2021 CCR Annual Groundwater Monitoring and Corrective Action Report

Unit 3 Landfill

Sherburne County (Sherco) Generating Plant
Becker, Minnesota

Prepared for:
Northern States Power Company, a Minnesota Corporation

January 31, 2022

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2021 CCR ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

Sherco Unit 3 Landfill
Becker, Minnesota

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

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

Signature of Preparer:

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

Date: January 31, 2022

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1. EXECUTIVE SUMMARY

Unit 3 Landfill at the Sherburne County Generating Plant is subject to the groundwater monitoring and corrective action requirements under U.S. Code of Federal Regulations, Title 40, Parts §257.90 to §257.98. Unit 3 Landfill operated under the assessment monitoring program in §257.95 throughout the annual reporting period beginning on January 1, 2021 and ending on December 31, 2021. Since Unit 3 Landfill was operated under the assessment monitoring program in §257.95 during all of 2021, statistically significant increases over background were not evaluated or determined for Appendix III to 40 CFR §257 constituents pursuant to §257.94(e) (i.e. detection monitoring). Statistical analysis performed on year 2021 groundwater data indicates no exceedances of groundwater protection standards for any constituents listed in Appendix IV to 40 CFR §257 and, as such, no remedies were selected pursuant to §257.97 and no remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.

2. INTRODUCTION

This report presents the documentation of the status of groundwater monitoring and corrective action for the year 2021 (YR2021) for Unit 3 Landfill (Landfill) at the Sherburne County Generating Plant (Sherco) located in Becker, Minnesota. The Landfill is jointly owned by Northern States Power Company, a Minnesota Corporation (NSPM), and Southern Minnesota Municipal Power Agency (SMMPA), and is operated by NSPM.

The Landfill is an existing coal combustion residuals (CCR) landfill and is required to comply with provisions of the U.S. Code of Federal Regulations (CFR), Title 40, Parts 257 and 261 relating to disposal of coal combustion residuals from electric utilities. In particular, this report addresses the requirements of 40 CFR Section 257.90(e), annual groundwater monitoring and corrective action for YR2021.

This report has been prepared in general accordance with the reporting procedures outlined in the Sherco Unit 3 Landfill CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2021c). 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, 2021c) also includes a list of items to be included in the annual report that is similar to items 1 through 5 above, with the addition of a water table contour map using data collected from the current year.

In this report, Section 3 (Site Description) briefly describes the site location and hydrogeologic setting, Section 4 (Monitoring Results) discusses the reporting requirements of the CCR Sampling Plan and §257.90(e), and Section 5 (Discussion) summarizes key actions completed in YR2021, describes any problems reported in YR2021 and the actions to resolve the problems, and key activities projected for 2022.

3. SITE DESCRIPTION

The Landfill is located in the City of Becker, Sherburne County, Minnesota. It is approximately 94 acres in size and is part of a larger generating plant site. The Landfill is comprised of five cells (1, 2A, 2B, 2C and 3) in which cell 1 was constructed in 1987 and cell 3 was most recently constructed in 2009. The Landfill location is shown on Figure 1 and an aerial photograph and site layout map for Landfill are shown on Figure 2.

3.1 Site Hydrogeology

The site hydrogeology is discussed in more detail in the Sherco Unit 3 Landfill Groundwater Monitoring System Certification (Carlson McCain, 2017), which was prepared for compliance with 40 CFR §257.91. Facility hydrogeology is briefly summarized below for convenience. Unless otherwise cited, the data presented in this section is credited to Carlson McCain, 2017.

The Landfill is located in the Anoka Sand Plain physiogeographic region. The site consists of moderate to highly permeable alluvial deposits above and below a low-permeability glacial till. Precambrian granite, the first bed rock encountered, is considered impermeable. Groundwater flows south-southwest beneath the Landfill 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. Groundwater travel velocities range from approximately 291 to 1,020 feet per year.

The conceptual model for the hypothetical (or potential) release of a constituent of concern (COC) from the Landfill focuses on groundwater as the transport mechanism. The water table beneath the Landfill is typically 5 to 10 feet above the glacial till layer. Exfiltration from the Landfill area is anticipated to move vertically downward from the base until it reaches the water table contact. No glacial till has been identified in the vadose zone, which would impede or redirect the infiltrating leachate. Upon reaching the water table, a COC would likely travel mainly horizontally toward the south-southwest and towards the Mississippi River.

4. MONITORING RESULTS

Section 4.1 below presents the monitoring results obtained during YR2021 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 Landfill and all upgradient and downgradient monitoring well locations included in the Landfill CCR groundwater monitoring system are shown and labeled on Figure 2. A summary of the monitoring wells included in the Landfill CCR Groundwater Monitoring System is included in Table 1.

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

On November 1-4, 2021, monitoring wells P-73A-1, P-74-1, P-75-1, P-97, and P-98 at the Landfill were replaced in the same locations but with deeper wells P-73A-2, P-74-2, P-75-2, P-97-1, and P-98-1. Low groundwater levels as described in Section 5.2, uncertainty of when those low groundwater levels would recover and NSPM's desire to remain compliant with CCR regulations prompted NSPM's decision to replace the five monitoring system wells. The old wells were over-drilled to the bottom of the wells, old well materials were removed, and then drilled deeper to facilitate installation of new monitoring wells in the deeper boreholes. A Monitoring Well Replacement Report (Carlson McCain, 2021e) was prepared to document the well replacement activities and was placed in the Landfill's operating record for compliance with §257.91(e)(1).

No other monitoring wells that are part of the groundwater monitoring system for the Landfill were installed or decommissioned during YR2021.

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

Monitoring data collected during YR2021 is summarized in Tables 2 and 3 and results are provided in Tables 4 and 5. Table 2 summarizes the data collected and includes the number of groundwater samples that were collected for analysis for each upgradient and downgradient well, the dates the samples were collected, and whether the samples were required by the detection monitoring (i.e. constituents listed Appendix III to 40 CFR §257, hereafter referred to as "Appendix III constituents") or assessment monitoring (i.e. constituents listed in Appendix IV of 40 CFR §257, hereafter referred to as "Appendix IV constituents") programs. Table 3 summarizes the analytical parameters and the number of times that each parameter was analyzed for each well in the groundwater monitoring system. A summary of the spring 2021 monitoring results is provided on Table 4 and a summary of the fall 2021 monitoring results is provided on Table 5.

Assessment Monitoring Data

As discussed in a Technical Memorandum dated April 13, 2018 (Carlson McCain, 2018c), NSPM initiated an assessment monitoring program at the Landfill during YR2018, and assessment monitoring has continued since that time. Pursuant to the assessment monitoring semiannual sampling requirements listed in §257.95(d)(1), the following groundwater sampling events were conducted during YR2021:

- All wells in the Landfill groundwater monitoring system were sampled during the spring monitoring event conducted on March 22-24 and May 7, 2021. Samples were analyzed for Appendix III constituents and Appendix IV constituents. Laboratory reports and field datasheets for the spring monitoring event are included in this report as Appendix A. The samples collected at wells P-74-1 and P-97 on May 7, 2021 are discussed further in Section 5.2 of this report.
- Well P-137A was resampled on June 10, 2021 as part of the spring assessment monitoring event and the sample was analyzed for all Appendix III constituents and Appendix IV constituents. The resample of well P-137A is discussed further in Section 5.2 of this report.
- All wells in the Landfill groundwater monitoring system were sampled during the fall monitoring event conducted on October 18-19 and November 11, 2021, and samples were analyzed for all Appendix III constituents and only those Appendix IV constituents detected during the spring 2021 assessment monitoring event. Laboratory reports and field datasheets for the fall monitoring event are included in this report as Appendix B. The samples collected at wells P-74-2 and P-97-1 on November 11, 2021 are discussed further in Section 5.2 of this report.

Recorded Concentrations, Background Concentrations and Groundwater Protection Standards

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

- Recorded Concentrations: The concentrations for the spring and fall monitoring events that are recorded in the operating record are attached to this report as Appendices A and B, respectively, and summary tables of the data are also provided in Tables 4 and 5, respectively.
- Background Concentrations: The background wells at the Landfill include P-125, P-134, and P-141 and the background parameter concentrations were obtained as part of the baseline data set that was completed by collecting nine independent samples from each of the wells in the groundwater monitoring system from December 2016 through September 2017. Each of the baseline samples were analyzed for Appendix III and Appendix IV constituents. Laboratory reports and field datasheets for the baseline dataset, which includes all background concentrations, are provided in Appendix A of the 2017 CCR Annual

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

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

The range of background concentrations for each Appendix III and Appendix IV constituent sampled pursuant to §257.94(b), as amended in December 2020, and the groundwater protection standard for each Appendix IV constituent are summarized on the following table.

	Parameter	Background Range	Groundwater Protection Standard
Appendix III Parameters	Boron, total (mg/L)	<0.050 to 62.4	NA
	Calcium, total (mg/L)	57.5 to 92.7	NA
	Chloride, total (mg/L)	18.4 to 54.6	NA
	Fluoride, total (mg/L)	<0.750	NA
	pH (lab) (pH)	7.73 to 7.94	NA
	Sulfate, total (mg/L)	13.4 to 50.3	NA
	Total Dissolved Solids (mg/L)	246 to 444	NA
Appendix IV Parameters	Antimony, total (mg/L)	<0.0005	0.006
	Arsenic, total (mg/L)	0.0005 to 0.0012	0.01
	Barium, total (mg/L)	0.056 to 0.107	2
	Beryllium, total (mg/L)	<0.0005	0.004
	Cadmium, total (mg/L)	<0.1000 to <0.0005	0.05
	Chromium, total (mg/L)	0.0005 to 0.0026	0.1
	Cobalt, total (mg/L)	<0.0005 to 0.0009	0.006
	Fluoride, total (mg/L)	<0.750	4
	Lead, total (mg/L)	<0.0005	0.015
	Lithium Total (mg/L)	<0.015 to <0.05[1]	0.04[1]
	Mercury, total (mg/L)	<0.0002	0.002
	Molybdenum, total (mg/L)	<0.0005	0.1
	Radium, 226 and 228 combined (pCi/L)	<0.87 to <2.12[2]	5
	Selenium, total (mg/L)	<0.0005 to 0.0007	0.05
	Thallium, total (mg/L)	<0.0005	0.002

[1] All §257.94(b) required background samples for lithium were obtained prior to amendment of §257.95(h)(2) on July 30, 2018, which implemented a groundwater protection standard of 0.04 mg/L for lithium. The analytical laboratory lowered the reporting limit for lithium from 0.05 mg/L to 0.015 mg/L in response to the rule amendment.
[2] The reporting limit for radium varies from sample to sample and several radium detections were reported between 0.87 and 2.12 pCi/L.

Statistical Analysis
Statistical analysis was performed on the YR2021 monitoring data using the procedures described in the Landfill's Statistical Analysis Plan (Carlson McCain, 2021d), and demonstrates compliance with §257.95(e), §257.95(f), and §257.95(g) as described below:

1. *Subpart §257.95(e) (paraphrased): If the concentrations of all Appendix III and Appendix IV constituents are shown to be at or below background values for two consecutive monitoring events, the owner or operator may return to detection monitoring of the CCR unit.*
    a. Based on statistical comparisons of compliance data to background data for Appendix III and Appendix IV constituents, concentrations of one or more constituents continue to exceed background values, therefore the Landfill will not return to detection monitoring at this time.

2. *Subpart §257.95(f) (paraphrased): If the concentrations of any Appendix III or Appendix IV constituent are above background values, but all concentrations are below the applicable groundwater protection standard, the owner or operator must continue assessment monitoring.*
    a. Based on statistical comparisons of Appendix III and Appendix IV constituent concentrations to groundwater protection standards, all concentrations are below the applicable groundwater protection standards, therefore the Landfill will continue assessment monitoring.

3. *Subpart §257.95(g) (paraphrased): If one or more Appendix IV constituents are detected at statistically significant levels above the groundwater protection standard in any sampling event, the owner or operator must issue notifications of the exceedance(s) and initiate an assessment of corrective measures.*
    a. As stated in item 2.a, above, all Appendix III and Appendix IV concentrations are below applicable groundwater protection standards, therefore no additional notifications or assessment of corrective measures are required.

Groundwater Elevations and Flow Direction
Groundwater elevations and flow direction in the vicinity of the Landfill during the spring and fall of 2021 monitoring events are shown on the water table elevation contour maps in Figures 3 and 4, respectively. The contours were derived from water level measurements from the wells included in the CCR groundwater monitoring system for the Landfill along with other nearby monitoring wells and water level piezometers not included in the Landfill's CCR monitoring system. For both of the events, the flow direction was generally to the south. 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 toward the Mississippi River.

Groundwater elevations at the Landfill monitoring system wells were low during YR2021 compared to recent years and were calculated to be 2.2 to 3.6 feet above historic lows during the spring monitoring event. On average, groundwater elevations declined approximately 0.76 feet between the spring and fall monitoring events leaving the groundwater elevations about 1.4 to 2.8 feet above historic lows at the Landfill at the conclusion of the fall monitoring event. The low groundwater levels at the Landfill are consistent with drought conditions experienced throughout Minnesota during 2021. No significant changes in groundwater gradients or flow direction have been observed due to low groundwater levels in the vicinity of the Landfill.

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

The Landfill first transitioned from the detection monitoring program (§257.94) to the assessment monitoring program (§257.95) in 2018, as described in Technical Memorandums dated January 15, 2018 (Carlson McCain, 2018a) and April 13, 2018 (Carlson McCain, 2018c). Since the initial transition to the assessment monitoring program (§257.95) during YR2018, the Landfill has not transitioned between monitoring programs and continues monitoring under the assessment monitoring program.

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

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

5. DISCUSSION

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

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

5.1 Key Actions Completed

Key actions that were completed during YR2021 include the following items:

- The 2020 Annual CCR Groundwater Monitoring and Corrective Report (Carlson McCain, 2021a) was completed, placed in the facility's operating record on January 28, 2021, and posted on the Landfill's publicly available website by February 27, 2021.
- Monitoring wells were sampled during the spring event conducted on March 22-24 and May 7, 2021 and analyzed for all Appendix III and Appendix IV constituents as required by §257.95(d)(1).
- Revisions to the Landfill's Groundwater Sampling and Analysis Plan (Carlson McCain, 2021c) and Statistical Analysis Plan (Carlson McCain, 2021d) were completed and dated March 29, 2021. The Statistical Analysis Plan was placed in the facility's operating record on March 29, 2021 and posted on the Landfill's publicly available website by April 27, 2021.
- Monitoring well P-137A, as part of the spring monitoring event, was resampled on June 10, 2021 and analyzed for all Appendix III and Appendix IV constituents.
- Monitoring wells were sampled during the fall event conducted on October 18-19 and November 11, 2021 and analyzed for all Appendix III constituents and only those Appendix IV constituents that were detected during the spring 2021 event as part of semiannual sampling required by §257.95(d)(1).
- On November 1-4, 2021, monitoring wells P-73A-1, P-74-1, P-75-1, P-97, and P-98 at the Landfill were replaced in the same locations with deeper wells P-73A-2, P-74-2, P-75-2, P-97-1, and P-98-1.
- A Monitoring Well Replacement Report (Carlson McCain, 2021e) describing the replacement of monitoring wells P-73A-1, P-74-1, P-75-1, P-97, and P-98 at the Landfill with wells P-73A-2, P-74-2, P-75-2, P-97-1, and P-98-1 was completed and placed in the operating record on December 6, 2021 for compliance with §257.91(e)(1).

- Laboratory reports and field datasheets for the spring and fall sampling events were placed in the operating record on July 8, 2021 and January 11, 2022, respectively.
- Statistical evaluation of the spring and fall monitoring event data was performed on July 8, 2021 and January 11, 2022, respectively, for compliance with §257.95(e) through (g).

5.2 Problems

5.2.1 Problems Encountered

P-137A Pump Issues
The dedicated bladder pump in well P-137A did not work at the time of the sampling on March 22, 2021 and, as a result, a submersible pump and associated tubing was used to obtain the sample from the well. The sample exhibited an abnormally high total suspended solids (TSS) concentration of 334 mg/L, which is possibly attributed to mobilization of sediment caused by the pulling the bladder pump out of the well and inserting the submersible pump. The abnormally high TSS was identified during data validation and the issue or inconsistency may impact the validity of the P-137A sampling data. Data validation procedures are described in Section 5.1.1 of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2020c). Any sample with a field turbidity result over 5 NTU or TSS detection over 5 mg/L indicates the presence of sediment that can interfere with the laboratory analysis possibly producing anomalous results of other sample constituents. As such, the spring sample from well P-137A was flagged as potentially invalid.

Low Groundwater Level Issues
Low groundwater levels prevented the dedicated bladder pumps installed in wells P-74-1 and P-97 from functioning and enabling collection of quality groundwater samples from the wells during the spring monitoring event. An initial attempt was made to sample wells P-74-1 and P-97 on March 22, 2021, however, the water levels on that date in each of the wells were below the top of the pumps likely preventing the bladder pumps from functioning. Sampling of the two wells was postponed to hopefully allow time for the low water levels to sufficiently recover before the end of the spring monitoring event window on May 15, 2021.

Low groundwater levels during the fall monitoring event also prevented the dedicated bladder pumps installed in wells P-74-1 and P-97 from functioning and collecting groundwater samples from the wells during the initial fall sampling effort on October 18-19, 2021. Wells P-74-1 and P-97 were intended to be replaced prior to the fall monitoring event, however, drilling contractor delays contributed to the replacements being completed after the initial fall sampling on November 1-4, 2021.

Obstruction in P-138A
The dedicated bladder pump in well P-138A did not work at the time of sampling on October 19, 2021. An attempt was made to remove the pump from the well, however, an apparent obstruction in the well prevented the pump from being removed. The tubing was pulled and eventually came

off the pump leaving the pump stuck near the bottom of the well. Well P-138A was inspected with a borescope camera on October 29, 2021. At the depth of the top of the well screen at 29.5 feet below the well top of riser, a mass of woody roots was observed with thicknesses up to about ½-inch. On November 5, 2021, treble hooks were used to try and fish the roots out the well, but efforts to remove the obstruction or the pump were unsuccessful. Due to the failure of the bladder pump in well P-138A and subsequent finding that the well is obstructed with roots, a water sample was not obtained from the well during the fall monitoring event.

Other Problems
No other significant problems with the groundwater monitoring system, or deviations from the CCR Groundwater Sampling and Analysis Plan were reported at the facility during YR2021. No corrective action was required at the facility during YR2021.

5.2.2 Resolution of Problems

P-137A Pump Issues
The bladder pump in well P-137A was removed from the well and was inspected during the spring monitoring event. It was determined the bladder had a stuck check ball in the top of the unit, and this prevented water from passing through the unit. The check ball was dislodged and the bladder pump reassembled, decontaminated, and reinstalled in the well. The well was purged and resampled on June 10, 2021 and the dedicated bladder pump functioned properly, resulting in a successful sample. The data from the June 10, 2021 resample reported low field turbidity and TSS results and other parameter concentrations appeared normal.

The June 10, 2021 resampling of well P-137A confirmed that the sample obtained on March 22, 2021 was of low quality and, as such, the March 22, 2021 sampling data from P-137A (with the exception of the static water level and water level elevation) was invalidated and removed from the data set. The June 10, 2021 sampling data was used during YR2021 data interpretation and will also continue to be used during future data interpretation.

Low Groundwater Level Issues
Groundwater levels did not sufficiently improve at wells P-74-1 and P-97 during the duration of the spring monitoring event window (March 15 to May 15) to sample the wells using the dedicated bladder pumps. As such, on May 7, 2021, the bladder pumps in wells P-74-1 and P-97 were removed and a submersible pump and associated tubing was used to obtain samples from the wells. The data reported low field turbidity and TSS results though TSS was detected in the sample from P-74-1 at a concentration of 12 mg/L. Other parameter concentrations in the samples generally appeared normal except some low-level detections of cobalt in both samples and additionally chromium and molybdenum in the sample from P-74-1. The results were accepted and were used for YR2021 data interpretation.

Ultimately, the action taken to resolve the low groundwater level issues was to replace monitoring wells P-73A-1, P-74-1, P-75-1, P-97, and P-98 in the same locations at the Landfill with deeper wells P-73A-2, P-74-2, P-75-2, P-97-1, and P-98-1. The old wells were over-drilled to the bottom of the wells, old well materials were removed, and then drilled deeper to facilitate installation of new monitoring wells in the deeper boreholes. Bladder pumps from wells P-73A-1, P-74-1, P-75-1, P-97, and P-98 were removed, deepened to the appropriate depths, and placed in their corresponding replacement wells P-73A-2, P-74-2, P-75-2, P-97-1, and P-98-1.

Samples from wells P-74-1 and P-97 were not obtained during the initial fall sampling work on October 18-19, 2021 due to the low groundwater levels. After replacement of wells P-74-1 and P-97 on November 1-4, 2021, samples were obtained from wells P-74-2 and P-97-1 for the fall monitoring event on November 11, 2021. Parameter concentrations in the samples from replacement wells P-74-2 and P-97-1 appeared normal as compared to previous results from wells P-74-1 and P-97; and the results were accepted and used for YR2021 data interpretation.

Obstruction in P-138A

Due to the failure of the bladder pump in well P-138A and subsequent finding that well is obstructed with roots, a water sample was not obtained from the well during the fall monitoring event. Statistical analysis of data from P-138A through the spring of 2021 monitoring event indicates that barium, calcium, and total dissolved solids are the only constituents to consistently exhibit concentrations above background water quality in this well, and those constituent concentrations are only slightly above background. Trend analysis indicates no trends (increasing or decreasing) for detectable Appendix III and Appendix IV constituents in the data from well P-138A. Monitoring results from well P-137A, which is located about 490 feet east of well P-138A, exhibited no new trends or increases in constituent concentrations during the fall monitoring event. Due to the relative lack of background exceedances and trends at wells P-138A prior to the fall monitoring event, and the lack of constituent concentration increases at well P-137A during the fall monitoring event; the likelihood of missing any constituent concentrations increases at well P-138A during the fall monitoring event appears to be low.

Well P-138A in its current state is unusable and needs to be sealed. Well P-138A along with wells P-117 and P-137A are slated to be sealed anyway sometime in the spring of 2022 due to planned construction of Landfill Cell 4 – Phase I in 2022. Replacement wells for P-117, P-137A and P-138A include wells P-142, P-143A, and P-144A, respectively, which are already installed along the south (i.e. downgradient) edge of future Cell 4, as shown on Figure 5. Depending on the timing of the start of Cell 4 – Phase I construction, either wells P-117, P-137A, and replacement well P-144A or alternately each of the replacement wells P-142, P-143A, and P-144A will be sampled during the spring of 2022 monitoring event. Replacement wells P-142, P-143A, and P-144A will be sampled during the fall of 2022 monitoring event.

5.3 Key Activities for 2022

The following key actions are anticipated at the Landfill in the year 2022:

1. Routine, semi-annual assessment monitoring events at monitoring system wells are planned in the spring between March 15 and May 15, 2022 and in the fall between September 15 and November 15, 2022.
2. Statistical analysis of monitoring results will be conducted to demonstrate compliance with §257.95(e) through (g).
3. Construction of Cell 4 – Phase I is planned to begin in the spring of 2022.
4. In advance of Cell 4 – Phase I construction, wells P-117, P-137A and P-138A will be sealed.
5. Placement of the Monitoring Well Installation Report (Carlson McCain, 2021b), documenting the installation of monitoring wells P-142, P-143A and P-144A as replacements in the Landfill's monitoring system for wells P-117, P-137A, and P-138A, in the operating record for compliance with §257.91(e)(1).
6. Update the groundwater monitoring system certification to incorporate wells P-142, P-143A and P-144A in the Landfill's monitoring system as replacements for wells P-117, P-137A, and P-138A; and record the updated certification in the Landfill's operating record and place the updated certification on the Landfill's CCR website.

6.0 REFERENCES

Carlson McCain, 2017. CCR Groundwater Monitoring System Certification, Sherco Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, October 16, 2017.

Carlson McCain, 2018a. SSI Determination – Unit 3 Landfill, Prepared for NSPM Environmental Services, Carlson McCain, Inc., January 15, 2018.

Carlson McCain, 2018b. CCR Annual Groundwater and Corrective Action Monitoring Report, Sherco Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, January 29, 2018.

Carlson McCain, 2018c. Alternate Source Demonstration Update – Unit 3 Landfill, Prepared for NSPM Environmental Services, Carlson McCain, Inc., April 13, 2018.

Carlson McCain, 2021a. 2020 CCR Annual Groundwater and Corrective Action Monitoring Report, Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, January 28, 2021.

Carlson McCain, 2021b. Monitoring Well Replacement Report, Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, February 17, 2021.

Carlson McCain, 2021c. CCR Groundwater Sampling and Analysis Plan – Revision #2, Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, March 29, 2021.

Carlson McCain, 2021d. Statistical Analysis Plan – Revision #1, Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, March 29, 2021.

Carlson McCain, 2021e. Monitoring Well Replacement Report, Unit 3 Landfill, Sherco Generating Plant, prepared for Northern States Power Company, A Minnesota Corporation, December 6, 2021.

Tables

Table 1

CCR Groundwater Monitoring System

Sherco Unit 3 Landfill

Well ID	Minnesota Unique Well ID	Date Installed	Location Site Coordinates (ft) Easting	Location Site Coordinates (ft) Northing	Elevation Top of Riser Pipe	Screen Length (ft)	Elevation Top of Screen	Elevation Bottom of Screen	Monitoring Status	Hydrologic Location
P-73A-1	429451	9/25/86	2025348	872626	973.00	10	947	937	Abandoned	Side-Gradient
P-73A-2	863060	11/3/2021	2025348	872627	974.18	10	942	932	Routine Semiannual	Side-Gradient
P-74-1	429457	9/25/86	2025237	870732	970.66	10	943	933	Abandoned	Side-Gradient
P-74-2	863061	11/2/2021	2025238	870732	971.98	10	935	925	Routine Semiannual	Side-Gradient
P-75-1	429454	9/29/86	2023946	871250	972.89	10	943	933	Abandoned	Down-Gradient
P-75-2	863062	11/1/2021	2023947	871250	973.85	10	938	928	Routine Semiannual	Down-Gradient
P-97	426839	10/13/86	2023990	870840	974.65	10	944	934	Abandoned	Down-Gradient
P-97-1	863064	11/1/2021	2023990	870840	974.77	15	942	927	Routine Semiannual	Down-Gradient
P-98	426838	10/14/86	2024683	870531	973.37	10	940	930	Abandoned	Down-Gradient
P-98-1	863065	11/2/2021	2024684	870532	973.73	10	936	926	Routine Semiannual	Down-Gradient
P-117	474026	2/8/91	2023987	872256	973.41	10	940	930	Routine Semiannual	Down-Gradient
P-120	474023	2/11/91	2024299	870529	973.33	10	933	923	Routine Semiannual	Down-Gradient
P-125	517548	4/1/93	2024679	873649	972.20	10	933	923	Routine Semiannual	Up-gradient
P-134	747065	12/6/08	2022754	873698	973.85	10	946	936	Routine Semiannual	Up-gradient
P-137A	768518	7/29/09	2023473	872511	972.64	10	941	931	Routine Semiannual	Down-Gradient
P-138A	768520	7/27/09	2022968	872512	969.27	10	942	932	Routine Semiannual	Down-Gradient
P-141	822160	7/22/16	2023787	873696	975.17	10	947	937	Routine Semiannual	Up-gradient

*Notes:

Elevation is feet above mean sea level

Wells P-73A-1, P-74-1, P-75-1, P-97 and P-98 were replaced in the same locations with wells P-73A-2, P-74-2, P-75-2, P-97-1 and P-98-1 on November 1-4, 2021.

Table 2
Summary of Data Collected
Sherco Unit 3 Landfill

Upgradient & Sidegradient Wells				
Well ID	Number of Samples	Sample Dates		
		Spring 2021[1]	Spring 2021 Resample[2]	Fall 2021[3]
P-73A-1	2	3/22/2021	--	10/19/2021
P-74-1	2	5/7/2021	--	11/11/2021
P-125	2	3/22/2021	--	10/19/2021
P-134	2	3/22/2021	--	10/19/2021
P-141	2	3/22/2021	--	10/19/2021

Downgradient Wells				
Well ID	Number of Samples	Sample Dates		
		Spring 2021[1]	Spring 2021 Resample[2]	Fall 2021[3]
P-75-1	2	3/24/2021	--	10/19/2021
P-97	2	5/7/2021	--	11/11/2021
P-98	2	3/23/2021	--	10/19/2021
P-117	2	3/22/2021	--	10/19/2021
P-120	2	3/23/2021	--	10/19/2021
P-137A	3	3/22/2021	6/10/2021	10/19/2021
P-138A	1	3/22/2021	--	NS[4]

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

[2] Well P-137A was resampled as part of the spring assessment monitoring event due to suspect data in the original March 22, 2021 sample.

[3] Assessment monitoring semiannual resample event sampled and analyzed for appendix III of §257 and those appendix IV of §257 constituents detected during Spring 2021 as required by §257.95(d)(1).

[4] No Sample. An obstruction in well P-138A prevented samples from being collected from the well during the fall monitoring event.

Table 3

Count of Parameters Analyzed by Well

Sherco Unit 3 Landfill

Appendix III Parameters												
Parameter	Well ID and Number of Samples											
	P-73A-1	P-74-1	P-75-1	P-97	P-98	P-117	P-120	P-125	P-134	P-137A	P-138A	P-141
Boron, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Calcium, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Chloride, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Fluoride, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
pH (lab) (pH)	2	2	2	2	2	2	2	2	2	3	1	2
Sulfate, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Total Dissolved Solids (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2

Appendix IV Parameters												
Parameter	Well ID and Number of Samples											
	P-73A-1	P-74-1	P-75-1	P-97	P-98	P-117	P-120	P-125	P-134	P-137A	P-138A	P-141
Antimony, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Arsenic, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Barium, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Beryllium, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Cadmium,total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Chromium, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Cobalt, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Lead, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Lithium Total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Mercury, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Molybdenum, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Selenium, total (mg/L)	2	2	2	2	2	2	2	2	2	3	1	2
Thallium, total (mg/L)	1	1	1	1	1	1	1	1	1	2	1	1
Radium, 226 and 228 combined (pCi/L)	1	1	1	1	1	1	1	1	1	2	1	1

Table 4
Spring 2021 Groundwater Summary Data
Sherco Unit 3 Landfill

Appendix III Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 3/22/2021	P-74-1 5/7/2021	P-75-1 3/24/2021	P-97 5/7/2021	P-98 3/23/2021	P-117 3/22/2021	P-120 3/23/2021	P-125 3/22/2021	P-134 3/22/2021	P-137A 6/10/2021	P-138A 3/22/2021	P-141 3/22/2021
Boron, total	mg/L	NA	0.127	0.0851	<0.0500	0.073	<0.0500	<0.0500	0.0724	<0.0500	<0.0500	<0.0500	<0.0500	0.0569
Calcium, total	mg/L	NA	73.7	78.8	78.6	78.1	66.2	78.8	77.6	60.1	92.2	99.4	95.1	94.3
Chloride, total	mg/L	NA	19.9	21.6	32.9	29.9	24.3	37.3	29.7	25.2	41.7	52.1	49.8	55.1
Fluoride, total	mg/L	NA	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
pH, Lab	pH	NA	7.89	7.64	7.91	7.69	7.9	7.91	7.91	8.04	7.95	7.64	7.88	7.97
Sulfate, total	mg/L	NA	36.6	18.5	25.2	26.3	15.8	21.1	36.2	12	32.6	32.4	31	79.4
Total Dissolved Solids	mg/L	NA	316	332	334	346	294	370	336	292	410	440	448	472

Appendix IV Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 3/22/2021	P-74-1 5/7/2021	P-75-1 3/24/2021	P-97 5/7/2021	P-98 3/23/2021	P-117 3/22/2021	P-120 3/23/2021	P-125 3/22/2021	P-134 3/22/2021	P-137A 6/10/2021	P-138A 3/22/2021	P-141 3/22/2021
Antimony, total	mg/L	0.006	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic, total	mg/L	0.01	0.00058	0.00064	0.00075	0.00076	0.00067	0.00072	0.00076	0.00071	0.00091	0.00088	0.00076	0.00079
Barium, total	mg/L	2	0.0615	0.0989	0.0868	0.0803	0.0814	0.0812	0.0775	0.0581	0.0962	0.11	0.111	0.0956
Beryllium, total	mg/L	0.004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cadmium,total	mg/L	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium, total	mg/L	0.1	0.00103	0.0103	0.0007	0.00188	0.00069	0.00064	0.00086	0.00062	<0.00050	0.00102	0.00053	0.00122
Cobalt, total	mg/L	0.006	<0.00050	0.00202	<0.00050	0.00469	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Fluoride, total	mg/L	4	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Lead, total	mg/L	0.015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium, total	mg/L	0.04	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500	<0.01500
Mercury, total	mg/L	0.002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum, total	mg/L	0.1	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Selenium, total	mg/L	0.05	0.00056	<0.00050	0.00065	0.00068	<0.00050	<0.00050	0.00101	<0.00050	<0.00050	0.0005	<0.00050	0.00065
Thallium, total	mg/L	0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Radium, 226 and 228 combined	pCi/L	5	<1.8	<2.0	<1.7	<1.7	<1.7	<1.7	<2.2	<1.9	<1.9	<1.5	<1.7	<1.8

Field Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 3/22/2021	P-74-1 5/7/2021	P-75-1 3/24/2021	P-97 5/7/2021	P-98 3/23/2021	P-117 3/22/2021	P-120 3/23/2021	P-125 3/22/2021	P-134 3/22/2021	P-137A 6/10/2021	P-138A 3/22/2021	P-141 3/22/2021
ORP	mV	NA	195	214	187	205	195	185	202	191	185	208	29.41	188
Oxygen, dissolved	mg/L	NA	12	8	9.2	8.9	8.7	9.5	8.1	10.8	9.8	8.6	8.5	10.5
pH, field	pH	NA	7.6	7.4	7.6	7.4	7.6	7.6	7.5	7.8	7.6	6.8	7.5	7.6
Specific Cond, field	µmhos/cm	NA	580	610	650	660	550	650	620	520	740	350	790	810
Static Water Level	ft	NA	33.74	36.03	37.41	40.44	39.45	34.43	39.86	29.66	30.26	29.23	29.41	31.87
Temperature	degrees C	NA	7.9	12.3	7.1	12.9	10.2	9.9	9.9	9.5	9.1	11.7	9.9	8.6
Turbidity, field	NTU	NA	1.1	0.6	2.4	0.9	1.8	1.5	0.8	1.2	1.9	3.2	1.5	2.8
Water Level Elevation	ft	NA	939.26	934.63	935.48	934.21	933.92	938.98	933.47	942.54	943.59	943.41	939.86	943.3

GWPS = Groundwater Protection Standard
NA = Not Applicable
Two dashed lines = Not Analyzed
Downgradient Well

Table 5
Fall 2021 Groundwater Summary Data
Sherco Unit 3 Landfill

Appendix III Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 10/19/2021	P-74-2 11/11/2021	P-75-1 10/19/2021	P-97-1 11/11/2021	P-98 10/19/2021	P-117 10/19/2021	P-120 10/19/2021	P-125 10/19/2021	P-134 10/19/2021	P-137A 10/19/2021	P-138A[1] 10/18/2021	P-141 10/19/2021
Boron, total	mg/L	NA	0.0765	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.123	<0.0500	<0.0500	0.165	--	0.121
Calcium, total	mg/L	NA	69.9	76.3	73.6	80.6	68.2	80.3	77.9	60.5	81.5	99.1	--	87.7
Chloride, total	mg/L	NA	15.6	27.6	31.1	35.7	30.5	43.6	29.7	29.5	37.6	36.3	--	57
pH, Lab	pH	NA	7.67	7.69	7.62	7.72	7.59	7.64	7.62	7.73	7.66	7.61	--	7.73
Sulfate, total	mg/L	NA	24.9	14.9	26.6	35	18.2	24.3	41	13.2	27.6	102	--	49.1
Total Dissolved Solids	mg/L	NA	288	324	328	366	318	380	364	296	358	460	--	406

Appendix IV Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 10/19/2021	P-74-2 11/11/2021	P-75-1 10/19/2021	P-97-1 11/11/2021	P-98 10/19/2021	P-117 10/19/2021	P-120 10/19/2021	P-125 10/19/2021	P-134 10/19/2021	P-137A 10/19/2021	P-138A[1] 10/18/2021	P-141 10/19/2021
Antimony, total	mg/L	0.006	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic, total	mg/L	0.01	0.00104	0.00064	0.00093	0.00071	0.00074	0.00078	0.00083	0.00084	0.00107	0.00107	--	0.00089
Barium, total	mg/L	2	0.0615	0.0988	0.0864	0.094	0.082	0.0829	0.0824	0.0619	0.0881	0.122	--	0.0933
Beryllium, total	mg/L	0.004	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium,total	mg/L	0.005	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, total	mg/L	0.1	0.00239	0.00158	0.00109	0.00217	0.00125	0.00089	0.00094	0.00104	0.00097	0.00196	--	0.00188
Cobalt, total	mg/L	0.006	0.00087	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00067	--	0.00064
Fluoride, total	mg/L	4	--	--	--	--	--	--	--	--	--	--	--	--
Lead, total	mg/L	0.015	--	--	--	--	--	--	--	--	--	--	--	--
Lithium, total	mg/L	0.04	--	--	--	--	--	--	--	--	--	--	--	--
Mercury, total	mg/L	0.002	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum, total	mg/L	0.1	<0.00050	0.00053	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050
Selenium, total	mg/L	0.05	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00133	<0.00050	<0.00050	0.00069	--	<0.00050
Thallium, total	mg/L	0.002	--	--	--	--	--	--	--	--	--	--	--	--
Radium, 226 and 228 combined	pCi/L	5	--	--	--	--	--	--	--	--	--	--	--	--

Field Parameters													
Parameter	Units	GWPS	Well ID and Sample Date										
			P-73A-1 10/19/2021	P-74-2 11/11/2021	P-75-1 10/19/2021	P-97-1 11/11/2021	P-98 10/19/2021	P-117 10/19/2021	P-120 10/19/2021	P-125 10/19/2021	P-134 10/19/2021	P-137A 10/19/2021	P-138A[1] 10/18/2021	P-141 10/19/2021
ORP	mV	NA	87	167	87	160	78	95	54	95	91	90	--	93
Oxygen, dissolved	mg/L	NA	10.1	8.6	9.3	6.5	8.7	8.6	8.1	10.2	8.4	8.5	--	9.6
pH, field	pH	NA	8	7.6	7.9	7.6	7.8	7.5	8.4	7.7	7.7	7.8	--	7.6
Specific Cond, field	µmhos/cm	NA	560	610	600	650	570	660	640	540	700	770	--	740
Static Water Level	ft	NA	34.5	38.22	37.85	41.2	40.19	35.04	40.6	30.72	31.2	33.36	29.4	32.75
Temperature	degrees C	NA	10.6	10.2	15.7	10	12.7	12.1	11.3	11.6	11.2	11.6	--	11.1
Turbidity, field	NTU	NA	2	3.2	1.8	3.6	2.9	3.5	1.9	5	5	1.5	--	1.7
Water Level Elevation	ft	NA	938.5	932.44	935.04	933.45	933.18	938.37	932.73	941.48	942.65	939.28	939.87	942.42

GWPS = Groundwater Protection Standard

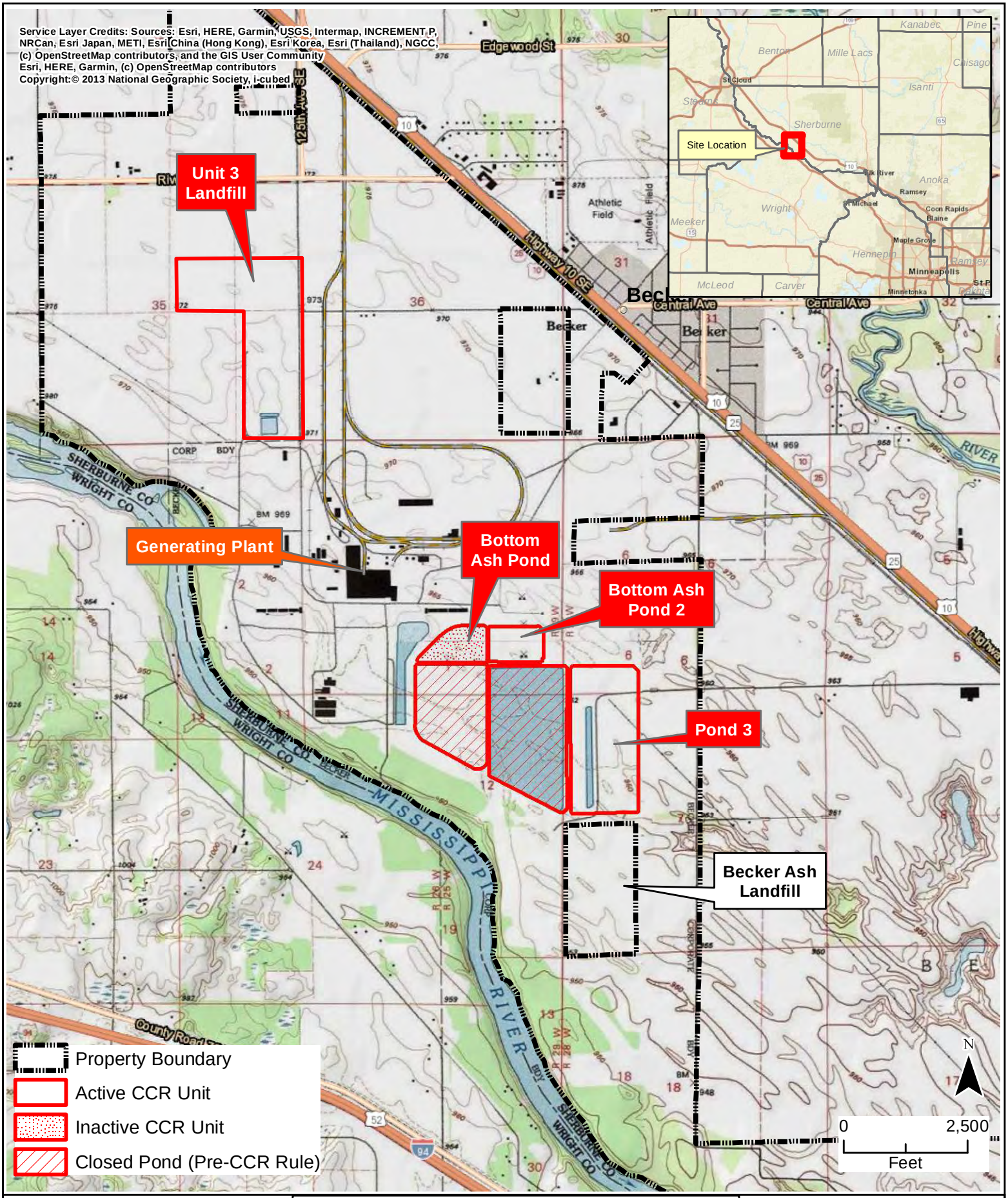
NA = Not Applicable

Two dashed lines = Not Analyzed

Downgradient Well

[1] An obstruction in well P-138A prevented samples from being collected from the well during the fall monitoring event.

Figures



CARLSON McCAIN

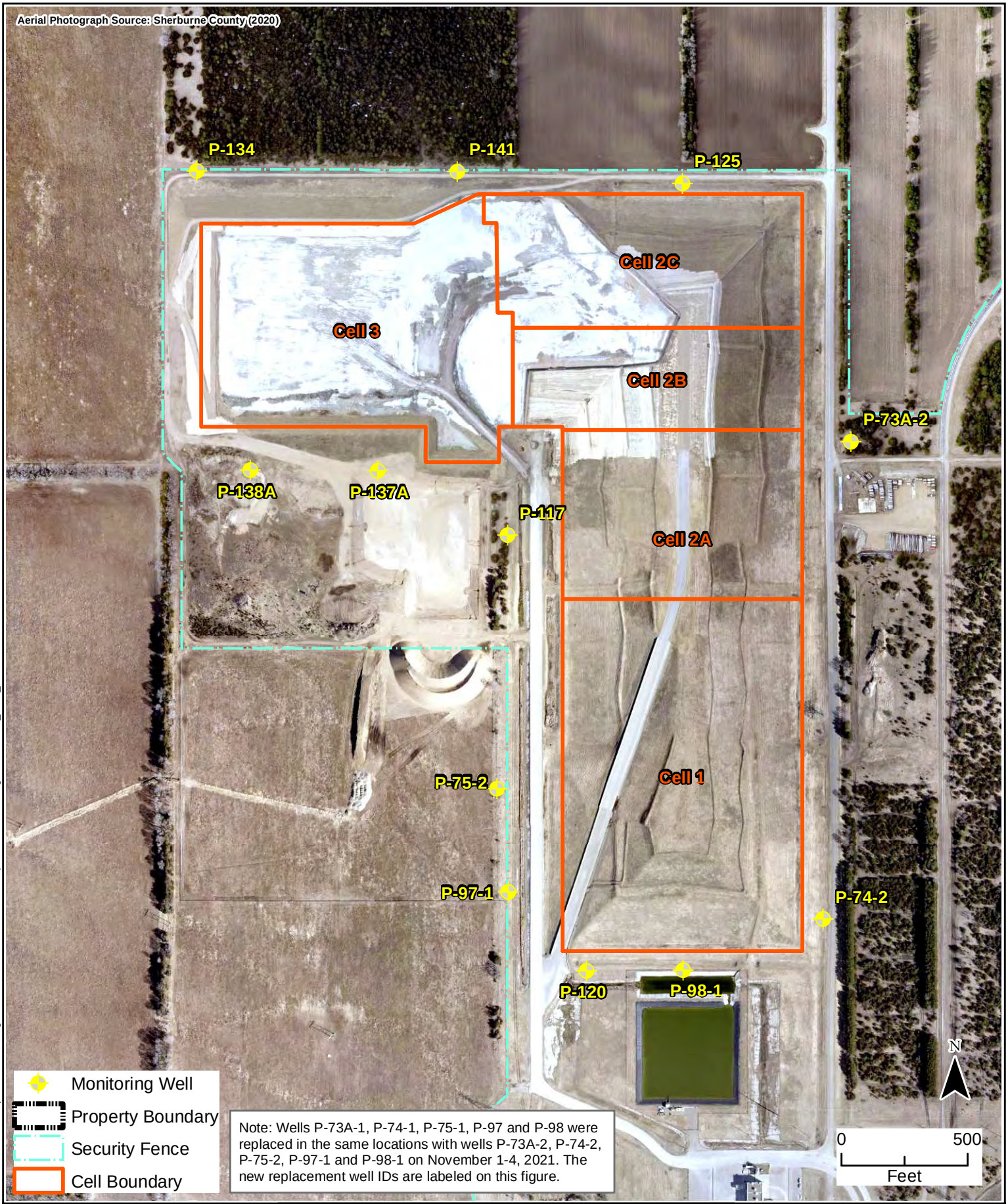
2021 CCR ANNUAL GROUNDWATER MONITORING REPORT

Unit 3 Landfill

Sherburne County Generating Plant
Becker, Minnesota

FIGURE 1

SITE LOCATION MAP



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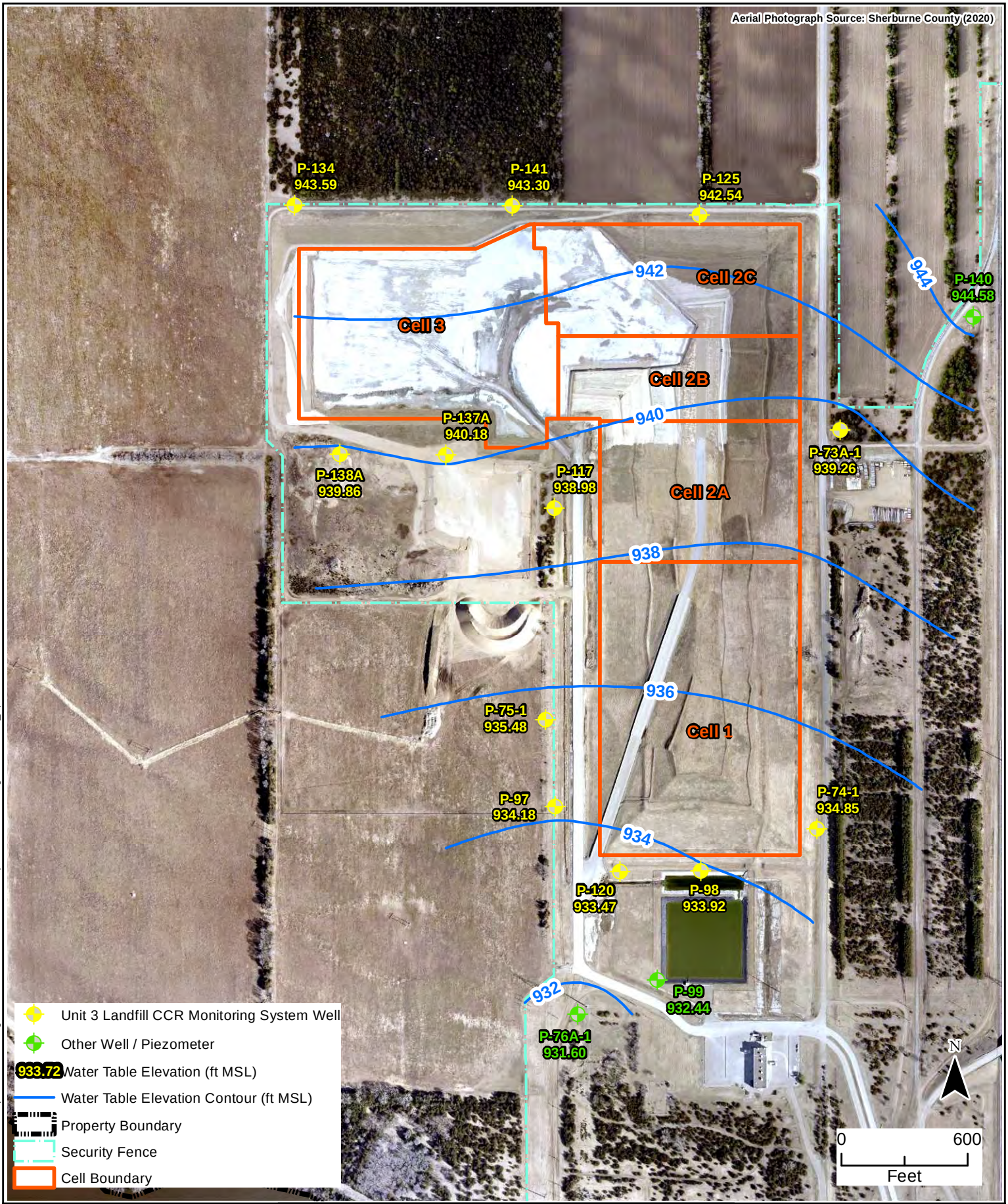
CARLSON McCAIN

2021 CCR ANNUAL GROUNDWATER MONITORING REPORT
Sherco Unit 3 Landfill
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 2

CCR GROUNDWATER MONITORING SYSTEM

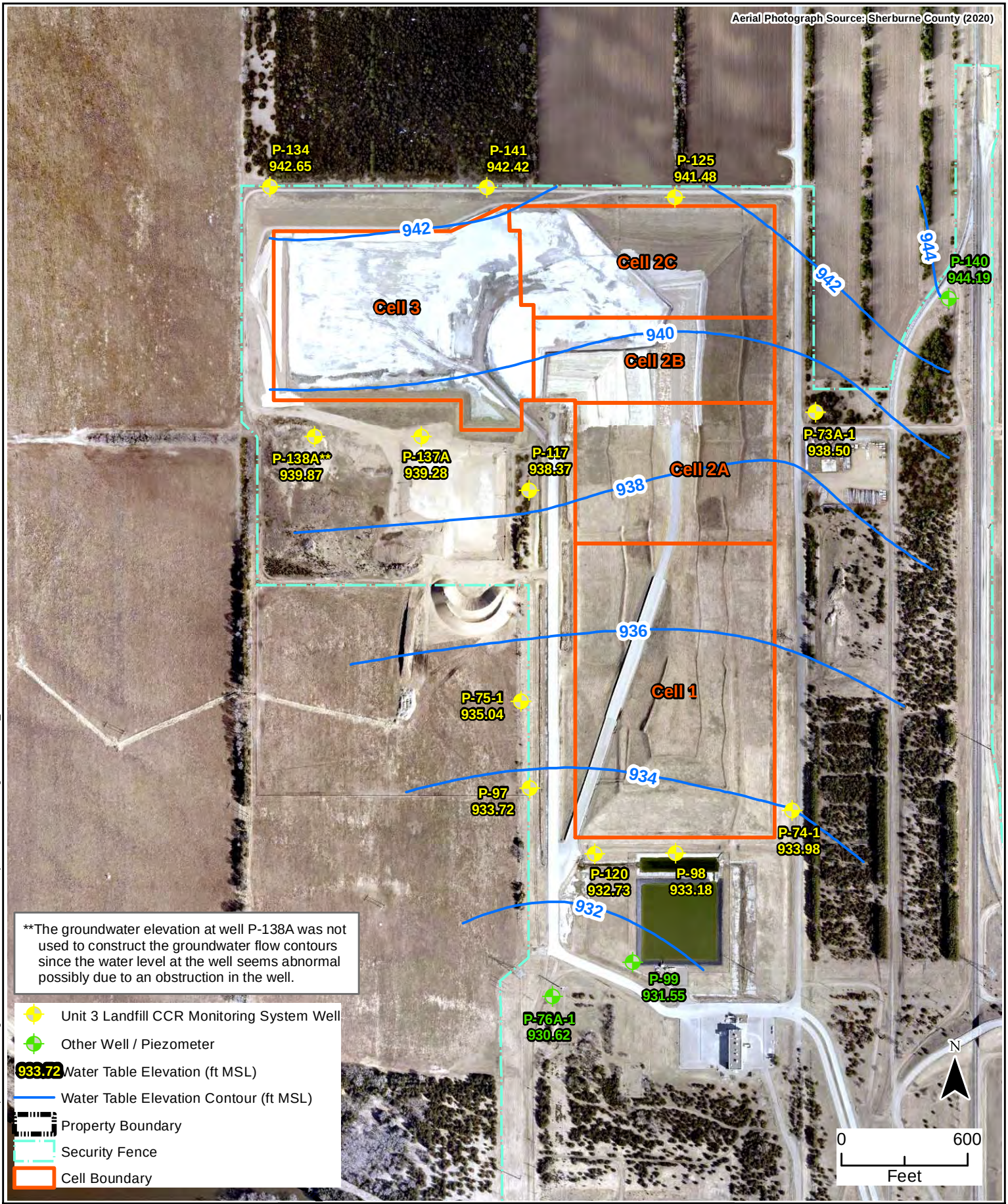


Document Path: P:\Projects\XCEL\6559 Ash Operations and Mgmt\Sherco\2021 CCR Annual Reports\U3LF\GIS\Figure 3 - U3LF_Spr21Contours.mxd

CARLSON McCAIN

2021 CCR ANNUAL GROUNDWATER MONITORING REPORT
Sherco Unit 3 Landfill
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 3
WATER TABLE ELEVATION CONTOUR MAP (3/22-24/2021)

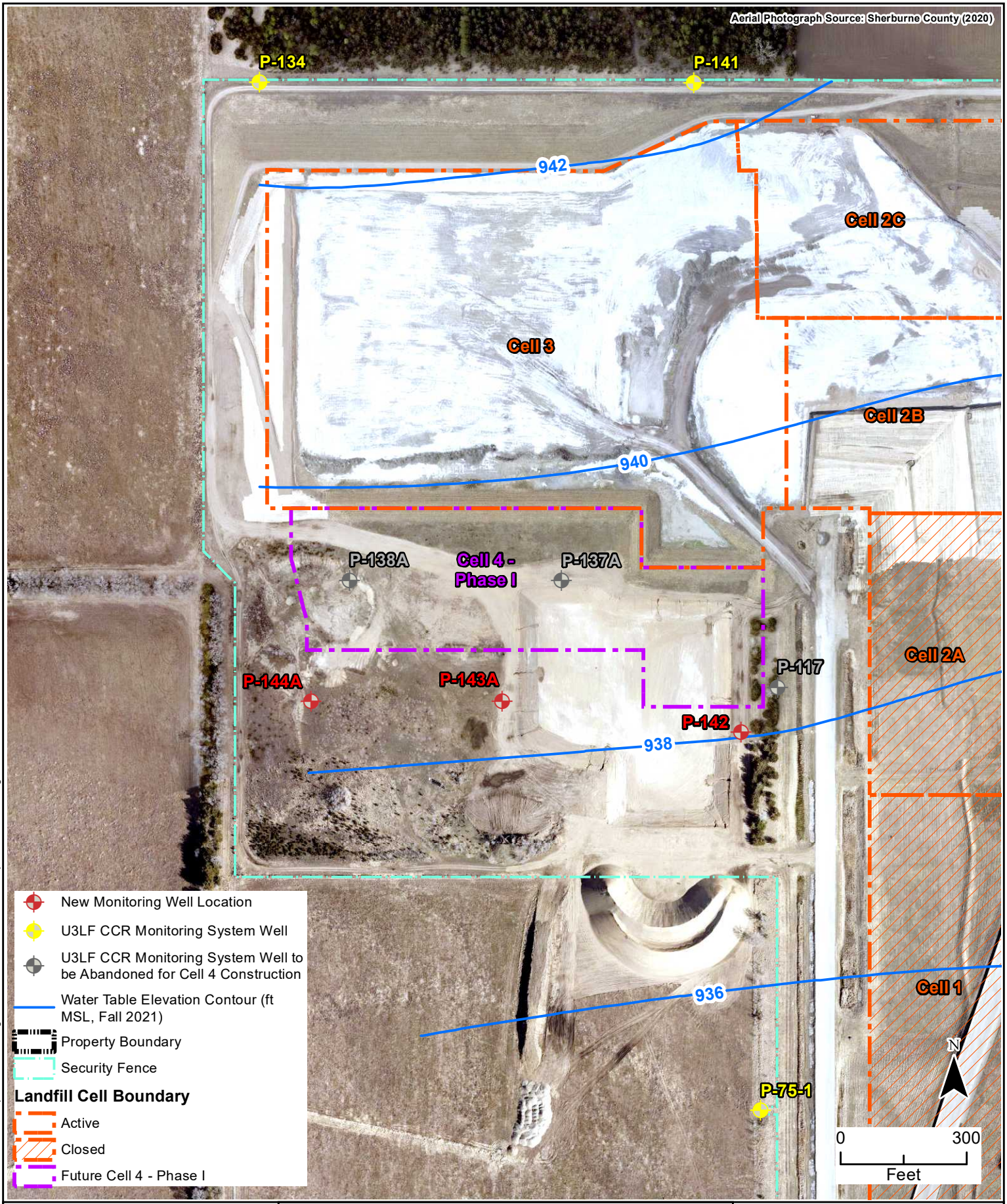


Document Path: P:\Projects\XCEL\6559 Ash Operations and Mgmt\Sherco\2021 CCR Annual Reports\U3LF\GIS\Figure 4 - U3LF_Fall21Contours.mxd

CARLSON McCAIN

2021 CCR ANNUAL GROUNDWATER MONITORING REPORT
Sherco Unit 3 Landfill
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 4
WATER TABLE ELEVATION CONTOUR MAP (10/18-19/2021)



Document Path: P:\Projects\XCEL\6559 Ash Operations and Mgmt\Sherco\2021 CCR Annual Reports\U3LF\GIS\Figure 5 - Cell 4 Well Installation.mxd

CARLSON McCAIN

2021 CCR ANNUAL GROUNDWATER MONITORING REPORT
Sherco Unit 3 Landfill
Sherburne County Generating Plant
Becker, Minnesota

FIGURE 5
CELL 4 MONITORING NETWORK MODIFICATIONS

Appendix A

Spring 2021 Assessment 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 Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-73A-1 Labeled P-73A-1

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	36.18	Feet
Static water level measurement before purging (Start Depth)	33.74	Feet
Static water level measurement at time of sampling (Final Depth)	33.74	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/22/21 Water Column 2.44 Feet

Time Purged 0835 - 0847 One Casing Volume 0.40 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 1.8 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 0850

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RDJ

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	12.0 (mg/l)
Spec. Cond.	580 (µmhos/cm)	Turbidity	1.1 (NTU)
Temp. Observed	7.8 (°C)	Eh	195 (mV)
Temp. Corrected	7.9 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 36 F, Mostly Sunny, W@6MPH

Sample Description: clear no oder

Observations: *Radium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0839	7.5	580	7.9	13.1	NA	188	0.60
0843	7.6	580	7.8	12.6	NA	192	1.20
0847	7.6	580	7.8	12.0	NA	195	1.80
			RDJ 3/22/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-74-1 Labeled P74-1

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	38.10	Feet
Static water level measurement before purging (Start Depth)	* Well Dry	Feet
Static water level measurement at time of sampling (Final Depth)	NA	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method ~~Purge Method~~ Pump ID

Date Purged RGJ 3/22/21 Water Column Feet

Time Purged One Casing Volume Gallons

Pump Rate GPM / LPM Volume Purged Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 0815

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

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

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

Temp. Observed (°C) RGJ 3/22/21 Eh (mV)

Temp. Corrected (°C) Other

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: NA

Sample Description: NA

Observations: * Well Dry - No Sample (Dry @ 34.75

* WL = 35.89 w/out Bladder Pump - RGJ 3/24/21

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
					NA		
					NA		
			RGJ 3/22/21		NA		

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Energy Project: Xcel Unit 3-RESAMPLE Project No.: 21-04380

Monitoring Point ID: P-74-1 Labeled: P74-1

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	37.82	Feet
Static water level measurement before purging (Start Depth)	~~40.44~~ 36.03 (R2 RDS 5/7/21)	Feet
Static water level measurement at time of sampling (Final Depth)	36.03	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Grundfos Pump Pump ID: GP-2

Date Purged: 5/7/21 Water Column: 1.79 Feet

Time Purged: 1040 - 1055 One Casing Volume: 0.29 Gallons

Pump Rate: 0.2 (GPM) / LPM Volume Purged: 3.0 Gallons

Field Sampling Data

Date Sampled: 5/7/21

Time Sampled: 1100

Sampling Equip.: MPS- & TM-5 (R2 RDS 5/7/21)

Meter ID: Pump + Filter

Analyzed by: RDS

Field Parameter Measurements of Sample

pH	7.4 (units)	D.O	8.0 (mg/l)
Spec. Cond.	610 (µmhos/cm)	Turbidity	0.4 (NTU)
Temp. Observed	12.0 (°C)	Eh	214 (mV)
Temp. Corrected	12.3 (°C)	Other	NA

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

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

Temperature Correction Factor: 0.3 °C

Weather Conditions During Sampling: 51°F, Sunny, NW @ 10MPH

Sample Description: clear no odor

Observations: *Could not Sample w/ Bladder Pump due to Water Level. Sampled w/ Grundfos pump. Each Stabilization reading is 3 Casing Vol. for a total of 9 "Vol." purged

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1045	7.4	610	~~11.9~~ 11.9	7.9	NA	212	1.0
1050	7.4	610	12.0	7.9	NA	213	2.0
1055	7.4	610	12.0	8.0	NA	214	3.0
				RDS 5/7/21			

→ Extra per David K. request - RDS 5/7/21

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: [signature] Date: 5/7/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-75-1 Labeled P75-1

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	39.66	Feet
Static water level measurement before purging (Start Depth)	*Well Dry	Feet (37.41 ft - 3/24/21)
Static water level measurement at time of sampling (Final Depth)	37.41	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/24/21 Water Column 2.25 Feet

Time Purged 1040 - 1052 One Casing Volume 0.37 Gallons

Pump Rate 0.1 (GPM) / LPM Volume Purged 1.2 Gallons

Field Sampling Data

Date Sampled 3/22/21 / 3/24/21

Time Sampled 1615 / 1055

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RDJ

Field Parameter Measurements of Sample

pH	7.6	(units)	D.O	9.2	(mg/l)
Spec. Cond.	650	(µmhos/cm)	Turbidity	2.4	(NTU)
Temp. Observed	7.0	(°C)	Eh	187	(mV)
Temp. Corrected	7.1	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 39F, Raining, NW 16 MPH

Sample Description: clear no odor → 3/22/21 → on 3/22/21 - RDJ 3/24/21

Observations: ~~*Rainfall~~ *Dry @ 37.45 - No Sample (Well ~ 37.60 ft)

~~37.41~~ RDJ 3/24/21 ↳ Approximated on 3/24/21 by RDJ

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1044	7.6	2660	7.1	9.6	NA	182	0.4
1048	7.6	660	7.0	9.3	NA	187	0.8
1052	7.6	650	7.0	9.2	NA	187	1.2
				RDJ 3/24/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/24/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-97 Labeled P-97

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 (Pulled 3/22/21) ~~39.43~~ 41.99 Feet

Static water level measurement before purging (Start Depth) *Well Dry Feet (40.47)

Static water level measurement at time of sampling (Final Depth) _____ Feet 4/3/21

Static Water Level Elevation Before Purging NA Feet took Bladder pump out & top of WL.

Purge Method Dedicated Bladder Pump Pump ID _____

~~Date Purged~~ _____ RGJ 3/22/21 Water Column _____ Feet

Time Purged _____ One Casing Volume _____ Gallons

Pump Rate _____ GPM / LPM Volume Purged _____ Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1625

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH _____ (units) D.O _____ (mg/l)

Spec. Cond. _____ (µmhos/cm) RGJ 3/22/21 Turbidity _____ (NTU)

Temp. Observed _____ (°C) Eh _____ (mV)

Temp. Corrected _____ (°C) Other _____

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: NA

Sample Description: NA

Observations: *Radium * Well Dry @ 39.43 - No Sample

*RINSE COLLECTED @ THIS WELL - 3/22/21 @ 1630

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
					NA		
					NA		
					NA		
				RGJ 3/22/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other _____

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco 3 LF (Resample) | Project No.: 21-04380

Monitoring Point ID: P-97 | Labeled: P-97

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	41.99	Feet
Static water level measurement before purging (Start Depth)	40.44	Feet
Static water level measurement at time of sampling (Final Depth)	40.44	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Grundfos Pump | Pump ID: GP-2

Date Purged: 5/7/21 | Water Column: 1.55 Feet

Time Purged: 1005 - 1020 | One Casing Volume: 0.25 Gallons

Pump Rate: 0.1 (GPM) / LPM | Volume Purged: 1.5 Gallons

Field Sampling Data

Date Sampled: 5/7/21

Time Sampled: 1025

Sampling Equip.: Pump + Filter

Meter ID: MPS TM-5

Analyzed by: RDS

Field Parameter Measurements of Sample

pH	7.4 (units)	D.O	8.9 (mg/l)
Spec. Cond.	660 (µmhos/cm)	Turbidity	0.9 (NTU)
Temp. Observed	12.6 (°C)	Eh	205 (mV)
Temp. Corrected	12.9 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.3 °C

Weather Conditions During Sampling: 50°F, Sunny, NW @ 10 MPH

Sample Description: clear no odor

Observations: * Bladder Pump did not purge Vol. - too shallow of water depth. Sampled w/ Grundfos, purging 2 Extra Vol. per David K. request

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1008	7.4	660	12.5	9.6	NA	202	0.3
1011	7.4	660	12.6	9.3	NA	205	0.6
1014	7.4	660	12.6	9.0	NA	205	0.9
1017	7.4	660	12.6	9.0	NA	205	1.2
1020	7.4	660	12.6	8.9	NA	205	1.5
				RDS 5/7/21			

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

Form Revised 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 5/7/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-98 Labeled P-98

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	43.35	Feet
Static water level measurement before purging (Start Depth)	39.45	Feet *3/22/21
Static water level measurement at time of sampling (Final Depth)	39.45	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPL-1

Date Purged 3/23/21 Water Column 3.90 Feet

Time Purged 0920-0935 One Casing Volume 0.64 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 2.25 Gallons

Field Sampling Data

Date Sampled 3/23/21

Time Sampled 0940

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	8.7 (mg/l)
Spec. Cond.	550 (µmhos/cm)	Turbidity	1.8 (NTU)
Temp. Observed	10.1 (°C)	Eh	195 (mV)
Temp. Corrected	10.2 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 41F, Raining; NE 9 MPH

Sample Description: clear no odor

Observations: xRadium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0925	7.7	550	10.0	8.6	NA	193	0.75
0930	7.6	550	10.1	8.7	NA	194	1.50
0935	7.6	550	10.1	8.7	NA	195	2.25
				RGJ			
				3/23/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/23/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-117 Labeled P-117

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	40.97	Feet
Static water level measurement before purging (Start Depth)	34.43	Feet
Static water level measurement at time of sampling (Final Depth)	34.42	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/22/21 Water Column 6.54 Feet

Time Purged 1520-1544 One Casing Volume 1.07 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1550

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	9.5 (mg/l)
Spec. Cond.	650 (µmhos/cm)	Turbidity	1.5 (1) (NTU)
Temp. Observed	9.8 (°C)	Eh	185 (mV)
Temp. Corrected	9.9 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 58°F, Sunny, NW 6 MPH

Sample Description: clear no odor

Observations: *Radium (1) Turb not recorded onsite, estimated 3/29/21 RGJ

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1528	7.7	650	9.7	9.9	NA	183	1.2
1536	7.7	650	9.8	9.5	NA	184	2.4
1544	7.6	650	9.8	9.5	NA	185	3.6
				RGJ			
				3/22/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-120 Labeled P-120

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	48.53	Feet
Static water level measurement before purging (Start Depth)	39.86	Feet *3/22/21
Static water level measurement at time of sampling (Final Depth)	39.86	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/23/21 Water Column 8.67 Feet

Time Purged 1005-1035 One Casing Volume 1.41 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 4.5 Gallons

Field Sampling Data

Date Sampled 3/23/21

Time Sampled 1040

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH	7.5 (units)	D.O	8.1 (mg/l)
Spec. Cond.	620 (µmhos/cm)	Turbidity	0.8 (NTU)
Temp. Observed	9.8 (°C)	Eh	202 (mV)
Temp. Corrected	9.9 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 41°F, Raining, NW 8MPH

Sample Description: clear no odor

Observations: *Radium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1015	7.5	620	9.7	7.8	NA	200	1.5
1025	7.5	620	9.8	8.0	NA	201	3.0
1035	7.5	620	9.8	8.1	NA	202	4.5
				RGJ			
				3/23/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/23/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-125 Labeled P-125

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	36.41	Feet
Static water level measurement before purging (Start Depth)	29.66	Feet
Static water level measurement at time of sampling (Final Depth)	29.66	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/22/21 Water Column 6.75 Feet

Time Purged 0950 - 1014 One Casing Volume 1.10 Gallons

Pump Rate 0.15 (GPM) / LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1020

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH	7.8 (units)	D.O	10.8 (mg/l)
Spec. Cond.	520 (µmhos/cm)	Turbidity	1.2 (NTU)
Temp. Observed	9.4 (°C)	Eh	191 (mV)
Temp. Corrected	9.5 (°C)	Other	NM

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 39F, Sunny; NW @ 6MPH

Sample Description: clear no odor

Observations: *Radium @DUPLICATE COLLECTED @ THIS WELL

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0958	7.8	520	9.3	11.9	NA	193	1.2
1006	7.8	520	9.4	11.4	NA	192	2.4
1014	7.8	520	9.4	10.8	NA	191	3.6
				RGJ 3/22/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-134 Labeled 747065

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	37.52	Feet
Static water level measurement before purging (Start Depth)	30.26	Feet
Static water level measurement at time of sampling (Final Depth)	30.26	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/22/21 Water Column 7.26 Feet

Time Purged 1145 - 1209 One Casing Volume 1.18 Gallons

Pump Rate 0.15 GPM / LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1215

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RBJ

Field Parameter Measurements of Sample

pH	7.6	(units)	D.O	9.8	(mg/l)
Spec. Cond.	740	(µmhos/cm)	Turbidity	1.9	(NTU)
Temp. Observed	9.0	(°C)	Eh	185	(mV)
Temp. Corrected	9.1	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 50° F, Sunny, NE 5 MPH

Sample Description: clear no odor

Observations: *Radium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1153	7.7	740	9.0	9.8	NA	186	1.2
1201	7.7	740	9.0	9.8	NA	186	2.4
1209	7.6	740	9.0	9.8	NA	185	3.6
				RBJ			
				3/22/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco 3 LF Spring 21 | Project No.: 21-4380

Monitoring Point ID: P-137A | Labeled: P137A

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	41.70	Feet
Static water level measurement before purging (Start Depth)	32.46	Feet
Static water level measurement at time of sampling (Final Depth)	32.46	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: ~~Dedicated Bladder Pump~~ Grundfos Pump | Pump ID: GP-1

Date Purged: 3/22/21 | Water Column: 7.24 Feet

Time Purged: 1415 - 1439 | One Casing Volume: 1.51 Gallons

Pump Rate: 0.2 (GPM) / LPM | Volume Purged: 4.8 Gallons

Field Sampling Data

Date Sampled: 3/22/21

Time Sampled: 1445

Sampling Equip.: Pump + Filter

Meter ID: MPS-7

Analyzed by: RDJ

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	9.1 (mg/l)
Spec. Cond.	800 (µmhos/cm)	Turbidity	55 (NTU)
Temp. Observed	11.7 (°C)	Eh	173 (mV)
Temp. Corrected	11.6 (°C)	Other	NA

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

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

Temperature Correction Factor: ±0.1 °C

Weather Conditions During Sampling: 57°F, Sunny, NW @ 7MPH

Sample Description: Light Brown no odor

Observations: *Radium *Bladder Pump not working, Purged w/ Grundfos.

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1423	7.6	780	17.8	9.2	NA	172	1.6
1431	7.6	800	11.7	9.1	NA	173	3.2
1439	7.6	800	11.7	9.1	NA	173	4.8
				RDJ 3/22/21			

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco ponds 1/3 resample spring 2021 Project No. 21-04716

Monitoring Point ID P-137A Labeled P137A

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	41.70	Feet
Static water level measurement before purging (Start Depth)	29.23	Feet
Static water level measurement at time of sampling (Final Depth)	29.23	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method dedicated bladder pump Pump ID BPC-1

Date Purged 6/10/21 Water Column 12.47 Feet

Time Purged 0830 - 0903 One Casing Volume 2.03 Gallons

Pump Rate 0.2 (GPM) / LPM Volume Purged 6.6 Gallons

Field Sampling Data

Date Sampled 6/10/21

Time Sampled 0910

Sampling Equip. pump + filter

Meter ID MPS-8, TM-6

Analyzed by KAJ / RGJ

Field Parameter Measurements of Sample

pH	6.8 (units)	D.O	8.6 (mg/l)
Spec. Cond.	350 (µmhos/cm)	Turbidity	3.2 (NTU)
Temp. Observed	11.4 (°C)	Eh	208 (mV)
Temp. Corrected	11.7 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.3 °C

Weather Conditions During Sampling: 82° F, sunny, SW wind @ 2 mph

Sample Description: clear + odorless

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0841	6.8	350	11.5	8.3	NA	208	2.2
0852	6.8	350	11.4	8.6	NA	208	4.4
0903	6.8	350	11.4	8.6	NA	208	6.6
			KAJ 6/10/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Kendall Johnson + Riley Jacobson

Lead Technician Signature: Kendall Johnson Date: 6/10/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-138A Labeled P-138A

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	36.95	Feet
Static water level measurement before purging (Start Depth)	29.41	Feet
Static water level measurement at time of sampling (Final Depth)	29.41	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BBC-1

Date Purged 3/22/21 Water Column 7.54 Feet

Time Purged 1230 - 1257 One Casing Volume 1.23 Gallons

Pump Rate 0.15 GPM / LPM Volume Purged 4.05 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1300

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RDJ

Field Parameter Measurements of Sample

pH	7.5 (units)	D.O	8.5 (mg/l)
Spec. Cond.	790 (µmhos/cm)	Turbidity	1.5 (NTU)
Temp. Observed	9.8 (°C)	Eh	188 (mV)
Temp. Corrected	9.9 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 54°F, Sunny; NW @ 7 MPH

Sample Description: clear no odor

Observations: *Radium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1239	7.5	790	9.7	8.7	NA	189	1.35
1248	7.5	790	9.7	8.5	NA	188	2.70
1257	7.5	790	9.8	8.5	NA	188	4.05
			RDJ 3/22/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-140 Labeled P-140

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	33.98	Feet
Static water level measurement before purging (Start Depth)	27.03	Feet *3/22/21
Static water level measurement at time of sampling (Final Depth)	NA	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method ____ Pump ID ____

Date Purged ____ Water Column ____ Feet

Time Purged ____ One Casing Volume ____ Gallons

Pump Rate ____ GPM / LPM Volume Purged ____ Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1705

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH ____ (units) D.O ____ (mg/l)

Spec. Cond. ____ (µmhos/cm) Turbidity ____ (NTU)

Temp. Observed ____ (°C) Eh ____ (mV)

Temp. Corrected ____ (°C) Other ____

NA RGJ 3/22/21

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

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

Temperature Correction Factor: ±0.1 °C

Weather Conditions During Sampling: NA

Sample Description: NA

Observations: * SWL ONLY

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
					NA		
					NA		
			NA	RGJ 3/22/21	NA		

Samples chilled immediately after collection: ☒ Yes ☐ Other ____

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Spring 21 Project No. 21-4380

Monitoring Point ID P-141 Labeled P-141

Inside Diameter 2 (inches) Key # 210le ☒ 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	39.24	Feet
Static water level measurement before purging (Start Depth)	31.87	Feet
Static water level measurement at time of sampling (Final Depth)	31.87	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID BPC-1

Date Purged 3/22/21 Water Column 7.37 Feet

Time Purged 1100 - 1124 One Casing Volume 1.20 Gallons

Pump Rate 0.15 GPM/ LPM Volume Purged 3.6 Gallons

Field Sampling Data

Date Sampled 3/22/21

Time Sampled 1130

Sampling Equip. Pump + Filter

Meter ID MPS-7

Analyzed by RGJ

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	10.5 (mg/l)
Spec. Cond.	810 (µmhos/cm)	Turbidity	2.8 (NTU)
Temp. Observed	8.5 (°C)	Eh	188 (mV)
Temp. Corrected	8.6 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 47F, Sunny, NW 5MPH

Sample Description: clear no odor

Observations: *Radium

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1108	7.7	810	8.5	10.4	NA	188	1.2
1116	7.6	810	8.5	10.5	NA	188	2.4
1124	7.6	810	8.5	10.5	NA	188	3.6
			RGJ 3/22/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

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

Lead Technician Signature: Riley Jacobson Date: 3/22/21

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

30 April 2021

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco Unit 3 LF Spring

Enclosed are the results of analyses for samples received by the laboratory on 03/24/2021 14:17. 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 Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-73A-1		MGC0217-01	Water	03/22/2021 8:50	03/24/2021 14:17
P-75-1		MGC0217-03	Water	03/24/2021 10:55	03/24/2021 14:17
P-98		MGC0217-05	Water	03/23/2021 9:40	03/24/2021 14:17
P-117		MGC0217-06	Water	03/22/2021 15:50	03/24/2021 14:17
P-120		MGC0217-07	Water	03/23/2021 10:40	03/24/2021 14:17
P-125		MGC0217-08	Water	03/22/2021 10:20	03/24/2021 14:17
P-134		MGC0217-09	Water	03/22/2021 12:15	03/24/2021 14:17
P-137A		MGC0217-10	Water	03/22/2021 14:45	03/24/2021 14:17
P-138A		MGC0217-12	Water	03/22/2021 13:00	03/24/2021 14:17
P-141		MGC0217-14	Water	03/22/2021 11:30	03/24/2021 14:17
Duplicate		MGC0217-20	Water	03/22/2021 10:20	03/24/2021 14:17
Rinse		MGC0217-21	Water	03/22/2021 16:30	03/24/2021 14:17

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-73A-1

MGC0217-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	19.9	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 14:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 14:38	EPA 300.0	CRL
Sulfate	36.6	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 14:38	EPA 300.0	CRL
Wet Chemistry										
pH	7.89		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 13:15	SM 4500-H+ B	HRD
Total Dissolved Solids	316	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.580	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Barium	61.5	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Chromium	1.03	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Selenium	0.557	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:07	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.127	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:39	EPA 200.7	HRD
Calcium	73.7	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:37	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:37	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-73A-1

MGC0217-01 (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	BGC0636	3/30/21 10:18	3/31/21 16:11	EPA 245.1/7470A	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-75-1

MGC0217-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	32.9	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 15:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 15:19	EPA 300.0	CRL
Sulfate	25.2	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 15:19	EPA 300.0	CRL
Wet Chemistry										
pH	7.91		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 13:35	SM 4500-H+ B	HRD
Total Dissolved Solids	334	25.0	mg/L		1	BGC0577	3/29/21 9:09	3/29/21 9:09	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0576	3/29/21 7:06	3/29/21 7:06	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.747	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Barium	86.8	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Chromium	0.704	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Selenium	0.651	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:10	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:45	EPA 200.7	HRD
Calcium	78.6	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:42	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/2/21 14:42	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-75-1

MGC0217-03 (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	BGC0636	3/30/21 10:18	3/31/21 16:13	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-98

MGC0217-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	24.3	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:00	EPA 300.0	CRL
Sulfate	15.8	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:00	EPA 300.0	CRL
Wet Chemistry										
pH	7.90		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 13:49	SM 4500-H+ B	HRD
Total Dissolved Solids	294	25.0	mg/L		1	BGC0577	3/29/21 9:09	3/29/21 9:09	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0576	3/29/21 7:06	3/29/21 7:06	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.668	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Barium	81.4	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Chromium	0.689	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:22	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:09	EPA 200.7	HRD
Calcium	66.2	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:07	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:07	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-98

MGC0217-05 (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	BGC0636	3/30/21 10:18	3/31/21 16:15	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-117

MGC0217-06 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	37.3	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:20	EPA 300.0	CRL
Sulfate	21.1	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:20	EPA 300.0	CRL
Wet Chemistry										
pH	7.91		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 13:56	SM 4500-H+ B	HRD
Total Dissolved Solids	370	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.718	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Barium	81.2	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Chromium	0.642	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:26	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:15	EPA 200.7	HRD
Calcium	78.8	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:13	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:13	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-117

MGC0217-06 (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	BGC0636	3/30/21 10:18	3/31/21 16:16	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-120

MGC0217-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	29.7	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:41	EPA 300.0	CRL
Sulfate	36.2	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 16:41	EPA 300.0	CRL
Wet Chemistry										
pH	7.91		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:02	SM 4500-H+ B	HRD
Total Dissolved Solids	336	25.0	mg/L		1	BGC0577	3/29/21 9:09	3/29/21 9:09	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0576	3/29/21 7:06	3/29/21 7:06	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.763	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Barium	77.5	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Chromium	0.863	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Selenium	1.01	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:30	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0724	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:21	EPA 200.7	HRD
Calcium	77.6	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:18	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:18	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-120

MGC0217-07 (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	BGC0636	3/30/21 10:18	3/31/21 16:18	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-125

MGC0217-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	25.2	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 17:01	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 17:01	EPA 300.0	CRL
Sulfate	12.0	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 17:01	EPA 300.0	CRL
Wet Chemistry										
pH	8.04		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:09	SM 4500-H+ B	HRD
Total Dissolved Solids	292	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.709	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Barium	58.1	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Chromium	0.623	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:34	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:27	EPA 200.7	HRD
Calcium	60.1	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:24	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:24	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-125

MGC0217-08 (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	BGC0636	3/30/21 10:18	3/31/21 16:20	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-134

MGC0217-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	41.7	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:03	EPA 300.0	CRL
Sulfate	32.6	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:03	EPA 300.0	CRL
Wet Chemistry										
pH	7.95		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:16	SM 4500-H+ B	HRD
Total Dissolved Solids	410	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.907	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Barium	96.2	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:38	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:32	EPA 200.7	HRD
Calcium	92.2	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:30	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:30	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-134

MGC0217-09 (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	BGC0636	3/30/21 10:18	3/31/21 16:22	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-137A

MGC0217-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	36.8	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:24	EPA 300.0	CRL
Sulfate	95.7	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 19:24	EPA 300.0	CRL
Wet Chemistry										
pH	7.87		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:24	SM 4500-H+ B	HRD
Total Dissolved Solids	472	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	334	10.0	mg/L		1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	2.31	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Barium	160	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Cobalt	2.44	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Chromium	6.03	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Molybdenum	0.544	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Lead	0.972	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Selenium	0.752	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:42	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.146	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:37	EPA 200.7	HRD
Calcium	100	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:36	EPA 200.7	HRD
Lithium	0.0155	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:36	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-137A

MGC0217-10 (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	BGC0636	3/30/21 10:18	3/31/21 16:23	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-138A

MGC0217-12 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	49.8	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:05	EPA 300.0	CRL
Sulfate	31.0	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:05	EPA 300.0	CRL
Wet Chemistry										
pH	7.88		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:44	SM 4500-H+ B	HRD
Total Dissolved Solids	448	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.761	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Barium	111	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Chromium	0.527	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:46	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:43	EPA 200.7	HRD
Calcium	95.1	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:41	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:41	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-138A

MGC0217-12 (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	BGC0636	3/30/21 10:18	3/31/21 16:29	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-141

MGC0217-14 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	55.1	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:45	EPA 300.0	CRL
Sulfate	79.4	1.00	mg/L		1	BGD0059	4/1/21 19:20	4/2/21 20:45	EPA 300.0	CRL
Wet Chemistry										
pH	7.97		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 14:58	SM 4500-H+ B	HRD
Total Dissolved Solids	472	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.790	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Barium	95.6	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Chromium	1.22	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Selenium	0.645	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0569	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:49	EPA 200.7	HRD
Calcium	94.3	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:47	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:47	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

P-141

MGC0217-14 (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	BGC0636	3/30/21 10:18	3/31/21 16:30	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Duplicate

MGC0217-20 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	24.5	1.00	mg/L		1	BGD0068	4/2/21 10:14	4/3/21 12:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0068	4/2/21 10:14	4/3/21 12:23	EPA 300.0	CRL
Sulfate	11.6	1.00	mg/L		1	BGD0068	4/2/21 10:14	4/3/21 12:23	EPA 300.0	CRL
Wet Chemistry										
pH	8.08		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 15:40	SM 4500-H+ B	HRD
Total Dissolved Solids	292	25.0	mg/L		1	BGC0549	3/26/21 8:55	3/26/21 8:55	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0548	3/26/21 7:12	3/26/21 7:12	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.733	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Barium	58.2	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Chromium	0.514	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:54	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:55	EPA 200.7	HRD
Calcium	60.9	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:52	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:52	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Duplicate

MGC0217-20 (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	BGC0636	3/30/21 10:18	3/31/21 16:32	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Rinse

MGC0217-21 (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	BGD0068	4/2/21 10:14	4/3/21 12:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGD0068	4/2/21 10:14	4/3/21 12:44	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BGD0068	4/2/21 10:14	4/3/21 12:44	EPA 300.0	CRL
Wet Chemistry										
pH	6.27		pH Units	M_TTT	1	BGC0554	3/25/21 11:43	3/25/21 15:53	SM 4500-H+ B	HRD
Total Dissolved Solids	< 25.0	25.0	mg/L	M_K-06	1	BGC0577	3/29/21 9:09	3/29/21 9:09	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGC0576	3/29/21 7:06	3/29/21 7:06	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGC0633	3/30/21 10:05	4/7/21 8:58	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 14:01	EPA 200.7	HRD
Calcium	< 1.50	1.50	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:59	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGC0632	3/30/21 10:03	4/5/21 13:59	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Rinse

MGC0217-21 (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	BGC0636	3/30/21 10:18	3/31/21 16:34	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0059 - Wet Prep										
Blank (BGD0059-BLK1)				Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BGD0059-BLK2)				Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BGD0059-BS1)				Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	25.267	1.00	mg/L	25.000		101	90-110			
Fluoride	2.3690	0.750	mg/L	2.5000		94.8	90-110			
Sulfate	25.136	1.00	mg/L	25.000		101	90-110			
LCS (BGD0059-BS2)				Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	24.900	1.00	mg/L	25.000		99.6	90-110			
Fluoride	2.4300	0.750	mg/L	2.5000		97.2	90-110			
Sulfate	24.734	1.00	mg/L	25.000		98.9	90-110			
LCS (BGD0059-BS3)				Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	25.219	1.00	mg/L	25.000		101	90-110			
Fluoride	2.4430	0.750	mg/L	2.5000		97.7	90-110			
Sulfate	25.013	1.00	mg/L	25.000		100	90-110			
Duplicate (BGD0059-DUP1)		**Source: MGC0217-01**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	19.756	1.00	mg/L		19.896			0.706	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	36.635	1.00	mg/L		36.577			0.158	20	

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Certification # MN-027-053-197
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0059 - Wet Prep										
Duplicate (BGD0059-DUP2)		**Source: MGC0217-02**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	13.877	1.00	mg/L		14.128			1.79	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	12.842	1.00	mg/L		13.074			1.79	20	
Matrix Spike (BGD0059-MS1)		**Source: MGC0217-01**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	51.155	1.25	mg/L	31.250	19.896	100	90-110			
Fluoride	3.2450	0.938	mg/L	3.1250	<0.938	104	90-110			
Sulfate	67.918	1.25	mg/L	31.250	36.577	100	90-110			
Matrix Spike (BGD0059-MS2)		**Source: MGC0217-02**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	44.716	1.25	mg/L	31.250	14.128	97.9	90-110			
Fluoride	3.1988	0.938	mg/L	3.1250	<0.938	102	90-110			
Sulfate	43.621	1.25	mg/L	31.250	13.074	97.8	90-110			
Matrix Spike Dup (BGD0059-MSD1)		**Source: MGC0217-01**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	50.278	1.25	mg/L	31.250	19.896	97.2	90-110	1.73	20	
Fluoride	2.8563	0.938	mg/L	3.1250	<0.938	91.4	90-110	12.7	20	
Sulfate	67.181	1.25	mg/L	31.250	36.577	97.9	90-110	1.09	20	
Matrix Spike Dup (BGD0059-MSD2)		**Source: MGC0217-02**		Prepared: 04/01/2021 Analyzed: 04/02/2021						
Chloride	44.638	1.25	mg/L	31.250	14.128	97.6	90-110	0.176	20	
Fluoride	3.0150	0.938	mg/L	3.1250	<0.938	96.5	90-110	5.91	20	
Sulfate	43.484	1.25	mg/L	31.250	13.074	97.3	90-110	0.316	20	
Batch BGD0068 - Wet Prep										
Blank (BGD0068-BLK1)				Prepared: 04/02/2021 Analyzed: 04/03/2021						
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 Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0068 - Wet Prep										
Blank (BGD0068-BLK2)				Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BGD0068-BS1)				Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	25.599	1.00	mg/L	25.000		102	90-110			
Fluoride	2.7780	0.750	mg/L	2.5000		111	90-110			M_LCS-H
Sulfate	25.560	1.00	mg/L	25.000		102	90-110			
LCS (BGD0068-BS2)				Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	25.073	1.00	mg/L	25.000		100	90-110			
Fluoride	2.6170	0.750	mg/L	2.5000		105	90-110			
Sulfate	25.023	1.00	mg/L	25.000		100	90-110			
LCS (BGD0068-BS3)				Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	24.775	1.00	mg/L	25.000		99.1	90-110			
Fluoride	2.5600	0.750	mg/L	2.5000		102	90-110			
Sulfate	24.618	1.00	mg/L	25.000		98.5	90-110			
Duplicate (BGD0068-DUP1)		**Source: MGC0217-19**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	38.993	1.00	mg/L		38.174			2.12	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	97.609	1.00	mg/L		95.595			2.08	20	
Duplicate (BGD0068-DUP2)		**Source: MGC0217-20**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	25.459	1.00	mg/L		24.515			3.78	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	12.037	1.00	mg/L		11.620			3.53	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0068 - Wet Prep										
Matrix Spike (BGD0068-MS1)		**Source: MGC0217-19**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	67.705	1.25	mg/L	31.250	38.174	94.5	90-110			
Fluoride	2.8863	0.938	mg/L	3.1250	<0.938	92.4	90-110			
Sulfate	125.17	1.25	mg/L	31.250	95.595	94.6	90-110			
Matrix Spike (BGD0068-MS2)		**Source: MGC0217-20**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	56.405	1.25	mg/L	31.250	24.515	102	90-110			
Fluoride	3.3063	0.938	mg/L	3.1250	<0.938	106	90-110			
Sulfate	43.280	1.25	mg/L	31.250	11.620	101	90-110			
Matrix Spike Dup (BGD0068-MSD1)		**Source: MGC0217-19**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	68.683	1.25	mg/L	31.250	38.174	97.6	90-110	1.43	20	
Fluoride	3.2300	0.938	mg/L	3.1250	<0.938	103	90-110	11.2	20	
Sulfate	126.92	1.25	mg/L	31.250	95.595	100	90-110	1.38	20	
Matrix Spike Dup (BGD0068-MSD2)		**Source: MGC0217-20**		Prepared: 04/02/2021 Analyzed: 04/03/2021						
Chloride	56.158	1.25	mg/L	31.250	24.515	101	90-110	0.440	20	
Fluoride	3.2638	0.938	mg/L	3.1250	<0.938	104	90-110	1.29	20	
Sulfate	43.030	1.25	mg/L	31.250	11.620	101	90-110	0.579	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0548 - Wet Prep										
Blank (BGC0548-BLK1)				Prepared & Analyzed: 03/26/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGC0548-BS1)				Prepared & Analyzed: 03/26/2021						
Total Suspended Solids	96.000	5.00	mg/L	102.20		93.9	70-130			
Duplicate (BGC0548-DUP1)		**Source: MGC0217-01**		Prepared & Analyzed: 03/26/2021						
Total Suspended Solids	<10.0	10.0	mg/L		<10.0				20	
Duplicate (BGC0548-DUP2)		**Source: MGC0217-13**		Prepared & Analyzed: 03/26/2021						
Total Suspended Solids	62.000	10.0	mg/L		59.200			4.62	20	
Batch BGC0549 - Wet Prep										
Blank (BGC0549-BLK1)				Prepared & Analyzed: 03/26/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGC0549-BS1)				Prepared & Analyzed: 03/26/2021						
Total Dissolved Solids	104.00	25.0	mg/L	104.50		99.5	70-130			
Duplicate (BGC0549-DUP1)		**Source: MGC0217-01**		Prepared & Analyzed: 03/26/2021						
Total Dissolved Solids	328.00	25.0	mg/L		316.00			3.73	20	
Duplicate (BGC0549-DUP2)		**Source: MGC0217-13**		Prepared & Analyzed: 03/26/2021						
Total Dissolved Solids	448.00	25.0	mg/L		448.00			0.00	20	
Batch BGC0554 - Wet Prep										
LCS (BGC0554-BS1)				Prepared & Analyzed: 03/25/2021						
pH	7.1800		pH Units	7.0000		103	90-110			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0554 - Wet Prep										
LCS (BGC0554-BS2)				Prepared & Analyzed: 03/25/2021						
pH	7.2000		pH Units	7.0000		103	90-110			
Duplicate (BGC0554-DUP1)		**Source: MGC0217-01**		Prepared & Analyzed: 03/25/2021						
pH	7.9500		pH Units		7.8900			0.758	20	
Duplicate (BGC0554-DUP2)		**Source: MGC0217-11**		Prepared & Analyzed: 03/25/2021						
pH	8.0900		pH Units		7.9400			1.87	20	
Batch BGC0576 - Wet Prep										
Blank (BGC0576-BLK1)				Prepared & Analyzed: 03/29/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGC0576-BS1)				Prepared & Analyzed: 03/29/2021						
Total Suspended Solids	86.000	5.00	mg/L	102.20		84.1	70-130			
Duplicate (BGC0576-DUP1)		**Source: MGC0217-16**		Prepared & Analyzed: 03/29/2021						
Total Suspended Solids	65.000	12.5	mg/L		69.000			5.97	20	
Duplicate (BGC0576-DUP2)		**Source: MGC0218-01**		Prepared & Analyzed: 03/29/2021						
Total Suspended Solids	318.00	50.0	mg/L		314.00			1.27	20	
Batch BGC0577 - Wet Prep										
Blank (BGC0577-BLK1)				Prepared & Analyzed: 03/29/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0577 - Wet Prep										
LCS (BGC0577-BS1)				Prepared & Analyzed: 03/29/2021						
Total Dissolved Solids	94.000	25.0	mg/L	104.50		90.0	70-130			
Duplicate (BGC0577-DUP1)		**Source: MGC0217-16**		Prepared & Analyzed: 03/29/2021						
Total Dissolved Solids	418.00	25.0	mg/L		420.00			0.477	20	
Duplicate (BGC0577-DUP2)		**Source: MGC0218-01**		Prepared & Analyzed: 03/29/2021						
Total Dissolved Solids	1686.0	25.0	mg/L		1694.0			0.473	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0633 - EPA 200.2, EPA 3005										
Blank (BGC0633-BLK1)				Prepared: 03/30/2021 Analyzed: 04/07/2021						
Chromium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Beryllium	<0.100	0.100	ug/L							
Barium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
LCS (BGC0633-BS1)				Prepared: 03/30/2021 Analyzed: 04/07/2021						
Molybdenum	97.398	0.500	ug/L	100.00		97.4	85-115			
Antimony	96.962	0.500	ug/L	100.00		97.0	85-115			
Chromium	105.59	0.500	ug/L	100.00		106	85-115			
Cobalt	97.102	0.500	ug/L	100.00		97.1	85-115			
Lead	91.816	0.500	ug/L	100.00		91.8	85-115			
Selenium	100.74	0.500	ug/L	100.00		101	85-115			
Thallium	93.930	0.500	ug/L	100.00		93.9	85-115			
Arsenic	95.872	0.500	ug/L	100.00		95.9	85-115			
Barium	97.053	0.500	ug/L	100.00		97.1	85-115			
Beryllium	107.29	0.100	ug/L	100.00		107	85-115			
Cadmium	101.33	0.100	ug/L	100.00		101	85-115			
Duplicate (BGC0633-DUP1)		**Source: MGC0217-05**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Selenium	<0.500	0.500	ug/L		<0.500				20	
Thallium	0.039286	0.500	ug/L		<0.500				20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Molybdenum	0.20516	0.500	ug/L		0.16533			21.5	20	M_D-RL
Cobalt	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.73415	0.500	ug/L		0.68930			6.30	20	
Arsenic	0.71708	0.500	ug/L		0.66762			7.14	20	
Barium	79.152	0.500	ug/L		81.442			2.85	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0633 - EPA 200.2, EPA 3005										
Duplicate (BGC0633-DUP2)		**Source: MGC0217-06**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Cobalt	0.13155	0.500	ug/L		0.11263			15.5	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.63558	0.500	ug/L		0.71802			12.2	20	
Barium	81.347	0.500	ug/L		81.243			0.129	20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Chromium	0.69068	0.500	ug/L		0.64179			7.34	20	
Molybdenum	0.15674	0.500	ug/L		0.14860			5.33	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Matrix Spike (BGC0633-MS1)		**Source: MGC0217-05**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Molybdenum	102.77	0.500	ug/L	100.00	0.16533	103	75-125			
Cadmium	104.62	0.100	ug/L	100.00	<0.100	105	75-125			
Selenium	104.89	0.500	ug/L	100.00	<0.500	105	75-125			
Lead	91.037	0.500	ug/L	100.00	<0.500	91.0	75-125			
Arsenic	105.10	0.500	ug/L	100.00	0.66762	104	75-125			
Barium	179.35	0.500	ug/L	100.00	81.442	97.9	75-125			
Chromium	103.35	0.500	ug/L	100.00	0.68930	103	75-125			
Beryllium	102.81	0.100	ug/L	100.00	<0.100	103	75-125			
Cobalt	96.482	0.500	ug/L	100.00	<0.500	96.5	75-125			
Thallium	96.076	0.500	ug/L	100.00	<0.500	96.1	75-125			
Antimony	102.61	0.500	ug/L	100.00	<0.500	103	75-125			
Matrix Spike (BGC0633-MS2)		**Source: MGC0217-06**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Arsenic	107.38	0.500	ug/L	100.00	0.71802	107	75-125			
Lead	92.933	0.500	ug/L	100.00	<0.500	92.9	75-125			
Barium	184.80	0.500	ug/L	100.00	81.243	104	75-125			
Antimony	105.41	0.500	ug/L	100.00	<0.500	105	75-125			
Chromium	105.80	0.500	ug/L	100.00	0.64179	105	75-125			
Molybdenum	105.71	0.500	ug/L	100.00	0.14860	106	75-125			
Selenium	105.14	0.500	ug/L	100.00	<0.500	105	75-125			
Beryllium	102.06	0.100	ug/L	100.00	<0.100	102	75-125			
Thallium	97.472	0.500	ug/L	100.00	<0.500	97.5	75-125			
Cobalt	102.05	0.500	ug/L	100.00	0.11263	102	75-125			
Cadmium	102.95	0.100	ug/L	100.00	<0.100	103	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
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Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0633 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BGC0633-MSD1)		**Source: MGC0217-05**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Cobalt	105.26	0.500	ug/L	100.00	<0.500	105	75-125	8.70	20	
Molybdenum	108.14	0.500	ug/L	100.00	0.16533	108	75-125	5.09	20	
Chromium	105.10	0.500	ug/L	100.00	0.68930	104	75-125	1.68	20	
Beryllium	102.63	0.100	ug/L	100.00	<0.100	103	75-125	0.172	20	
Cadmium	104.14	0.100	ug/L	100.00	<0.100	104	75-125	0.453	20	
Arsenic	108.06	0.500	ug/L	100.00	0.66762	107	75-125	2.78	20	
Barium	184.93	0.500	ug/L	100.00	81.442	103	75-125	3.06	20	
Selenium	105.44	0.500	ug/L	100.00	<0.500	105	75-125	0.525	20	
Lead	91.734	0.500	ug/L	100.00	<0.500	91.7	75-125	0.762	20	
Thallium	95.024	0.500	ug/L	100.00	<0.500	95.0	75-125	1.10	20	
Antimony	105.94	0.500	ug/L	100.00	<0.500	106	75-125	3.20	20	
Matrix Spike Dup (BGC0633-MSD2)		**Source: MGC0217-06**		Prepared: 03/30/2021 Analyzed: 04/07/2021						
Cadmium	103.68	0.100	ug/L	100.00	<0.100	104	75-125	0.707	20	
Beryllium	100.55	0.100	ug/L	100.00	<0.100	101	75-125	1.49	20	
Thallium	97.171	0.500	ug/L	100.00	<0.500	97.2	75-125	0.310	20	
Selenium	106.63	0.500	ug/L	100.00	<0.500	107	75-125	1.41	20	
Molybdenum	108.07	0.500	ug/L	100.00	0.14860	108	75-125	2.21	20	
Barium	183.95	0.500	ug/L	100.00	81.243	103	75-125	0.459	20	
Arsenic	106.40	0.500	ug/L	100.00	0.71802	106	75-125	0.914	20	
Antimony	105.12	0.500	ug/L	100.00	<0.500	105	75-125	0.278	20	
Lead	91.741	0.500	ug/L	100.00	<0.500	91.7	75-125	1.29	20	
Chromium	107.82	0.500	ug/L	100.00	0.64179	107	75-125	1.90	20	
Cobalt	105.18	0.500	ug/L	100.00	0.11263	105	75-125	3.02	20	
Batch BGD0244 - EPA 200.2, EPA 3005										
Blank (BGD0244-BLK1)				Prepared: 04/12/2021 Analyzed: 04/14/2021						
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Beryllium	<0.100	0.100	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Lead	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0244 - EPA 200.2, EPA 3005										
LCS (BGD0244-BS1)				Prepared: 04/12/2021 Analyzed: 04/14/2021						
Cobalt	100.78	0.500	ug/L	100.00		101	85-115			
Antimony	105.09	0.500	ug/L	100.00		105	85-115			
Arsenic	102.57	0.500	ug/L	100.00		103	85-115			
Molybdenum	98.803	0.500	ug/L	100.00		98.8	85-115			
Lead	98.140	0.500	ug/L	100.00		98.1	85-115			
Selenium	99.737	0.500	ug/L	100.00		99.7	85-115			
Thallium	101.14	0.500	ug/L	100.00		101	85-115			
Beryllium	98.840	0.100	ug/L	100.00		98.8	85-115			
Cadmium	100.96	0.100	ug/L	100.00		101	85-115			
Chromium	100.99	0.500	ug/L	100.00		101	85-115			
Barium	102.20	0.500	ug/L	100.00		102	85-115			
Duplicate (BGD0244-DUP1)		**Source: MGC0217-22**		Prepared: 04/12/2021 Analyzed: 04/14/2021						
Lead	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.39615	0.500	ug/L		0.39495			0.305	20	
Selenium	487.86	0.500	ug/L		497.46			1.95	20	
Cadmium	0.14162	0.100	ug/L		0.12201			14.9	20	
Molybdenum	225.39	0.500	ug/L		226.39			0.443	20	
Cobalt	0.60772	0.500	ug/L		0.63416			4.26	20	
Barium	61.494	0.500	ug/L		61.300			0.316	20	
Arsenic	2.3906	0.500	ug/L		2.1859			8.94	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Chromium	65.748	0.500	ug/L		68.032			3.41	20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Matrix Spike (BGD0244-MS1)		**Source: MGC0217-22**		Prepared: 04/12/2021 Analyzed: 04/14/2021						
Molybdenum	330.37	0.500	ug/L	100.00	226.39	104	75-125			
Cadmium	98.448	0.100	ug/L	100.00	0.12201	98.3	75-125			
Thallium	90.280	0.500	ug/L	100.00	<0.500	90.3	75-125			
Lead	85.472	0.500	ug/L	100.00	<0.500	85.5	75-125			
Barium	166.38	0.500	ug/L	100.00	61.300	105	75-125			
Cobalt	103.76	0.500	ug/L	100.00	0.63416	103	75-125			
Selenium	615.98	0.500	ug/L	100.00	497.46	119	75-125			
Antimony	106.61	0.500	ug/L	100.00	0.39495	106	75-125			
Chromium	172.75	0.500	ug/L	100.00	68.032	105	75-125			
Beryllium	88.229	0.100	ug/L	100.00	<0.100	88.2	75-125			
Arsenic	123.36	0.500	ug/L	100.00	2.1859	121	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0244 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BGD0244-MSD1)		**Source: MGC0217-22**		Prepared: 04/12/2021 Analyzed: 04/14/2021						
Cobalt	105.99	0.500	ug/L	100.00	0.63416	105	75-125	2.12	20	
Molybdenum	321.57	0.500	ug/L	100.00	226.39	95.2	75-125	2.70	20	
Arsenic	124.37	0.500	ug/L	100.00	2.1859	122	75-125	0.816	20	
Thallium	89.058	0.500	ug/L	100.00	<0.500	89.1	75-125	1.36	20	
Beryllium	88.356	0.100	ug/L	100.00	<0.100	88.4	75-125	0.144	20	
Chromium	177.44	0.500	ug/L	100.00	68.032	109	75-125	2.68	20	
Antimony	104.93	0.500	ug/L	100.00	0.39495	105	75-125	1.59	20	
Lead	84.733	0.500	ug/L	100.00	<0.500	84.7	75-125	0.868	20	
Selenium	611.31	0.500	ug/L	100.00	497.46	114	75-125	0.761	20	
Cadmium	94.601	0.100	ug/L	100.00	0.12201	94.5	75-125	3.99	20	
Barium	164.74	0.500	ug/L	100.00	61.300	103	75-125	0.990	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0632 - EPA 200.2, EPA 3005										
Blank (BGC0632-BLK1)				Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							
Calcium	<1.50	1.50	mg/L							
LCS (BGC0632-BS1)				Prepared: 03/30/2021 Analyzed: 04/02/2021						
Lithium	0.96404	0.0150	mg/L	1.0000		96.4	85-115			
Calcium	95.798	1.50	mg/L	100.00		95.8	85-115			
Boron	0.92285	0.0500	mg/L	1.0000		92.3	85-115			
Duplicate (BGC0632-DUP1)		**Source: MGC0217-01**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	0.12590	0.0500	mg/L		0.12715			0.988	20	
Calcium	72.732	1.50	mg/L		73.725			1.36	20	
Lithium	0.0073250	0.0150	mg/L		0.0080269			9.14	20	
Duplicate (BGC0632-DUP2)		**Source: MGC0217-03**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	0.045501	0.0500	mg/L		0.045593			0.202	20	
Lithium	0.0069080	0.0150	mg/L		0.0083356			18.7	20	
Calcium	78.349	1.50	mg/L		78.577			0.289	20	
Matrix Spike (BGC0632-MS1)		**Source: MGC0217-01**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	1.0823	0.0500	mg/L	1.0000	0.12715	95.5	70-130			
Calcium	177.48	1.50	mg/L	100.00	73.725	104	70-130			
Lithium	0.99246	0.0150	mg/L	1.0000	0.0080269	98.4	70-130			
Matrix Spike (BGC0632-MS2)		**Source: MGC0217-03**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	1.0020	0.0500	mg/L	1.0000	0.045593	95.6	70-130			
Calcium	179.66	1.50	mg/L	100.00	78.577	101	70-130			
Lithium	0.99428	0.0150	mg/L	1.0000	0.0083356	98.6	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0632 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BGC0632-MSD1)		**Source: MGC0217-01**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Calcium	168.30	1.50	mg/L	100.00	73.725	94.6	70-130	5.31	20	
Lithium	0.96282	0.0150	mg/L	1.0000	0.0080269	95.5	70-130	3.03	20	
Boron	1.0476	0.0500	mg/L	1.0000	0.12715	92.0	70-130	3.26	20	
Matrix Spike Dup (BGC0632-MSD2)		**Source: MGC0217-03**		Prepared: 03/30/2021 Analyzed: 04/02/2021						
Boron	0.98746	0.0500	mg/L	1.0000	0.045593	94.2	70-130	1.46	20	
Lithium	0.96927	0.0150	mg/L	1.0000	0.0083356	96.1	70-130	2.55	20	
Calcium	173.95	1.50	mg/L	100.00	78.577	95.4	70-130	3.23	20	
Batch BGD0243 - EPA 200.2, EPA 3005										
Blank (BGD0243-BLK1)				Prepared: 04/12/2021 Analyzed: 04/22/2021						
Lithium	<0.0150	0.0150	mg/L							
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.50	1.50	mg/L							
LCS (BGD0243-BS1)				Prepared: 04/12/2021 Analyzed: 04/22/2021						
Boron	1.0481	0.0500	mg/L	1.0000		105	85-115			
Lithium	1.0528	0.0150	mg/L	1.0000		105	85-115			
Calcium	106.14	1.50	mg/L	100.00		106	85-115			
Duplicate (BGD0243-DUP1)		**Source: MGD0037-01**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Boron	0.080354	0.0500	mg/L		0.082774			2.97	20	
Calcium	105.77	1.50	mg/L		110.30			4.19	20	
Lithium	0.038983	0.0150	mg/L		0.041019			5.09	20	
Duplicate (BGD0243-DUP2)		**Source: MGD0037-03**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Calcium	53.579	1.50	mg/L		54.932			2.49	20	
Boron	0.050629	0.0500	mg/L		0.059295			15.8	20	
Lithium	0.021732	0.0150	mg/L		0.021779			0.213	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGD0243 - EPA 200.2, EPA 3005										
Matrix Spike (BGD0243-MS1)		**Source: MGD0037-01**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Lithium	1.1049	0.0150	mg/L	1.0000	0.041019	106	70-130			
Calcium	219.98	1.50	mg/L	100.00	110.30	110	70-130			
Boron	1.1158	0.0500	mg/L	1.0000	0.082774	103	70-130			
Matrix Spike (BGD0243-MS2)		**Source: MGD0037-03**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Lithium	1.0610	0.0150	mg/L	1.0000	0.021779	104	70-130			
Calcium	157.76	1.50	mg/L	100.00	54.932	103	70-130			
Boron	1.0997	0.0500	mg/L	1.0000	0.059295	104	70-130			
Matrix Spike Dup (BGD0243-MSD1)		**Source: MGD0037-01**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Lithium	1.1034	0.0150	mg/L	1.0000	0.041019	106	70-130	0.129	20	
Boron	1.1420	0.0500	mg/L	1.0000	0.082774	106	70-130	2.32	20	
Calcium	217.54	1.50	mg/L	100.00	110.30	107	70-130	1.11	20	
Matrix Spike Dup (BGD0243-MSD2)		**Source: MGD0037-03**		Prepared: 04/12/2021 Analyzed: 04/22/2021						
Boron	1.0971	0.0500	mg/L	1.0000	0.059295	104	70-130	0.235	20	
Lithium	1.0511	0.0150	mg/L	1.0000	0.021779	103	70-130	0.932	20	
Calcium	156.18	1.50	mg/L	100.00	54.932	101	70-130	1.01	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0636 - EPA 245.1, EPA 7470A										
Blank (BGC0636-BLK1)				Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	<0.200	0.200	ug/L							
LCS (BGC0636-BS1)				Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	2.7639	0.200	ug/L	3.0000		92.1	85-115			
Duplicate (BGC0636-DUP1)		**Source: MGC0217-07**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BGC0636-DUP2)		**Source: MGC0217-08**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BGC0636-MS1)		**Source: MGC0217-07**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	2.6637	0.200	ug/L	3.0000	<0.200	88.8	70-130			
Matrix Spike (BGC0636-MS2)		**Source: MGC0217-08**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	2.7162	0.200	ug/L	3.0000	<0.200	90.5	70-130			
Matrix Spike Dup (BGC0636-MSD1)		**Source: MGC0217-07**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	2.7276	0.200	ug/L	3.0000	<0.200	90.9	70-130	2.37	20	
Matrix Spike Dup (BGC0636-MSD2)		**Source: MGC0217-08**		Prepared: 03/30/2021 Analyzed: 03/31/2021						
Mercury	2.6530	0.200	ug/L	3.0000	<0.200	88.4	70-130	2.35	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	04/30/2021 10:12

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_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_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.

3

Page: 1 of 1

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		Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Unit 3 LF Spring	Pace Profile #	

REGULATORY AGENCY

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

SITE LOCATION: ☑ NC ☐ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Filtered (Y/N)

Requested Analysis:

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 #	Section D Required Client Information 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	GW-CCR	GW-G	LEA-A	(CCR REPORT)	(MPCA SW REPORT)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-73A-1	WT	G			3/22/10	0850		4	1	1	2						X	X		X	X		
2	P-73B-1	WT	G			3/22/10	0925		3	1	1	1							X			X		
3	~~P-74-1~~	WT	G			3/22/21	NA		0	1	1	2						X	X		X	X		
4	P-75-1	WT	G			3/24/21	1055		4	1	1	2						X	X		X	X		
5	~~P-76A-1~~	WT	G			3/23/21	NA		0	1	1	1							X			X		
6	P-76B-1	WT	G			3/23/21	0835		3	1	1	1							X			X		
7	~~P-97~~	WT	G			3/22/21	NA		0	1	1	2						X	X		X	X		
8	P-98	WT	G			3/23/21	0940		4	1	1	2						X	X		X	X		
9	~~P-99~~	WT	G			3/23/21	NA		0	1	1	1							X			X		
10	P-117	WT	G			3/22/10	1550		4	1	1	2						X	X		X	X		
11	P-120	WT	G			~~3/23/21~~	1040		4	1	1	2						X	X		X	X		
12	P-125	WT	G			3/22/10	1020		4	1	1	2						X	X		X	X		

Additional Comments:

IR Gun M400841
pH strips MD00402

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	3/24/21	1410		3/24/21	1417

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
2.4°C	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): 3/24/21

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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		Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Unit 3 LF Spring	Pace Profile #:	

REGULATORY AGENCY

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

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Filtered (Y/N)

Requested Analysis: GW-COR; GW-G; LEA-A; (CCR REPORT); (MPCA SW REPORT); Residual Chlorine (Y/N)

Pace Project No. / Lab I.D.

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), OTHER (OT)

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	GW-COR	GW-G	LEA-A	(CCR REPORT)	(MPCA SW REPORT)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-134	WT	G			3/22/10	1215		4	1	1	2						X	X			X	X	
2	P-137A	WT	G			3/22/10	1445		4	1	1	2						X	X			X	X	
3	P-137B	WT	G			3/22/10	1510		3	1	1	1							X				X	
4	P-138A	WT	G			3/22/10	~~1335~~	1300	4	1	1	2						X	X			X	X	
5	P-138B	WT	G			3/22/10	1335		3	1	1	1							X				X	
6	P-141	WT	G			3/22/10	1130		4	1	1	2						X	X			X	X	
7	P-142	WT	G			3/23/21	1410		3	1	1	1							X				X	
8	P-143A	WT	G			3/23/21	~~1335~~	1310	3	1	1	1							X				X	
9	P-143B	WT	G			3/23/21	1335		3	1	1	1							X				X	
10	P-144A	WT	G			3/23/21	1235		3	1	1	1							X				X	
11	P-144B	WT	G			3/23/21	1205		3	1	1	1							X				X	
12	DUPLICATE (P-125)	WT	G			3/22/10	1020		4	1	1	2						X	X			X	X	

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	3/24/21	1410		3/24/21	1417

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
2.4°C	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): 3/24/21

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

3

Page: 3 of 4

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		Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Unit 3 LF Spring	Pace Profile #	

REGULATORY AGENCY

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

SITE LOCATION NC ☑ MN ☐ IL ☐ IN ☐ MI ☐
☐ OH ☐ SC ☐ WI ☑ OTHER

Filtered (Y/N)

Requested Analysis:

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER / DW; WATER / WT; WASTE WATER / WW; PRODUCT / P; SOIL/SOLID / SL; OIL / OL; WIPE / WP; AIR / AR; OTHER / OT; TISSUE / TS

ITEM #	Section D Required Client Information 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	GW-CCR	GW-G	LEA-A	(CCR REPORT)	(MPCA SW REPORT)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	RINSE	WT	G			3/22/21	1630		4	1	1	2						X	X		X	X		
2	LEACHATE	WT	G			3/24/21	0915		3	1	1	1								X		X		
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

RD 3/24/21

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
[signature] Pace	3/24/21	1410	[signature]	3/24/21	1417	2.4°C 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): 3/24/21

Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact

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

19 May 2021

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco Unit 3 LF Spring

Enclosed are the results of analyses for samples received by the laboratory on 05/07/2021 12:43. 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 Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-74-1		MGE0086-01	Water	05/07/2021 11:00	05/07/2021 12:43
P-97		MGE0086-03	Water	05/07/2021 10:25	05/07/2021 12:43

Minneapolis Testing Laboratory
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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

P-74-1

MGE0086-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	21.6	1.00	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 15:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 15:46	EPA 300.0	CRL
Sulfate	18.5	1.00	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 15:46	EPA 300.0	CRL
Wet Chemistry										
pH	7.64		pH Units	M_TTT	1	BGE0181	5/10/21 7:27	5/10/21 8:10	SM 4500-H+ B	CRL
Total Dissolved Solids	332	25.0	mg/L		1	BGE0227	5/12/21 8:51	5/12/21 8:51	SM 2540C	HSD
Total Suspended Solids	12.0	5.00	mg/L		1	BGE0226	5/12/21 6:43	5/12/21 6:43	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.639	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Barium	98.9	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Cobalt	2.02	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Chromium	10.3	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Molybdenum	1.00	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:46	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0851	0.0500	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:13	EPA 200.7	HRD
Calcium	78.8	1.50	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:12	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:12	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

P-74-1

MGE0086-01 (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	BGE0404	5/17/21 18:06	5/18/21 20:11	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

P-97

MGE0086-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	29.9	1.00	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 16:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 16:27	EPA 300.0	CRL
Sulfate	26.3	1.00	mg/L		1	BGE0276	5/12/21 8:05	5/13/21 16:27	EPA 300.0	CRL
Wet Chemistry										
pH	7.69		pH Units	M_TTT	1	BGE0181	5/10/21 7:27	5/10/21 8:24	SM 4500-H+ B	CRL
Total Dissolved Solids	346	25.0	mg/L		1	BGE0227	5/12/21 8:51	5/12/21 8:51	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGE0226	5/12/21 6:43	5/12/21 6:43	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.759	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Barium	80.3	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Cobalt	4.69	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Chromium	1.88	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Selenium	0.684	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGE0217	5/11/21 7:36	5/12/21 8:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0730	0.0500	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:18	EPA 200.7	HRD
Calcium	78.1	1.50	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:17	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGE0216	5/11/21 7:35	5/16/21 10:17	EPA 200.7	HRD

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

P-97

MGE0086-03 (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	BGE0404	5/17/21 18:06	5/18/21 20:12	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0276 - Wet Prep										
Blank (BGE0276-BLK1)				Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BGE0276-BLK2)				Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BGE0276-BS1)				Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	25.516	1.00	mg/L	25.000		102	90-110			
Fluoride	2.5640	0.750	mg/L	2.5000		103	90-110			
Sulfate	25.621	1.00	mg/L	25.000		102	90-110			
LCS (BGE0276-BS2)				Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	25.482	1.00	mg/L	25.000		102	90-110			
Fluoride	2.6830	0.750	mg/L	2.5000		107	90-110			
Sulfate	25.908	1.00	mg/L	25.000		104	90-110			
LCS (BGE0276-BS3)				Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	25.461	1.00	mg/L	25.000		102	90-110			
Fluoride	2.6430	0.750	mg/L	2.5000		106	90-110			
Sulfate	25.664	1.00	mg/L	25.000		103	90-110			
Duplicate (BGE0276-DUP1)		**Source: MGE0077-18**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	3.9280	1.00	mg/L		3.9370			0.229	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	38.517	1.00	mg/L		38.597			0.207	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0276 - Wet Prep										
Duplicate (BGE0276-DUP2)		**Source: MGE0077-19**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	4.6080	1.00	mg/L		4.6800			1.55	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	60.342	1.00	mg/L		60.783			0.728	20	
Matrix Spike (BGE0276-MS1)		**Source: MGE0077-18**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	34.561	1.25	mg/L	31.250	3.9370	98.0	90-110			
Fluoride	2.9413	0.938	mg/L	3.1250	<0.938	94.1	90-110			
Sulfate	69.708	1.25	mg/L	31.250	38.597	99.6	90-110			
Matrix Spike (BGE0276-MS2)		**Source: MGE0077-19**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	36.119	1.25	mg/L	31.250	4.6800	101	90-110			
Fluoride	3.2013	0.938	mg/L	3.1250	<0.938	102	90-110			
Sulfate	91.926	1.25	mg/L	31.250	60.783	99.7	90-110			
Matrix Spike Dup (BGE0276-MSD1)		**Source: MGE0077-18**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	34.850	1.25	mg/L	31.250	3.9370	98.9	90-110	0.832	20	
Fluoride	3.2950	0.938	mg/L	3.1250	<0.938	105	90-110	11.3	20	
Sulfate	69.993	1.25	mg/L	31.250	38.597	100	90-110	0.408	20	
Matrix Spike Dup (BGE0276-MSD2)		**Source: MGE0077-19**		Prepared: 05/12/2021 Analyzed: 05/13/2021						
Chloride	35.874	1.25	mg/L	31.250	4.6800	99.8	90-110	0.681	20	
Fluoride	3.3475	0.938	mg/L	3.1250	<0.938	107	90-110	4.47	20	
Sulfate	91.925	1.25	mg/L	31.250	60.783	99.7	90-110	0.00135	20	

Minneapolis Testing Laboratory
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0181 - Wet Prep										
LCS (BGE0181-BS1)				Prepared & Analyzed: 05/10/2021						
pH	7.0600		pH Units	7.0000		101	90-110			
LCS (BGE0181-BS2)				Prepared & Analyzed: 05/10/2021						
pH	7.0800		pH Units	7.0000		101	90-110			
Duplicate (BGE0181-DUP1)		**Source: MGE0086-01**		Prepared & Analyzed: 05/10/2021						
pH	7.6100		pH Units		7.6400			0.393	20	
Batch BGE0226 - Wet Prep										
Blank (BGE0226-BLK1)				Prepared & Analyzed: 05/12/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGE0226-BS1)				Prepared & Analyzed: 05/12/2021						
Total Suspended Solids	94.000	5.00	mg/L	104.10		90.3	70-130			
Duplicate (BGE0226-DUP1)		**Source: MGE0077-27**		Prepared & Analyzed: 05/12/2021						
Total Suspended Solids	0.80000	10.0	mg/L		0.60000			28.6	20	M_D-RL, M_K-06
Batch BGE0227 - Wet Prep										
Blank (BGE0227-BLK1)				Prepared & Analyzed: 05/12/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGE0227-BS1)				Prepared & Analyzed: 05/12/2021						
Total Dissolved Solids	102.00	25.0	mg/L	100.10		102	70-130			

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0227 - Wet Prep										
Duplicate (BGE0227-DUP1)		**Source: MGE0077-27**		Prepared & Analyzed: 05/12/2021						
Total Dissolved Solids	336.00	25.0	mg/L		348.00			3.51	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0217 - EPA 200.2, EPA 3005										
Blank (BGE0217-BLK1)				Prepared: 05/11/2021 Analyzed: 05/12/2021						
Cadmium	<0.100	0.100	ug/L							
Lead	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Beryllium	<0.100	0.100	ug/L							
Barium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
LCS (BGE0217-BS1)				Prepared: 05/11/2021 Analyzed: 05/12/2021						
Beryllium	100.93	0.100	ug/L	100.00		101	85-115			
Cobalt	99.424	0.500	ug/L	100.00		99.4	85-115			
Barium	102.16	0.500	ug/L	100.00		102	85-115			
Chromium	101.39	0.500	ug/L	100.00		101	85-115			
Lead	99.059	0.500	ug/L	100.00		99.1	85-115			
Molybdenum	98.237	0.500	ug/L	100.00		98.2	85-115			
Arsenic	99.962	0.500	ug/L	100.00		100	85-115			
Cadmium	95.833	0.100	ug/L	100.00		95.8	85-115			
Thallium	100.25	0.500	ug/L	100.00		100	85-115			
Antimony	101.42	0.500	ug/L	100.00		101	85-115			
Selenium	100.52	0.500	ug/L	100.00		101	85-115			
Duplicate (BGE0217-DUP1)		**Source: MGE0077-20**		Prepared: 05/11/2021 Analyzed: 05/12/2021						
Lead	0.27296	0.500	ug/L		0.26012			4.82	20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Barium	53.986	0.500	ug/L		51.412			4.89	20	
Selenium	6.6916	0.500	ug/L		6.4361			3.89	20	
Thallium	0.042402	0.500	ug/L		<0.500				20	
Cobalt	0.36438	0.500	ug/L		0.33380			8.76	20	
Arsenic	0.72361	0.500	ug/L		0.67141			7.48	20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	2.5762	0.500	ug/L		2.4802			3.79	20	
Chromium	8.5361	0.500	ug/L		8.8178			3.25	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0217 - EPA 200.2, EPA 3005										
Matrix Spike (BGE0217-MS1)		**Source: MGE0077-20**		Prepared: 05/11/2021 Analyzed: 05/12/2021						
Molybdenum	104.22	0.500	ug/L	100.00	2.4802	102	75-125			
Lead	91.554	0.500	ug/L	100.00	0.26012	91.3	75-125			
Beryllium	99.268	0.100	ug/L	100.00	<0.100	99.3	75-125			
Barium	158.78	0.500	ug/L	100.00	51.412	107	75-125			
Selenium	112.43	0.500	ug/L	100.00	6.4361	106	75-125			
Cobalt	95.711	0.500	ug/L	100.00	0.33380	95.4	75-125			
Cadmium	98.449	0.100	ug/L	100.00	<0.100	98.4	75-125			
Chromium	110.65	0.500	ug/L	100.00	8.8178	102	75-125			
Thallium	93.113	0.500	ug/L	100.00	<0.500	93.1	75-125			
Antimony	101.06	0.500	ug/L	100.00	<0.500	101	75-125			
Arsenic	104.45	0.500	ug/L	100.00	0.67141	104	75-125			
Matrix Spike Dup (BGE0217-MSD1)		**Source: MGE0077-20**		Prepared: 05/11/2021 Analyzed: 05/12/2021						
Molybdenum	100.97	0.500	ug/L	100.00	2.4802	98.5	75-125	3.17	20	
Barium	157.81	0.500	ug/L	100.00	51.412	106	75-125	0.617	20	
Thallium	97.453	0.500	ug/L	100.00	<0.500	97.5	75-125	4.55	20	
Selenium	113.38	0.500	ug/L	100.00	6.4361	107	75-125	0.843	20	
Cadmium	98.262	0.100	ug/L	100.00	<0.100	98.3	75-125	0.190	20	
Cobalt	101.17	0.500	ug/L	100.00	0.33380	101	75-125	5.54	20	
Antimony	103.49	0.500	ug/L	100.00	<0.500	103	75-125	2.37	20	
Chromium	114.78	0.500	ug/L	100.00	8.8178	106	75-125	3.66	20	
Lead	93.073	0.500	ug/L	100.00	0.26012	92.8	75-125	1.65	20	
Arsenic	103.39	0.500	ug/L	100.00	0.67141	103	75-125	1.01	20	
Beryllium	100.74	0.100	ug/L	100.00	<0.100	101	75-125	1.47	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0216 - EPA 200.2, EPA 3005										
Blank (BGE0216-BLK1)				Prepared: 05/11/2021 Analyzed: 05/16/2021						
Calcium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							
LCS (BGE0216-BS1)				Prepared: 05/11/2021 Analyzed: 05/16/2021						
Boron	0.94056	0.0500	mg/L	1.0000		94.1	85-115			
Lithium	0.97273	0.0150	mg/L	1.0000		97.3	85-115			
Calcium	98.116	1.50	mg/L	100.00		98.1	85-115			
Duplicate (BGE0216-DUP1)		**Source: MGE0077-18**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Lithium	<0.0150	0.0150	mg/L		0.0043374				20	
Calcium	64.074	1.50	mg/L		63.223			1.34	20	
Boron	0.16959	0.0500	mg/L		0.17192			1.37	20	
Duplicate (BGE0216-DUP2)		**Source: MGE0077-19**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Calcium	77.840	1.50	mg/L		77.544			0.381	20	
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Boron	0.22155	0.0500	mg/L		0.22570			1.86	20	
Matrix Spike (BGE0216-MS1)		**Source: MGE0077-18**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Calcium	163.84	1.50	mg/L	100.00	63.223	101	70-130			
Lithium	0.99376	0.0150	mg/L	1.0000	0.0043374	98.9	70-130			
Boron	1.1228	0.0500	mg/L	1.0000	0.17192	95.1	70-130			
Matrix Spike (BGE0216-MS2)		**Source: MGE0077-19**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Calcium	180.94	1.50	mg/L	100.00	77.544	103	70-130			
Boron	1.1753	0.0500	mg/L	1.0000	0.22570	95.0	70-130			
Lithium	0.99455	0.0150	mg/L	1.0000	<0.0150	99.5	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0216 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BGE0216-MSD1)		**Source: MGE0077-18**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Boron	1.1179	0.0500	mg/L	1.0000	0.17192	94.6	70-130	0.433	20	
Calcium	164.96	1.50	mg/L	100.00	63.223	102	70-130	0.683	20	
Lithium	0.98139	0.0150	mg/L	1.0000	0.0043374	97.7	70-130	1.25	20	
Matrix Spike Dup (BGE0216-MSD2)		**Source: MGE0077-19**		Prepared: 05/11/2021 Analyzed: 05/16/2021						
Boron	1.1789	0.0500	mg/L	1.0000	0.22570	95.3	70-130	0.306	20	
Lithium	1.0081	0.0150	mg/L	1.0000	<0.0150	101	70-130	1.35	20	
Calcium	183.55	1.50	mg/L	100.00	77.544	106	70-130	1.44	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGE0404 - EPA 245.1, EPA 7470A										
Blank (BGE0404-BLK1)				Prepared: 05/17/2021 Analyzed: 05/18/2021						
Mercury	<0.200	0.200	ug/L							
LCS (BGE0404-BS1)				Prepared: 05/17/2021 Analyzed: 05/18/2021						
Mercury	2.8760	0.200	ug/L	3.0000		95.9	85-115			
Duplicate (BGE0404-DUP1)		**Source: MGE0077-21**		Prepared: 05/17/2021 Analyzed: 05/18/2021						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BGE0404-MS1)		**Source: MGE0077-21**		Prepared: 05/17/2021 Analyzed: 05/18/2021						
Mercury	2.8111	0.200	ug/L	3.0000	<0.200	93.7	70-130			
Matrix Spike Dup (BGE0404-MSD1)		**Source: MGE0077-21**		Prepared: 05/17/2021 Analyzed: 05/18/2021						
Mercury	2.8174	0.200	ug/L	3.0000	<0.200	93.9	70-130	0.224	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/19/2021 07:12

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
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_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:		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	~~21-045~~	Pace Project Manager:	Chris Pelosi
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Unit 3 LF Spring	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	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	GW-G	GW-A	LEA-A	(CCR REPORT)	(MPCA SW REPORT)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-74-1	WT	G	-	-	5/7/21	~~1100~~ 1100		4	1	1	2							X	X	X			X	X	
2	P-76A-1	WT	G	-	-	5/7/21	0905		3	1	1	1								X	X				X	
3	P-97	WT	G	-	-	5/7/21	1025		4	1	1	2							X	X	X			X	X	
4	P-99	WT	G	-	-	5/7/21	0940		3	1	1	1								X	X				X	
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

40>
5/7/21

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	5/7/21	1240		5/7/21	1243

SAMPLE CONDITIONS

	Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	4.1	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 + Kendall Johnson

SIGNATURE of SAMPLER: [signature] [signature]

DATE Signed (MM / DD / YY): 5/7/21

IRGun M400841 pHstrips MD00402

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21 June 2021

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco Unit 3 LF Spring

Enclosed are the results of analyses for samples received by the laboratory on 06/11/2021 09:35. 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

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-137A		MGF0112-01	Water	06/10/2021 9:10	06/11/2021 9:35

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

P-137A

MGF0112-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	52.1	1.00	mg/L		1	BGF0343	6/16/21 7:06	6/16/21 13:21	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGF0343	6/16/21 7:06	6/16/21 13:21	EPA 300.0	CRL
Sulfate	32.4	1.00	mg/L		1	BGF0343	6/16/21 7:06	6/16/21 13:21	EPA 300.0	CRL
Wet Chemistry										
pH	7.64		pH Units	M_TTT	1	BGF0264	6/11/21 9:54	6/11/21 12:49	SM 4500-H+ B	HRD
Total Dissolved Solids	440	25.0	mg/L		1	BGF0275	6/14/21 9:01	6/14/21 9:01	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGF0274	6/14/21 6:31	6/14/21 6:31	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.878	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Barium	110	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Beryllium	< 0.100	0.100	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Chromium	1.02	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Selenium	0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BGF0279	6/14/21 7:38	6/15/21 8:47	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGF0278	6/14/21 7:36	6/16/21 17:10	EPA 200.7	HRD
Calcium	99.4	1.50	mg/L		1	BGF0278	6/14/21 7:36	6/16/21 17:08	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BGF0278	6/14/21 7:36	6/16/21 17:08	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

P-137A

MGF0112-01 (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	BGF0306	6/14/21 15:12	6/15/21 12:59	EPA 245.1/7470A	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0343 - Wet Prep										
Blank (BGF0343-BLK1)				Prepared & Analyzed: 06/16/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BGF0343-BLK2)				Prepared & Analyzed: 06/16/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BGF0343-BS1)				Prepared & Analyzed: 06/16/2021						
Chloride	25.292	1.00	mg/L	25.000		101	90-110			
Fluoride	2.7060	0.750	mg/L	2.5000		108	90-110			
Sulfate	25.356	1.00	mg/L	25.000		101	90-110			
LCS (BGF0343-BS2)				Prepared & Analyzed: 06/16/2021						
Chloride	25.533	1.00	mg/L	25.000		102	90-110			
Fluoride	2.7760	0.750	mg/L	2.5000		111	90-110			M_LCS-H
Sulfate	25.684	1.00	mg/L	25.000		103	90-110			
LCS (BGF0343-BS3)				Prepared & Analyzed: 06/16/2021						
Chloride	25.577	1.00	mg/L	25.000		102	90-110			
Fluoride	2.8560	0.750	mg/L	2.5000		114	90-110			M_LCS-H
Sulfate	25.694	1.00	mg/L	25.000		103	90-110			
LCS (BGF0343-BS4)				Prepared: 06/16/2021 Analyzed: 06/18/2021						
Chloride	24.176	1.00	mg/L	25.000		96.7	90-110			
Fluoride	2.2970	0.750	mg/L	2.5000		91.9	90-110			
Sulfate	24.034	1.00	mg/L	25.000		96.1	90-110			

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1518 Chestnut Ave N
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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0343 - Wet Prep										
LCS (BGF0343-BS5)				Prepared: 06/16/2021 Analyzed: 06/18/2021						
Chloride	24.328	1.00	mg/L	25.000		97.3	90-110			
Fluoride	2.6140	0.750	mg/L	2.5000		105	90-110			
Sulfate	24.497	1.00	mg/L	25.000		98.0	90-110			
Duplicate (BGF0343-DUP1)		**Source: MGF0113-01**		Prepared & Analyzed: 06/16/2021						
Chloride	45.576	1.00	mg/L		45.619			0.0943	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	33.820	1.00	mg/L		33.851			0.0916	20	
Duplicate (BGF0343-DUP2)		**Source: MGF0113-02**		Prepared & Analyzed: 06/16/2021						
Chloride	11.379	1.00	mg/L		11.392			0.114	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	40.230	1.00	mg/L		40.263			0.0820	20	
Matrix Spike (BGF0343-MS1)		**Source: MGF0113-01**		Prepared & Analyzed: 06/16/2021						
Chloride	76.500	1.25	mg/L	31.250	45.619	98.8	90-110			
Fluoride	3.3138	0.938	mg/L	3.1250	<0.938	106	90-110			
Sulfate	65.006	1.25	mg/L	31.250	33.851	99.7	90-110			
Matrix Spike (BGF0343-MS2)		**Source: MGF0113-02**		Prepared & Analyzed: 06/16/2021						
Chloride	42.870	1.25	mg/L	31.250	11.392	101	90-110			
Fluoride	3.5600	0.938	mg/L	3.1250	<0.938	114	90-110			M_MS
Sulfate	71.821	1.25	mg/L	31.250	40.263	101	90-110			
Matrix Spike Dup (BGF0343-MSD1)		**Source: MGF0113-01**		Prepared & Analyzed: 06/16/2021						
Chloride	76.820	1.25	mg/L	31.250	45.619	99.8	90-110	0.417	20	
Fluoride	3.4600	0.938	mg/L	3.1250	<0.938	111	90-110	4.32	20	M_MS
Sulfate	65.353	1.25	mg/L	31.250	33.851	101	90-110	0.531	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0343 - Wet Prep										
Matrix Spike Dup (BGF0343-MSD2)		**Source: MGF0113-02**		Prepared & Analyzed: 06/16/2021						
Chloride	42.335	1.25	mg/L	31.250	11.392	99.0	90-110	1.26	20	
Fluoride	3.5700	0.938	mg/L	3.1250	<0.938	114	90-110	0.281	20	M_MS
Sulfate	70.934	1.25	mg/L	31.250	40.263	98.1	90-110	1.24	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0264 - Wet Prep										
LCS (BGF0264-BS1)				Prepared & Analyzed: 06/11/2021						
pH	7.0900		pH Units	7.0000		101	90-110			
LCS (BGF0264-BS2)				Prepared & Analyzed: 06/11/2021						
pH	7.0700		pH Units	7.0000		101	90-110			
Duplicate (BGF0264-DUP1)		**Source: MGF0112-01**		Prepared & Analyzed: 06/11/2021						
pH	7.6700		pH Units		7.6400			0.392	20	
Batch BGF0274 - Wet Prep										
Blank (BGF0274-BLK1)				Prepared & Analyzed: 06/14/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGF0274-BS1)				Prepared & Analyzed: 06/14/2021						
Total Suspended Solids	98.000	5.00	mg/L	109.10		89.8	70-130			
Duplicate (BGF0274-DUP1)		**Source: MGF0112-01**		Prepared & Analyzed: 06/14/2021						
Total Suspended Solids	<12.5	12.5	mg/L		<12.5				20	M_K-06
Batch BGF0275 - Wet Prep										
Blank (BGF0275-BLK1)				Prepared & Analyzed: 06/14/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGF0275-BS1)				Prepared & Analyzed: 06/14/2021						
Total Dissolved Solids	108.00	25.0	mg/L	112.10		96.3	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0275 - Wet Prep										
Duplicate (BGF0275-DUP1)		**Source: MGF0112-01**		Prepared & Analyzed: 06/14/2021						
Total Dissolved Solids	444.00	25.0	mg/L		440.00			0.905	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0279 - EPA 200.2, EPA 3005										
Blank (BGF0279-BLK1)				Prepared: 06/14/2021 Analyzed: 06/15/2021						
Antimony	<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	<0.100	0.100	ug/L							
Chromium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
LCS (BGF0279-BS1)				Prepared: 06/14/2021 Analyzed: 06/15/2021						
Lead	95.375	0.500	ug/L	100.00		95.4	85-115			
Chromium	101.30	0.500	ug/L	100.00		101	85-115			
Cobalt	97.699	0.500	ug/L	100.00		97.7	85-115			
Thallium	97.189	0.500	ug/L	100.00		97.2	85-115			
Molybdenum	100.25	0.500	ug/L	100.00		100	85-115			
Cadmium	94.981	0.100	ug/L	100.00		95.0	85-115			
Arsenic	97.514	0.500	ug/L	100.00		97.5	85-115			
Beryllium	100.12	0.100	ug/L	100.00		100	85-115			
Selenium	101.66	0.500	ug/L	100.00		102	85-115			
Antimony	98.771	0.500	ug/L	100.00		98.8	85-115			
Barium	103.14	0.500	ug/L	100.00		103	85-115			
Duplicate (BGF0279-DUP1)		**Source: MGF0113-01**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Barium	70.429	0.500	ug/L		71.421			1.40	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Cobalt	0.28800	0.500	ug/L		0.30047			4.24	20	
Arsenic	0.35727	0.500	ug/L		0.31598			12.3	20	
Beryllium	<0.100	0.100	ug/L		<0.100				20	
Antimony	<0.500	0.500	ug/L		<0.500				20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.96426	0.500	ug/L		1.0625			9.69	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.33180	0.500	ug/L		0.22267			39.4	20	M_D-RL
Lead	0.10739	0.500	ug/L		0.096536			10.6	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0279 - EPA 200.2, EPA 3005										
Matrix Spike (BGF0279-MS1)		**Source: MGF0113-01**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Thallium	96.669	0.500	ug/L	100.00	<0.500	96.7	75-125			
Lead	94.494	0.500	ug/L	100.00	0.096536	94.4	75-125			
Cobalt	96.769	0.500	ug/L	100.00	0.30047	96.5	75-125			
Arsenic	102.92	0.500	ug/L	100.00	0.31598	103	75-125			
Antimony	99.995	0.500	ug/L	100.00	<0.500	100	75-125			
Selenium	105.35	0.500	ug/L	100.00	<0.500	105	75-125			
Barium	172.76	0.500	ug/L	100.00	71.421	101	75-125			
Cadmium	95.344	0.100	ug/L	100.00	<0.100	95.3	75-125			
Chromium	99.064	0.500	ug/L	100.00	1.0625	98.0	75-125			
Beryllium	106.01	0.100	ug/L	100.00	<0.100	106	75-125			
Molybdenum	101.68	0.500	ug/L	100.00	0.22267	101	75-125			
Matrix Spike Dup (BGF0279-MSD1)		**Source: MGF0113-01**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Thallium	95.314	0.500	ug/L	100.00	<0.500	95.3	75-125	1.41	20	
Cobalt	105.90	0.500	ug/L	100.00	0.30047	106	75-125	9.01	20	
Arsenic	103.03	0.500	ug/L	100.00	0.31598	103	75-125	0.114	20	
Antimony	102.02	0.500	ug/L	100.00	<0.500	102	75-125	2.00	20	
Cadmium	101.17	0.100	ug/L	100.00	<0.100	101	75-125	5.93	20	
Selenium	106.88	0.500	ug/L	100.00	<0.500	107	75-125	1.44	20	
Beryllium	105.83	0.100	ug/L	100.00	<0.100	106	75-125	0.172	20	
Lead	92.449	0.500	ug/L	100.00	0.096536	92.4	75-125	2.19	20	
Molybdenum	104.00	0.500	ug/L	100.00	0.22267	104	75-125	2.26	20	
Barium	175.00	0.500	ug/L	100.00	71.421	104	75-125	1.29	20	
Chromium	110.87	0.500	ug/L	100.00	1.0625	110	75-125	11.2	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0278 - EPA 200.2, EPA 3005										
Blank (BGF0278-BLK1)				Prepared: 06/14/2021 Analyzed: 06/16/2021						
Calcium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0150	0.0150	mg/L							
LCS (BGF0278-BS1)				Prepared: 06/14/2021 Analyzed: 06/16/2021						
Boron	1.1473	0.0500	mg/L	1.0000		115	85-115			
Calcium	104.52	1.50	mg/L	100.00		105	85-115			
Lithium	1.0319	0.0150	mg/L	1.0000		103	85-115			
Duplicate (BGF0278-DUP1)		**Source: MGF0112-01**		Prepared: 06/14/2021 Analyzed: 06/16/2021						
Lithium	<0.0150	0.0150	mg/L		<0.0150				20	
Boron	0.035197	0.0500	mg/L		0.040627			14.3	20	
Calcium	93.241	1.50	mg/L		99.405			6.40	20	
Matrix Spike (BGF0278-MS1)		**Source: MGF0112-01**		Prepared: 06/14/2021 Analyzed: 06/16/2021						
Boron	1.0118	0.0500	mg/L	1.0000	0.040627	97.1	70-130			
Calcium	202.07	1.50	mg/L	100.00	99.405	103	70-130			
Lithium	1.0101	0.0150	mg/L	1.0000	<0.0150	101	70-130			
Matrix Spike Dup (BGF0278-MSD1)		**Source: MGF0112-01**		Prepared: 06/14/2021 Analyzed: 06/16/2021						
Boron	1.0135	0.0500	mg/L	1.0000	0.040627	97.3	70-130	0.169	20	
Calcium	202.99	1.50	mg/L	100.00	99.405	104	70-130	0.453	20	
Lithium	1.0093	0.0150	mg/L	1.0000	<0.0150	101	70-130	0.0865	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0306 - EPA 245.1, EPA 7470A										
Blank (BGF0306-BLK1)				Prepared: 06/14/2021 Analyzed: 06/15/2021						
Mercury	<0.200	0.200	ug/L							
LCS (BGF0306-BS1)				Prepared: 06/14/2021 Analyzed: 06/15/2021						
Mercury	2.7691	0.200	ug/L	3.0000		92.3	85-115			
Duplicate (BGF0306-DUP1)		**Source: MGF0113-02**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BGF0306-MS1)		**Source: MGF0113-02**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Mercury	2.7475	0.200	ug/L	3.0000	<0.200	91.6	70-130			
Matrix Spike Dup (BGF0306-MSD1)		**Source: MGF0113-02**		Prepared: 06/14/2021 Analyzed: 06/15/2021						
Mercury	2.7651	0.200	ug/L	3.0000	<0.200	92.2	70-130	0.639	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 LF Spring	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	06/21/2021 09:18

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_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_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

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		Pace Project Manager:	Chris Pelosi/ Riley Jacobson
Requested Due Date/TAT:	2 Weeks	Project Name:	Xcel Energy Sherco Spring RE	Pace Profile #:	

REGULATORY AGENCY

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

SITE LOCATION NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

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 #	Section D Required Client Information 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	GW:CCR-BAP2						Residual Chlorine (Y/N)	Pace Project No. Lab I.D.
1	P-137A	WT	G	—	—	6/10/21	0910		4	1	1	2							X								
2	P-151	WT	G	—	—	↓	1005		2	1		1							X								
3	P-165	WT	G	—	—		1050		2	1		1							X								
4	P-175	WT	G	—	—		1135		2	1		1								X							
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

KAJ 6/10/21

Additional Comments:

pH strips: MD00402
Trip M400841

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible]	6/11/21	910	VIA FEDEX (ORIGINAL) [illegible]	6/11/21	910
[illegible] Pace	6/11/21	935	[illegible]	6/11/21	0935

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
4.1	(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: Chris Pelosi + Kendall Johnson

SIGNATURE of SAMPLER: [signature] + [signature]

DATE Signed (MM / DD / YY): 06/10/21

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

April 19, 2021

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

RE: Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on March 30, 2021. 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

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

CERTIFICATIONS

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

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 Unit 3 LF
Pace Project No.: 30412639

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30412639001	**P-73A-1**	Water	03/22/21 08:50	03/30/21 09:15
30412639002	**P-75-1**	Water	03/24/21 10:55	03/30/21 09:15
30412639003	**P-98**	Water	03/23/21 09:40	03/30/21 09:15
30412639004	**P-117**	Water	03/22/21 15:50	03/30/21 09:15
30412639005	**P-120**	Water	03/23/21 10:40	03/30/21 09:15
30412639006	**P-125**	Water	03/22/21 10:20	03/30/21 09:15
30412639007	**P-134**	Water	03/22/21 12:15	03/30/21 09:15
30412639008	**P-137A**	Water	03/22/21 14:45	03/30/21 09:15
30412639009	**P-138A**	Water	03/22/21 13:00	03/30/21 09:15
30412639010	**P-141**	Water	03/22/21 11:30	03/30/21 09:15
30412639011	**DUPLICATE (P-125)**	Water	03/22/21 10:20	03/30/21 09:15
30412639012	**RINSE**	Water	03/22/21 16:30	03/30/21 09:15

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SAMPLE ANALYTE COUNT

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30412639001	**P-73A-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639002	**P-75-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639003	**P-98**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639004	**P-117**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639005	**P-120**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639006	**P-125**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639007	**P-134**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639008	**P-137A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639009	**P-138A**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639010	**P-141**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639011	**DUPLICATE (P-125)**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30412639012	**RINSE**	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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SAMPLE ANALYTE COUNT

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: April 19, 2021

General Information:
12 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 Unit 3 LF
Pace Project No.: 30412639

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: April 19, 2021

General Information:
12 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:

Analyte Comments:

QC Batch: 441716

1c: MB reported in pCi/L.

- BLANK (Lab ID: 2132293)
  - Radium-228

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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PROJECT NARRATIVE

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: April 19, 2021

General Information:
12 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.

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Sample: P-73A-1 **Lab ID: 30412639001** Collected: 03/22/21 08:50 Received: 03/30/21 09:15 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	**0.199 ± 0.391 (0.714) C:NA T:95%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.261 ± 0.502 (1.10) C:67% T:86%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.460 ± 0.893 (1.81)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-75-1 **Lab ID: 30412639002** Collected: 03/24/21 10:55 Received: 03/30/21 09:15 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 ± 0.259 (0.611) C:NA T:96%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.256 ± 0.487 (1.07) C:62% T:86%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.256 ± 0.746 (1.68)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-98 **Lab ID: 30412639003** Collected: 03/23/21 09:40 Received: 03/30/21 09:15 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	**-0.0607 ± 0.315 (0.729) C:NA T:89%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0376 ± 0.420 (0.961) C:66% T:93%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.0376 ± 0.735 (1.69)**	pCi/L	04/16/21 09:15	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Greensburg, PA 15601
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Sample: P-117 **Lab ID: 30412639004** Collected: 03/22/21 15:50 Received: 03/30/21 09:15 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	**0.259 ± 0.360 (0.601) C:NA T:83%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.253 ± 0.504 (1.11) C:63% T:83%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.512 ± 0.864 (1.71)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-120 **Lab ID: 30412639005** Collected: 03/23/21 10:40 Received: 03/30/21 09:15 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	**0.194 ± 0.421 (0.777) C:NA T:89%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**-0.323 ± 0.577 (1.38) C:61% T:78%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.194 ± 0.998 (2.16)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-125 **Lab ID: 30412639006** Collected: 03/22/21 10:20 Received: 03/30/21 09:15 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 ± 0.384 (0.742) C:NA T:98%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.365 ± 0.530 (1.14) C:62% T:81%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.478 ± 0.914 (1.88)**	pCi/L	04/16/21 09:15	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Sample: P-134 **Lab ID: 30412639007** Collected: 03/22/21 12:15 Received: 03/30/21 09:15 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	**0.0570 ± 0.403 (0.803) C:NA T:93%**	pCi/L	04/13/21 16:37	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**-0.425 ± 0.439 (1.09) C:64% T:84%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.0570 ± 0.842 (1.89)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-137A **Lab ID: 30412639008** Collected: 03/22/21 14:45 Received: 03/30/21 09:15 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	**0.621 ± 0.493 (0.641) C:NA T:86%**	pCi/L	04/13/21 16:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1.24 ± 0.666 (1.21) C:57% T:85%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.86 ± 1.16 (1.85)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: P-138A **Lab ID: 30412639009** Collected: 03/22/21 13:00 Received: 03/30/21 09:15 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	**-0.107 ± 0.244 (0.575) C:NA T:98%**	pCi/L	04/13/21 16:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.142 ± 0.488 (1.10) C:68% T:85%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.142 ± 0.732 (1.68)**	pCi/L	04/16/21 09:15	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Greensburg, PA 15601
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

Sample: P-141 **Lab ID: 30412639010** Collected: 03/22/21 11:30 Received: 03/30/21 09:15 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	**-0.0634 ± 0.289 (0.588) C:NA T:90%**	pCi/L	04/13/21 16:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.304 ± 0.542 (1.18) C:62% T:74%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.304 ± 0.831 (1.77)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: DUPLICATE (P-125) **Lab ID: 30412639011** Collected: 03/22/21 10:20 Received: 03/30/21 09:15 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	**0.119 ± 0.272 (0.438) C:NA T:90%**	pCi/L	04/13/21 16:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.106 ± 0.438 (0.989) C:67% T:88%**	pCi/L	04/15/21 15:47	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.225 ± 0.710 (1.43)**	pCi/L	04/16/21 09:15	7440-14-4	

Sample: RINSE **Lab ID: 30412639012** Collected: 03/22/21 16:30 Received: 03/30/21 09:15 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	**0.331 ± 0.346 (0.488) C:NA T:80%**	pCi/L	04/13/21 16:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.222 ± 0.654 (1.46) C:64% T:70%**	pCi/L	04/15/21 15:48	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.553 ± 1.000 (1.95)**	pCi/L	04/16/21 09:15	7440-14-4	

Pace Analytical Services, LLC
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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

QC Batch: 441715 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: 30412639001, 30412639002, 30412639003, 30412639004, 30412639005, 30412639006, 30412639007, 30412639008, 30412639009, 30412639010, 30412639011, 30412639012

METHOD BLANK: 2132292 Matrix: Water
Associated Lab Samples: 30412639001, 30412639002, 30412639003, 30412639004, 30412639005, 30412639006, 30412639007, 30412639008, 30412639009, 30412639010, 30412639011, 30412639012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0420 ± 0.247 (0.551) C:NA T:99%	pCi/L	04/13/21 16:25	

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

Pace Analytical Services, LLC
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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

QC Batch: 441716 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: 30412639001, 30412639002, 30412639003, 30412639004, 30412639005, 30412639006, 30412639007, 30412639008, 30412639009, 30412639010, 30412639011, 30412639012

METHOD BLANK: 2132293 Matrix: Water
Associated Lab Samples: 30412639001, 30412639002, 30412639003, 30412639004, 30412639005, 30412639006, 30412639007, 30412639008, 30412639009, 30412639010, 30412639011, 30412639012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0616 ± 0.370 (0.848) C:68% T:88%	pCi/L	04/15/21 15:48	1c

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

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

QUALIFIERS

Project: Xcel Energy Sherco Unit 3 LF
Pace Project No.: 30412639

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.

ANALYTE QUALIFIERS

1c	MB reported in pCi/L.

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical R

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fi

WO# : 30412639

30412639

Section A Required Client Information:

Company:	Xcel Energy
Address:	c/o Pace MN Field
	RADIUM
Email To:	Chris Pelosi
Phone: (612) 587-7254	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 Unit 3 LF Spring

Section C Invoice Information:

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

REGULATORY AGENCY

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

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☑ OTHER

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; GT; TS

ITEM #	Section D Required Client Information: 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	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-73A-1	WT	G			3/22/21	0850		2			2						X	X		001
2	P-74-1 (1)	WT	G			3/22/21	NA		0			2						X	X		
3	P-75-1	WT	G			3/24/21	1055		2			2						X	X		002
4	P-97 (1)	WT	G			3/22/21	NA		0			2						X	X		
5	P-98	WT	G			3/23/21	0940		2			2						X	X		003
6	P-117	WT	G			3/22/21	1550		2			2						X	X		004
7	P-120	WT	G			3/23/21	1040		2			2						X	X		005
8	P-125	WT	G			3/22/21	1020		2			2						X	X		006
9	P-134	WT	G			3/22/21	1215		2			2						X	X		007
10	P-137A	WT	G			3/22/21	1445		2			2						X	X		008
11	P-138A	WT	G			3/22/21	1300		2			2						X	X		009
12	P-141	WT	G			3/22/21	1130		2			2						X	X		010

Additional Comments:

(1) wells were dry - No Sample RGS 3/24/21

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	3/26/21	1030	Pace	3-30-21	0915

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): 3/24/21

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

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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.

30412639

Page: 2 of 2

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	
Project Name:	Xcel Energy Sherco Unit 3 LF Spring

Section C Invoice Information:

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

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	Requested Analysis: RA-226 EPA 903.1	RA-228 EPA 904.0	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	DUPLICATE (P-125)	WT	G			3/22/21	1020		2			2						X	X		011
2	RINSE	WT	G			3/22/21	1430		2			2						X	X		012
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

RDJ 3/24/21

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson Pace	3/24/21	1030	Pace	3-30-21	0915

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): 3/24/21

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

Pace Analytical®

Pace Greensburg Lab -Sample Container Count

30412639

Client: Xcel Energy (Pace MN)

Site: Xcel Energy Sherco Unit

Profile Number: 7484

Notes:

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

Container Codes

Glass

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

Plastic / Misc.

GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved

EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag

WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel Energy Project # # 30412639

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

Label Kjm
LIMS Login BR

Tracking #: 9550 9942 2220

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# 100111021 Date and Initials of person examining contents: Kjm 3-30-21

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:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	/			16. pH<2
All containers meet method preservation requirements.	/			Initial when completed Kjm 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: Kjm Date: 3-30-21 Survey Meter SN: 1563

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.

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

June 07, 2021

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

RE: Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on May 12, 2021. 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

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

CERTIFICATIONS

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

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

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

SAMPLE SUMMARY

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30420943001	**P-74-1**	Water	05/07/21 11:00	05/12/21 10:30
30420943002	**P-97**	Water	05/07/21 10:25	05/12/21 10:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30420943001	**P-74-1**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30420943002	**P-97**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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

PROJECT NARRATIVE

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: June 07, 2021

General Information:
2 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:

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

PROJECT NARRATIVE

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: June 07, 2021

General Information:
2 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:

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

PROJECT NARRATIVE

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: June 07, 2021

General Information:
2 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.

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

Sample: P-74-1 **Lab ID: 30420943001** Collected: 05/07/21 11:00 Received: 05/12/21 10:30 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	**0.382 ± 0.581 (1.00) C:NA T:86%**	pCi/L	06/06/21 13:13	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.0929 ± 0.455 (1.02) C:65% T:94%**	pCi/L	06/03/21 11:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.475 ± 1.04 (2.02)**	pCi/L	06/07/21 14:49	7440-14-4	

Sample: P-97 **Lab ID: 30420943002** Collected: 05/07/21 10:25 Received: 05/12/21 10:30 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	**0.0689 ± 0.405 (0.827) C:NA T:93%**	pCi/L	06/06/21 13:13	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.342 ± 0.424 (0.902) C:71% T:85%**	pCi/L	06/03/21 11:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.411 ± 0.829 (1.73)**	pCi/L	06/07/21 14:49	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

QC Batch: 449757
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: 30420943001, 30420943002

METHOD BLANK: 2170318
Matrix: Water
Associated Lab Samples: 30420943001, 30420943002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0954 ± 0.281 (0.631) C:74% T:92%	pCi/L	06/03/21 11:39	

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

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

QC Batch: 449756
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: 30420943001, 30420943002

METHOD BLANK: 2170317 Matrix: Water
Associated Lab Samples: 30420943001, 30420943002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.124 ± 0.384 (0.744) C:NA T:87%	pCi/L	06/06/21 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

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

QUALIFIERS

Project: Xcel Energy Sherco Unit 3 LF S
Pace Project No.: 30420943

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.

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant f

WO# : 30420943

30420943

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	
Project Name:	Xcel Energy Sherco Unit 3 LF Spring

Section C Invoice Information:

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

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	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: RA-226 EPA 903.1	RA-228 EPA 904.0	Ra 226 + Ra 228 SUM	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-74-1	WT	G	—	—	5/7/21	1100		2			2						X	X	X		001
2	P-97	WT	G	—	—	5/7/21	1025		2			2						X	X	X		002
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

RCJ 5/7/21

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Riley Jacobson Pace	5/7/21	1330		5-12-21	1030	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 + Kendall Johnson

SIGNATURE of SAMPLER: DATE Signed (MM / DD / YY): 5/7/21

Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact

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

Pace Analytical®

Pace Greensburg Lab -Sample Container Count

Client Pace MN

Site Xcel Energy Sherco Unit 3 LF Spring

Profile Number #7430420943

Notes

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

Container Codes

Glass

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

Plastic / Misc.

GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved

EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag

WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel　　Project # 30420943

Label	[initials]
LIMS Login	VPI

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

Tracking #: 9371 9928415

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# 1CD1101 / Date and Initials of person examining contents: [initials] 5-14-21
Chain of Custody Present:	—			1.
Chain of Custody Filled Out:	—			2.
Chain of Custody Relinquished:	—			3.
Sampler Name & Signature on COC:	—			4.
Sample Labels match COC:	—			5.
-Includes date/time/ID　Matrix: WT				
Samples Arrived within Hold Time:	—			6.
Short Hold Time Analysis (<72hr remaining):		—		7.
Rush Turn Around Time Requested:		—		8.
Sufficient Volume:	—			9.
Correct Containers Used:	—			10.
-Pace Containers Used:	—			
Containers Intact:	—			11.
Orthophosphate field filtered			—	12.
Hex Cr Aqueous sample field filtered			—	13.
Organic Samples checked for dechlorination:			—	14.
Filtered volume received for Dissolved tests			—	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed [initials] / 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: [initials] Date: 5-14-21 Survey Meter SN: 1563

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.

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

July 06, 2021

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

RE: Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Dear Christopher Pelosi:

Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2021. 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

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

CERTIFICATIONS

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

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

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

SAMPLE SUMMARY

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30425693001	**P-137A**	Water	06/10/21 09:10	06/12/21 10:45
~~**30425693002**~~	~~**P-151**~~	~~Water~~	~~06/10/21 10:05~~	~~06/12/21 10:45~~
~~**30425693003**~~	~~**P-165**~~	~~Water~~	~~06/10/21 10:50~~	~~06/12/21 10:45~~

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30425693001	**P-137A**	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
~~**30425693002**~~	~~**P-151**~~	~~EPA 903.1~~	~~SLC~~	~~1~~	~~PASI-PA~~
		~~EPA 904.0~~	~~JC2~~	~~1~~	~~PASI-PA~~
		~~Total Radium Calculation~~	~~RMK~~	~~1~~	~~PASI-PA~~
~~**30425693003**~~	~~**P-165**~~	~~EPA 903.1~~	~~SLC~~	~~1~~	~~PASI-PA~~
		~~EPA 904.0~~	~~JC2~~	~~1~~	~~PASI-PA~~
		~~Total Radium Calculation~~	~~RMK~~	~~1~~	~~PASI-PA~~

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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

PROJECT NARRATIVE

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Pace-MN Field Services Division
Date: July 06, 2021

General Information:
3 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:

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

PROJECT NARRATIVE

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Pace-MN Field Services Division
Date: July 06, 2021

General Information:
3 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:

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

PROJECT NARRATIVE

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: Pace-MN Field Services Division
Date: July 06, 2021

General Information:
3 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.

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

Sample: P-137A **Lab ID: 30425693001** Collected: 06/10/21 09:10 Received: 06/12/21 10:45 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	**0.0568 ± 0.334 (0.682) C:NA T:93%**	pCi/L	07/06/21 13:19	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.478 ± 0.395 (0.773) C:76% T:89%**	pCi/L	07/01/21 14:15	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.535 ± 0.729 (1.46)**	pCi/L	07/06/21 15:39	7440-14-4	

~~**Sample: P-151** **Lab ID: 30425693002** Collected: 06/10/21 10:05 Received: 06/12/21 10:45 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~~	~~**0.0545 ± 0.354 (0.768) C:NA T:95%**~~	~~pCi/L~~	~~07/06/21 13:05~~	~~13982-63-3~~	
	~~Pace Analytical Services - Greensburg~~					
~~Radium-228~~	~~EPA 904.0~~	~~**0.144 ± 0.392 (0.959) C:74% T:87%**~~	~~pCi/L~~	~~07/01/21 14:15~~	~~15262-20-1~~	
	~~Pace Analytical Services - Greensburg~~					
~~Total Radium~~	~~Total Radium Calculation~~	~~**0.000 ± 0.746 (1.73)**~~	~~pCi/L~~	~~07/06/21 15:39~~	~~7440-14-4~~	

~~**Sample: P-165** **Lab ID: 30425693003** Collected: 06/10/21 10:50 Received: 06/12/21 10:45 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~~	~~**0.172 ± 0.262 (0.155) C:NA T:93%**~~	~~pCi/L~~	~~07/06/21 13:05~~	~~13982-63-3~~	
	~~Pace Analytical Services - Greensburg~~					
~~Radium-228~~	~~EPA 904.0~~	~~**0.230 ± 0.406 (0.888) C:76% T:94%**~~	~~pCi/L~~	~~07/01/21 14:15~~	~~15262-20-1~~	
	~~Pace Analytical Services - Greensburg~~					
~~Total Radium~~	~~Total Radium~~ Calculation	~~**0.402 ± 0.668 (1.04)**~~	~~pCi/L~~	~~07/06/21 15:39~~	~~7440-14-4~~	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

QC Batch: 452761
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: 30425693001, 30425693002, 30425693003

METHOD BLANK: 2185607 Matrix: Water
Associated Lab Samples: 30425693001, 30425693002, 30425693003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.310 ± 0.279 (0.557) C:77% T:83%	pCi/L	07/01/21 11:00	

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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

QC Batch: 452759
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: 30425693001, 30425693002, 30425693003

METHOD BLANK: 2185604
Matrix: Water
Associated Lab Samples: 30425693001, 30425693002, 30425693003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.200 ± 0.209 (0.565) C:NA T:94%	pCi/L	07/06/21 12:37	

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

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

QUALIFIERS

Project: Xcel Sherco Spring RE
Pace Project No.: 30425693

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.

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All re

WO# : 30425693

30425693

1

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:	15 Days	Project Name:	Xcel Energy Sherco Spring RE	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER_MCES

SITE LOCATION: NC ☑ MN ☐ IL ☐ IN ☐ MI ☐ OH ☐ SC ☐ WI ☐ OTHER

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 #	Section D Required Client Information 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	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: Ra-226 EPA 903.1	Ra-228 EPA 904.0	Ra226 + Ra228 SUM	Residual Chlorine (Y/N)	Pace Project No. Lab I.D.
1	P-137A	WT	G	—	—	6/10/21	0910		2			2							X	X	X		001
2	P-151	WT	G	—	—		1005		2			2							X	X	X		002
3	P-165	WT	G	—	—	↓	1050		2			2							X	X	X		003
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

N/A KAJ 6/10/21

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Pace	6/11/21	930	VIA FEDEX	6/11/21	930
Pace	6/11/21	950		6-11-21	1045

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Pelosi + Kendall Johnson

SIGNATURE of SAMPLER: + Kendall

DATE Signed (MM / DD / YY): 06/10/21

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Xcel

Project # #30425693

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

Label KM

LIMS Login KM

Tracking #: 9371 9293 3583

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# 1003801 | Date and Initials of person examining contents: KM 6-14-21

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 JAG 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: JAG Date: 6/14/21 Survey Meter SN: 1563

Client Notification/ Resolution:

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

Comments/ Resolution: _____

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

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

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

Appendix B

Fall 2021 Assessment 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 | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-73A-1 | Labeled: P-73A-1

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	36.18	Feet
Static water level measurement before purging (Start Depth)	34.50	Feet – removed slowly pump for measure 10/18/21 CJP 835
Static water level measurement at time of sampling (Final Depth)	34.50	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: PINC 043600

Date Purged: 10/19/21 | Water Column: 1.68 Feet

Time Purged: 900 - 918 | One Casing Volume: 0.27 Gallons

Pump Rate: 0.05 (GPM / LPM) | Volume Purged: 0.90 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 920

Sampling Equip.: pump/GHW

Meter ID: MPS-6 TM-6

Analyzed by: CJP

Field Parameter Measurements of Sample

pH	8.0	(units)	D.O	10.1	(mg/l)
Spec. Cond.	560	(µmhos/cm)	Turbidity	2.0	(NTU)
Temp. Observed	10.5	(°C)	Eh	87	(mV)
Temp. Corrected	10.6	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 52°F sunny and SE 5mph

Sample Description: clear no odor

Observations: * Do not sample if bladder pump does not work. Bladder pump works, but very slowly.

* Dry @ top of bladder pump 34.09' measured 10/18/21 834 CJP

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
906	8.0	560	10.5	10.1	2.4	87	0.30
912	8.0	560	10.5	10.1	2.2	87	0.60
*918	8.0	560	10.5	10.1	2.0	87	0.90
			10/18/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-74-1 | Labeled: P-74-1

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	38.10	Feet
Static water level measurement before purging (Start Depth)	36.68	Feet
Static water level measurement at time of sampling (Final Depth)	NA	Feet
Static Water Level Elevation Before Purging	NA	Feet

removed bladder pump + measured 10/18/21 825 CSP

Purge Method: NA | Pump ID: NA

Date Purged: | Water Column: Feet

Time Purged: | One Casing Volume: Gallons

Pump Rate: GPM / LPM | Volume Purged: Gallons

Field Sampling Data

Date Sampled: NA

Time Sampled:

Sampling Equip.:

Meter ID: MPS-6 TM-6

Analyzed by: CSP

Field Parameter Measurements of Sample

pH: (units) | D.O: (mg/l)

Spec. Cond.: (µmhos/cm) | Turbidity: (NTU)

Temp. Observed: (°C) | Eh: (mV)

Temp. Corrected: (°C) | Other:

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 52°F sunny and SE 5 mph

Sample Description: NA Bladder pump not functioning w/ low water level

Observations: * Do not sample if bladder pump does not work

* Dry @ top of bladder pump 35.70' measured 10/18/21 825 CSP

Stabilization Test

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

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

Form Revised 01/25/2021

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

Lead Technician Signature: Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco 3 LF Fall RE 2021 Project No. 21-05159

Monitoring Point ID P-74-2 Labeled (74-1)

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	46.56	Feet * Provided by D.K.
Static water level measurement before purging (Start Depth)	38.22	Feet
Static water level measurement at time of sampling (Final Depth)	38.22	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Bladder Pump Pump ID BPC-1

Date Purged 11/11/21 Water Column 8.34 Feet

Time Purged ~~1205-1226~~ (1) 1105-1126 One Casing Volume 1.36 Gallons

Pump Rate 0.2 (GPM) / LPM Volume Purged 4.2 Gallons

Field Sampling Data

Date Sampled 11/11/21 (1)

Time Sampled ~~1230~~ 1130

Sampling Equip. Pump + Filter

Meter ID MPS-7/TM5

Analyzed by RGS

Field Parameter Measurements of Sample

pH	7.6 (units)	D.O	8.6 (mg/l)
Spec. Cond.	610 (µmhos/cm)	Turbidity	3.2 (NTU)
Temp. Observed	10.1 (°C)	Eh	167 (mV)
Temp. Corrected	10.2 (°C)	Other	NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 38°F, overcast, WSW, 15 MPH

Sample Description: clear no odor

Observations: *Top of Pump @ 42.79'

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
~~1212~~ 1112	7.5	610	10.1	8.7	NA	165	1.4
(1) ~~1219~~ 1119	7.5	610	10.1	8.7	NA	166	2.8
~~1226~~ 1126	7.6	610	10.1	8.6	NA	167	4.2

RGS 11/11/21

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Riley Jacobsen

Lead Technician Signature: Riley Jacobsen Date: 11/11/21

(1) RGS 11/11/21 * Clock not reset yet, time 1H off.

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-75-1 | Labeled: P-75-1

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	39.66	Feet (removed bladder pump & measured 10/18/21 940 CSP)
Static water level measurement before purging (Start Depth)	37.85	Feet
Static water level measurement at time of sampling (Final Depth)	37.85	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: PINE 043600

Date Purged: 10/19/21 | Water Column: 1.81 Feet

Time Purged: 1455 - 1505 | One Casing Volume: 0.30 Gallons

Pump Rate: 0.10 (GPM) / LPM | Volume Purged: 0.90 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 1505

Sampling Equip.: pump/filter

Meter ID: MPS-6 TM-6

Analyzed by: CSP

Field Parameter Measurements of Sample

pH	7.9	(units)	D.O	9.3	(mg/l)
Spec. Cond.	600	(µmhos/cm)	Turbidity	1.8	(NTU)
Temp. Observed	15.6	(°C)	Eh	87	(mV)
Temp. Corrected	15.7	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 68°F sunny wind S @ 5 mph

Sample Description: clear no odor

Observations: * Do not sample if bladder pump does not work.

Dry @ top of bladder pump 35.70' CSP tubing

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1458	7.9	600	15.6	9.4	5.8	88	0.30
1501	7.9	600	15.6	9.4	2.0	87	0.60
1504	7.9	600	15.6	9.3	1.8	87	0.90

(N)o 10/19/21

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco Unit III Fall 2021 Project No. 21-05159

Monitoring Point ID P-97 Labeled P-97

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 41.99 Feet removed bladder pump to measure 10/18/21 945 CJP

Static water level measurement before purging (Start Depth) 40.93 Feet

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

Static Water Level Elevation Before Purging NA Feet

Purge Method NA Pump ID NA

Date Purged ↓ Water Column ↓ Feet

Time Purged One Casing Volume Gallons

Pump Rate GPM / LPM Volume Purged Gallons

Field Sampling Data

Date Sampled 10/19/21

Time Sampled 1510

Sampling Equip. NA

Meter ID MPS-6 TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

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

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

Temp. Observed (°C) 10/19/21 Eh (mV)

Temp. Corrected (°C) Other

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 68°F sunny and SE 5 mph

Sample Description: Bladder pump could not purge sample, well volume too low.

Observations: * Do not sample if bladder pump doesnot work.

Dry @ top of bladder pump @ 39.55' CJP 10/18/21

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
			@ 10/19/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2021

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

Lead Technician Signature: Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel   Project: Sherco 3 LF Fall RE 2021   Project No. 21-05159

Monitoring Point ID: P-97-1   Labeled: (97)

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: 47.35 Feet *Provided by D.K.

Static water level measurement before purging (Start Depth): 41.20 Feet

Static water level measurement at time of sampling (Final Depth): 4.20 Feet

Static Water Level Elevation Before Purging: NA Feet

Purge Method: Bladder Pump   Pump ID: BPC-1

Date Purged: 11/11/21 ~~[illegible]~~ 11/11/21 ①   Water Column: 6.15 Feet

Time Purged: ~~1040-1101~~ (0940-1001)   One Casing Volume: 1.00 Gallons

Pump Rate: 0.15 (GPM) / LPM   Volume Purged: 3.15 Gallons

Field Sampling Data

Date Sampled: 11/11/21 ~~[illegible]~~ 11/11/21

Time Sampled: ~~1105~~ (1005)

Sampling Equip.: Pump + Filter

Meter ID: MPS-7/TMS

Analyzed by: RCJ

Field Parameter Measurements of Sample

pH: 7.6 (units)   D.O: 6.5 (mg/l)

Spec. Cond.: 650 (μmhos/cm)   Turbidity: 3.6 (NTU)

Temp. Observed: 9.9 (°C)   Eh: 160 (mV)

Temp. Corrected: 10.0 (°C)   Other: NA

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 39F, Overcast, W @ 13MPH

Sample Description: clear no odor

Observations: * Top of Bladder Pump @ 44.80

Stabilization Test

Time	pH (units)	Specifc Conductance (μmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
0947	7.6	660	9.9	6.4	NA	159	1.05
0954	7.6	650	9.9	6.5	NA	160	2.10
1001	7.6	650	9.9	6.5	NA	160	3.15
				RCJ 11/11/21			

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

Form Revised: 01/25/2021

Name/Affiliation of Sampler(s): Riley Jacobsen

Lead Technician Signature: [signature]   Date: 11/11/21

① Truck clock not changed yet, time was 1H off.

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco Unit III Fall 2021 Project No. 21-05159

Monitoring Point ID P-98 Labeled P-98

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	43.35	Feet
Static water level measurement before purging (Start Depth)	~~DRY~~ @ 40.19	Feet
Static water level measurement at time of sampling (Final Depth)	40.19	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID PINE 043600

Date Purged 10/19/21 Water Column 3.16 Feet

Time Purged 825 - 843 One Casing Volume 0.52 Gallons

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

Field Sampling Data

Date Sampled 10/19/21

Time Sampled 845

Sampling Equip. pump/filter

Meter ID MPS-6 TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH	7.8	(units)	D.O	8.7	(mg/l)
Spec. Cond.	570	(µmhos/cm)	Turbidity	2.9	(NTU)
Temp. Observed	12.6	(°C)	Eh	78	(mV)
Temp. Corrected	12.7	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 50°F sunny and 0 mph

Sample Description: clear no odor

Observations: * Do not sample if bladder pump does not work

~~* Dry @ top of bladder pump 31.04' measured 10/18/21 820 CJP~~ @ 10/18/21

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
831	7.8	570	12.6	8.7	3.0	81	0.60
837	7.8	570	12.6	8.7	2.9	80	1.20
843	7.8	570	12.6	8.7	2.9	78	1.80

@ 10/19/21

Samples chilled immediately after collection: ☒ Yes ☐ Other ____

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-117 (474026) | Labeled: P-117

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	40.97	Feet (measured 10/19/21 CJF 912)
Static water level measurement before purging (Start Depth)	35.04	Feet
Static water level measurement at time of sampling (Final Depth)	35.04	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: PINE 043600

Date Purged: 10/19/21 | Water Column: 5.93 Feet

Time Purged: 1415 - 1445 | One Casing Volume: 0.97 Gallons

Pump Rate: 0.10 GPM / LPM | Volume Purged: 3 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 1450

Sampling Equip.: pump/filter

Meter ID: MPS-6 TM-6

Analyzed by: CJF

Field Parameter Measurements of Sample

pH	7.5	(units)	D.O	8.6	(mg/l)
Spec. Cond.	660	(µmhos/cm)	Turbidity	3.5	(NTU)
Temp. Observed	12.0	(°C)	Eh	95	(mV)
Temp. Corrected	12.1	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 67°F sunny and S @ 5mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1425	7.6	660	12.0	8.7	10	96	1.0
1435	7.5	660	12.0	8.6	5.0	95	2.0
1445	7.5	660	12.0	8.6	3.5	95	3.0

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

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco Unit III Fall 2021 Project No. 21-05159

Monitoring Point ID P-120 Labeled P-120

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	48.53	Feet (measured 10/19/21 815 CJP)
Static water level measurement before purging (Start Depth)	40.60	Feet
Static water level measurement at time of sampling (Final Depth)	40.60	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method Dedicated Bladder Pump Pump ID PINE 043600

Date Purged (@ initial) ~~10/18/21~~ 10/19/21 Water Column 7.93 Feet

Time Purged (@ initial) ~~1130 - 1157~~ 0745 One Casing Volume 1.29 Gallons

Pump Rate 0.15 (GPM) LPM Volume Purged 4.05 Gallons

Field Sampling Data

Date Sampled (@ initial) 10/18/21

Time Sampled (@ initial) ~~1200~~ 0815

Sampling Equip. pump/filter

Meter ID MPS-6 TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

pH	8.4	(units)	D.O	8.1	(mg/l)
Spec. Cond.	640	(µmhos/cm)	Turbidity	1.9	(NTU)
Temp. Observed	11.2	(°C)	Eh	54	(mV)
Temp. Corrected	11.3	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 56°F sunny wind SE 5mph

Sample Description: clear no odor

Observations: NA * DUPLICATE

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
(@ initial) ~~1139~~ 0754	8.4	640	11.2	8.1	2.5	56	1.35
(@ initial) ~~1148~~ 0803	8.4	640	11.2	8.1	2.0	55	2.70
(@ initial) ~~1157~~ 0812	8.4	640	11.2	8.1	1.9	54	4.05

(@ initial) 10/18/21

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/18/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-125 | Labeled: P-125

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	36.41	Feet measured 10/19/21 840 CST
Static water level measurement before purging (Start Depth)	30.72	Feet
Static water level measurement at time of sampling (Final Depth)	30.72	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: PINE 043600

Date Purged: 10/19/21 | Water Column: 5.69 Feet

Time Purged: 955 – 1015 | One Casing Volume: 0.93 Gallons

Pump Rate: 0.10 (GPM) / LPM | Volume Purged: 3 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 1020

Sampling Equip.: pump/filter

Meter ID: MPS-6 TM-6

Analyzed by: CJP

Field Parameter Measurements of Sample

pH	7.7	(units)	D.O	10.2	(mg/l)
Spec. Cond.	540	(µmhos/cm)	Turbidity	5.0	(NTU)
Temp. Observed	11.5	(°C)	Eh	95	(mV)
Temp. Corrected	11.6	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 52°F sunny and SE 5mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
955	7.7	540	11.5	10.3	8.0	97	1.0
1005	7.7	540	11.5	10.2	7.0	95	2.0
1015	7.7	540	11.5	10.2	5.0	95	3.0
				(Calibration 10/19/21)			

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

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco Unit III Fall 2021 Project No. 21-05159

Monitoring Point ID P-134 Labeled P-134

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 37.52 Feet measured 10/18/21 850 CST

Static water level measurement before purging (Start Depth) 31.20 Feet

Static water level measurement at time of sampling (Final Depth) 31.20 Feet

Static Water Level Elevation Before Purging NA Feet

Purge Method Dedicated Bladder Pump Pump ID PINE 043600

Date Purged 10/19/21 Water Column 6.32 Feet

Time Purged 1115 - 1135 One Casing Volume 1.03 Gallons

Pump Rate 0.10 (GPM) / LPM Volume Purged 3.3 Gallons

Field Sampling Data

Date Sampled 10/19/21

Time Sampled 1140

Sampling Equip. pump / filter

Meter ID MPS-6 TM-6

Analyzed by CST

Field Parameter Measurements of Sample

pH	7.7	(units)	D.O	8.4	(mg/l)
Spec. Cond.	700	(µmhos/cm)	Turbidity	5.0	(NTU)
Temp. Observed	11.1	(°C)	Eh	91	(mV)
Temp. Corrected	11.2	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 50°F sunny and SE 5mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1115	7.7	700	11.1	8.6	7.7	94	1.1
1125	7.7	700	11.1	8.4	7.0	93	2.2
1135	7.7	700	11.1	8.4	5.0	91	3.3
			@ 10/19/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel | Project: Sherco Unit III Fall 2021 | Project No.: 21-05159

Monitoring Point ID: P-137A | Labeled: P-137A

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	41.70	Feet (measured 10/18/21 900 CST)
Static water level measurement before purging (Start Depth)	33.36	Feet
Static water level measurement at time of sampling (Final Depth)	33.38	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump | Pump ID: PINE 043600

Date Purged: 10/19/21 | Water Column: 8.34 Feet

Time Purged: 1300 - 1321 | One Casing Volume: 1.36 Gallons

Pump Rate: 0.20 (GPM) / LPM | Volume Purged: 4.2 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 1325

Sampling Equip.: pump / filter

Meter ID: MPS-6 TM-6

Analyzed by: CSP

Field Parameter Measurements of Sample

pH	7.8	(units)	D.O	8.5	(mg/l)
Spec. Cond.	770	(µmhos/cm)	Turbidity	1.5	(NTU)
Temp. Observed	11.5	(°C)	Eh	90	(mV)
Temp. Corrected	11.6	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 61° F sunny wind SE 5mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1307	7.8	760	11.5	8.5	8.9	94	1.4
1314	7.8	770	11.5	8.5	1.5	90	2.8
1321	7.8	770	11.5	8.5	1.5	90	4.2

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 01.25.2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Project: Sherco Unit III Fall 2021 Project No.: 21-05159

Monitoring Point ID: P-138A (768520) Labeled: P-138A

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: 36.95 Feet (measured 10/18/21 855 CJP)

Static water level measurement before purging (Start Depth): 29.40 Feet

Static water level measurement at time of sampling (Final Depth): ~~29.40~~ NA Feet

Static Water Level Elevation Before Purging: NA Feet

Purge Method: Dedicated Bladder Pump Pump ID: PINE 043600

Date Purged: 10/19/21 Water Column: 7.55 Feet

Time Purged: ~~1150~~ – 1229 One Casing Volume: 1.23 Gallons

Pump Rate: 0.10 (GPM) LPM Volume Purged: NA Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: ~~1230~~

Sampling Equip.: pump/filter

Meter ID: MPS-6 TM-6

Analyzed by: CJP

Field Parameter Measurements of Sample

(crossed out)

pH ____ (units) D.O ____ (mg/l)

Spec. Cond. ____ (µmhos/cm) Turbidity ____ (NTU)

Temp. Observed ____ (°C) Eh ____ (mV)

Temp. Corrected ____ (°C) Other ____

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 61°F sunny wind S @ 5mph

Sample Description: ~~clear no odor~~

Observations: NA

Bladder pump stuck in well could not collect sample.

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1203							1.3
~~1216~~							2.6
1229							3.9

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

Form Revised: 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client Xcel Project Sherco Unit III Fall 2021 Project No. 21-05159

Monitoring Point ID P-140 (822161) Labeled P-140

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	33.98	Feet
Static water level measurement before purging (Start Depth)	27.42	Feet
Static water level measurement at time of sampling (Final Depth)	NA	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method NA Pump ID NA

Date Purged ↓ Water Column ↓ Feet

Time Purged One Casing Volume Gallons

Pump Rate GPM / LPM Volume Purged Gallons

Field Sampling Data

Date Sampled 10/18/21

Time Sampled 1145

Sampling Equip. SWL-5

Meter ID MPS-6 TM-6

Analyzed by CJP

Field Parameter Measurements of Sample

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

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

Temp. Observed (°C) (MA) CJP 10/18/21 Eh (mV)

Temp. Corrected (°C) Other

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

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

Temperature Correction Factor: °C

Weather Conditions During Sampling:

Sample Description: (MA) CJP 10/21/21

Observations:

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
			(MA) CJP 10/18/21				

Samples chilled immediately after collection: ☒ Yes ☐ Other

Form Revised 6/25/2021

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

Lead Technician Signature: Date: 10/18/21

Pace Analytical® Field Services Division

Well Sampling Field Data Log Sheet

Well Description and Presampling Information

Client: Xcel Project: Sherco Unit III Fall 2021 Project No.: 21-05159

Monitoring Point ID: P-141 (822160) Labeled: P-141

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	39.24	Feet (measured with tape 845 CSP)
Static water level measurement before purging (Start Depth)	32.75	Feet
Static water level measurement at time of sampling (Final Depth)	32.75	Feet
Static Water Level Elevation Before Purging	NA	Feet

Purge Method: Dedicated Bladder Pump Pump ID: PIWC 043600

Date Purged: 10/19/21 Water Column: 6.49 Feet

Time Purged: 1030 - 1100 One Casing Volume: 1.06 Gallons

Pump Rate: 0.10 (GPM) / LPM Volume Purged: 3.3 Gallons

Field Sampling Data

Date Sampled: 10/19/21

Time Sampled: 1105

Sampling Equip.: pump / filter

Meter ID: MPS-6 TM-6

Analyzed by: CSP

Field Parameter Measurements of Sample

pH	7.6	(units)	D.O	9.6	(mg/l)
Spec. Cond.	740	(µmhos/cm)	Turbidity	1.7	(NTU)
Temp. Observed	11.0	(°C)	Eh	93	(mV)
Temp. Corrected	11.1	(°C)	Other	NA	

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

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

Temperature Correction Factor: +0.1 °C

Weather Conditions During Sampling: 58°F sunny and SE 5mph

Sample Description: clear no odor

Observations: NA

Stabilization Test

Time	pH (units)	Specifc Conductance (µmhos/cm)	Temp (°C) (observed)	D.O. (mg/l)	Turbidity (NTU)	Eh (mV)	Volume Purged (cumulative gal)
1040	7.6	740	11.0	9.7	2.0	100	1.1
1050	7.6	740	11.0	9.6	2.0	98	2.2
1100	7.6	740	11.0	9.6	1.7	93	3.3

10/19/21

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

Form Revised: 01/25/2021

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

Lead Technician Signature: [signature] Date: 10/19/21

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

03 December 2021

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

cc:

RE: Sherco Unit 3 Landfill CCR

Enclosed are the results of analyses for samples received by the laboratory on 10/20/2021 07:10-11/12/2021 10:10. 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 Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
P-73A-1		MGJ0266-01	Water	10/19/2021 9:20	10/20/2021 7:10
P-75-1		MGJ0266-03	Water	10/19/2021 15:05	10/20/2021 7:10
P-98		MGJ0266-05	Water	10/19/2021 8:45	10/20/2021 7:10
P-117		MGJ0266-07	Water	10/19/2021 14:50	10/20/2021 7:10
P-120		MGJ0266-08	Water	10/19/2021 8:15	10/20/2021 7:10
P-125		MGJ0266-09	Water	10/19/2021 10:20	10/20/2021 7:10
P-134		MGJ0266-10	Water	10/19/2021 11:40	10/20/2021 7:10
P-137A		MGJ0266-11	Water	10/19/2021 13:25	10/20/2021 7:10
P-141		MGJ0266-14	Water	10/19/2021 11:05	10/20/2021 7:10
Duplicate		MGJ0266-20	Water	10/19/2021 8:15	10/20/2021 7:10
Rinse		MGJ0266-21	Water	10/19/2021 14:10	10/20/2021 7:10
P-74-2		MGK0141-01	Water	11/11/2021 11:30	11/12/2021 10:10
P-97-1		MGK0141-03	Water	11/11/2021 10:05	11/12/2021 10:10

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-73A-1

MGJ0266-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	15.6	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 11:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 11:52	EPA 300.0	CRL
Sulfate	24.9	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 11:52	EPA 300.0	CRL
Wet Chemistry										
pH	7.67		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:22	SM 4500-H+ B	CRL
Total Dissolved Solids	288	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	6.50	6.25	mg/L		1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	1.04	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Barium	61.5	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Cobalt	0.873	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Chromium	2.39	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:50	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.0765	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:03	EPA 200.7	HRD
Calcium	69.9	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:00	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-75-1

MGJ0266-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	31.1	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 12:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 12:33	EPA 300.0	CRL
Sulfate	26.6	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 12:33	EPA 300.0	CRL
Wet Chemistry										
pH	7.62		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:31	SM 4500-H+ B	CRL
Total Dissolved Solids	328	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.925	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Barium	86.4	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Chromium	1.09	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 8:53	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:08	EPA 200.7	HRD
Calcium	73.6	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:06	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-98

MGJ0266-05 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	30.5	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:14	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:14	EPA 300.0	CRL
Sulfate	18.2	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:14	EPA 300.0	CRL
Wet Chemistry										
pH	7.59		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:39	SM 4500-H+ B	CRL
Total Dissolved Solids	318	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.737	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Barium	82.0	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Chromium	1.25	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:05	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:13	EPA 200.7	HRD
Calcium	68.2	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:11	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-117

MGJ0266-07 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	43.6	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:55	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:55	EPA 300.0	CRL
Sulfate	24.3	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 13:55	EPA 300.0	CRL
Wet Chemistry										
pH	7.64		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:48	SM 4500-H+ B	CRL
Total Dissolved Solids	380	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.777	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Barium	82.9	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Chromium	0.893	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:09	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:18	EPA 200.7	HRD
Calcium	80.3	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:17	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-120

MGJ0266-08 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	29.7	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:16	EPA 300.0	CRL
Sulfate	41.0	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:16	EPA 300.0	CRL
Wet Chemistry										
pH	7.62		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:52	SM 4500-H+ B	CRL
Total Dissolved Solids	364	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.825	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Barium	82.4	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Chromium	0.943	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Selenium	1.33	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:13	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.123	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:24	EPA 200.7	HRD
Calcium	77.9	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:22	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-125

MGJ0266-09 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	29.5	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:37	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:37	EPA 300.0	CRL
Sulfate	13.2	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 14:37	EPA 300.0	CRL
Wet Chemistry										
pH	7.73		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 9:56	SM 4500-H+ B	CRL
Total Dissolved Solids	296	25.0	mg/L		1	BGJ0493	10/20/21 11:32	10/20/21 11:32	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0492	10/20/21 9:04	10/20/21 9:04	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.837	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Barium	61.9	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Chromium	1.04	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:17	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:29	EPA 200.7	HRD
Calcium	60.5	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:27	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-134

MGJ0266-10 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	37.6	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 16:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 16:41	EPA 300.0	CRL
Sulfate	27.6	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 16:41	EPA 300.0	CRL
Wet Chemistry										
pH	7.66		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 10:00	SM 4500-H+ B	CRL
Total Dissolved Solids	358	25.0	mg/L		1	BGJ0536	10/21/21 9:00	10/21/21 9:00	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0535	10/21/21 7:13	10/21/21 7:13	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	1.07	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Barium	88.1	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Chromium	0.966	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:21	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:34	EPA 200.7	HRD
Calcium	81.5	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:33	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-137A

MGJ0266-11 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	36.3	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 17:01	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 17:01	EPA 300.0	CRL
Sulfate	102	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 17:01	EPA 300.0	CRL
Wet Chemistry										
pH	7.61		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 10:14	SM 4500-H+ B	CRL
Total Dissolved Solids	460	25.0	mg/L		1	BGJ0536	10/21/21 9:00	10/21/21 9:00	SM 2540C	HSD
Total Suspended Solids	10.8	5.00	mg/L		1	BGJ0535	10/21/21 7:13	10/21/21 7:13	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	1.07	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Barium	122	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Cobalt	0.670	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Chromium	1.96	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Selenium	0.688	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:25	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.165	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:39	EPA 200.7	HRD
Calcium	99.1	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:38	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-141

MGJ0266-14 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	57.0	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 18:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 18:03	EPA 300.0	CRL
Sulfate	49.1	1.00	mg/L		1	BGJ0495	10/20/21 8:15	10/20/21 18:03	EPA 300.0	CRL
Wet Chemistry										
pH	7.73		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 10:27	SM 4500-H+ B	CRL
Total Dissolved Solids	406	25.0	mg/L		1	BGJ0536	10/21/21 9:00	10/21/21 9:00	SM 2540C	HSD
Total Suspended Solids	5.40	5.00	mg/L		1	BGJ0535	10/21/21 7:13	10/21/21 7:13	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.892	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Barium	93.3	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Cobalt	0.636	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Chromium	1.88	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:29	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.121	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:44	EPA 200.7	HRD
Calcium	87.7	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:43	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Duplicate

MGJ0266-20 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	29.6	1.00	mg/L		1	BGJ0507	10/20/21 10:23	10/21/21 10:15	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0507	10/20/21 10:23	10/21/21 10:15	EPA 300.0	CRL
Sulfate	41.2	1.00	mg/L		1	BGJ0507	10/20/21 10:23	10/21/21 10:15	EPA 300.0	CRL
Wet Chemistry										
pH	7.69		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 11:01	SM 4500-H+ B	CRL
Total Dissolved Solids	354	25.0	mg/L		1	BGJ0592	10/25/21 8:56	10/25/21 8:56	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0591	10/25/21 6:40	10/25/21 6:40	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.772	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Barium	83.0	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Chromium	1.29	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Selenium	1.38	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:33	EPA 200.8	CRL
Total Metals by ICP										
Boron	0.123	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 19:00	EPA 200.7	HRD
Calcium	76.3	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 18:59	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Rinse

MGJ0266-21 (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	BGJ0507	10/20/21 10:23	10/21/21 10:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGJ0507	10/20/21 10:23	10/21/21 10:36	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BGJ0507	10/20/21 10:23	10/21/21 10:36	EPA 300.0	CRL
Wet Chemistry										
pH	6.18		pH Units	M_TTT	1	BGJ0494	10/20/21 8:12	10/20/21 11:05	SM 4500-H+ B	CRL
Total Dissolved Solids	< 25.0	25.0	mg/L	M_K-06	1	BGJ0592	10/25/21 8:56	10/25/21 8:56	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGJ0591	10/25/21 6:40	10/25/21 6:40	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGJ0595	10/25/21 7:22	10/26/21 9:37	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 19:07	EPA 200.7	HRD
Calcium	< 1.50	1.50	mg/L		1	BGJ0594	10/25/21 7:17	10/26/21 19:05	EPA 200.7	HRD

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-74-2

MGK0141-01 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	27.6	1.00	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 13:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 13:31	EPA 300.0	CRL
Sulfate	14.9	1.00	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 13:31	EPA 300.0	CRL
Wet Chemistry										
pH	7.69		pH Units	M_TTT	1	BGK0333	11/12/21 10:30	11/12/21 10:43	SM 4500-H+ B	CRL
Total Dissolved Solids	324	25.0	mg/L		1	BGK0342	11/15/21 9:19	11/15/21 9:19	SM 2540C	HSD
Total Suspended Solids	7.40	5.00	mg/L		1	BGK0341	11/15/21 6:49	11/15/21 6:49	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.638	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Barium	98.8	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Chromium	1.58	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Molybdenum	0.534	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:41	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGK0346	11/15/21 8:28	11/18/21 13:25	EPA 200.7	HRD
Calcium	76.3	1.50	mg/L		1	BGK0346	11/15/21 8:28	11/18/21 13:24	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

P-97-1

MGK0141-03 (Water) - Chain of Custody Number: Pace

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Anions by Ion Chromatography										
Chloride	35.7	1.00	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 14:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 14:13	EPA 300.0	CRL
Sulfate	35.0	1.00	mg/L		1	BGK0332	11/12/21 9:07	11/12/21 14:13	EPA 300.0	CRL
Wet Chemistry										
pH	7.72		pH Units	M_TTT	1	BGK0333	11/12/21 10:30	11/12/21 10:51	SM 4500-H+ B	CRL
Total Dissolved Solids	366	25.0	mg/L		1	BGK0342	11/15/21 9:19	11/15/21 9:19	SM 2540C	HSD
Total Suspended Solids	< 5.00	5.00	mg/L	M_K-06	1	BGK0341	11/15/21 6:49	11/15/21 6:49	SM 2540D	HSD
Total Metals by ICPMS										
Arsenic	0.707	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Barium	94.0	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Chromium	2.17	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BGK0347	11/15/21 8:32	11/17/21 8:45	EPA 200.8	CRL
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BGK0346	11/15/21 8:28	11/18/21 13:30	EPA 200.7	HRD
Calcium	80.6	1.50	mg/L		1	BGK0346	11/15/21 8:28	11/18/21 13:29	EPA 200.7	HRD

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0495 - Wet Prep										
Blank (BGJ0495-BLK1)				Prepared & Analyzed: 10/20/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
Blank (BGJ0495-BLK2)				Prepared & Analyzed: 10/20/2021						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							
LCS (BGJ0495-BS1)				Prepared & Analyzed: 10/20/2021						
Chloride	24.634	1.00	mg/L	25.000		98.5	90-110			
Fluoride	2.3950	0.750	mg/L	2.5000		95.8	90-110			
Sulfate	24.752	1.00	mg/L	25.000		99.0	90-110			
LCS (BGJ0495-BS2)				Prepared & Analyzed: 10/20/2021						
Chloride	24.578	1.00	mg/L	25.000		98.3	90-110			
Fluoride	2.3810	0.750	mg/L	2.5000		95.2	90-110			
Sulfate	24.616	1.00	mg/L	25.000		98.5	90-110			
LCS (BGJ0495-BS3)				Prepared & Analyzed: 10/20/2021						
Chloride	24.569	1.00	mg/L	25.000		98.3	90-110			
Fluoride	2.3780	0.750	mg/L	2.5000		95.1	90-110			
Sulfate	24.564	1.00	mg/L	25.000		98.3	90-110			
Duplicate (BGJ0495-DUP1)		**Source: MGJ0266-01**		Prepared & Analyzed: 10/20/2021						
Chloride	15.638	1.00	mg/L		15.627			0.0704	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	24.944	1.00	mg/L		24.939			0.0201	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0495 - Wet Prep										
Duplicate (BGJ0495-DUP2)		**Source: MGJ0266-02**		Prepared & Analyzed: 10/20/2021						
Chloride	17.475	1.00	mg/L		17.471			0.0229	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	12.031	1.00	mg/L		12.044			0.108	20	
Matrix Spike (BGJ0495-MS1)		**Source: MGJ0266-01**		Prepared & Analyzed: 10/20/2021						
Chloride	46.220	1.25	mg/L	31.250	15.627	97.9	90-110			
Fluoride	2.9813	0.938	mg/L	3.1250	<0.938	95.4	90-110			
Sulfate	55.916	1.25	mg/L	31.250	24.939	99.1	90-110			
Matrix Spike (BGJ0495-MS2)		**Source: MGJ0266-02**		Prepared & Analyzed: 10/20/2021						
Chloride	48.986	1.25	mg/L	31.250	17.471	101	90-110			
Fluoride	3.1175	0.938	mg/L	3.1250	<0.938	99.8	90-110			
Sulfate	43.850	1.25	mg/L	31.250	12.044	102	90-110			
Matrix Spike Dup (BGJ0495-MSD1)		**Source: MGJ0266-01**		Prepared & Analyzed: 10/20/2021						
Chloride	46.425	1.25	mg/L	31.250	15.627	98.6	90-110	0.443	20	
Fluoride	3.0213	0.938	mg/L	3.1250	<0.938	96.7	90-110	1.33	20	
Sulfate	56.083	1.25	mg/L	31.250	24.939	99.7	90-110	0.297	20	
Matrix Spike Dup (BGJ0495-MSD2)		**Source: MGJ0266-02**		Prepared & Analyzed: 10/20/2021						
Chloride	48.315	1.25	mg/L	31.250	17.471	98.7	90-110	1.38	20	
Fluoride	3.0388	0.938	mg/L	3.1250	<0.938	97.2	90-110	2.56	20	
Sulfate	43.128	1.25	mg/L	31.250	12.044	99.5	90-110	1.66	20	
Batch BGJ0507 - Wet Prep										
Blank (BGJ0507-BLK1)				Prepared: 10/20/2021 Analyzed: 10/21/2021						
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	12/03/2021 07:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0507 - Wet Prep										
LCS (BGJ0507-BS1)				Prepared: 10/20/2021 Analyzed: 10/21/2021						
Chloride	24.585	1.00	mg/L	25.000		98.3	90-110			
Fluoride	2.3820	0.750	mg/L	2.5000		95.3	90-110			
Sulfate	24.652	1.00	mg/L	25.000		98.6	90-110			
LCS (BGJ0507-BS2)				Prepared: 10/20/2021 Analyzed: 10/21/2021						
Chloride	24.612	1.00	mg/L	25.000		98.4	90-110			
Fluoride	2.3810	0.750	mg/L	2.5000		95.2	90-110			
Sulfate	24.610	1.00	mg/L	25.000		98.4	90-110			
Duplicate (BGJ0507-DUP1)		**Source: MGJ0266-20**		Prepared: 10/20/2021 Analyzed: 10/21/2021						
Chloride	29.580	1.00	mg/L		29.620			0.135	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	41.166	1.00	mg/L		41.217			0.124	20	
Matrix Spike (BGJ0507-MS1)		**Source: MGJ0266-20**		Prepared: 10/20/2021 Analyzed: 10/21/2021						
Chloride	61.089	1.25	mg/L	31.250	29.620	101	90-110			
Fluoride	3.1138	0.938	mg/L	3.1250	<0.938	99.6	90-110			
Sulfate	72.936	1.25	mg/L	31.250	41.217	102	90-110			
Matrix Spike Dup (BGJ0507-MSD1)		**Source: MGJ0266-20**		Prepared: 10/20/2021 Analyzed: 10/21/2021						
Chloride	60.926	1.25	mg/L	31.250	29.620	100	90-110	0.266	20	
Fluoride	3.0925	0.938	mg/L	3.1250	<0.938	99.0	90-110	0.685	20	
Sulfate	72.778	1.25	mg/L	31.250	41.217	101	90-110	0.218	20	
Batch BGK0332 - Wet Prep										
Blank (BGK0332-BLK1)				Prepared & Analyzed: 11/12/2021						
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 Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0332 - Wet Prep										
LCS (BGK0332-BS1)				Prepared & Analyzed: 11/12/2021						
Chloride	25.590	1.00	mg/L	25.000		102	90-110			
Fluoride	2.5040	0.750	mg/L	2.5000		100	90-110			
Sulfate	25.435	1.00	mg/L	25.000		102	90-110			
LCS (BGK0332-BS2)				Prepared & Analyzed: 11/12/2021						
Chloride	25.629	1.00	mg/L	25.000		103	90-110			
Fluoride	2.5130	0.750	mg/L	2.5000		101	90-110			
Sulfate	25.361	1.00	mg/L	25.000		101	90-110			
Duplicate (BGK0332-DUP1)		**Source: MGK0115-01**		Prepared & Analyzed: 11/12/2021						
Chloride	14.215	1.00	mg/L		14.223			0.0563	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	14.848	1.00	mg/L		14.856			0.0539	20	
Matrix Spike (BGK0332-MS1)		**Source: MGK0115-01**		Prepared & Analyzed: 11/12/2021						
Chloride	46.778	1.25	mg/L	31.250	14.223	104	90-110			
Fluoride	3.2550	0.938	mg/L	3.1250	<0.938	104	90-110			
Sulfate	47.479	1.25	mg/L	31.250	14.856	104	90-110			
Matrix Spike Dup (BGK0332-MSD1)		**Source: MGK0115-01**		Prepared & Analyzed: 11/12/2021						
Chloride	47.356	1.25	mg/L	31.250	14.223	106	90-110	1.23	20	
Fluoride	3.3350	0.938	mg/L	3.1250	<0.938	107	90-110	2.43	20	
Sulfate	48.039	1.25	mg/L	31.250	14.856	106	90-110	1.17	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0492 - Wet Prep										
Blank (BGJ0492-BLK1)				Prepared & Analyzed: 10/20/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGJ0492-BS1)				Prepared & Analyzed: 10/20/2021						
Total Suspended Solids	94.000	5.00	mg/L	101.00		93.1	70-130			
Duplicate (BGJ0492-DUP1)		**Source: MGJ0266-02**		Prepared & Analyzed: 10/20/2021						
Total Suspended Solids	<12.5	12.5	mg/L		0.20000				20	M_K-06
Batch BGJ0493 - Wet Prep										
Blank (BGJ0493-BLK1)				Prepared & Analyzed: 10/20/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGJ0493-BS1)				Prepared & Analyzed: 10/20/2021						
Total Dissolved Solids	96.000	25.0	mg/L	100.80		95.2	70-130			
Duplicate (BGJ0493-DUP1)		**Source: MGJ0266-02**		Prepared & Analyzed: 10/20/2021						
Total Dissolved Solids	236.00	25.0	mg/L		238.00			0.844	20	
Batch BGJ0494 - Wet Prep										
LCS (BGJ0494-BS1)				Prepared & Analyzed: 10/20/2021						
pH	7.1000		pH Units	7.0000		101	90-110			
LCS (BGJ0494-BS2)				Prepared & Analyzed: 10/20/2021						
pH	7.1100		pH Units	7.0000		102	90-110			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0494 - Wet Prep										
LCS (BGJ0494-BS3)				Prepared & Analyzed: 10/20/2021						
pH	7.1000		pH Units	7.0000		101	90-110			
Duplicate (BGJ0494-DUP1)		**Source: MGJ0266-01**		Prepared & Analyzed: 10/20/2021						
pH	7.6600		pH Units		7.6700			0.130	20	
Duplicate (BGJ0494-DUP2)		**Source: MGJ0266-11**		Prepared & Analyzed: 10/20/2021						
pH	7.6100		pH Units		7.6100			0.00	20	
Duplicate (BGJ0494-DUP3)		**Source: MGJ0266-20**		Prepared & Analyzed: 10/20/2021						
pH	7.6900		pH Units		7.6900			0.00	20	
Batch BGJ0535 - Wet Prep										
Blank (BGJ0535-BLK1)				Prepared & Analyzed: 10/21/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGJ0535-BS1)				Prepared & Analyzed: 10/21/2021						
Total Suspended Solids	88.000	5.00	mg/L	101.00		87.1	70-130			
Duplicate (BGJ0535-DUP1)		**Source: MGJ0251-02**		Prepared & Analyzed: 10/21/2021						
Total Suspended Solids	3.7647	5.88	mg/L		4.0000			6.06	20	M_K-06
Duplicate (BGJ0535-DUP2)		**Source: MGJ0266-10**		Prepared & Analyzed: 10/21/2021						
Total Suspended Solids	4.5000	12.5	mg/L		3.8000			16.9	20	M_K-06
Batch BGJ0536 - Wet Prep										
Blank (BGJ0536-BLK1)				Prepared & Analyzed: 10/21/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
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Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0536 - Wet Prep										
LCS (BGJ0536-BS1)				Prepared & Analyzed: 10/21/2021						
Total Dissolved Solids	88.000	25.0	mg/L	100.80		87.3	70-130			
Duplicate (BGJ0536-DUP1)		**Source: MGJ0266-10**		Prepared & Analyzed: 10/21/2021						
Total Dissolved Solids	364.00	25.0	mg/L		358.00			1.66	20	
Batch BGJ0591 - Wet Prep										
Blank (BGJ0591-BLK1)				Prepared & Analyzed: 10/25/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGJ0591-BS1)				Prepared & Analyzed: 10/25/2021						
Total Suspended Solids	94.000	5.00	mg/L	101.00		93.1	70-130			
Duplicate (BGJ0591-DUP1)		**Source: MGJ0266-20**		Prepared & Analyzed: 10/25/2021						
Total Suspended Solids	<12.5	12.5	mg/L		<12.5				20	M_K-06
Batch BGJ0592 - Wet Prep										
Blank (BGJ0592-BLK1)				Prepared & Analyzed: 10/25/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGJ0592-BS1)				Prepared & Analyzed: 10/25/2021						
Total Dissolved Solids	100.00	25.0	mg/L	100.80		99.2	70-130			
Duplicate (BGJ0592-DUP1)		**Source: MGJ0266-20**		Prepared & Analyzed: 10/25/2021						
Total Dissolved Solids	364.00	25.0	mg/L		354.00			2.79	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0333 - Wet Prep										
LCS (BGK0333-BS1)				Prepared & Analyzed: 11/12/2021						
pH	7.0900		pH Units	7.0000		101	90-110			
LCS (BGK0333-BS2)				Prepared & Analyzed: 11/12/2021						
pH	7.0900		pH Units	7.0000		101	90-110			
Duplicate (BGK0333-DUP1)		**Source: MGK0141-01**		Prepared & Analyzed: 11/12/2021						
pH	7.6400		pH Units		7.6900			0.652	20	
Batch BGK0341 - Wet Prep										
Blank (BGK0341-BLK1)				Prepared & Analyzed: 11/15/2021						
Total Suspended Solids	<5.00	5.00	mg/L							
LCS (BGK0341-BS1)				Prepared & Analyzed: 11/15/2021						
Total Suspended Solids	92.000	5.00	mg/L	102.60		89.7	70-130			
Duplicate (BGK0341-DUP1)		**Source: MGK0131-01**		Prepared & Analyzed: 11/15/2021						
Total Suspended Solids	<12.5	12.5	mg/L		0.60000				20	M_K-06
Batch BGK0342 - Wet Prep										
Blank (BGK0342-BLK1)				Prepared & Analyzed: 11/15/2021						
Total Dissolved Solids	<25.0	25.0	mg/L							
LCS (BGK0342-BS1)				Prepared & Analyzed: 11/15/2021						
Total Dissolved Solids	102.00	25.0	mg/L	102.20		99.8	70-130			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0342 - Wet Prep										
Duplicate (BGK0342-DUP1)		**Source: MGK0131-01**		Prepared & Analyzed: 11/15/2021						
Total Dissolved Solids	234.00	25.0	mg/L		242.00			3.36	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0595 - EPA 200.2, EPA 3005										
Blank (BGJ0595-BLK1)				Prepared: 10/25/2021 Analyzed: 10/26/2021						
Molybdenum	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
LCS (BGJ0595-BS1)				Prepared: 10/25/2021 Analyzed: 10/26/2021						
Molybdenum	98.701	0.500	ug/L	100.00		98.7	85-115			
Chromium	104.31	0.500	ug/L	100.00		104	85-115			
Cobalt	105.02	0.500	ug/L	100.00		105	85-115			
Barium	102.89	0.500	ug/L	100.00		103	85-115			
Selenium	100.21	0.500	ug/L	100.00		100	85-115			
Arsenic	101.52	0.500	ug/L	100.00		102	85-115			
Duplicate (BGJ0595-DUP1)		**Source: MGJ0266-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Cobalt	0.79427	0.500	ug/L		0.87253			9.39	20	
Barium	61.655	0.500	ug/L		61.462			0.314	20	
Arsenic	0.96083	0.500	ug/L		1.0360			7.53	20	
Molybdenum	0.51615	0.500	ug/L		0.48624			5.97	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Chromium	1.7782	0.500	ug/L		2.3934			29.5	20	M_D
Duplicate (BGJ0595-DUP2)		**Source: MGJ0266-03**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Barium	86.496	0.500	ug/L		86.430			0.0766	20	
Molybdenum	0.16186	0.500	ug/L		0.16399			1.31	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.31443	0.500	ug/L		0.31278			0.526	20	
Arsenic	0.79719	0.500	ug/L		0.92452			14.8	20	
Chromium	0.87205	0.500	ug/L		1.0887			22.1	20	M_D

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0595 - EPA 200.2, EPA 3005										
Matrix Spike (BGJ0595-MS1)	**Source: MGJ0266-01**			Prepared: 10/25/2021 Analyzed: 10/26/2021						
Barium	167.78	0.500	ug/L	100.00	61.462	106	75-125			
Molybdenum	106.95	0.500	ug/L	100.00	0.48624	106	75-125			
Selenium	109.58	0.500	ug/L	100.00	<0.500	110	75-125			
Cobalt	102.79	0.500	ug/L	100.00	0.87253	102	75-125			
Chromium	105.68	0.500	ug/L	100.00	2.3934	103	75-125			
Arsenic	111.50	0.500	ug/L	100.00	1.0360	110	75-125			
Matrix Spike (BGJ0595-MS2)	**Source: MGJ0266-03**			Prepared: 10/25/2021 Analyzed: 10/26/2021						
Molybdenum	102.16	0.500	ug/L	100.00	0.16399	102	75-125			
Chromium	99.612	0.500	ug/L	100.00	1.0887	98.5	75-125			
Barium	193.68	0.500	ug/L	100.00	86.430	107	75-125			
Arsenic	106.56	0.500	ug/L	100.00	0.92452	106	75-125			
Cobalt	98.796	0.500	ug/L	100.00	0.31278	98.5	75-125			
Selenium	110.54	0.500	ug/L	100.00	<0.500	111	75-125			
Matrix Spike Dup (BGJ0595-MSD1)	**Source: MGJ0266-01**			Prepared: 10/25/2021 Analyzed: 10/26/2021						
Molybdenum	109.69	0.500	ug/L	100.00	0.48624	109	75-125	2.53	20	
Chromium	103.96	0.500	ug/L	100.00	2.3934	102	75-125	1.64	20	
Selenium	106.61	0.500	ug/L	100.00	<0.500	107	75-125	2.75	20	
Barium	163.69	0.500	ug/L	100.00	61.462	102	75-125	2.47	20	
Arsenic	105.73	0.500	ug/L	100.00	1.0360	105	75-125	5.32	20	
Cobalt	100.52	0.500	ug/L	100.00	0.87253	99.6	75-125	2.24	20	
Matrix Spike Dup (BGJ0595-MSD2)	**Source: MGJ0266-03**			Prepared: 10/25/2021 Analyzed: 10/26/2021						
Selenium	103.04	0.500	ug/L	100.00	<0.500	103	75-125	7.02	20	
Cobalt	96.151	0.500	ug/L	100.00	0.31278	95.8	75-125	2.71	20	
Arsenic	103.41	0.500	ug/L	100.00	0.92452	102	75-125	3.01	20	
Chromium	102.44	0.500	ug/L	100.00	1.0887	101	75-125	2.80	20	
Molybdenum	103.06	0.500	ug/L	100.00	0.16399	103	75-125	0.884	20	
Barium	188.20	0.500	ug/L	100.00	86.430	102	75-125	2.87	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0110 - EPA 200.2, EPA 3005										
Blank (BGK0110-BLK1)				Prepared: 11/04/2021 Analyzed: 11/05/2021						
Selenium	<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							
Barium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
LCS (BGK0110-BS1)				Prepared: 11/04/2021 Analyzed: 11/05/2021						
Cobalt	100.37	0.500	ug/L	100.00		100	85-115			
Chromium	102.83	0.500	ug/L	100.00		103	85-115			
Arsenic	96.855	0.500	ug/L	100.00		96.9	85-115			
Barium	92.829	0.500	ug/L	100.00		92.8	85-115			
Molybdenum	93.653	0.500	ug/L	100.00		93.7	85-115			
Selenium	102.16	0.500	ug/L	100.00		102	85-115			
Duplicate (BGK0110-DUP1)		**Source: MGJ0391-03**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Molybdenum	0.43475	0.500	ug/L		0.42519			2.22	20	
Arsenic	2.8581	0.500	ug/L		2.8202			1.33	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.25975	0.500	ug/L		0.29035			11.1	20	
Barium	615.76	0.500	ug/L		643.43			4.40	20	
Chromium	<0.500	0.500	ug/L		0.74712				20	
Matrix Spike (BGK0110-MS1)		**Source: MGJ0391-03**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Barium	720.78	0.500	ug/L	100.00	643.43	77.3	75-125			
Cobalt	103.81	0.500	ug/L	100.00	0.29035	104	75-125			
Arsenic	106.47	0.500	ug/L	100.00	2.8202	104	75-125			
Selenium	105.60	0.500	ug/L	100.00	<0.500	106	75-125			
Molybdenum	103.02	0.500	ug/L	100.00	0.42519	103	75-125			
Chromium	109.17	0.500	ug/L	100.00	0.74712	108	75-125			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0110 - EPA 200.2, EPA 3005										
Matrix Spike Dup (BGK0110-MSD1)		**Source: MGJ0391-03**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Arsenic	104.23	0.500	ug/L	100.00	2.8202	101	75-125	2.13	20	
Barium	738.22	0.500	ug/L	100.00	643.43	94.8	75-125	2.39	20	
Selenium	105.35	0.500	ug/L	100.00	<0.500	105	75-125	0.236	20	
Chromium	103.49	0.500	ug/L	100.00	0.74712	103	75-125	5.34	20	
Cobalt	100.02	0.500	ug/L	100.00	0.29035	99.7	75-125	3.72	20	
Molybdenum	101.07	0.500	ug/L	100.00	0.42519	101	75-125	1.92	20	
Batch BGK0347 - EPA 200.2, EPA 3005										
Blank (BGK0347-BLK1)				Prepared: 11/15/2021 Analyzed: 11/17/2021						
Arsenic	<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							
Barium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
LCS (BGK0347-BS1)				Prepared: 11/15/2021 Analyzed: 11/17/2021						
Molybdenum	98.765	0.500	ug/L	100.00		98.8	85-115			
Selenium	100.44	0.500	ug/L	100.00		100	85-115			
Cobalt	101.86	0.500	ug/L	100.00		102	85-115			
Barium	101.42	0.500	ug/L	100.00		101	85-115			
Chromium	101.59	0.500	ug/L	100.00		102	85-115			
Arsenic	101.72	0.500	ug/L	100.00		102	85-115			
Duplicate (BGK0347-DUP1)		**Source: MGK0141-01**		Prepared: 11/15/2021 Analyzed: 11/17/2021						
Arsenic	0.67908	0.500	ug/L		0.63794			6.25	20	
Cobalt	0.28360	0.500	ug/L		0.24321			15.3	20	
Chromium	1.4964	0.500	ug/L		1.5826			5.60	20	
Molybdenum	0.63737	0.500	ug/L		0.53384			17.7	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Barium	101.15	0.500	ug/L		98.844			2.30	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0347 - EPA 200.2, EPA 3005										
Matrix Spike (BGK0347-MS1)	**Source: MGK0141-01**			Prepared: 11/15/2021 Analyzed: 11/17/2021						
Molybdenum	102.11	0.500	ug/L	100.00	0.53384	102	75-125			
Arsenic	107.75	0.500	ug/L	100.00	0.63794	107	75-125			
Chromium	102.34	0.500	ug/L	100.00	1.5826	101	75-125			
Selenium	104.91	0.500	ug/L	100.00	<0.500	105	75-125			
Barium	201.97	0.500	ug/L	100.00	98.844	103	75-125			
Cobalt	98.518	0.500	ug/L	100.00	0.24321	98.3	75-125			
Matrix Spike Dup (BGK0347-MSD1)	**Source: MGK0141-01**			Prepared: 11/15/2021 Analyzed: 11/17/2021						
Cobalt	99.271	0.500	ug/L	100.00	0.24321	99.0	75-125	0.762	20	
Selenium	104.70	0.500	ug/L	100.00	<0.500	105	75-125	0.199	20	
Chromium	105.10	0.500	ug/L	100.00	1.5826	104	75-125	2.66	20	
Barium	199.66	0.500	ug/L	100.00	98.844	101	75-125	1.15	20	
Molybdenum	102.50	0.500	ug/L	100.00	0.53384	102	75-125	0.379	20	
Arsenic	103.37	0.500	ug/L	100.00	0.63794	103	75-125	4.15	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGJ0594 - EPA 200.2, EPA 3005										
Blank (BGJ0594-BLK1)				Prepared: 10/25/2021 Analyzed: 10/26/2021						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.50	1.50	mg/L							
LCS (BGJ0594-BS1)				Prepared: 10/25/2021 Analyzed: 10/26/2021						
Calcium	97.518	1.50	mg/L	100.00		97.5	85-115			
Boron	0.99079	0.0500	mg/L	1.0000		99.1	85-115			
Duplicate (BGJ0594-DUP1)		**Source: MGJ0262-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Calcium	51.777	1.50	mg/L		54.555			5.22	20	
Boron	0.055827	0.0500	mg/L		0.058378			4.47	20	
Duplicate (BGJ0594-DUP2)		**Source: MGJ0264-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Calcium	79.034	1.50	mg/L		78.467			0.720	20	
Boron	0.13567	0.0500	mg/L		0.13600			0.243	20	
Matrix Spike (BGJ0594-MS1)		**Source: MGJ0262-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Boron	1.0491	0.0500	mg/L	1.0000	0.058378	99.1	70-130			
Calcium	153.86	1.50	mg/L	100.00	54.555	99.3	70-130			
Matrix Spike (BGJ0594-MS2)		**Source: MGJ0264-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Calcium	177.56	1.50	mg/L	100.00	78.467	99.1	70-130			
Boron	1.0907	0.0500	mg/L	1.0000	0.13600	95.5	70-130			
Matrix Spike Dup (BGJ0594-MSD1)		**Source: MGJ0262-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Calcium	147.37	1.50	mg/L	100.00	54.555	92.8	70-130	4.31	20	
Boron	1.0328	0.0500	mg/L	1.0000	0.058378	97.4	70-130	1.57	20	
Matrix Spike Dup (BGJ0594-MSD2)		**Source: MGJ0264-01**		Prepared: 10/25/2021 Analyzed: 10/26/2021						
Boron	1.1404	0.0500	mg/L	1.0000	0.13600	100	70-130	4.46	20	
Calcium	180.55	1.50	mg/L	100.00	78.467	102	70-130	1.67	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0109 - EPA 200.2, EPA 3005										
Blank (BGK0109-BLK1)				Prepared: 11/04/2021 Analyzed: 11/05/2021						
Boron	<0.0500	0.0500	mg/L							
Calcium	<1.50	1.50	mg/L							
LCS (BGK0109-BS1)				Prepared: 11/04/2021 Analyzed: 11/05/2021						
Boron	0.97593	0.0500	mg/L	1.0000		97.6	85-115			
Calcium	96.584	1.50	mg/L	100.00		96.6	85-115			
Duplicate (BGK0109-DUP1)		**Source: MGJ0391-01**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Boron	0.20381	0.0500	mg/L		0.20957			2.79	20	
Calcium	98.672	1.50	mg/L		99.984			1.32	20	
Matrix Spike (BGK0109-MS1)		**Source: MGJ0391-01**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Boron	1.1954	0.0500	mg/L	1.0000	0.20957	98.6	70-130			
Calcium	203.37	1.50	mg/L	100.00	99.984	103	70-130			
Matrix Spike Dup (BGK0109-MSD1)		**Source: MGJ0391-01**		Prepared: 11/04/2021 Analyzed: 11/05/2021						
Boron	1.1885	0.0500	mg/L	1.0000	0.20957	97.9	70-130	0.577	20	
Calcium	201.62	1.50	mg/L	100.00	99.984	102	70-130	0.866	20	
Batch BGK0346 - EPA 200.2, EPA 3005										
Blank (BGK0346-BLK1)				Prepared: 11/15/2021 Analyzed: 11/18/2021						
Calcium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							
LCS (BGK0346-BS1)				Prepared: 11/15/2021 Analyzed: 11/18/2021						
Boron	0.95729	0.0500	mg/L	1.0000		95.7	85-115			
Calcium	97.373	1.50	mg/L	100.00		97.4	85-115			

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Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGK0346 - EPA 200.2, EPA 3005										
Duplicate (BGK0346-DUP1)		**Source: MGK0131-01**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Boron	0.031567	0.0500	mg/L		0.032528			3.00	20	
Calcium	47.976	1.50	mg/L		47.178			1.68	20	
Duplicate (BGK0346-DUP2)		**Source: MGK0131-02**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Boron	0.041441	0.0500	mg/L		0.043168			4.08	20	
Calcium	64.414	1.50	mg/L		66.889			3.77	20	
Matrix Spike (BGK0346-MS1)		**Source: MGK0131-01**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Calcium	146.54	1.50	mg/L	100.00	47.178	99.4	70-130			
Boron	1.0160	0.0500	mg/L	1.0000	0.032528	98.3	70-130			
Matrix Spike (BGK0346-MS2)		**Source: MGK0131-02**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Calcium	164.87	1.50	mg/L	100.00	66.889	98.0	70-130			
Boron	1.0405	0.0500	mg/L	1.0000	0.043168	99.7	70-130			
Matrix Spike Dup (BGK0346-MSD1)		**Source: MGK0131-01**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Boron	1.0109	0.0500	mg/L	1.0000	0.032528	97.8	70-130	0.498	20	
Calcium	148.40	1.50	mg/L	100.00	47.178	101	70-130	1.26	20	
Matrix Spike Dup (BGK0346-MSD2)		**Source: MGK0131-02**		Prepared: 11/15/2021 Analyzed: 11/18/2021						
Calcium	163.03	1.50	mg/L	100.00	66.889	96.1	70-130	1.13	20	
Boron	1.0273	0.0500	mg/L	1.0000	0.043168	98.4	70-130	1.28	20	

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

Environmental Services-Water Minneapolis	Project Name/Location: Sherco Unit 3 Landfill CCR	
250 Marquette Plaza		**Reported:**
Minneapolis MN, 55401	Project Manager: Eric Ealy	12/03/2021 07:24

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
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_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:	Riley Jacobson
Purchase Order No.:	
Project Number	21-05159
Project Name:	Xcel Energy Sherco Unit 3 LF 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	Analysis: GW-CCR-U3LF	GW-G	LEA-4	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-73A-1	WT	G	–	–	10/19/21	0920		4	1	1	2						X	X			
2	P-73B-1	WT	G	–	–	10/19/21	0945		3	1	1	1							X			
3	P-74-1	WT	G	–	–	WELL DRY			6	1	1	2						X	X			
4	P-75-1	WT	G	–	–	10/19/21	1505		4	1	1	2						X	X			
5	P76A-1	WT	G	–	–	WELL DRY			6	1	1	2							X			
6	P-76B-1	WT	G	–	–	10/18/21	1120		3	1	1	1							X			
7	P-97	WT	G	–	–	WELL DRY			6	1	1	2						X	X			
8	P-98	WT	G	–	–	10/19/21	0845		4	1	1	2						X	X			
9	P-99	WT	G	–	–	10/18/21	1045		3	1	1	1							X			
10	P-117	WT	G	–	–	10/19/21	1450		4	1	1	2						X	X			
11	P-120	WT	G	–	–	10/19/21	0815		4	1	1	2						X	X			
12	P-125	WT	G	–	–	10/19/21	1020		4	1	1	2						X	X			

Filtered (Y/N)

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Chris Pelosi Pace	10/20/21	710	HD / Xcel	10/20/21	0710

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
4.0	(Y)/N	Y/N	(Y)/N
MU00841	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Pelosi

SIGNATURE of SAMPLER: Chris Pelosi

DATE Signed (MM / DD / YY): 10/20/21

pH Strips: MD00402
Temp MU00841

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 1

Section A Required Client Information:

Company:	Xcel Energy
Address:	Environmental Services
	MP-7
Email To:	Chris Pelosi
Phone: (612) 587-7254	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:	21-05159
Project Name:	Xcel Energy Sherco Unit 3 LF 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: DRINKING WATER (DW), WATER (WT), WASTE WATER (WW), PRODUCT (P), SOLID/SOIL (SL), OIL (OL), WIPE (WP), AIR (AR), TISSUE (TS), BIOTA (BT), OTHER (OT)

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-CORUSH	GW-G	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
1	P-74-2	WT	G	-	-	11/11/21	1130		4	1	1	2						X	X		
2	P76A-2	WT	G	-	-	11/11/21	0920		3	1	1	1							X		
3	P-97-1	WT	G	-	-	11/11/21	1005		4	1	1	2						X	X		
4	~~P-110R~~ (1)	WT	G	-	-	NA	NA		~~4~~	~~1~~	~~1~~	~~2~~						X	X		
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

(2)

Additional Comments:

(1) NO SAMPLE COLLECTED - RGJ 11/11/21

*1 Samples stored in secure cooler C-4 overnight. COC/paperwork not removed from work vehicle. COC e-transmitted from RGJ to CJP for relinquishment to the receiving laboratory. CJP 11/12/21

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Riley Jacobson / Pace	11/11/21	1445 *1	Chris Pelosi	11/12/21	845
Chris Pelosi	11/12/21	1010	[illegible] / Xcel	11/12/21	10:10

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Riley Jacobson

SIGNATURE of SAMPLER: Riley Jacobson

DATE Signed (MM/DD/YY): 11/11/21

Temp: 2.2°C M400841 Received on ice
pH strips: MD00402

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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	21-05159
Project Name:	Xcel Energy Sherco Unit 3 LF 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 ___

Filtered (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	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	GW-CCR-U3LF	GW-G	LEA-4	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	P-134	WT	G	-	-	10/19/21	1140		4	1	1	2						X	X			
2	P-137A	WT	G	–	–	10/19/21	1325		4	1	1	2						X	X			
3	P-137B	WT	G	–	–	10/19/21	1355		3	1	1	1							X			
4	P-138A	WT	G	–	–	~~10/19/21~~	~~1230~~ *		0	~~1~~	~~1~~	~~2~~ [illegible]						X	X			
5	P-138B	WT	G	–	–	10/19/21	1255		3	1	1	1							X			
6	P-141	WT	G	–	–	10/19/21	1105		4	1	1	2						X	X			
7	P-142	WT	G	–	–	10/18/21	1215		3	1	1	1							X			
8	P-143A	WT	G	–	–	10/18/21	1245		3	1	1	1							X			
9	P-143B	WT	G	–	–	10/18/21	1310		3	1	1	1							X			
10	P-144A	WT	G	–	–	10/18/21	1335		3	1	1	1							X			
11	P-144B	WT	G	–	–	10/18/21	1400		3	1	1	1							X			
12	DUPLICATE	WT	G	–	–	10/19/21	0815		4	1	1	2						X	X			

Additional Comments:

*, P-138A, bladder pump stuck in well, could not collect sample.

ptstrps: MD00402
Trip MM00841

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
[signature] / Pace	10/20/21	710	[signature] / XC-1	10/20/21	0720	4.0	N	Y/N	Y
							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: Chris Pelosi

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/20/21

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CHAIN-OF-CUSTODY / Analytical Request Document

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- Address: Environmental Services, MP-7
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- 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: 21-05159
- Project Name: Xcel Energy Sherco Unit 3 LF 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

Filtered (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	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	GW-CCR-U3LF	GW-G	LEA-4	Residual Chlorine (Y/N)	Pace Project No. Lab I.D.
1	RINSE	WT	G	—	—	10/18/21	1410		4	1	1	2						X	X			
2	LEACHATE	WT	G	—	—	10/18/21	1425		3	1	1	1								X		
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

(cw 10/20/21)

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
[signature] Pace	10/20/21	710	[signature] / Xcel	10/20/21	0710	4.0	Y	Y/N	Y
							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: Chris Pelosi
- SIGNATURE of SAMPLER: [signature]
- DATE Signed (MM/DD/YY): 10/20/21

pH strips: MD00402
Temp: M400841