATORY AGENCY: ☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER_MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR-BAP	GW-D	GW-CCR-BAP2	GW-CCR-P3	(REPORT) CCR-BAP	(REPORT) CCR-BAP2	(REPORT) CCR-P3	(REPORT) NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-156	WT	G	---	---	11/11/20	0850		2	1		1							X				X					
2	P-162	WT	G	---	---	11/11/20	1240		2	1		1									X			X				
3	P-163	WT	G	---	---	11/11/20	1325		2	1		1									X			X				
4	P-164	WT	G	---	---	11/11/20	1400		2	1		1									X			X				
5	P-165	WT	G	---	---	11/12/20	0810		2	1		1									X			X				
6	Duplicate BAP (P-152A)	WT	G	---	---	11/12/20	1510		2	1		1							X				X					
7	Rinse BAP	WT	G	---	---	11/12/20	1515		2	1		1							X				X					
8	Duplicate BAP2 (P-152A)	WT	G	---	---	11/12/20	1510		2	1		1									X			X				
9	Rinse BAP2	WT	G	---	---	11/12/20	1515		2	1		1									X			X				
10	Duplicate P3 (P-152A)	WT	G	---	---	11/12/20	1510		2	1		1									X			X				
11	Rinse P3	WT	G	---	---	11/12/20	1515		2	1		1									X			X				
12	P-04A	WT	G	-	-	11/11/20	1115		3	1	1	1								X								

Additional Comments:

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson / Pace	11/13/20	0910	Xcel	11/13/20	0910

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
3.3	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson DATE Signed (MM/DD/YY): 11/12/20

pH strip of MW102 Temp in 400841

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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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Riley Jacobson
Purchase Order No.:	
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 Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GW-CCR-BAP	GW-D	GW-CCR-BAP2	GW-CCR-P3	(REPORT) CCR-BAP	(REPORT) CCR-BAP2	(REPORT) CCR-P3	(REPORT) NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-94A	WT	G	—	—	11/9/20	1050		3	1	1	1								X							X	
2	P-101A	WT	G	—	—	11/9/20	1220		3	1	1	1								X							X	
3	P-101B	WT	G	—	—	11/9/20	1250		3	1	1	1								X							X	
4	P-126	WT	G	—	—	11/10/20	1330		3	1	1	1								X							X	
5	P-127	WT	G	—	—	11/10/20	1400		3	1	1	1								X							X	
6	P-128	WT	G	—	—	11/10/20	1425		3	1	1	1								X							X	
7	P-157	WT	G	—	—	11/9/20	845		2	1		1									X			X					
8	P-158	WT	G	—	—	11/10/20	840		2	1		1								X		X		X	X				
9	P-173	WT	G	—	—	11/10/20	1220		2	1		1										X			X				
10	P-174	WT	G	—	—	11/10/20	1320		2	1		1										X			X				
11	P-175	WT	G	—	—	11/10/20	1405		2	1		1										X			X				
12	P-176	WT	G	—	—	11/10/20	1450		2	1		1										X			X				

Additional Comments:

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

* 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. CoP 11/11/2020

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
[signature] Pace	11/11/20	910	[signature] Xcel	11/11/20	0910	3.1	Y/N ○	Y/N	Y/N ○
							Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
PRINT Name of SAMPLER:	Riley Jacobson + Chris Pelosi				
SIGNATURE of SAMPLER: [signature]	DATE Signed (MM / DD / YY): 11/11/20 cw				

ftp://ftp.MSG402 Temp M400841

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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
	MP-7
Email To:	Chris Pelosi
Phone: (612) 597-7254	Fax:
Requested Due Date/TAT:	2 Weeks

Section B Required Project Information:

Report To:	Chris Pelosi
Copy To:	Riley Jacobson
Purchase Order No.:	
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 Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis: GW-CCR-BAP	GW-D	GW-CCR-BAP2	GW-CCR-P3	[REPORT] CCR-BAP	[REPORT] CCR-BAP2	[REPORT] CCR-P3	[REPORT] NPDES	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-177	WT	G	—	—	11/10/20	925		2	1		1							X			X					
2	P-178A	WT	G	—	—	11/10/20	1110		3	1	1	1							X	X							
3	P-178B	WT	G	—	—	11/10/20	1135		3	1	1	1							X							X	
4	Well #4	WT	G	—	—	11/10/20	1235		3	1	1	1							X							X	
5	Well #6	WT	G	—	—	11/10/20	1225		3	1	1	1							X							X	
6	Duplicate NPDES	WT	G	—	—	11/9/20	930		3	1	1	1							X							X	
7	Rinse NPDES	WT	G	—	—	11/9/20	1245		3	1	1	1							X							X	
8																											
9																											
10																											
11																											
12																											

Filtered (Y/N)

Additional Comments:

*GW-CCR-BAP, GW-CCR-BAP2, & GW-CCR-P3 Metals are all Total

*GW-D Metals are all Dissolved

* samples stored in coolers on ice after collection, and in cooler C4 at Pace Minneapolis until being delivered on ice to the Xcel lab. CSP 11/11/2020

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Caleb Pau	11/11/20	910	Xcel	11/11/20	0910

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
3.1	(Y)/N	Y/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson + Chris Pelosi

SIGNATURE of SAMPLER: Caleb Pau DATE Signed (MM/DD/YY): 11/11/20

pH strips: MDA 402 Typ M400841